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## Misperceptions of peer drinking norms in Canada: Another look at the “reign of error” and its consequences among college students

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### Abstract

**Objective:** Much research has documented extensive misperceptions of drinking norms and their negative effects in U.S. student populations. This study provides extensive research evidence documenting this phenomenon in Canadian higher education.

**Methods:** Data were collected in a 2003–2004 survey of students ( $N=5280$ ) attending 11 institutions across Canada. Surveys were administered either to a random sample of students through the mail or to students attending a diverse selection of classes.

**Results:** Regardless of the actual drinking norm on each campus, students most commonly overestimated the alcohol consumption norms (both quantity and frequency levels) in every instance. Students' perception of their campus drinking norm was the strongest predictor of the amount of alcohol personally consumed in comparison with the influence of all demographic variables. Perception of the norm was also a much stronger predictor of personal use than the actual campus norm for consumption on each campus or the actual norm for compliance with campus regulations. Among students who personally abstain or consume lightly, misperceptions of the student drinking norms contribute to alienation from campus life.

**Conclusion:** The data presented here on Canadian students extends the evidence that peer drinking norms are grossly misperceived and that these misperceptions produce a highly detrimental “reign of error” in the lives of college students. The data suggest that a broad range of students—abstainers and light drinkers as well as moderate and heavy drinkers—may benefit from implementing intervention strategies that can correct or reduce these misperceptions.

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**Keywords:** Alcohol use; Canada; College students; Drinking; Misperceptions; Social norms

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## 1. Introduction

Alcohol consumption and its consequences among college students in the United States have received considerable attention for decades among researchers studying drinking patterns and problems. This focus on the collegiate environment is not simply a matter of convenient access to a population for academic researchers. Indeed, studies of traditional age college students have routinely demonstrated some of the highest rates of alcohol use compared to other age groups and other settings (Bachman et al., 2002; Johnston, O’Malley, & Bachman, 2002). Furthermore, rates of negative consequences as a direct result of heavy drinking are substantial and a cause for concern in college environments (Perkins, 2002a). Amidst these high problem drinking rates, however, the research also demonstrates that the majority of students still do not support or engage in the high risk drinking that does occur (Perkins, 2002b, 2003). This fact remains a best kept secret among students in that most U.S. students in nationwide studies tend to overestimate the frequency of consumption (Perkins, Meilman, Leichliter, Cashin, & Presley, 1999) and amounts consumed (Perkins, Haines, & Rice, 2005) by peers.

This pattern of university student misperception of peer drinking so pervasive in the United States has received very little research attention to date in other countries with large numbers of students attending higher education, however, and where cultural values and age laws regarding alcohol consumption may differ. Although drinking patterns and problems among Canadian students have been the focus of previous research in a few large studies (Engs, Hanson, Gliksman, & Smythe, 1990; Gliksman, Newton-Taylor, Adlaf, & Giesbrecht, 1997; Kuo et al., 2002), the examination of perceived norms has not received attention. A study of students attending one university in New Zealand (Kypri & Langley, 2003) and another study of students attending one university in Scotland (McAlaney & McMahon, 2007) have documented this tendency of students to grossly overestimate peer drinking in these local contexts, however.

Student misperceptions of peer norms are of particular importance precisely because peer influence is so strong in determining personal behavior and yet the norms of peers are so often misperceived in an exaggerated fashion (Borsari & Carey, 2001; Carey, Borsari, Carey, & Maisto, 2006; Perkins, 2002b, 2003). Thus, it has been argued that a “reign of error” exists regarding collegiate drinking (Perkins, 1997) that pushes more students into high risk drinking than would otherwise be the case. Social norms theory suggests that students who might be ambivalent about drinking heavily in social situations are in essence pressured into drinking more by what they think others are doing and expect of them, and those students who already choose to drink in a high risk fashion can do so usually thinking that they are just like most other students. Meanwhile, students who abstain or drink moderately, it is argued, simply retreat from the primary social drinking situations and remain silent about their attitudes regarding appropriate behavior.

Research among students in the United States has demonstrated a strong connection between perceived norms and personal drinking behavior. For example, a recent study of heavy drinking students at one university demonstrated that the perceived amount of drinks consumed by the typical student on their campus was the strongest predictor of personal drinks per week compared to the predictive capability of gender, fraternity/sorority membership, and a variety of personal drinking motives and expectancies (Neighbors, Lee, Lewis, Fosso, & Larimer, 2007).

In the largest nationwide study of student drinking to date in the United States (Perkins et al., 2005) based on more than 76,000 students attending 130 colleges and universities, students’ perception of how much the typical student drank at parties and bars was the strongest predictor of personal quantities of alcohol consumed in these situations in simultaneous comparison with the predictive value of all demographic variables including gender, age, year in school, race, fraternity/sorority membership, school

region, and amount of time the student spent working for pay or volunteering. This same study was able to demonstrate that the perceived peer drinking norm was far more powerful in predicting personal drinking behavior than was the actual norm on the local campus in simultaneous multivariate comparisons. That is, whatever the individual perceived to be the norm for amount consumed at the local college or university accounted for much more of the variation in students' personal drinking than did the actual normative amounts being consumed locally. The contextual effect of being in a relatively "dry" or "wet" campus environment (i.e., attending a school where drinking levels were relatively lower or higher) was small compared to the effect of whether the student *thought* peers on their campus were drinking more moderately or more heavily. This kind of test is rare, however, because it requires the simultaneous analyses of samples drawn from several universities with diverse actual norms in order to test the independent effects of both perceived and actual norms.

Longitudinal case studies and experiments have also tested the effects of misperceived norms by intervening with information campaigns about actual peer norms in campus settings. Several intervention studies including controlled, quasi-controlled or simple pretest–posttest comparisons have found success where students are exposed to actual norms that reduce their misperceptions and reduce high risk drinking (cf. DeJong et al., 2006; Fabiano, 2003; Foss, Marchetti, & Holladay, 2001; Haines & Spear, 1996; Jeffrey, Negro, Miller, & Frisone, 2003; Johannessen, Collins, Mills-Novoa, & Gilder, 1999; Mattern & Neighbors, 2004; Neighbors, Larimer, & Lewis, 2004; Perkins & Craig, 2002, 2006). Some studies report ineffective social norms interventions (cf. Clapp, Lange, Russell, Shillington, & Voas, 2003; Granfield, 2002; Thombs, Dotter, Olds, Sharp, & Raub, 2004; Werch et al., 2000), however, revealing little or no change in personal drinking behavior. Most of these studies did not reduce misperceptions, a result that social norms theory posits should yield no change in the personal drinking levels. In some "failed" instances where behavioral changes have been slight and statistically insignificant, results may be reflecting insufficient intensity, duration or credibility of the intervention, or a narrow focus on a small target group within the university that continues to interact with and be affected more by peers in the larger student body outside the experimental target group (Perkins, 2003).

Again, the research linking misperceived norms to high risk drinking (and more accurate perceptions to more moderate drinking), be it cross-sectional or longitudinal, is largely confined to studies conducted within the United States. The two single campus surveys of students in New Zealand (Kypri & Langley, 2003) and Scotland (McAlaney & McMahon, 2007) reporting widespread misperceptions also demonstrated a significant association between perceiving heavier drinking as the norm and personal high risk drinking. No published research could be found testing the association between perceived norms and personal drinking among university students in Canada.

Thus, the current study sought to expand the investigation of perceived drinking norms among university students by conducting research with data gathered in the Canadian context. The data presented here, drawn from large and regionally diverse samples of college and university students throughout much of Canada, permit the investigation of four questions. First, do Canadian students tend to misperceive peer drinking norms by overestimating consumption? This can be tested at each school concerning both frequency of consuming alcohol and amount consumed. Second, is there an association between perceived norms and personal behavior among Canadian students, and if so, how strongly does the perception of peers predict personal drinking in comparison with other personal characteristics of the student that might influence his or her drinking behavior? Third, does the perception of the norm provide an independent association with personal drinking across university settings even when a measure of the actual norm at each school is introduced to predict personal behavior? If so, which influence—the *actual* amount of drinking taking place among peers at one's school or the individual's *perception* of how much

drinking goes on among peers—is of greater importance? This question can only be addressed in research conducted with data gathered in several university settings where actual norms vary from school to school. The data collected and analyzed in this study provided the first opportunity to do so among Canadian students. Finally, anticipating that even some students who abstain or drink very lightly might also misperceive the norm to be heavier drinking than is the case at their school, this study considers the potentially negative impact of this misperception in alienating them from campus life. If they believe so many of their peers drink at exceptionally high levels (levels higher than reality), then will they be more likely to withdraw from social interaction thinking they have little in common with their peers at school?

## **2. Methods**

The data were collected using an anonymous paper survey about college student drinking that asked questions about a variety of personal attitudes and behaviors as well as about what students thought were the most typical drinking patterns of other students attending their institution. Specifically of interest concerning drinking were items about frequency of consumption of alcohol and quantities consumed. First, students were asked how often they typically consumed alcohol and how often they thought students in general at their institution typically consumed alcohol using the following response categories: never, 1–2 times/year, 6 times/year, once/month, twice/month, once/week, 3 times/week, 5 times/week, and everyday. Regarding quantity consumed, students were asked how many drinks, on average, they typically consumed at parties and bars and what they thought was most typical of other students in general among students at their institution when in these settings. A drink was defined as “a 12 oz beer, a glass of wine, a shot of liquor, or a mixed drink.” Ten options were provided ranging from 0 to “9+” for both personal quantity consumed and perceived norm responses.

This voluntary survey also asked students how they spend their time, how much they participated in and felt a part of their academic institution, and standard demographic background questions (gender, age, year in school, part- or full-time status, and type of housing environment). The survey was conducted by The Student Life Education Company (SLEC), a not-for-profit health promotion organization based in Toronto, Ontario, in collaboration with representatives from each participating academic institution. Each participating institution had the survey instrument and procedures reviewed and approved by their Institutional Review Board before proceeding.

The SLEC solicited participation from diverse institutions of higher education throughout most regions of Canada. Eleven institutions of higher education located in seven provinces across Canada (Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, and Saskatchewan) were selected to participate in the survey from among those schools expressing initial interest and that could provide local staff contact support. Including schools that represented regional diversity, sizes ranging from small colleges to large universities, and diversity in academic programs (some with a broad liberal arts and sciences curriculum and others with more technical and specialized fields of training) were key factors in school selection.

Eight of the institutions chose to survey a student sample selected randomly from their roster of all currently enrolled students. The survey was sent through the public mail service to personal addresses. Surveys were returned to The SLEC in Toronto anonymously in preaddressed envelopes that were provided. As an incentive, 25 gift certificate prizes ranging in value from \$25 to \$200 were offered for participation. Respondents were requested to send back separately a post-card provided on which they indicated their participation along with name and address to be part of the drawing. This information also was used to prepare follow-up mailings to obtain additional responses from non-responders at each site. Return rates from sites ranged from 28% to 46% with an average of 37%. The other three institutions

chose to administer the survey in class sessions selected to represent diverse course topics offered across their academic curriculum and thus capture a broad range of students from the student body.

A total of 5280 respondents comprise the overall sample. (The average sample size per institution was 480 with local samples ranging from 147 to 840.) Females represented 63% of the sample, 61% of respondents were in their first or second year of higher education, 93% were full-time students, and 87% lived in private housing while 13% lived in residence halls. Overall, 58% were living in residences apart from parents. In terms of age representation, 15% were 18 or younger, 46% were between the ages of 19 and 21, 21% were between 22 and 24 years old, and 18% were 25 and older.

More detailed analyses of individual school data demonstrated that the resulting samples provided a fairly close representation to the local institution's demographic characteristics of age, class year, and campus residence status. Females were slightly over represented, however, at most schools—a pattern that is characteristic of most health and campus life student surveys in general as females are more likely to respond. Nevertheless, a higher proportion of females in the overall sample should also be expected because females represent the majority of students in Canadian higher education nationwide. Statistics Canada reported that for the 2000–01 academic year, for example, women accounted for a record 59% of total undergraduate enrollment. Among full-time undergraduates nationally in 2000–01, 85% were between 18 and 24 years old. This rate compares closely to the aggregate sample with 82% in this age range.

The aggregate sample of data combining all eleven schools participating in the survey can not be taken as a fully representative sample of undergraduates across Canada, however. The sampling procedures were not designed for that purpose, but instead, were designed to provide a good representation of students at each of the schools selected for this study. For example, the nationally large proportion of Quebec students are not represented in the aggregate data. Most other provinces are represented, nevertheless, in at least relative approximation to their population size. In terms of permanent residence, the largest percentage of respondents came from the province of Ontario (27%), followed by Alberta (17%), Saskatchewan (17%), British Columbia (11%), Manitoba (9%), Nova Scotia (8%), and New Brunswick (7%). Newfoundland/Labrador, Northwest Territories, Nunavut, Prince Edward Island, Quebec, and Yukon contributed only 1% and another 3% came from other countries.

### 3. Results

The first set of analyses assessed the potential discrepancy between actual and perceived norms for frequency and quantity of alcohol consumed by students at each institution. Consuming once per month was normative (the median category) at four schools. Twice per month was the norm for personal drinking at six schools, and once per week was the norm at one school. [Table 1](#) presents students' accuracy in perceiving the norm for frequency of consumption among peers at their school (comparing actual and perceived norms). For students attending schools where the normative response for personal drinking was once per month, 4% underestimated the frequency of consumption among their peers, 9% were accurate, and 87% overestimated the frequency of drinking. Similarly, where twice per month was the norm, 4% underestimated, 10% were accurate, and 86% overestimated the norm to be once per week or more often. Finally, for students attending the school where once per week was the norm, underestimates were also rare (3%), being accurate was more common here (41%), but still overestimations (erroneously thinking the norm was three times per week or more often) were most common (56%).

Concerning amounts consumed, the actual norm (median number of drinks students reported personally consuming) varied by school ranging from two drinks to six drinks per occasion with the most

Table 1

Canadian college and university students' accuracy in perceiving the norm for frequency of alcohol consumption among students at their school (comparing actual with perceived norms for how often students drink)

Actual school norm (median frequency)	Accuracy in perceiving the drinking frequency norm			<i>N</i> of cases	<i>N</i> of schools
	Underestimates (%)	Accurate perceptions (%)	Overestimates (%)		
Once per month	4.4	8.9	86.7	=100%	1971
Twice per month	4.4	10.1	85.5	=100%	2962
Once per week	2.8	41.3	55.9	=100%	288
All schools	4.3	11.4	84.3	=100%	5221

common norms being three or four drinks. The median was chosen to represent the norm rather than the arithmetic mean so as to best capture what was most characteristic or typical of students. When data are skewed, as is commonly the case in quantity of alcohol consumed, those relatively few students indicating extreme amounts will weigh more heavily in the calculation of the mean, thus distorting what is typical, whereas the median provides the true middle of the student body.

**Table 2** presents the accuracy of students' perceptions of the norm for quantities consumed at parties and bars by reporting perceptions of the norm in relation to actual local norms. Perceived norms were grossly overestimated for each actual normative category. That is, regardless of whether students in general were drinking two, three, four, five or even six drinks on average, the large majority of respondents thought their peers were typically consuming more than what was the case and often much more. Overall, about 10% of respondents underestimated the amount being consumed on average, 14% were accurate about their school norms, and over three-quarters (76%) overestimated the average amount with more than one-third overestimating the norms by three or more drinks.

The results in **Tables 1 and 2** demonstrate that perceived norms are highly inaccurate with most respondents tending to overestimate consumption among their Canadian student peers. The results also demonstrate significant variation among students in any particular setting regarding their perceptions of the norm. Thus, the next question was to what extent perceived norms, be they accurate or inaccurate, are associated with or can predict personal behavior. **Table 3** presents the results of a regression analysis predicting the number of drinks typically consumed by students personally at parties and bars. The independent variables included: 1) the student's perception of the drinking norm at his or her school (the respondent's estimate of how much others

Table 2

Canadian college and university students' accuracy in perceiving the drinking norm for quantity of alcohol consumed at parties and bars by students at their school (comparing actual with perceived number of alcoholic drinks consumed)

Actual school norm (median drinks)	Accuracy in perceiving the drinking quantity norm					<i>N</i> of cases	<i>N</i> of Schools
	Underestimates of 3 or more drinks (%)	Underestimates of 1 to 2 drinks (%)	Accurate estimates (%)	Overestimates of 1 to 2 drinks (%)	Overestimates of 3 or more drinks (%)		
2	NA	2.9	11.3	44.6	41.2	=100%	932 2
3	0.1	5.6	13.1	43.4	37.7	=100%	1493 3
4	0.7	9.2	11.8	37.9	40.5	=100%	1638 4
5	1.1	18.1	18.8	37.0	25.0	=100%	832 1
6	2.8	29.4	22.7	21.0	24.1	=100%	286 1
All schools	0.6	9.6	13.8	39.6	36.4	=100%	5181 11

Table 3

Unstandardized and standardized regression coefficients predicting number of alcoholic drinks Canadian college and university students typically consume at parties and bars ( $N=5099$ )

Independent variables	Unstandardized coefficient ( $B$ )	Standardized coefficient (Beta)
Perception of how many drinks are typically consumed at parties and bars by students in general at one's school	.76	.55
Actual norm (median) for number of drinks typically consumed at parties and bars at one's school	.14	.06
Actual percent of students at school agreeing they abide by school policies and regulations about alcohol use	-.02	-.03 ns
Gender (male vs. female)	.97	.17
Age <sup>a</sup>	-.17	-.06
Living with a parent (yes vs. no)	-.12	-.02 ns
Living in campus residence (yes vs. no)	.09	.01 ns
Student status (full-time vs. part-time)	.18	.02 ns

<sup>ns</sup>Coefficient is not significant,  $p>.001$ ; coefficients for all other independent variables are significant at  $p<.001$  ( $t$ -test of  $B$ ,  $df=5092$ ).

<sup>a</sup> Age coded as follows: 1=18 and under, 2=19 to 21, 3=22 to 24, and 4=25 and older.

typically drank at parties and bars), 2) the actual norm at the respondent's school (the median personal consumption reported for the specific school), 3) how much compliance there was at the institution to school policies and regulations about alcohol use (based on the percent of students at one's school who in another question on the survey indicated that they indeed abided by school policies and regulations), and 4) demographic characteristics including gender, age, living with a parent or independently, living in an on- or off-campus residence, and full- or part-time status as a student.

The standardized coefficients in Table 3 demonstrate the overwhelming predictive power of perceived norms in comparison with all other independent variables. Indeed, the perceived norm stands out as clearly most important with a quite large standardized coefficient of .55. Actual local norms, gender and age provide statistically significant associations where greater actual drinking at the school predicts greater personal drinking, males drink more than females, and older students tend to drink slightly less than younger students, but the predictive power of each variable is quite modest comparatively (standardized coefficients ranging in absolute value from .05 to .17). By looking at the unstandardized coefficients we see that for every one drink increase in the perception of the peer norm, a corresponding personal increase of three-quarters of one drink is predicted. In contrast, an increase of only .16 drink is predicted for each additional drink in the actual school norm. Simultaneously, the actual percent of peers abiding by school policy provides no significant contribution to the prediction of personal amounts consumed. Likewise, students' living arrangements and full- or part-time status at the school have no significant bearing on how much students drink personally. The  $R^2$  value for this regression analysis was .38 indicating that 38% of total variation in personal amounts consumed is accounted for by variation in the independent variables included in this regression model. However, when the perceived norm was analyzed as the sole independent variable in a regression analysis, it explained on its own 34% of the variation in personal consumption. In contrast, excluding the perceived norm but including all other independent variables in the regression accounts for only 12% of the variation. Thus, the actual local context and personal demographic characteristics of these Canadian students are of relatively little influence in comparison to the perceived environment.

Table 4

Canadian student disaffection among very light and non-drinkers<sup>a</sup> by their perceptions of the student drinking norm at parties and bars in their school environment

Indicators of disaffection	Accurate perception of drinking norm (N=493)	Overestimates drinking norm (N=704)
% that do not feel valued as a person at their school	13.0	21.3***
% not happy at school most of the time	7.9	11.8*
% thinking that they do not fit in with other students on campus	25.6	32.8**
% that do not think it is important to work with other students to improve their school	21.8	34.2***

\*Significant difference between percentages at  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

<sup>a</sup> Students reporting typically consuming 0 or 1 drinks at parties and bars.

Finally, this study examined other effects of the perceived norms, specifically with regard to very light drinkers and abstainers at parties and bars (i.e. students who reported consuming only one drink per occasion or no alcohol consumption). Even though lighter drinkers tended not to perceive the norms in such an erroneously exaggerated fashion on average in comparison with the heavier drinkers, there was, nonetheless, a range of perceptions in this subgroup. Indeed, a significant portion of abstainers and light drinkers still believed their peers drank more than what was the actual norm at parties and bars. Table 4 presents the results of light and non-drinkers' responses to four questions in the survey to which respondents could agree or disagree regarding satisfaction with or, alternatively, disaffection from one's school. Results are broken down by those who accurately perceived the norm in comparison with those who overestimated how much students drank. For each item there was a significant difference between those who had accurate perceptions of the peer norm and those who overestimated the drinking norm with the latter showing greater disaffection from their institution. For example, while 13% of respondents with accurate perceptions of peer drinking at parties and bars indicated that they did not feel valued as a person at their school, 21% of those overestimating the drinking norm expressed this feeling. Overestimates of the general student drinking norm by light and non-drinkers were also associated with a greater tendency to be unhappy at school most of the time, the belief that they did not fit in with other students on campus, and the belief that it was not important to work with other students to improve their school.

#### 4. Discussion

The data regarding drinking and perceived norms collected from Canadian students at these eleven institutions of higher education demonstrate a pattern of misperception quite consistent with that observed in nationwide studies of U.S. college and university students. Although the actual norms for how often alcohol is consumed in general and how much is consumed at social occasions does vary across schools, with some schools exhibiting relatively lighter or heavier drinking as the norm, most students tend to misperceive their peer norms at each school. They most often overestimate both the frequency of drinking and the quantities consumed in social contexts. Likewise, these findings support the patterns found in U.S. studies demonstrating a strong relationship between high or more exaggerated perceptions of peer drinking norms and personal tendencies to drink more heavily. Misperceptions may pressure or encourage otherwise moderate drinking students to drink more heavily in situations where they feel ambivalence in this regard. Misperceptions may also allow students predisposed to high risk drinking to do so freely with the belief that they do not have a problem because they are just like everyone else.

Finally, the exaggerated misperceptions of drinking norms that exist even among light drinkers and abstainers can have negative consequences as well. Those students preferring not to drink or to drink in small quantities may feel they are less like most other students than is really the case. Their misperceptions may push them to feel that they have little in common with most peers if they think most others are drinking frequently and regularly consuming large quantities in social occasions. Thus, as the results of this study suggest, the misperceptions may lead light drinkers and abstainers to feel more alienated from other students and their school in general than would otherwise be the case.

In short, the data reported here provide further evidence supporting the possible benefits for all students that might come from implementing intervention strategies that correct or reduce misperceptions of college drinking norms among students. For academic administrators and other college student personnel concerned with promoting student health and well-being among Canadian students, they may wish to consider initiatives that can reduce misperceptions and give students a more realistic (more moderate) view of peer drinking. Reducing students' misperceptions is likely to discourage and reduce heavy drinking that does occur. Further, such an initiative may help the already light drinkers and abstainers to feel more at home in these peer intensive academic settings. They may, in turn, participate more actively in campus life, and in so doing, contribute more to the general image of greater moderation in drinking, on average, in the student culture with their more public presence. Also, these light drinkers and abstainers with more accurate views of peers may be less likely to consider transferring to another school. From the point of view of staff concerned with student retention, this is certainly an additional potential benefit for reducing misperceptions.

#### 4.1. Limitations

First, it must be acknowledged that the results can not be interpreted as representing all Canadian students in higher education. Most notable here is the fact that the survey was conducted only in English and did not include any school in the predominantly French speaking province of Quebec. Nonetheless, the data were collected from a broad range of students attending diverse institutions throughout the other most populated provinces in Canada from east to west coast and included large and small institutions with differing academic programs.

Second, one must be cautious in interpreting results based on self-report data, especially if the measures involve sensitive items. The surveys were all conducted anonymously, however, and furthermore, the large majority of students were of legal drinking age in Canada (minimum age of 18 in two of the seven provinces and 19 in the other five), presumably minimizing sensitivity about reporting personal drinking frequency and amounts. Moreover, self-report survey measures of drinking, in general, have been found to be reliable (Babor, Steinberg, Anton, & DelBoca, 2000; Cooper, Sobell, Sobell, & Maisto, 1981; Midanik, 1988; Miller et al., 2002). In addition, the claims based on self-report survey data that perceptions of the drinking norm tend to overestimate high-risk drinking have been reinforced by research using late night anonymous breath analysis testing of blood alcohol concentrations among university students in the U.S. (Foss et al., 2001; Thombs, Olds, & Snyder, 2003) and in Canada (Beirness, Foss, & Vogel-Sprott, 2004). These studies also confirm that the majority of students are either not drinking or drinking moderately when they do drink which stands in contrast to what is commonly perceived to be the norm.

Finally, the data presented here demonstrating the strong association between perceived norms and personal behavior are based on cross-sectional analyses. Thus, the causal order of this association can not

be confirmed. Likewise, the causal pathway for the finding demonstrating an association between misperceived peer norms and alienation from campus life for light drinkers and abstainers can not be determined here. More research in this regard is clearly needed. However, other research including longitudinal case studies and controlled experiments has provided empirical support for the claim that reducing misperceived norms can lead to subsequent reductions in personal heavy drinking in college populations in the United States (e.g. DeJong et al., 2006; Mattern & Neighbors, 2004; Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006; Perkins & Craig, 2003, 2006). Thus, the data presented here on Canadian students, when added to the previous studies of U.S. college students, extend the evidence suggesting that misperceptions of drinking norms produce a highly detrimental “reign of error” that should be addressed in collegiate environments.

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