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Injunctive Norms for Alcohol-Related Consequences and Protective Behavioral Strategies: Effects of Gender and Year in School

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Abstract

Perceived drinking norms have received increased attention as one determinant of high levels of college alcohol consumption and alcohol-related problems. Excessive drinking is widely visible on college campuses, and students may therefore assume that it is peer-supported (Kitts, 2003). Research into peer relations indicates that the perceived approval of important others predicts drinking behavior (Neighbors et al., 2007). Neither the use of alcohol-related protective behavioral strategies nor alcohol-related negative consequences have been investigated in terms of their perceived approval. The purpose of this study was to extend previous research on injunctive norms and assess self-other discrepancies in levels of approval for campus drinking patterns, negative alcohol-related consequences, and protective behavioral strategies. Undergraduate volunteers ($n = 324$, 61% female, 67% Caucasian) completed an online survey of drinking patterns; they rated comfort with overall campus drinking, and the acceptability of alcohol-related consequences and protective strategies for themselves and their close friends. As predicted, students expressed lower acceptance of consequences than their friends, and higher acceptance of alcohol-related protective strategies. We observed main effects of gender and year in school. Males and upperclassmen expressed higher acceptance of negative consequences for both self and others, and lower acceptance of protective strategies for both self and others. Implications for prevention programs are discussed.

Keywords

injunctive norms; college drinking; gender; alcohol abuse prevention

High rates of college student alcohol use continue to cause public health concern (Hingson et al., 2009). At least two out of five college students report engaging in heavy episodic (binge) drinking, defined as consuming four or more drinks in a drinking episode for a

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Statement 3: Conflict of Interest

None of the authors of this paper have any interests that may be interpreted as influencing the research.

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female and five or more drinks in a drinking episode for a male, at least once every two weeks (O'Malley & Johnston, 2002). These elevated levels of drinking are associated with a host of alcohol-related consequences in academic, personal, and legal domains (Park, 2004). The persistent high levels of college alcohol consumption and the consequences associated with drinking highlight the need to better understand the determinants of alcohol use among college students.

Social influence processes contribute to heavy alcohol use via both social modeling and perceived drinking norms (Borsari & Carey, 2001). Norms are defined as "self-instructions to do what is perceived to be correct by members of a culture" (Solomon & Harford, 1984, p. 460), and serve as internalized sources of social influence. Distinctions have been made between two specific types of norms, descriptive and injunctive (Cialdini, Reno, & Kalgren, 1990; Lapinski & Rimal, 2005).

Descriptive norms, defined as perceptions of what others do, include estimates of how much and how often others consume alcohol. The tendency to overestimate descriptive drinking norms is well documented (Borsari & Carey, 2003; Perkins, 2002) and has been generalized to other risk behaviors: Young adults also overestimate the prevalence of drug use (Martens et al., 2006) and sexual behavior (Lewis, Lee, Patrick, & Fossos, 2007; Martens et al., 2006). The accuracy of descriptive norms is significant because they predict current drinking behavior (e.g. Larimer, Turner, Mallet, & Geisner, 2004; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007), and future drinking behavior (e.g., Carey, Borsari, Carey, & Maisto, 2006).

Injunctive drinking norms, defined as what others approve of, include perceptions of the acceptability of alcohol consumption. Across behaviors, students tend to endorse more conservative attitudes for themselves than they ascribe to their peers, a phenomenon known as pluralistic ignorance (Prentice & Miller, 1993). Consistently, injunctive norms related to alcohol use are overestimated (e.g. Borsari & Carey, 2003; Neighbors, O'Connor, Lewis, Chawla, Lee, & Fossos, 2008). Because excessive drinking is highly visible on college campuses and personal attitudes are shared selectively if at all, students may assume that excessive alcohol use is supported by their peers (Kitts, 2003). This would likely place them at risk for elevating their drinking. Indeed, perceived approval of important others is predictive of drinking behavior (e.g., Neighbors et al., 2007), consistent with the Theory of Planned Behavior (e.g. Ajzen, 1991).

The observed discrepancy between personal behaviors and beliefs and perceived norms of others' attitudes has been referred to as the self-other difference (Borsari & Carey, 2003; Carey et al., 2006). Theory suggests that exaggerated estimates of drinking norms can contribute to a permissive environment that promotes heavier drinking patterns by light/moderate drinkers and/or buffers heavier drinkers from the realization that their use is extreme (Perkins, 2002). However, perceived norms for drinking-related behaviors have rarely been studied. In this regard, two sets of drinking-related behaviors, negative consequences and protective behavioral strategies, provide unique windows into the context of student drinking.

Negative consequences, including hangovers and regretted sexual experiences, are consistently associated with heavy alcohol use (c.f. Park, 2004), and students tend to perceive that other students experience more negative consequences than they do (Baer & Carney, 1993). However, research has not yet investigated the perceived acceptability of these consequences, or the presence of self-other discrepancies in perceptions of approval of consequences. The more acceptable negative consequences are perceived to be, the more individuals might be willing to tolerate the unpleasant consequences of heavy alcohol use. It is likely that if students perceive negative consequences to be acceptable to their peers, they

will be less likely to reduce their drinking in order to avoid them and will therefore be more likely to continue to engage in excessive alcohol use.

Protective behavioral strategies (PBS) are specific, cognitive-behavioral strategies that can help reduce risks or negative outcomes of alcohol use. Examples include alternating alcoholic and non-alcoholic drinks, using a designated driver, and setting a drink limit. More frequent use of PBS predicts lower consumption and fewer alcohol-related problems (e.g. Benton et al., 2004; Martens et al., 2004). Recent research addressing descriptive norms suggests that students perceive their peers as using PBS less than they themselves do (Benton, Downey, Glider, & Benton, 2008). Injunctive norms for PBS have not been studied. The more acceptable PBS are perceived to be by one's peer group, the more likely they are to be used to reduce risky drinking behaviors. Because PBS are commonly incorporated into the content of alcohol interventions, better understanding of their perceived acceptability is important to gauge how likely PBS are to be utilized by clients.

This study had two main goals. First, we sought to replicate past findings on approval levels of global comfort with campus drinking patterns. The *a priori* hypothesis was: (a) students would be less comfortable with campus drinking habits than they perceive their peers to be. Second, we sought to extend past norms research by assessing perceived approval levels of negative consequences and PBS. *A priori* hypotheses were: (b) students will be less accepting of negative consequences than they perceive their peers to be; and (c) students would be more accepting of PBS than they perceive their peers to be. Because negative consequences and PBS differ in their social desirability, examining both in the same sample offers an opportunity to separate response bias (e.g. others are always more extreme than the respondent) from beliefs that others are more permissive of risky behaviors.

Third, we examined whether these patterns varied by gender and year in college. Freshmen appear to be a particularly risky sub-group of college campuses. Drinking tends to increase during transitions to increased independence (Schulenberg & Maggs, 2002), and accordingly freshmen report more alcohol use than upper-classmen (Turrissi, Padilla, & Wiermsa, 2000). Moreover, they are more likely to be arrested for an alcohol-related offense than upper-class students (Thompson, Leinfelt, & Smyth, 2006). Descriptive norms research on freshmen has indicated that freshmen perceive other freshmen to drink more alcohol than they themselves do (Lewis, Neighbors, Oster-Aaland, Kirkeby, & Larimer, 2007). Research has not examined differences in approval levels of negative consequences and PBS between freshmen and upper-class students. Based on past findings, we hypothesized that relative to upperclassmen, (d) freshmen will perceive others as more accepting of negative consequences, and (e) freshmen will perceive others as less accepting of protective behavioral strategies.

Regarding gender, cultural norms condone risky behavior to a greater extent for men than for women (Courtenay, 2003). Research has demonstrated that women place a greater priority on personal health (Weissfeld, Kirscht, & Brock, 1990), drink less (Benton et al., 2004), and report fewer alcohol-related problems (Perkins, 2002). Women believe they practice PBS more often than others, so that the self-other difference in descriptive norms is larger for women than for men (Benton et al., 2008). Extending this pattern to perceived injunctive norms, we hypothesized that: (f) women will perceive others as less accepting of negative consequences than men and (g) women will perceive others as more accepting of PBS use than men.

Method

Participants

Participants were 324 undergraduates attending a large northeastern university. The sample was recruited from introductory psychology courses in the fall semester of 2008. After providing informed consent, small groups of participants (9–18 students per group) completed online surveys about alcohol consumption, alcohol-related problems, self and other attitudes towards drinking consequences, and self and other attitudes towards protective behavior strategies. Each survey carried a unique user identification number to maintain anonymity. In exchange for their participation, students received course credit.

Measures

Descriptive information—Participants provided information regarding gender, age, weight, race/ethnicity, year in college, and residence.

Drinking patterns—For all assessments, a standard drink was defined as a 12 oz. can or bottle of beer, a 5 oz. glass of table wine, a 12 oz. bottle or can of wine cooler, or a 1.5 oz. shot of liquor either straight or in a mixed drink. Measures covered alcohol use patterns for the 30 days prior to the assessment. The Daily Drinking Questionnaire (DDQ) (Collins et al., 1985) used a 7-day grid to assess drinking during a typical week and average number of drinks per drinking day. Participants also reported the number of heavy drinking days and frequency of intent to get drunk when consuming alcohol.

Drinking norms—Participants rated items on global comfort (e.g. “How comfortable are you are with the drinking habits of the students here”) with campus drinking to self, to friend, and to average student on an 11-point scales (1 = not at all comfortable; 11 = very comfortable). Participants rated two sets of items on acceptability to self and to peers on 6-point scales (1=least acceptable; 6=most acceptable). The first set ($n = 22$ items) assessed the acceptability of negative consequences with items adapted from the Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler et al., 2005). The instructions for acceptability to self asked participants to “Indicate how acceptable or unacceptable you find each of the following.” For acceptability to friends, the instructions were, “Please indicate how you think your friends and close acquaintances on campus feel about each of these behaviors that may result from drinking.” The second set ($n = 13$ items) assessed the acceptability of protective behavioral strategies, with items adapted from the Protective Behavioral Strategies Scale (Martens et al., 2005). For strategy acceptability to self, the instructions read, “Please indicate how acceptable or unacceptable you personally view each strategy. For strategy acceptability to friends, the instructions were, “Please indicate how acceptable or unacceptable your friends and close acquaintances view each strategy.” Similar items were consolidated to shorten the length of the survey and reduce redundancy among items. Positive foils were added to reduce response bias but not included in final analyses. Thus, the 22 items referring to negative consequences were rated twice, once for self-ratings of acceptability and again for perceptions of acceptability to others; the 13 PBS items were also rated twice to obtain acceptability ratings for self and for others. Mean scores were created for ratings of self-acceptability and ratings of others-acceptability for both negative consequences and PBS.

Results

Sample Characteristics

The overall sample had a mean age of 18.62 years ($SD = 0.93$) and was comprised predominantly of female ($n = 196$, 61%) and freshmen ($n = 226$, 70%) students; most were

White (67%), with others identifying as Asian (13.6%), Hispanic (8%), Black or African American (7.1%). Most reported living in main campus housing (71%).

Participants reported drinking an average of 10.51 ($SD = 11.24$) drinks per week and had an average frequency of 3.65 ($SD = 4.06$) heavy drinking episodes in the past month. Males reported drinking significantly more drinks per week ($M = 13.83$, $SD = 13.46$) than females ($M = 8.36$, $SD = 8.97$), $t(321) = 4.39$, $p < 0.001$. Freshmen reported drinking significantly fewer drinks per week ($M = 9.34$, $SD = 10.95$) than upper-class students ($M = 13.36$, $SD = 11.46$), $t(321) = -2.99$, $p < 0.01$. The majority of the participants ($n = 130$, 41%) rated themselves as “moderate” drinkers.

Negative Consequences and Protective Behavior Strategies

Paired t-tests were used to examine differences between self-acceptability and friend-acceptability of negative consequences and PBS. On average, participants perceived themselves ($M = 1.90$, $SD = 0.59$) to be less accepting of negative consequences than their friends ($M = 2.43$, $SD = 0.85$), $t(321) = -11.53$, $p < 0.001$. This pattern manifest on every individual item making up the summary score (see Table 1). Conversely, participants perceived themselves ($M = 4.60$, $SD = 1.07$) to be more accepting of PBS use than their friends ($M = 4.09$, $SD = 1.20$), $t(323) = 8.75$, $p < 0.001$. Again, this pattern held for every single PBS item (see Table 2).

Gender and Year in College

Six mixed between-within subjects ANOVAs were used to examine gender and year in college differences on ratings of comfort with campus drinking habits, acceptability of negative consequences, and acceptability of PBS. Partial eta squared (η^2_p) describes the proportion of total variability of the dependent variable(s) that is attributable to the effect.

Comfort ratings—A 2 (gender: male, female) x 3 (rating target: self, friend, average student) mixed ANOVA was used to assess gender differences on participants' comfort ratings. Ratings of self-comfort, friend-comfort, and average student comfort were entered as within-subjects variables. Gender was entered as a between-subjects factor.

The main effect of rating target was significant for a violation of sphericity, Mauchly's $W = 0.892$, $\chi^2(2) = 36.47$, $p < 0.001$. Therefore, the F -values for the main effect of target and its interaction with gender have been corrected using the Huynh-Feldt correction, as it has greater power than the Geisser-Greenhouse correction (Keppel & Wickens, 2004). Consistent with previous analyses, there was a significant main effect of target, $F(1.82, 584.48) = 27.11$, $p < 0.001$, $\eta^2_p = 0.08$. The main effect of gender was not significant, $F(1, 321) = 3.83$, $p = 0.051$, but there was a significant interaction between target and gender, $F(1.82, 584.48) = 8.20$, $p < 0.001$.

To clarify the interaction results, a series of three post-hoc, Bonferroni-corrected one-way ANOVAs was performed using an adjusted alpha of 0.02. First, males and females differed when compared on their ratings of personal comfort, $F(1, 322) = 10.82$, $p < 0.001$. Males rated themselves as significantly more comfortable ($M = 7.94$, $SD = 0.23$) with campus drinking habits than females ($M = 6.97$, $SD = 0.18$). Next, when compared on their ratings of friends' comfort, there was no difference, $F(1, 322) = 1.75$, $p = 0.19$, between males' ratings ($M = 8.42$, $SD = 0.19$) and females' ratings ($M = 8.10$, $SD = 0.15$) of their friends' comfort with campus drinking. Lastly, males and females did not differ on their ratings of average students' comfort levels, $F(1, 322) = 0.264$, $p = 0.61$ (males $M = 7.31$, $SD = 0.17$ and females $M = 7.42$, $SD = 0.14$). Therefore, both genders perceive similar injunctive

norms for comfort ratings of friends and the average student. However, male students are significantly more comfortable with campus drinking than female students.

A 2 (year: freshmen, upper-class) x 3 (rating target: self, friend, average student) mixed ANOVA was used to assess year in college differences on participants' comfort ratings. Ratings of self-comfort, friend-comfort, and average student comfort were entered as within-subjects variables. Year was entered as a between-subjects factor. The main effect of target was significant for a violation of sphericity, Mauchly's $W = 0.884$, $\chi^2(2) = 39.53$, $p < 0.001$. Again, the F -values for the main effect of comfort and its interaction with year have been corrected using the Huynh-Feldt correction (Keppel & Wickens, 2004). There was a significant main effect of target, $F(1.81, 579.99) = 23.34$, $p < 0.001$, $\eta^2_p = 0.07$. The main effect of year was not significant, $F(1, 321) = 3.53$, $p = 0.06$. The interaction between comfort ratings and year in college was also not significant, $F(1.81, 579.99) = 0.26$, $p = 0.75$. Freshmen and upperclassmen reported the same overall pattern of comfort ratings.

Negative Consequences—A 2 (gender: male, female) x 2 (rating target: self, friend) mixed ANOVA was used to assess gender differences on participants' ratings of acceptability of negative consequences. Ratings of self-acceptability and friend-acceptability were entered as within-subjects variables. Gender was entered as a between-subjects factor. Results indicated a significant main effect for consequences, $F(1, 319) = 117.38$, $p < 0.001$, $\eta^2_p = 0.27$, and a significant main effect for gender, $F(1, 319) = 16.05$, $p < 0.001$, $\eta^2_p = 0.05$. The interaction between consequences and gender was not significant, $F(1, 319) = 2.70$, $p = 0.10$. As reported earlier, ratings of self-acceptance of negative consequences were lower ($M = 1.90$, $SD = 0.59$) than ratings of friend-acceptability ($M = 2.48$, $SE = 0.05$). Across both types of ratings, male students reported higher levels of acceptability of negative consequences ($M = 2.10$, $SD = 0.66$) than female students ($M = 1.76$, $SE = 0.50$).

A 2 (year: freshmen, upper-class) x 2 (rating target: self, friend) mixed ANOVA was used to assess year in college differences on participants' ratings of acceptability for negative consequences. In this model, year was entered as the between-subjects factor. Results indicated a significant main effect for target, $F(1, 319) = 114.57$, $p < 0.001$, $\eta^2_p = 0.26$, and a significant main effect of year, $F(1, 319) = 7.16$, $p < 0.01$, $\eta^2_p = 0.02$. The interaction between consequences and year was not significant, $F(1, 319) = 0.10$, $p = 0.75$. As in the gender analysis, ratings of self-acceptance of negative consequences were lower than ratings of friend-acceptability. Overall, freshmen and upperclassmen reported significantly different ratings of acceptability of negative consequences. Examination of means indicated that freshmen had lower acceptability ratings of negative consequences ($M = 1.84$, $SD = 0.57$) than did upper-class students ($M = 2.03$, $SD = 0.62$).

Protective Behavioral Strategies—A 2 (gender: male, female) x 2 (rating target: self, friend) mixed ANOVA was used to assess gender differences on participants' ratings of acceptability of PBS. Results indicated a significant main effect of target, $F(1, 321) = 69.80$, $p < 0.001$, $\eta^2_p = 0.18$ and a significant main effect of gender, $F(1, 321) = 13.93$, $p < 0.001$, $\eta^2_p = 0.04$. The interaction between target and gender was not significant, $F(1, 321) = 0.20$, $p = 0.66$. Inspection of means indicated that, ignoring gender, ratings of self-acceptability ($M = 4.60$, $SD = 1.07$) were higher than ratings of friend-acceptability ($M = 4.09$, $SD = 1.20$). Additionally, females reported higher acceptance of PBS ($M = 4.78$, $SD = 1.03$) than males ($M = 4.34$, $SD = 1.08$).

A 2 (year: freshmen, upper-class) x 2 (rating target: self, friend) mixed ANOVA was used to assess differences across year in school on participants' ratings of acceptability of PBS. Results indicated a significant main effect of PBS, $F(1, 321) = 77.99$, $p < 0.001$, $\eta^2_p = 0.20$ and a significant main effect of year in college, $F(1, 321) = 8.96$, $p < 0.01$, $\eta^2_p = 0.03$. The

interaction between PBS and year in college was not significant, $F(1, 321) = 3.04, p = 0.08$. Regardless of year in college, self-ratings of acceptability of PBS ($M = 4.60, SD = 1.07$) were higher than ratings of friend-acceptability ($M = 4.09, SD = 1.20$). Furthermore, freshmen reported higher self-acceptability ratings ($M = 4.68, SD = 1.05$) than upper-class students ($M = 4.43, SD = 1.10$).

Self-Other Differences and Consumption

We have documented consistent discrepancy with regard to both alcohol-related consequences and PBS between personal attitudes and perceptions of others' attitudes (self-other differences, or SODs; Borsari & Carey, 2003). Therefore, exploratory analyses examined the relationships of SODs with student alcohol consumption. To create the SODs for alcohol-related consequences, the mean other-acceptability rating for all 22 consequences was subtracted from the mean self-acceptability ratings. Thus, positive consequences SODs indicate that participants believe they are more accepting of negative consequences than their friends (sample $M = -0.53, SD = 0.82$). This process was repeated to create SODs for PBS, so that, positive PBS SODs indicate that participants believe they are more accepting of PBS use than their friends (sample $M = 0.51, SD = 1.05$).

Pearson correlations examined the degree of the relationship among self-acceptability of negative consequences, other-acceptability of negative consequences, and negative consequences SODs with typical drinks per week (see Tables 3 and 4). Overall, ratings of self-acceptability ($r = 0.47, p < 0.001$) and SODs ($r = 0.25, p < 0.001$) were significantly associated with typical week drinking. Next, correlations among ratings of PBS and typical drinks per week were examined. Ratings of self-acceptability ($r = -0.28, p < 0.001$), other-acceptability ($r = -0.11, p < 0.05$), and SODs ($r = -0.16, p < 0.01$) were significantly associated with typical week drinking.

The same two sets of correlations were then repeated separately for freshmen and for upperclassmen (see Tables 3 and 4). Examining negative consequences for freshmen, self-ratings of acceptability ($r = 0.41, p < 0.001$) and SODs ($r = 0.31, p < 0.001$) were significantly associated with typical week drinking. For PBS for freshmen, self-ratings ($r = -0.30, p < 0.001$) and SODs ($r = -0.26, p < 0.01$) were significantly correlated with typical week drinking. For upperclassmen and negative consequences, self-acceptability ($r = 0.52, p < 0.001$) and other-acceptability ($r = 0.23, p < 0.05$), but not SODs, were significantly associated with consumption. For upperclassmen and PBS, only self-ratings ($r = -0.22, p < 0.05$) of acceptability for PBS were significantly correlated with consumption.

Lastly, three regression models were calculated to determine whether consequences SODs and PBS SODs predicted typical week drinking for (a) the whole sample; (b) freshmen only; (c) upperclassmen only. The overall SOD model was significant ($p < 0.001, R^2 = 0.06$). Higher consequences SODs predicted higher levels of drinking ($b = 0.25, p < 0.001$), whereas PBS SODs did not predict drinking ($p = 0.88$). The SOD model for freshmen was also significant ($p < 0.001, R^2 = 0.10$). As with the overall model, higher consequences SODs significantly predicted greater drinks consumed in a typical week ($b = 0.25, p < 0.01$), but PBS SODs did not ($p = 0.86$). The SOD model for upperclassmen was not significant ($p = 0.19, R^2 = 0.03$).

Discussion

The purpose of this study was first, to replicate research on self-other differences on the acceptability of campus drinking, and second, to extend this research by documenting self-other differences regarding the acceptability of specific drinking-related behaviors among college students. To do this, we assessed injunctive norms for (a) comfort with overall

campus drinking, (b) acceptability of negative alcohol-related consequences, and (c) acceptability of protective behavioral strategies. In most cases, the predicted self-other differences were observed.

Regarding injunctive norms for comfort with campus drinking, students perceive that their friends are more comfortable with the general level of drinking on campus than are the students themselves. Students perceive themselves to be equivalent in comfort level to the average student on campus. This self-other difference in approval of campus drinking replicates studies illustrating the phenomenon of pluralistic ignorance, the assumption that one's private beliefs are more conservative than others' (e.g., Prentice & Miller, 1993). Pluralistic ignorance can perpetuate inaccurate social norms and also lead to feelings of deviance on the part of the individual (Miller & Prentice, 1994). Even if these perceptions are inaccurate, students may feel social pressure from immediate friendship groups to engage in heavier drinking behavior despite privately held reservations. The impact of this social influence is significant; perceived friends' approval of drinking predicts student alcohol use (e.g., Kahler, Read, Wood, & Palfai, 2003; Sher, Bartholow, & Shivani, 2001). Consistent with this, our results indicate that personal attitudes towards negative consequences and PBS are related to alcohol consumption in expected ways. Perception of others' acceptance of consequences correlates with upperclassmen drinking. This provides evidence that a permissive environment may encourage heavier drinking over time.

To date, research has not examined self-other differences on the acceptability of negative consequences or PBS, and self-other differences emerged in the context of both. The main effect of rating target, however, operates in the opposite pattern for negative consequences and PBS. Regarding negative consequences, students perceive themselves to be less accepting of consequences than their friends. On PBS, students perceive themselves to be more accepting than their friends. These results are inconsistent with an explanation of self-other differences as a consistent response bias towards more extreme responses attributed to others. Instead, the observed patterns support the notion that respondents attribute more risky attitudes to others, while they personally endorse more self-protective attitudes. Friends are seen not only as more tolerant of negative alcohol-related consequences, but are also seen as less tolerant of engaging in behaviors that protect the drinker from these harms. This pattern was quite robust; for every single item assessed, the pattern was consistent with the summary ratings. Moreover, both SODs were significantly related to weekly alcohol consumption and were more strongly associated with drinking for freshmen than for upperclassmen. These findings may be interpreted as further evidence that pluralistic ignorance extends to both the precursors and consequences of risky drinking and thus influences the broader context of drinking behavior. They also indicate that younger students may be particularly vulnerable to escalating their drinking based on their perceptions of others' attitudes.

These findings have implications for norms-based interventions. Risky drinking may be maintained in part because of reluctance to engage in PBS due to fear of social sanctions (Cialdini & Trost, 1998), and the perceived social acceptability of its consequences might reduce motivation to avoid them. Thus, interventions that provide feedback on normative perceptions and their accuracy might be expanded to challenge a broader range of social norms. If risky drinking occurs within a chain of behaviors, the data on self-other differences might lead to greater personal acceptance and use of PBS prior to and during drinking events. Furthermore, challenging the perceived peer acceptance of drinking consequences might lead to a sense of greater social "costs" to drinking in a manner that leads to negative consequences.

Gender and year in school helped to explain the level of acceptability of consequences and PBS. Neither interacted with rating target, so the magnitude of self-other differences did not differ by gender or class. As a result, all students demonstrate self-other differences reflecting more acceptance of alcohol-related risk by others than by the self.

However, relative to male students, female students reported lower personal approval of alcohol-related consequences as well as lower perceptions of approval by others. Past findings have indicated that women perceive more social sanctions against drinking than men (e.g. Blume, 1991). Comparatively, men have reported higher levels of pressure to drink (Suls & Green, 2003). Given that lower levels of consumption are consistent with the traditional female gender role (c.f., Nolen-Hoeksema & Hilt, 2006), our findings suggest that female gender role may be protective against risky drinking in part through more conservative personal attitudes and perceived norms. Thus, if women perceive lower social pressure for risky behavior relative to men, they may be more receptive to avoiding negative consequences and increasing PBS, because their social environment is perceived as more supportive of making these changes. Indeed, our own work suggests that female students mandated to an intervention for campus alcohol infractions express greater willingness to change than the male students (Carey & DeMartini, 2010).

Relative to freshmen, students beyond their freshman year endorsed higher levels of personal approval and perceived more approval of negative consequences among other students. Upperclassmen also reported less personal approval towards protective behavioral strategies and perceived less peer approval of these behaviors. The direction of this effect was counter to predictions for freshmen status. Thus even though drinking behavior per se is often elevated during freshmen year (Turrisi et al., 2000), freshmen report attitudes that are less permissive than older students. Unlike gender, year in school varies within persons, suggesting that time spent on a residential campus may cultivate riskier attitudes and norms. Strong evidence suggests that college students engage in higher levels of drinking than do their same-age peers (e.g., Johnston, O'Malley, Bachman, & Schulenberg, 2005; Slutske, 2005). Taken together, the data suggest that increased exposure to the college drinking environment is a social risk factor for increased drinking.

Interpretations of the results of this study should be considered in light of its limitations. The data were collected via self-report measures, and despite assurances of anonymity, it is possible that some reporting was inaccurate. Additionally, inferences were made on the basis of cross-sectional data. The association between year in school and acceptability of risk behaviors is only suggestive of a developmental trend; however, longitudinal data would be needed to determine whether exposure to college environment resulted in greater acceptability of risk behaviors. Lastly, we acknowledge that because this study is the first to show self-other differences on specific behaviors related to alcohol consumption, these results need to be replicated in order to demonstrate generalizability.

In summary, the self-other difference with regard to approval of drinking is a robust phenomenon that replicates across a variety of drinking-related behaviors, including negative consequences and PBS. In particular, the demonstration of pluralistic ignorance pertaining to PBS has implications for interventions. These findings suggest that normative feedback regarding acceptability of protective behaviors may be helpful to reduce the expectations of social disapproval and ultimately empower some students to use them more often. Similarly, feedback on actual attitudes towards alcohol-related consequences might alter the social climate towards avoidance of undesirable effects of drinking. Overall, these findings suggest that the inclusion of injunctive norms feedback may be a helpful component to harm reduction interventions.

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Table 1

Mean ratings of acceptability of negative consequences by rating target

	Self			Other		
	Mean	SD	t(323)	Mean	SD	t(323)
Waking up with a hangover	2.90	1.28	3.13	3.13	1.40	3.16***
Not being able to remember large stretches of time	2.02	1.13	2.76	2.76	1.33	9.00***
Having the quality of work suffer	1.30	0.61	1.96	1.96	1.06	11.86***
Having less energy or feeling tired	2.30	1.12	2.71	2.71	1.31	5.58***
Getting into sexual situations later regretted	1.79	1.05	2.65	2.65	1.36	11.35***
Drinking on unplanned nights	3.11	1.22	3.61	3.61	1.46	6.18***
Having one's physical appearance harmed	1.63	0.82	1.96	1.96	0.98	5.63***
Saying or doing embarrassing things	2.67	1.24	3.15	3.15	1.40	5.97***
Feeling very sick or throwing up	2.17	1.07	2.74	2.74	1.29	8.03***
Having done impulsive things later regretted	2.02	1.00	2.64	2.64	1.28	9.13***
Gaining weight	2.01	0.98	2.13	2.13	1.03	2.04***
Waking up in an unexpected place	1.66	1.01	2.38	2.38	1.29	9.55***
Spending too much time drinking	1.85	1.01	2.66	2.66	1.40	9.81***
Losing self-esteem	1.50	0.76	1.81	1.81	0.87	6.40***
Creating problems with partners/parents/close relatives	1.57	0.79	1.99	1.99	1.08	7.37***
Needing a drink upon waking	1.24	0.68	1.61	1.61	1.01	7.62***
Driving knowing one is too intoxicated to drive safely	1.17	0.65	1.62	1.62	0.98	8.28***
Neglecting obligations to family, work, or school	1.29	0.67	1.75	1.75	0.91	8.70***
Not being able to keep a limit for how much to drink	1.72	0.98	2.53	2.53	1.27	10.91***
Passing out	1.83	0.97	2.55	2.55	1.37	9.54***
Becoming rude, obnoxious, or insulting	1.78	0.89	2.36	2.36	1.20	8.51***
Needing larger amounts of alcohol to feel effect	2.22	1.18	2.74	2.74	1.51	5.89***

	Self		Other		<i>t</i> (323)
	Mean	SD	Mean	SD	
Overall Mean	1.90	0.59	2.43	0.86	11.50 ^{****}

Note: $n=324$

* $p<.05$

** $p<.01$

*** $p<.001$

Table 2
Mean ratings of acceptability of protective behavioral strategies by rating target

	Self			Other		
	Mean	SD	t(323)	Mean	SD	t(323)
Determine in advance not to exceed set number	4.67	1.37	4.17	4.17	1.46	-6.47***
Alternate alcoholic and nonalcoholic drinks	4.42	1.56	3.97	3.97	1.60	-5.55***
Have a friend tell you when you've had enough	4.76	1.44	4.44	4.44	1.45	-4.01***
Leave the party at predetermined time	4.52	1.48	4.06	4.06	1.53	-5.75***
Stop drinking at a predetermined time	4.61	1.36	4.07	4.07	1.54	-6.42***
Eating before or while drinking	5.16	1.17	4.80	4.80	1.32	-5.31***
Pace your drinks to one or fewer per hour	4.49	1.53	3.79	3.79	1.67	-7.82***
Avoid drinking games	3.60	1.70	2.97	2.97	1.77	-7.02***
Avoid drinking shots of liquor	3.77	1.68	3.15	3.15	1.75	-6.81***
Drink slowly, rather than gulp or chug	4.29	1.56	3.63	3.63	1.67	-7.41***
Avoid trying to "keep up" or "out drink" others	4.49	1.56	3.78	3.78	1.69	-7.51***
Use a designated driver	5.65	0.98	5.36	5.36	1.10	-5.42***
Know where your drink has been at all times	5.47	1.11	5.03	5.03	1.38	-6.86***
Total Mean	4.60	1.07	4.09	4.09	1.20	-8.75***

Note: n=324.

* p<.05

** p<.01

*** p<.001

Table 3

Correlations among Acceptability of Negative Consequences and Typical Week Drinking

	Correlations with Typical Week Drinking		
	Overall $n = 324$	Freshmen $n = 226^{\ddagger}$	Upperclassmen $n = 97^{\ddagger}$
Consequences Self-Acceptability	0.47***	-0.41***	0.51***
Consequences Other-Acceptability	0.09***	-0.03***	0.23***
Consequences SODs	0.25***	-0.31***	0.16***

Note. SODs = self-other differences, calculated as self-ratings minus other ratings; higher SOD reflect greater acceptance of consequences by self relative to others.

*
 $p < 0.05$

**
 $p < 0.01$

 $p < 0.001$

[‡] Sample size for freshmen and upperclassmen do not add to total sample n because one participant did not complete this part of the assessment

Table 4

Correlations among Acceptability of Protective Behavioral Strategies and Typical Week Drinking

	Correlations with Typical Week Drinking		
	Overall $n = 324$	Freshmen $n = 226^{\dagger}$	Upperclassmen $n = 97^{\dagger}$
PBS Self-Acceptability	-0.28 ***	-0.30 ***	-0.22 *
PBS Other-Acceptability	-0.11 ***	-0.03 ***	-0.18 *
PBS SODs	-0.16 ***	-0.26 ***	-0.02 *

Note. PBS = protective behavioral strategies. SODs = self-other differences, calculated as self-ratings minus other ratings; higher SOD reflect greater acceptance of PBS by self relative to others.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

[†] Sample size for freshmen and upperclassmen do not add to total sample n because one participant did not complete this part of the assessment