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The Relative Impact of Injunctive Norms on College Student Drinking: The Role of Reference Group

Clayton Neighbors, Ph.D¹, Roisin M. O'Connor, Ph.D², Melissa A. Lewis, Ph.D¹, Neharika Chawla, M.S², Christine M. Lee, Ph.D¹, and Nicole Fossos, B.S.¹

1 Department of Psychiatry and Behavioral Sciences, University of Washington

2 Department of Psychology, University of Washington

Abstract

This research evaluated the importance of reference groups in the relationships among injunctive norms and alcohol consumption for college student drinkers. First year students ($N = 811$; 58% female) completed online assessments of their drinking behavior, as well as their perceptions of the approval (injunctive norms) and prevalence (descriptive norms) of drinking by others. Injunctive norms were evaluated with respect to typical students, typical same-sex students, friends, and parents. Descriptive norms were evaluated with respect to typical students and typical same-sex students. Results suggested that for injunctive norms, only perceptions of proximal reference groups (friends and parents) are positively associated with drinking behavior. However, when considered in the context of multiple referents and norms, injunctive norms for more distal groups (typical students/same sex students) were *negatively* associated with personal drinking whereas descriptive norms for distal referents remained positively associated with drinking. Results suggest that injunctive norms are more complex than descriptive norms and these complexities warrant important consideration in the development of intervention strategies.

Keywords

social norms; descriptive norms; injunctive norms; reference group; alcohol

Research has demonstrated that young adults tend to overestimate the prevalence and approval of high-risk behaviors among their peers, and that the *perceived prevalence* (i.e., descriptive norms) of these behaviors is associated with one's own behavior. However, when taking a closer look at the relationships between social norms and high-risk health behaviors, the link between the *perceived approval* of peers (i.e., injunctive norms) and risky behavior is less clear. The purpose of the present paper is to illuminate the relative importance of reference groups in the conceptualization of injunctive norms and their relationship with drinking.

Research has consistently demonstrated that young adults overestimate descriptive drinking norms for a number of groups, such as close friends, same-sex typical college students, and typical students (Baer, Stacy, & Larimer, 1991; Borsari & Carey, 2003; Lewis & Neighbors, 2004; Thombs, Ray-Tomasek, Osborn, & Olds, 2005). While proximal referent groups, such as close friends, demonstrate a stronger association between perceived drinking and one's own

drinking behavior, more distal groups such as typical college students also account for unique variance in drinking (Baer et al., 1991; Lewis & Neighbors, 2004; Thombs et al., 2005).

In contrast, findings have been less clear with respect to the association between perceived injunctive norms and alcohol consumption. Research in which perceived injunctive norms have been operationalized as “subjective norms” suggests that the intention to engage in a behavior is in part determined by the perceived approval of *important others* (Ajzen, 1991; Fishbein & Ajzen, 1975). However, it is not always clear who constitutes important others, and operationalization and findings regarding injunctive norms have been inconsistent in the literature (Conner & Armitage, 1998; Terry, Hogg, & White, 1999). Research seems to underscore the point that the relationship between perceptions of “others” approval and one’s own drinking behavior depends heavily on how “others” is defined. While injunctive norms using proximal referents (friends and family) seem to be consistently associated with drinking, the associations between injunctive norms and more distal referents (typical students) has been less consistent (Chawla, Neighbors, Lewis, Lee & Larimer, 2007; Cho, 2006). Related, findings examining injunctive gambling norms indicate that perceptions of other students’ approval of gambling were overestimated but *negatively* associated with gambling. This finding was inconsistent with perceptions of approval of friends and family, which were positively associated with gambling (Neighbors, Lostutter, Whiteside, Fossos, & Walker, 2007). These findings may relate to why a meta-analytic review examining the Theory of Reasoned Action (Sheppard, Hartwick, & Warsaw, 1988) and the Theory of Planned Behavior (Armitage & Conner, 2001) found that the subjective norm component was the weakest predictor of behavioral intentions.

Gender may also be an important factor to consider in examining the impact of social norms on drinking. Male college students consume larger quantities of alcohol and drink more frequently than female college students (Clements, 1999; Johnston, O’Malley, Bachman, & Schulenberg, 2005; O’Malley & Johnston, 2002; Read, Wood, Davidoff, McLacken, & Campbell, 2002). Research has found that gender differences found in actual drinking behavior are echoed in perceived descriptive norms for drinking behavior where perceived same-sex descriptive norms have been more strongly associated with personal drinking than opposite-sex norms, especially for women (Lewis & Neighbors, 2004).

The present research was designed to evaluate the relative importance of different reference groups in considering the relationships between injunctive norms and drinking behavior. We expected stronger positive associations between injunctive norms and drinking with more proximal relative to more distal referents. We further expected greater perceived and actual approval of drinking by men than women.

Method

Participants and Procedures

Participants for the present study included 811 first-year college students who completed the baseline assessment in a larger study evaluating the efficacy of a web-based social norms alcohol education intervention during the transition to college. All students for the present study met screening criteria for heavy drinking in the month prior to the initial survey. Participants included in this study ranged in age from 17 to 21 years old ($M = 18.14$, $SD = .46$), 57.6% were women, and 65.3% were White, 24.2% were Asian, and 10.5% were classified as other.

Students ($N = 4103$) were invited to participate in a web-based study about social norms and drinking during their first quarter in college. Approximately half of all invited students ($n = 2095$, 51.1%) completed the initial 20-minute screening assessment. Of these, 42.8% met

criteria for heavy drinking in the previous month (i.e., consuming five or more drinks for men [four or more for women] on at least one occasion) and were invited to participate in the larger study and to complete a baseline survey. The larger study was an intervention study targeting students who reported at least one heavy drinking episode in the previous month. Of those who met screening criteria, 91.3% completed the baseline survey. From this sample, 811 students were not missing data pertinent to this study and were used in the present results. Participants were compensated \$10 for completing the screening survey and \$25 for completing the baseline survey.

Measures

Alcohol use—Students own alcohol use was assessed using the Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985), which asks students to report the typical number of drinks consumed on each day of a typical week over the past three months. A total drinks per week variable was calculated by adding the typical number of drinks consumed for the seven days of the week.

Own approval and perceived injunctive norms—Baer's (1994) measure was used to assess approval and perceived injunctive norms. This measure assesses approval of four specific behaviors including drinking every weekend, daily, after driving, and enough to pass out. Items were asked in parallel for five reference groups: one's own approval of drinking and the perceived approval of drinking by the typical student, the typical same-sex student, friends, and parents. Responses options were 7-point Likert scales (*1 = strong disapproval to 7 = strong approval*). The score for each reference group was taken as the mean of the four corresponding items. Alphas for one's own approval of drinking and the perceived approval of drinking by the typical student, the typical same-sex student, friends, and parents were .66, .74, .79, .73, and .69, respectively. This measure was selected as a compromise between assessing the construct with a single item (e.g., Perkins & Berkowitz, 1986) and using a longer scale (e.g., Keefe, 1994) to assess the construct for each of five referents.

Perceived descriptive norms—Perceived descriptive norms of the typical student's alcohol use and the typical same-sex student's alcohol use were measured using a modified version of the Drinking Norms Rating Form (DNRF; Baer et al., 1991). Mirroring the DDQ, the DNRF asks participants to estimate the number of drinks individuals of different reference groups (i.e., typical student and typical same-sex student) consume on each day of a typical week in the past three months. Perceived weekly drinking was computed by summing the participants' estimates of drinking for each day of the week for the typical student and the typical same-sex student.

Data Analytic Overview

First, the data were transformed to reduce skewness and kurtosis and all analyses were run with both the untransformed and transformed data. Given the similar pattern of findings¹, the untransformed data are presented here. Gender differences across variables were examined using mixed between-within subject Analyses of Variances (ANOVA) and appropriate follow-up tests that corrected for alpha inflation (Scheffé, 1953). Effect sizes for pairwise comparisons were calculated using Cohen's *d* ($d < .20$ small, $.20 < d < .80$ medium, $d > .80$ large; Cohen, 1988).

¹There was one notable differences between the analyses run with the transformed versus untransformed data. The zero-order correlations with the transformed data support a statistically significant negative association between students' own alcohol use and perceived approval by parents ($r = -.22, p < .001$).

Zero-order correlations were then examined, followed by hypothesis testing using hierarchical multiple regression analyses, where own drinking was the dependent variable. Given the hypothesized complexity of the injunctive norms, particularly with respect to reference group, the unique effects of these were examined first. Next, the unique effects of the injunctive and descriptive norms were examined. Initial analyses revealed gender differences, thus gender was controlled for in the model. Effect sizes (f^2) of the first order regression terms were examined ($f^2 = .05$ small, $f^2 = .15$ medium, and $f^2 = .35$ large; Cohen, 1988).

Results

Descriptives and gender differences

The mixed between-within subject ANOVA revealed a statistically significant 'own/perceived alcohol use' by gender interaction term ($F_{(2, 1618)} = 95.68, p < .001$; see Figure 1). Independent samples t-tests identified gender differences for own alcohol use ($t_{(809)} = -5.75, p < .001, d = .41$), and for perceived typical same-sex student's alcohol use ($t_{(809)} = -12.24, p < .001, d = .87$). As expected, men drank more heavily than women, and men perceived that other men drink more than what women perceived other women drink. Men and women did not differ in their perception of how much the typical student drinks ($p = .33, d = .07$). One-way repeated measures ANOVAs revealed a main effect of 'own/perceived alcohol use' for men ($F_{(2, 686)} = 146.26, p < .001$) and women ($F_{(2, 932)} = 322.73, p < .001$). Results of the Scheffé tests supported differences between student's own use and the descriptive norms for men and women ($ps < .001, ds = .44$ to 1.02). Consistent with prior research, men and women perceived that other students drink more than they do. Consistent with expected gender differences for alcohol use, men perceived that other men drink more than the typical student, while women perceived that other women drink less than the typical student.

Examining injunctive norms, the mixed between-within subject ANOVA revealed a significant 'own/perceived approval' by gender interaction term ($F_{(4, 3236)} = 86.96, p < .001$). Independent sample t-tests indicated gender differences for own approval of risky drinking, and for perceived approval of risky drinking by the typical student, typical same-sex student, and friends ($ps < .001, ds = .30$ to $.98$). Women compared to men approved less of risky drinking, perceived that the typical same-sex student and friends approved less of risky drinking, but perceived that the typical student approved more of risky drinking. No gender difference was found for perceived approval by parents ($p = .58, d = .03$). One-way repeated measures ANOVAs revealed a main effect of 'own/perceived approval' for men ($F_{(4, 1372)} = 493.65, p < .001$) and women ($F_{(4, 1864)} = 559.62, p < .001$). Results of the Scheffé tests identified differences between own approval and all of the injunctive norms for men ($ps < .01, ds = .214$ to 2.90), and for all of the comparisons ($ps < .001, ds = .50$ to 2.56) other than the contrast between own approval and perceived approval by friends ($p = ns, d = .02$) for women. Specifically, men perceived that the typical student, typical same-sex student, and (to a weaker degree) their friends approved more of risky drinking than they themselves did. Also, they perceived that their parents approved the least of risky drinking. The pattern of means for women was similar except they perceived their friends' approval to be very similar to their own approval of risky drinking.

Correlation and regression analyses

Own alcohol use was correlated with descriptive norms, own approval, and the injunctive norms (excluding perceived approval by typical student) (see Table 1). Specifically, perceptions about the typical student's and typical same-sex student's drinking were positively correlated with own use. Also, one's own approval of risky drinking and perceived approval by the typical same-sex student, friends, and parents were positively correlated with own drinking. Perceived approval by the typical student was *unrelated* to own alcohol use. Zero-

order correlations with drinking were comparable for descriptive norms measures but varied considerably for injunctive norms measures.

Results of the hierarchical regression analysis initially revealed statistically significant ($ps < .05$) unique effects of own approval and each of the injunctive norms, other than perceived approval by the typical same-sex student, on own use. The final step revealed statistically significant unique effects of own approval, injunctive norms (approval by parent, $p = .07$), and descriptive norms (see Table 2). In particular, one's own approval, and the perception that friends and parents are more approving of risky drinking, uniquely and positively predicted own drinking. Conversely, perceived approval of those less close to students – typical student and typical same-sex student – were *negatively* associated with own alcohol use. Additionally, consistent with prior research, the perception that others (typical student and typical same-sex student) were drinking heavily was predictive of one's own heavy drinking. Examination of the effect sizes suggests that own approval and perception of typical student's alcohol use were the strongest predictors, while perceived approval of friends was also relatively important.²

Discussion

The present study focused on the relative influence of injunctive norms on drinking as a function of reference groups that vary in their social proximity to students. Greater personal approval of risky drinking and greater perceived approval by friends and parents, were all significantly and positively associated with students' own heavy drinking when examined alone and in the context of other injunctive and descriptive norms predictors.

In contrast, the zero-order correlation between one's own drinking and perceived approval by the typical student was not significant. Yet, when this injunctive norm was examined in the context of other injunctive and descriptive norms, it was negatively associated with alcohol use. In addition, the zero-order correlation between own drinking and typical-same sex student was positive, but this injunctive norm was negatively associated with alcohol use in the context of other injunctive and descriptive norms. It is noteworthy that in this study, as in the Neighbors et al. (2007) study of gambling, a suppression effect (Cohen, Cohen, West, & Aiken, 2003) was found with respect to the influence of the perceived approval of typical students on drinking.

As a potential explanation, we would speculate that when controlling for the influence of important others (friends and family), the remaining variance attributed to approval of typical students essentially becomes unimportant others. Moreover, a negative association between perceptions of those whom one does not care about and one's own behavior is consistent with classic literature associated with differences in perceptions of other's opinions depending on whether others are viewed as being a part of one's own group versus not being considered as part of one's social identity (Holtz & Miller, 1985). Coupled, these findings suggest that the relationship between perceived injunctive norms and drinking varies considerably by the proximity of the reference group, and that studies that have assessed injunctive norms more generally (Alva, 1998; Armitage & Connor, 2001; Larimer, Turner, Mallett, & Geisner, 2004; Sheppard et al., 1988) may be masking the impact of specific reference groups.

A key question raised by the results of this study is why would socially distal referents matter more for descriptive norms than for injunctive norms? One possibility is that estimates of others' drinking appear to be based at least in part on one's own drinking behavior (Neighbors,

²Notably, many of the effect sizes were in the small to medium range, which may be attributable to measurement error or not controlling for all extraneous variables. Small effect sizes are commonly found in psychosocial research, and do not detract from the theoretical implications of the findings (Cohen, 1988). Accordingly, examination of relative effect sizes guided our interpretation.

Dillard, Lewis, Bergstrom, & Neil, 2006). It is not clear that this happens to the same extent for injunctive norms. Relevant to this issue is that the behavior of others is observable, whether others are “concrete” others (i.e., close friends, parents) or an amalgamation of others (i.e., typical student). Perceptions of behavior, even for those with whom one does not frequently interact, can be based to some extent on personal observation. In contrast, the values and approval of others are not directly observable for those with whom one does not closely interact. Whereas for more proximal others (i.e., friends, parents), individuals likely care about and have a relatively accurate sense of their friends’ and parents’ approval of drinking.

These results have important implications with regard to interventions that incorporate information on injunctive norms. Based on the relationship between perceived norms and drinking behavior, a number of intervention strategies have incorporated some form of normative education aimed at reducing college drinking (Carey, Scott-Sheldon, Carey, & DeMartini, 2007; Larimer & Crouse, 2007). Although interventions that have targeted descriptive norms have demonstrated significant reductions in alcohol use (e.g., Borsari & Carey, 2000; Lewis, Neighbors, Oster-Aaland, Kirkeby, & Larimer, 2007; Lewis & Neighbors, 2007; Neighbors, Larimer, & Lewis, 2004), those that have attempted to change injunctive norms have reported mixed findings (Schroeder & Prentice, 1998). One explanation for this discrepancy in intervention efficacy, as suggested by the present findings, may be that perceived approval with regard to a distal group such as ‘typical students’ may be irrelevant to a number of students.

The findings of this study should be considered in the light of several limitations. First, the cross-sectional nature of the study prevents inferences regarding the direction of causality. Second, the findings may have been influenced by the discrepancy in the wording of the measures used to assess injunctive norms. The items that assessed the perceived approval of more proximal groups (friends and parents) were student specific, in that they asked about approval of one’s own risky drinking. In contrast, those that assessed the perceived approval of more distal groups (typical students and typical same-sex students) were general, as they asked about the approval of risky drinking in general. A third limitation of this study is that it only evaluated descriptive norms with regard to distal reference groups (typical students and typical same-sex students) and did not include descriptive norms with regard to more proximal reference groups such as close friends. Fourth, the sample consisted of first-year students, limiting the generalizability of findings to other age groups. Finally, the reliability of two of the injunctive norms items was relatively low (own approval and parents approval) and the content of the injunctive norms items were all in respect to behaviors of which most students disapprove. Moreover, there was somewhat of a floor effect for perceived approval of parents suggesting caution in interpreting results related to this referent. Assessment of injunctive norms in future work should consider measures that also include behaviors for which most students approve.

In sum, this research suggests that injunctive norms have a more complex association with one's own drinking behavior than descriptive norms. Accordingly, interventions that incorporate injunctive norms may need to utilize proximal referent groups to have any meaningful impact. This would entail identifying students’ close friends and assessing approval rates of these friends. While this may seem daunting, new technologies suggest that this may be feasible (LaBrie, Hummer, Neighbors, & Pedersen, 2008).

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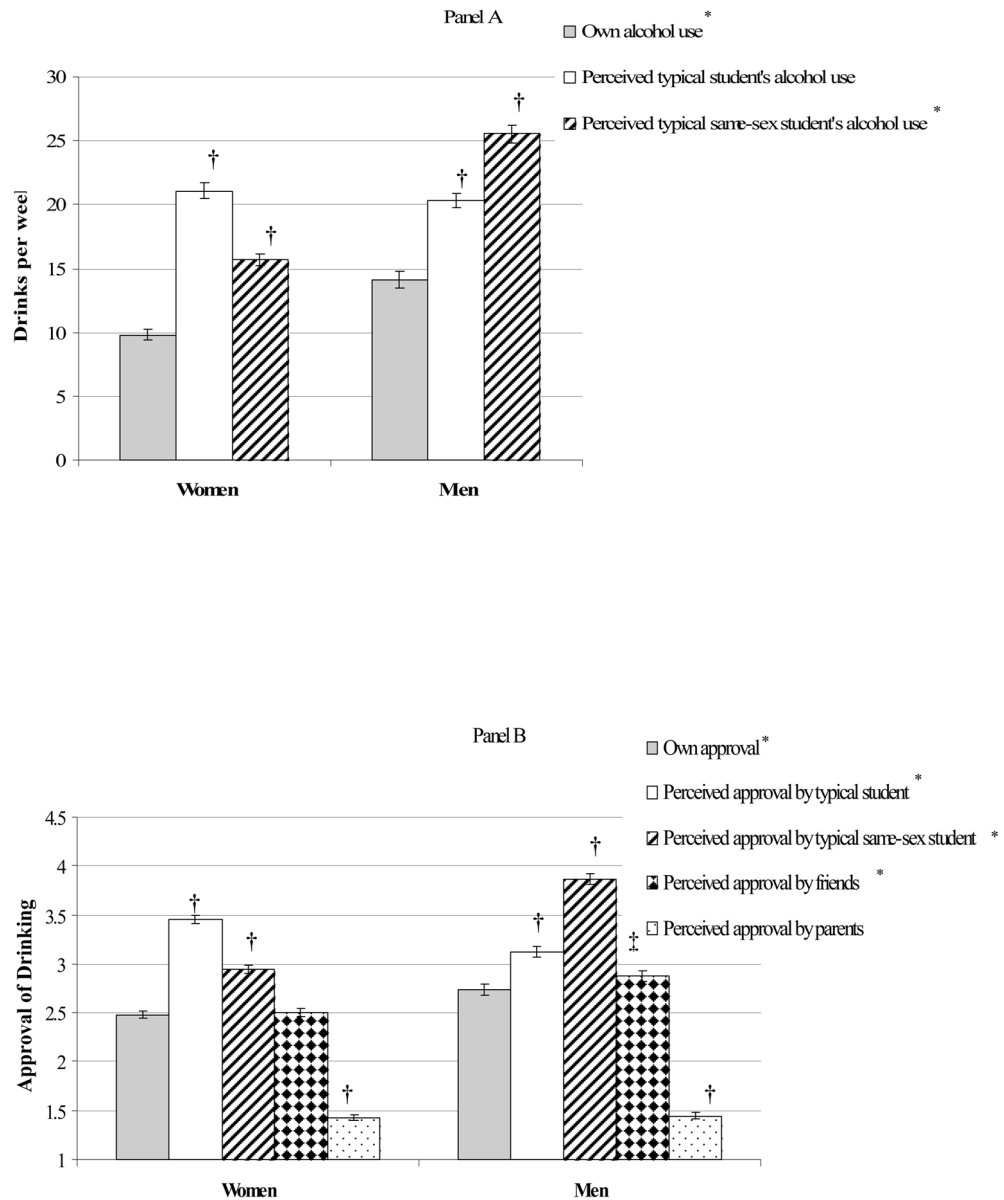


Figure 1. Means and standard errors for students' own alcohol use and descriptive norms (Panel A), and own approval of risky drinking and injunctive norms (Panel B) for women ($n = 467$) and men ($n = 344$). *Statistically significant difference across gender at $p < .001$; †Within gender, statistically significant difference from own alcohol use (Panel A)/own approval (Panel B) at $p < .001$; ‡Within gender, statistically significant difference from own approval (Panel B) at $p < .01$ ‡

Table 1
Correlations, means, and standard deviations for all variables in study

	1	2	3	4	5	6	7	8	9
1. Own alcohol use	----								
2. Gender (0 = Women, 1 = Men)	.20***	---							
3. Perceived typical student's alcohol use	.41***	-.03***	---						
4. Perceived typical same-sex student's alcohol use	.42***	.40***	.69***	---					
5. Own approval	.43***	.14***	.14***	.15***	---				
6. Perceived approval by typical student	-.04***	-.17***	.23***	.17***	.19***	---			
7. Perceived approval by typical same-sex student	.15***	.44***	.19***	.40***	.34***	.55***	---		
8. Perceived approval by friends	.39***	.18***	.15***	.21***	.61***	.23***	.42***	---	
9. Perceived approval by parents	.20***	.02	.12**	.11**	.24***	.13***	.17***	.37***	---
Means	11.63	.42	20.74	19.86	2.59	3.31	3.34	2.66	1.43
Standard Deviations	20.74	.49	11.61	12.35	.88	.95	1.07	.98	.60

Note. N = 811.

** $p < .01$,

*** $p < .001$.

Hierarchical regression results for own alcohol use regressed on own approval and injunctive norms, and descriptive norms

Table 2

Predictors:	Criterion: Own alcohol use				
	B	SE	β	t	f ²
Step 1: R² = .04					
Gender (0 = Women, 1 = Men)	4.34	.76	.20	5.75***	.04
Step 2: R² = .25					
Gender (0 = Women, 1 = Men)	2.61	.89	.12	2.93**	.03
Own approval	3.88	.48	.31	8.09***	.25
Perceived approval by typical student	-1.18	.50	-.10	-2.36*	.02
Perceived approval by typical same-sex student	-.52	.51	-.05	-1.02	.00
Perceived approval by friends	2.16	.46	.20	4.71***	.08
Perceived approval by parents	1.36	.59	.08	2.30*	.02
Step 3: R² = .40					
Gender (0 = Women, 1 = Men)	1.73	.89	.08	1.94 [†]	.01
Own approval	3.77	.43	.30	8.79***	.15
Perceived approval by typical student	-1.81	.45	-.16	-4.06***	.03
Perceived approval by typical same-sex student	-1.14	.46	-.11	-2.50*	.01
Perceived approval by friends	1.94	.41	.18	4.75***	.05
Perceived approval by parents	.95	.53	.05	1.79 [†]	.01
Perceived typical student's alcohol use	.25	.04	.27	6.26***	.08
Perceived typical same-sex student's alcohol use	.16	.04	.18	3.85***	.03

Note: N = 811.

[†] p < .08,

* p < .05,

** p < .01,

*** p < .001.