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## How Mandated College Students Talk About Alcohol: Peer Communication Factors Associated with Drinking

Kate B. Carey<sup>a,b</sup>, Sarah A. Lust<sup>a,c</sup>, Allecia E. Reid<sup>b,d</sup>, Seth C. Kalichman<sup>c,e</sup>, and Michael P. Carey<sup>b,f,g</sup>

<sup>a</sup>Center for Alcohol and Addiction Studies, Brown University School of Public Health

<sup>b</sup>Department of Behavioral and Social Sciences, Brown University School of Public Health

<sup>c</sup>Center for Health Intervention and Prevention, University of Connecticut

<sup>d</sup>Department of Psychology, Colby College

<sup>e</sup>Department of Psychology, University of Connecticut

<sup>f</sup>Department of Psychiatry and Human Behavior, Alpert Medical School

<sup>g</sup>Centers for Behavioral and Preventive Medicine, The Miriam Hospital

### Abstract

Relatively little research has examined how peer communication influences alcohol consumption. In a sample of mandated college students, we differentiate conversations about drinking among from conversations about harm prevention and provide evidence for the validity of these communication constructs. Students who violated campus alcohol policies and were referred for alcohol sanctions ( $N = 345$ ) reported on drinking patterns, use of protective behavioral strategies, perceived descriptive norms for close friends and serving as social leader among their friends; they also reported on the frequency of conversations about drinking, about drinking safety, and about risk reduction efforts. Predicted correlations were found among types of communication and conceptually related variables. General communication was related to consumption but not protective behavioral strategies, whereas safety/risk reduction conversations correlated positively with all protective behavioral strategies. Both types of communication were associated with social leadership. Safety communication moderated the relationship between peer descriptive norms and drinks per week; more frequent talking about safety attenuated the norms-consumption relationship. Peer communication about both drinking and safety may serve as targets for change in risk reduction interventions for mandated college students.

### Keywords

alcohol use; college students; safety; norms

Nearly half of college students engage in high volume drinking, defined as five or more drinks within the course of two hours for men, and four or more drinks for women (NIAAA, 2004). In turn, high-volume drinking is associated with many negative consequences, including blackouts, hangover, poor academic performance, sexual assault, physical injury and even death (Hingson, Zha, & Weitzman, 2009; Mallett et al., 2013). A subset of the college population considered at high risk for drinking problems consists of students mandated to interventions based on a violation of campus alcohol policy. Previous work has shown that mandated students drink more on some metrics than the general campus population, but not on others (Merrill, Carey, Lust, Kalichman, & Carey, 2014). Mandated student samples also exhibit variability in their drinking patterns and include light or non-drinkers in addition to heavy drinkers (Merrill et al., 2014). Despite some differences from the general campus population this high risk group can provide important insight into correlates of drinking behavior.

Social factors play an important role in college student drinking. The majority of drinking in college occurs with peers in a social context (Christiansen, Vik, & Jarchow, 2002). Students typically drink at social functions (LaBrie, Hummer, & Pedersen, 2007), where alcohol is viewed widely as a social lubricant (Arnett, 2005; Borsari & Carey, 2006). Indeed, social motives for drinking predominate over coping motives in the college setting (Carey & Correia, 1997; Kuntsche, Knibbe, Gmel, & Engels, 2005). Further, descriptive and injunctive social norms, reflecting what is done or approved of by most others (Cialdini, Reno, & Kallgren, 1990), are among the strongest predictors of alcohol use among college students (e.g., Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). It has been proposed that norms are propagated in a social system through communication (Kincaid, 2004; Lapinski & Rimal, 2005). However, little research has examined the role that communication with peers may play in college students' alcohol use.

More frequent discussions with peers about drinking and alcohol-related consequences have been associated with an increased likelihood of excessive alcohol consumption (Dorsey, Scherer, & Real, 1999). Talking to friends about drinking is positively associated with current drinking (Rimal & Real, 2003) and future drinking intentions (Real & Rimal, 2007); these relationships hold even when controlling for perceived peer drinking norms. Communication about drinking also moderates the relationship between descriptive norms and drinking, with a stronger relationship of descriptive norms to alcohol consumption when drinking communication is high (Real & Rimal, 2007). Although informative, such a general characterization of communication does not shed light on the nature of the conversations about drinking.

Communication about drinking takes various forms (Mares, van der Vorst, Engels, & Lichtwarck-Aschoff, 2011; Real & Rimal, 2007). Drinking may be discussed positively, such as looking forward to events that often involve alcohol (e.g., parties, birthdays, or spring break). However, communication about drinking may also involve ways to stay safe while drinking. Students may share knowledge about protective behavioral strategies, such as limiting the number of drinks or choosing a designated driver (Martens, Pedersen, LaBrie, Ferrier, & Cimini, 2007; Sugarman & Carey, 2007), or develop plans for managing risks associated with drinking events (Howard, Griffin, Boekeloo, Lake, & Bellows, 2007). The

success of parent-based interventions in reducing risks related to drinking is based in promoting communication about avoiding drinking consequences and finding alternatives to drinking (e.g., Testa, Hoffman, Livingston, & Turrisi, 2010). Thus, conversations about managing drinking risks also co-exist with conversations about the positive aspects of drinking.

Research on a variety of health behaviors suggests that explicit peer encouragement can prompt engagement in safer behaviors. For example, encouragement to use condoms is associated with increased condom use by others (Friedman et al., 2004). Similarly, prosocial involvement of bystanders may help prevent sexual victimization, which often coincides with alcohol use (Banyard, Plante, & Moynihan, 2004). In a qualitative study, students described caring for friends who drank too much, and female students expressed willingness to engage friends in conversation about reducing excessive drinking (Howard et al., 2007). These conversations representing active preventive outreach to friends have been described as peer intravention (Friedman et al., 2004).

The construct of social proliferation refers to the diffusion of ideas through discussion and social support (Larkey & Hecht, 2010). The effect of social proliferation depends on the content and valence of conversations on a topic (Miller-Day & Hecht, 2013). It follows then that how alcohol is portrayed in discussions may be as important as how often drinking is discussed. Thus, an important extension of previous work is to disentangle discussions about drinking more safely from discussions of drinking. Promotion of health communication that supports risk reduction could be a key component in successful alcohol interventions.

Communication about alcohol use, and health more generally, may also be more likely to originate from certain individuals. Social leaders or popular opinion leaders, those who speak out and are sought by others for advice, may be an especially important source of information (Valente & Davis, 1999). Information and opinions shared by social leaders are more likely to be diffused through peer groups (Valente & Fosados, 2006). In HIV prevention interventions, safer sex practices advocated by peer opinion leaders have led to reduced risky sexual behaviors among peers (Kelly, 2004). In the context of college student drinking, social leaders may be the individuals in a peer group who organize social events or whose opinions weigh most heavily in decisions about activities in which the group might participate. These individuals may be the source of widespread attitudes and beliefs about drinking (Valente & Fosados, 2006), and can potentially be the source of communication promoting drinking or modulating drinking risk.

Given the potentially important role of communication in transmitting social norms and shaping drinking behavior, and the paucity of research on this topic, we sought to develop more fine-grained measurement of communication about alcohol use. This study had three aims. First, we aimed to identify dimensions of communication about drinking engaged in by mandated college students (i.e., talking about drinking, talking about safety while drinking, encouraging peers to drink safely) and assess the validity and reliability of these constructs.

Second, we provided both convergent and divergent evidence for the validity of these dimensions of communication, as they relate to each other and also to other constructs. Based on previous research, we expected female students to report engaging in conversations about safety to a greater extent than male students (Howard et al., 2007). Also, we expected that conversations about drinking should be correlated with drinking behavior and consequences (e.g., Real & Rimal, 2007). In addition, because of their conceptual similarity, we predicted that conversations about safety would be positively correlated with protective behavioral strategies. We also hypothesized that social leadership would be correlated with both increased general discussion about drinking and also specific discussions about drinking safety.

Our third goal was to test an extension of the Theory of Normative Social Behavior (Rimal & Real, 2003, 2005). As mentioned earlier, perceived descriptive norms are reliable predictors of alcohol consumption by college students (e.g., Neighbors et al., 2007), yet not all individuals conform to those norms. The Theory of Normative Social Behavior (TNSB) was developed to enhance understanding of the conditions under which perceived norms influence behavior, suggesting that certain social cognitive variables moderate the influence of descriptive norms on behavior. Specifically, the effect of descriptive norms on drinking behavior is enhanced in the presence of permissive injunctive norms (e.g., social approval), positive outcome expectancies (e.g., benefits of drinking), and strong group identity (e.g., perceived similarity) (Lapinski, Anderson, Shugart, & Todd, 2014; Rimal & Real, 2005). Peer communication, operationalized as frequency of talking to friends about drinking, has been identified as another effect modifier (Rimal & Real, 2003; Real & Rimal, 2007). To illustrate this point, Real and Rimal (2007) showed that peer communication predicted drinking over and above descriptive norms, and a significant interaction indicated that descriptive norms were strongly related to drinking when peer communication was high. According to the TNSB, peer communication about drinking is one way that norms are propagated in social circles. Students holding elevated perceptions of how much others drink may find those perceptions reinforced by peer discussion about drinking events and drinking behavior, strengthening the influence of norms on behavior.

We tested the hypothesis that each dimension of communication (talking about drinking, talking about safety, and peer intravention) would predict personal drinking beyond perceived descriptive norms of close friends. We further explored whether these multiple dimensions of communication would moderate the relationship between descriptive norms and alcohol consumption. Specifically, we predicted that talking about drinking would strengthen the effect of descriptive norms on behavior, and talking about safety and peer intravention would weaken the effect of descriptive norms on behavior.

## Method

### Participants

Data were drawn from the baseline assessment of an ongoing intervention trial. Participants were students enrolled in a public university in the Northeast who had violated campus alcohol policy and were required to participate in an alcohol risk reduction intervention. Students were eligible for the trial if their violation was alcohol-related and they were over

the age of 18. Of 368 students who were screened, 362 (98%) met eligibility criteria. Eligible students were given the option of completing their sanction requirement through study participation or through standard university procedures. Only 17 students declined participation and did not consent to participate. Thus, the final sample consisted of 345 participants (95% of eligible students) who provided written informed consent and completed the baseline assessment.

## Measures

**Descriptives**—Participants reported gender, age, weight, and race/ethnicity, and completed a reliable and valid 13-item short-form of the Marlowe-Crowne Social Desirability scale (Reynolds, 1982). Alpha in this sample was .67.

**Communication Measures**—We adapted items from two published measures. These scales were selected because they captured unique aspects of peer communication.

We adapted two alcohol peer communication items used by Real and Rimal (2007) and added four more items utilizing the same response format to expand the construct. Participants reported how often – in the past month and normally – they talked with friends about “drinking alcohol.” The additional items asked how often participants talked with friends about “reducing risks related to drinking alcohol,” and “staying safe when drinking alcohol.” The three items referencing the past month were rated from 0 (*never*) to 5 (*10 or more times*); the three parallel items referencing “normally” were rated from 0 (*never*) to 5 (*nearly every day*).

We adapted four items from previous work (Friedman et al., 2004) to reflect active preventive outreach to peers. Items assessed how often in the past month participants “talked to a friend about drinking less alcohol,” “encouraged a friend to drink less alcohol,” “supported a friend who did not want to drink,” and “talked with a friend before going out about how to avoid drinking too much.” Items were rated from 0 (*0*) to 3 (*3+ times*).

**Alcohol Use and Consequences**—For all assessments, a standard drink was defined as a 12 oz. can or bottle of beer; 5 oz. glass of wine; or 1 oz. shot of hard liquor either straight or in a mixed drink. Drinking measures referred to the past month. Typical drinks per week was assessed with a 7-day grid, adapted from the Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985). Responses were summed across the 7 days to reflect the total number of drinks consumed in the typical week. Participants also reported the maximum number of drinks consumed in a single day and the number of hours during which they consumed alcohol on this day, in order to calculate peak BAC using a standard formula that accounted for participants’ gender and weight (Matthews & Miller, 1979).

The Alcohol Use Disorders Identification Test (AUDIT; Allen, Litten, Fertig, & Babor, 1997) consisted of 10 items assessing risk for problematic alcohol use in the past year. Three items assessed the frequency of consumption and seven items assessed the frequency of consequences; the total score ranged from 0 – 40; alpha in the current sample was 0.66. The AUDIT is a valid measure of at-risk drinking by college students (e.g., DeMartini & Carey, 2012).

The 24-item Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ) was used to assess the number of alcohol related problems participants experienced in the last month (Kahler, Strong, & Read, 2005). The BYAACQ is reliable (KR = 0.84 in the current sample) and includes items such as, “I have passed out from drinking”, and “The quality of my work or schoolwork has suffered because of my drinking.”

**Validation Measures**—The following scales were included to provide evidence for convergent, discriminant, and predictive validity for the dimensions of peer communication. First, social leadership was assessed with seven items adapted from a measure of opinion leadership (Childers, 1986). The stem used for this study was “describe your interactions with friends regarding going out” because pilot work indicated that college students understood going out as socializing with alcohol. Items included how likely participants are to be asked about going out 1 (*not at all*) to 5 (*very*), and how much input participants give in discussions about going out 1 (*very little*) to 5 (*a great deal*). Anchors varied depending on the item. Alpha for the sample was .77.

Second, to assess protective behavioral strategies, participants reported how often they engaged in 21 “things that students sometimes do to limit their alcohol consumption” in the past month (Sugarman & Carey, 2007). The seven-point likert scale ranges from “none” to “more than 10 times” and included an option for “N/A”. The items referred to strategies such as “drank slowly” and “chose not to pre-game or pre-bar”. This questionnaire yields 3 subscales: Strategies While Drinking (10 items;  $\alpha = .85$ ), Avoidance of Risky Drinking (7 items;  $\alpha = .66$ ), and Alternatives to Drinking (4 items;  $\alpha = .60$ ). As recommended, the drinking and avoidance strategies subscales were weighted for analyses in order to reflect frequency of using protective behavioral strategies relative to the frequency of drinking (Braitman, Henson, & Carey, 2014).

Descriptive norms were assessed using a 7-day grid on which participants estimated the number of drinks their close same-gender friends consumed on each day of a typical week (Baer, Stacy, & Larimer, 1991). Responses were summed across the 7 days to yield perceived drinks per week for friends.

## Data Analyses

Scale scores were formed by summing items for participants with at least 80% of items present on each scale. We first assessed the factor structure of the ten peer communication items using principal axis factoring. Both direct oblimin and promax rotations were examined to provide converging evidence on the number of factors to be extracted. An increasing number of factors were extracted. Patterns of factor loadings and scree plots were examined to determine the number of factors to retain; the decision criteria were based on simple structure and interpretability.

Next, we used pearson product moment correlations to assess interrelationships among communication variables, measures of consumption and other validation measures. We evaluated the association of gender with the communication variables using t-tests.



To address the third aim, we used hierarchical multiple regression to examine whether the retained dimensions of communication (a) predicted drinks per week independent of perceived drinking of close friends of the same gender, and (b) moderated the relationship between those descriptive norms and typical drinks per week. Main effects and interactions involving all communication variables were included in a single model. The communication variables and descriptive norms were centered at the sample mean before forming interactions. Simple slopes were probed at different levels of communication by re-centering the communication variables to 1 standard deviation above and below the mean (Aiken & West, 1991).

## Results

### Sample Characteristics

On average, participants were 19.25 years old ( $SD=1.11$ ). The sample was predominantly male (75%) and white (82%). Most students were in their freshman (31%) or sophomore year of college (39%). Participants drank an average of 12.71 drinks per week ( $SD = 8.88$ ); for males the mean was 14 ( $SD = 9.13$ ) and for females the mean was 8.91 ( $SD = 6.8$ ). Males perceived that their close friends drank an average of 20.3 ( $SD = 10.2$ ) drinks per week and females estimated their friends drank 12.0 drinks per week ( $SD = 6.3$ ). Average peak BAC was 0.16 ( $SD = 0.10$ ). The mean AUDIT score was 11.02 ( $SD = 5.14$ ; range 1 – 33); 73% met or exceeded the standard cut-off score of 8 for hazardous drinking (Allen et al., 1997). The average number of problems on the BYAACQ experienced in the last month was 5.44 ( $SD = 4.25$ ) out of 24.

### Dimensions of Peer Communication

Principal axis factoring was used to discern distinct types of communication about drinking based on the adapted communication measures. The 6-item alcohol peer communication scale and the 4-item peer intravention scale were examined simultaneously in a single factor analysis from which two factors were extracted. The first factor represents general communication about drinking; this subscale had an eigenvalue of 1.52 and accounted for 15% of the variance. The two items in this subscale were summed to form the scale score ( $\alpha = .80$ ). The second represents talking about safety related to drinking alcohol; this subscale had an eigenvalue of 3.15 and accounted for 31% of the variance. The combined scale representing talking about safety included the peer intravention items. Due to varying response options, the eight items in this subscale were standardized before summing them ( $\alpha = .83$ ). We examined whether the obtained factor structure was primarily reflective of the higher risk individuals in the sample. The factor structure remained consistent among subgroups formed by dividing the sample by a median split into heavier (high risk) drinkers and lighter (low risk) drinkers.

### Convergent and Divergent Evidence for Validity

All correlational analyses were run with and without social desirability as a covariate. Because controlling for social desirability did not change the pattern of relationships we report bivariate and not partial correlations.

General drinking communication was positively correlated with communication about safety ( $r = .15, p < .01$ ). We found gender-based patterns in engaging in the two forms of communication. Men were more marginally more likely to talk about drinking in general ( $M = 6.29$ ) than women ( $M = 5.69$ ),  $t(340) = 1.95, p = .05$ , however women were far more likely to discuss staying safe while drinking ( $M = 0.22$ ) than men ( $M = -.08$ ),  $t(343) = -3.63, p < .01$ .

Next, we addressed the relationships among communication variables and alcohol use and problems and protective behaviors (see Table 1). As predicted, typical drinks per week, peak BAC, AUDIT scores and problems correlated positively with general communication about drinking ( $r_s = .28-.45, p_s < .01$ ). These measures were not significantly related to communication about safety, with the exception that frequency of talking about safety was related to drinking-related problems ( $r = .14, p < .01$ ). General communication about drinking was negatively correlated with protective behavioral strategies employed while drinking ( $r = -.13, p < .05$ ) and avoidance of drinking strategies ( $r = -.20, p < .01$ ), but not significantly related to strategies for alternatives to drinking ( $r = -.06, p = .26$ ). As expected, communication about safety was related to all protective behavioral strategies including those employed while drinking ( $r = .24, p < .01$ ), avoidance of drinking strategies ( $r = .36, p < .01$ ) and strategies for alternatives to drinking ( $r = .18, p < .01$ ).

We also explored the relationship between social leadership and communication about drinking. As shown in Table 1, social leadership was significantly positively correlated with both general drinking communication and communication about drinking safety. Because social leadership was also correlated with alcohol consumption (typical drinks per week,  $r = .33, p < .01$ ) we confirmed that its relationship with talking about drinking and about safety maintains when partialling out drinks per week (partial  $r_s = .26$  and  $.22$ , respectively,  $p_s < .001$ ).

### Additive Value of Peer Communication Relative to Descriptive Norms

As shown in Table 2, general talking about drinking explained additional variance in drinks per week beyond perceived friend norms, but did not moderate the relationship between friend norms and drinks per week ( $p = .16$ ). Conversely, talking about safety did not explain additional variance in drinks per week ( $p = .21$ ). However, this protective factor moderated the relationship between friend norms and typical drinks per week ( $p = .01$ ).

Simple slopes for the interaction between descriptive norms and talking about safe drinking are illustrated in Figure 1. When participants rarely discussed staying safe while drinking with friends, descriptive norms were strongly associated with drinks per week ( $B = 0.58, t = 10.46, p = .001$ ); however, when participants spoke more often with friends about how to stay safe while drinking, descriptive norms were less strongly associated with drinks per week ( $B = 0.39, t = 6.41, p = .001$ ). All analyses were re-examined controlling for social desirability. Results remained the same.



## Discussion

The highly social nature of drinking in college suggests that drinking risk in a mandated sample might be reflected in peer communication about alcohol. In this study we distinguished between conversations about drinking in general, and conversations about staying safe while drinking. We extended previous research (e.g., Real and Rimal, 2007) by differentiating between these two constructs, which are only weakly correlated in the positive direction. The ability to reliably differentiate these types of communication sets the stage for evaluating the impact of risk reduction interventions on these two targets.

In addition to differentiating two distinct dimensions of communication, we provided evidence in support of their construct validity. Talking about drinking was significantly associated with both alcohol use and problems measures. Thus, the frequency of talking about drinking reflects greater involvement with the behavior, consistent with prior research on alcohol (Dorsey et al., 1999; Real & Rimal, 2007) and other health behaviors such as sexual hookups (Holman & Sillars, 2012). Talking about drinking was negatively related to the use of protective behavioral strategies during the course of drinking as well as strategies used to avoid high risk drinking. Thus, more frequent talking about drinking alcohol identifies students who use fewer protective strategies in drinking situations. Use of protective behavioral strategies is relevant to prevention because they are related to lower alcohol use and consequences (Pearson, 2013; Prince, Carey, & Maisto, 2013). Because talking about drinking and talking about safety were only weakly correlated, a promising prevention strategy may be to teach drinkers to incorporate discussion of protective strategies into planning, more explicitly linking these conversations.

In contrast, conversations about safety and risk reduction were not correlated with alcohol consumption, suggesting that students at all levels of alcohol involvement are equally likely to engage in these conversations. However, self-reported problems related to drinking were associated with having conversations about safety and risk reduction, perhaps because students who report experiencing more problems may tend to also frequently discuss safety as a way to cope. Importantly, engaging in conversations about safety and risk reduction is positively related to using all forms of protective behavioral strategies -- those that are employed while drinking as well as those associated with avoiding risky situations and engaging in alternative non-drinking activities. Use of a range of protective behavioral strategies reflects efforts to self-regulate drinking outcomes (D'Lima, Pearson, & Kelley, 2012), so conversations with peers about safety and risk reduction appear to be another indicator of these efforts. However, with cross-sectional data we cannot determine whether conversations about safety and risk reduction reflect use of protective strategies, or if such conversations serve as a public commitment (Cialdini, 2009) that enhances the likelihood that protective behavioral strategies will be used.

The two communication variables correlated positively with the social leader scale, indicating that social leaders engage in conversations both promoting drinking as well as promoting safety. Thus, peers who are social leaders may be able to influence behavior by directing the course of conversation toward or away from safe behavior. Using popular opinion leaders has been proposed as a method for diffusing innovations through social

networks (Valente & Davis, 1999; Valente & Fosados, 2006). Interventions designed to reduce high risk sexual behavior (Kelly et al., 2006; Kelly et al., 1997) and smoking among adolescents (Valente, Hoffman, Ritt-Olson, Lichtman, & Johnson, 2003) show the value of recruiting peer opinion leaders from the target community. One implication of the present findings is that enlisting social leaders to convey messages that encourage safe alcohol use may be a viable means for influencing the alcohol use in their social network, potentially with greater credibility and impact than other intervention facilitators. In this way social leaders may serve as vehicles for positive social proliferation. Another implication is that social leaders already possess some of the skills to engage peers in conversations about safety and risk reduction. Prevention efforts could benefit from gaining a better understanding of how some individuals within a college environment exhibit health promoting behaviors, using precedents from the study of positive deviance (Bradley et al., 2009).

Female students were slightly less likely to talk about drinking with friends but were significantly more likely to both talk about safety and risk reduction than were male students. Prior research had identified females as more willing than males to talk to peers about their drinking behavior, and to seek help when concerned about a friend, although both sexes express uncertainty about how to do so (Howard et al., 2007). On average, it appears that female students may be more inclined to caretaking and have more confidence in their communication skills. Prevention efforts might capitalize on the fact that female drinkers engage in a communication style associated with protective behavioral strategies. Gender-tailored strategies might focus on helping female students to learn what to say and when to say it, for motivation already exists to avoid harms such as sexual victimization (Abbey, 2002). However, male students may need more help in learning how to have conversations about safety and risk reduction, especially in light of the fact that the masculine gender role is often associated with health risk behavior and failure to seek help (Courtenay, 2000).

Evidence for discriminant validity comes from observations that general alcohol communication but not conversations about safety explained variance in drinks per week above and beyond that explained by perceived drinking norms of close friends. This finding replicates and extends the findings of Rimal and Real (2003, 2007), providing support for the independence of perceived norms as a cognitive risk factor and peer communication about drinking as a behavioral risk factor for elevated drinking.

A novel finding of this study is that when mandated students reported having conversations about drinking safely and reducing risk, they were less influenced by the perceived drinking of their close friends. Perhaps these kinds of conversations “give permission” to members of a peer group who wish to moderate their drinking to do so, even though some of their friends are drinking heavily. Although talking about safety is not independently associated with drinking behavior, it appears to have an indirect effect on drinking by weakening the influence of a permissive normative environment. Our findings extend the research supporting the TNSB by introducing a finer grained analysis of peer communication as an effect modifier.

We recognize the limitations of this study. First, information about peer communication patterns and social leadership was obtained by self-report, and not validated against collateral report or observational measures. Second, the nature of the conversations about alcohol and risk reduction could be further specified. For example, general conversations about drinking might subsume a variety of topics, including planning drinking events, discussing past drinking exploits, or commenting on others' behaviors while drinking. Future research might investigate the dimensions of talking about drinking that are most predictive of consumption. Third, we operationalized descriptive norms as estimates of friends' drinks per week. Although the TNSB dictated our focus on descriptive norms, we acknowledge that there are many ways to measure norms. Additional research is needed to establish the generalizability of these observations across measures, including other behaviors (e.g., drinking frequency) and referent groups. Fourth, this study used a cross-sectional design. Prospective research is needed to determine whether these relationships hold in predictive models.

One final limitation of this study is that it involved mandated students at one university in the northeastern United States. Relative to the general student body, our mandated sample included greater proportions of males and underclassmen living in on-campus dorms and reported more drinks per week (Merrill et al., 2014). This sample represented at-risk drinkers and therefore the findings may not generalize to all students who are lighter drinkers. However, our findings replicate those of Real and Rimal (2007) who studied alcohol communication in a general college sample. As in the Real and Rimal study, we found that general alcohol communication explained variance in drinks per week above and beyond that explained by perceived drinking norms of close friends. The overlap in these findings suggests that patterns of communication in our mandated sample may indeed generalize to the students in general.

This study adds to knowledge about young adult drinking in several ways. First, we operationalized two types of peer communication related to alcohol use, namely communication about drinking in general, and communication about mitigating the harms related to drinking. This distinction is relevant to prevention efforts, as the dimensions were differentially related to personal drinking behavior and use of protective behavioral strategies. We also demonstrated the importance of peer communication as a moderator of the well-established relationship between descriptive norms and personal alcohol consumption. Whereas general communication about drinking and descriptive norms predicted consumption in additive fashion, communication about safety/risk reduction mitigated the impact of permissive descriptive norms on alcohol consumption. This finding extends the TNSB and suggests that peer communication may be a new target for intervention. Preventive interventions that aim to reduce inflated perceptions of descriptive norms may be more effective if they also aim to reduce conversations about drinking and/or increase conversations about safety.

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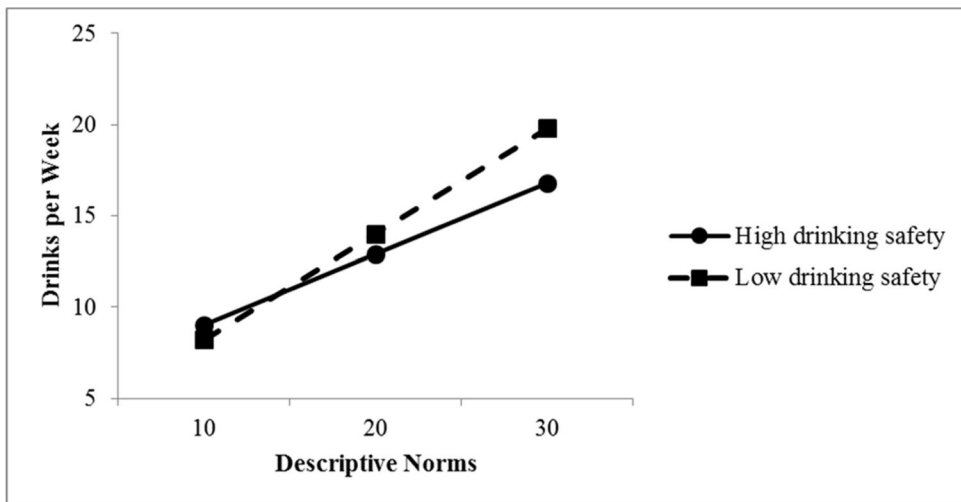
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**Figure 1.** Interaction between descriptive norms for close friends and talking about staying safe while drinking. High and low levels of talking about safety were defined as 1 standard deviation above and below the mean, respectively.

**Table 1**

Correlations Among Communication Scales, Drinking Behaviors, and Protective Strategies

| Measure                   | Communication about |                 |
|---------------------------|---------------------|-----------------|
|                           | General drinking    | Drinking safety |
| Drinks per week           | .45*                | -.03            |
| Peak BAC                  | .35*                | .05             |
| Problems                  | .28*                | .14*            |
| AUDIT                     | .34*                | .09             |
| Strategies While Drinking | -.16*               | .15*            |
| Avoidance Strategies      | -.20*               | .26*            |
| Alternative Strategies    | -.06                | .18*            |
| Social Leadership         | .37*                | .20*            |

Note. *Ns* = 332–345. BAC = blood alcohol concentration. AUDIT = Alcohol Use Disorder Identification Test

\**p* < .01

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**Table 2**

Hierarchical regression models predicting drinks per week from descriptive norms for friends, communication variables, and their interactions.

| Predictors                           | Drinks per week |       |       | R <sup>2</sup> |
|--------------------------------------|-----------------|-------|-------|----------------|
|                                      | $\beta$         | B     | p     |                |
| Step 1                               |                 |       |       | .45            |
| Gender                               | 0.00            | 0.06  | .94   |                |
| Descriptive norms                    | 0.67            | 0.60  | <.001 |                |
| Step 2                               |                 |       |       | .04            |
| Gender                               | 0.01            | 0.09  | .92   |                |
| Descriptive norms                    | 0.58            | 0.52  | <.001 |                |
| General drinking communication       | 0.23            | 0.82  | <.001 |                |
| Drinking safety communication        | -0.05           | -0.67 | .21   |                |
| Step 3                               |                 |       |       | .01            |
| Gender                               | -0.02           | -0.37 | .68   |                |
| Descriptive norms                    | 0.54            | 0.49  | <.001 |                |
| General drinking communication       | 0.23            | 0.84  | <.001 |                |
| Drinking safety communication        | -0.04           | -0.54 | .32   |                |
| General drinking x Descriptive norms | 0.06            | 0.02  | .16   |                |
| Drinking safety x Descriptive norms  | -0.10           | -0.14 | .01   |                |