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Lau-Barraco, Cathy and Linden, Ashley N., "Drinking Buddies: Who Are They And When Do They Matter?" (2014). *Psychology Faculty Publications*. 51.
https://digitalcommons.odu.edu/psychology_fac_pubs/51

Original Publication Citation

Lau-Barraco, C., & Linden, A. N. (2014). Drinking buddies: Who are they and when do they matter? *Addiction Research & Theory*, 22(1), 57-67. doi:10.3109/16066359.2013.772585

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Published in final edited form as:

Addict Res Theory. 2014 ; 22(1): 57–67. doi:10.3109/16066359.2013.772585.

Drinking Buddies: Who Are They and When Do They Matter?

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Abstract

The present study sought to further examine the role of peers on alcohol use and problems among young adults. In particular, we focused on a specific subset of peers in one's social network mostly for activities related to alcohol use called "drinking buddies." The presence of drinking buddies in one's social network has been shown to predict heavy drinking uniquely over but few studies have focused on potential factors moderating the relationship. Consequently, an aim of present study was to examine the influence of drinking buddies on alcohol outcomes and the extent to which the relationship may be dependent on one's normative perceptions. Another aim was to provide a descriptive examination of drinking buddies. Participants were college students ($N = 250$; 72.8% women) who completed self-report measures of alcohol use and problems, injunctive norms, descriptive norms, and social network characteristics. Results showed that descriptive norms moderated the relationship between drinking buddies and all alcohol outcomes assessed. Specifically, the influence of drinking buddies was stronger for those who perceived a lower prevalence of peer drinking. Examination of drinking buddies characteristics revealed that these peers tended to be young adults who were moderate social drinkers with whom they felt close and perceived to be available for concrete and emotional support. Several differences emerged between the drinking buddies of heavy versus non-heavy drinkers. The present study contributed to the larger body of work on peer influence and alcohol use by examining a specific subgroup of peers that may promote risky drinking.

Keywords

Drinking buddies; alcohol use; peer influence; normative perceptions

Both cross-sectional and longitudinal studies support the direct impact peers have on individual drinking (e.g., Ali & Dwyer, 2010; Henry, Slater, & Oetting, 2005; Jaccard, Blanton, & Dodge, 2005). This has been demonstrated across both adolescents (e.g., Ali & Dwyer, 2010; Preston & Goodfellow, 2006) and various sub-groups of young adults. Specifically, among college student drinkers, cross-sectional studies have shown peers to be a strong predictor of personal alcohol use (Fondacaro & Heller, 1983; Wood, Read, Palfai, & Stevenson, 2001). Among young adult problem drinkers, greater binge drinking (4/5 standard drinks in one sitting for women/men) was related to having a social network with more heavy drinkers (Delucchi, Matzger, & Weisner, 2008). In a community-based sample of nonstudents, the proportion of heavy drinkers in one's network was related to greater

personal alcohol use and alcohol-related problems (Lau-Barraco & Collins, 2011). Prospective examinations have shown that peer use predicts later binge drinking (Andrews, Tildesley, Hops, & Li, 2002) and changes in personal use (Labouvie, 1996).

The drinking of particular social network members may be especially influential in an individual's own alcohol use. It has been suggested that the influence of peers may rest not necessarily on the drinking habits of the person's overall network but on particular peers, such as "drinking buddies" (e.g., Leonard & Mudar, 2003). Drinking buddies are individuals from one's network designated as companions for the primary purpose of drinking (Leonard, Kearns, & Mudar, 2000). Drinking buddies in one's social network has been shown to predict alcohol use even after considering the impact of general drinking by peers. Specifically, a prospective study of college students found that the presence of drinking buddies predicted alcohol misuse one year later (Reifman, Watson, & McCourt, 2006). The effect was significant even after controlling for baseline alcohol use by the peer network. This supports the notion that beyond the drinking by peers, certain individuals in the network (i.e., drinking buddies) could further account for the peer-use relationship and that specific peers may exhibit unique influence on individual drinking.

Similar findings of the impact of drinking buddies have been demonstrated among newly married couples. A prospective study found that drinking buddies predicted subsequent heavy drinking and alcohol problems during the first years of marriage (Leonard & Homish, 2008). In a follow-up study, the number of drinking buddies one reports predicted his/her spouse's network of drinking buddies over time (Homish & Leonard, 2008). Thus, the number of drinking buddies in one's network is influenced by their partner's drinking peers and that the social networks of marital partners interrelate.

Few studies have focused on potential factors moderating the relationship between drinking buddies and alcohol outcomes. One study examined mediators by testing alcohol expectancies (i.e., beliefs regarding the effects of alcohol use) as an underlying process by which drinking buddies influence individual alcohol use (Lau-Barraco, Braitman, Leonard, & Padilla, in press). However, little to no research is available on exploring potential factors that may moderate the relationship between drinking buddies and the individual's drinking habits. Identifying conditions under which the two variables are related would aid in designing and tailoring alcohol interventions for young adults.

The social influence of drinking buddies on alcohol use may be dependent on the individual's normative perceptions of alcohol use by their peers. It is possible that drinking buddies influence individual drinking by conveying the norm or permissiveness of drinking behaviors in social situations (Borsari & Carey, 2001). Normative perceptions of drinking may be categorized as either injunctive or descriptive (Baer, Stacy, & Larimer, 1991). Injunctive norms pertain to perceived attitudes regarding excessive drinking. Greater perceived injunctive norms predict greater alcohol outcomes, including consumption and alcohol-related consequences (Larimer, Turner, Mallett, & Geisner, 2004). College students perceive peers as holding more accepting attitudes of extreme drinking practices than is actually the case (Mattern & Neighbors, 2004). Injunctive norms have been shown to moderate the relationship between descriptive norms and personal drinking (Lee, Geisner,

Lewis, & Neighbors, 2007) as well as between descriptive norms and behavioral intentions to consume alcohol (Rimal, 2008).

Descriptive norms, or perceptions of drinking quantity or frequency among peers, are associated consistently with drinking behavior among college students. Students with higher descriptive normative perceptions exhibit greater quantity of drinking (e.g., Larimer et al., 2004; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007; Neighbors, Lewis, Bergstrom, & Larimer, 2006) and they report more alcohol-related problems (Neighbors et al., 2007) as compared to those with lower norms. Injunctive and descriptive norms may be considered distinct constructs with each accounting for unique variance in alcohol outcomes (Larimer et al., 2004; Real & Rimal, 2007).

Overall, the body of research on norm perception suggests that they are consistently strong predictors of drinking among college students. Given these findings, it may be that perceived norms serve to moderate the link between drinking buddies and alcohol use behaviors. Consequently, the primary aim of this study was to examine the influence of drinking buddies on personal alcohol outcomes (i.e., drinking quantity, frequency, binge drinking, and alcohol-related problems) and the extent to which the relationship may be dependent on one's normative perceptions (i.e., descriptive, injunctive norms). We hypothesized that the influence of drinking buddies on alcohol outcomes would be stronger for young adults with greater perceptions of drinking and permissiveness of heavy drinking by peers.

A secondary aim of this study was to provide a descriptive examination of drinking buddies. Scant research actually has focused on describing or characterizing this subset of peers in general. As noted by Reifman et al. (2006), identification of the characteristics and features of the relationship with drinking buddies may aid in drinking intervention efforts. Given that drinking buddies do predict subsequent use and problems, knowing who these buddies are may be important for prevention and intervention efforts. Characteristic of these key peer network members may serve as a proxy for identifying a "risky network" that could lead to later potential problematic alcohol use. Thus, we examined the demographic (e.g., age, gender, education), relationship (e.g., length of relationship, perceived social support), and alcohol use characteristics of peers identified as drinking buddies.

METHOD

Participants and Procedures

The sample consisted of 250 (72.8% women) college students from a public university. Participants were recruited from an undergraduate psychology research pool and were compensated with extra credit in their courses. Data were collected in groups with a maximum of 20 participants. They were provided with a packet of self-report questionnaires that took approximately one hour to complete. The study was approved by the university's institutional review board.

Measures

Alcohol consumption—Participant's own alcohol consumption was measured using the Daily Drinking Questionnaire (DDQ; Collins, Parks & Marlatt, 1985). Participants reported the number of drinks they typically consume for each day of the week over the past three months. Drinking indicators included drinking quantity (i.e., total drinks per week), drinking frequency (i.e., drinking days per week), and binge drinking frequency (i.e., number of binge drinking days per week; binge episode defined as 5 or more drinks per occasion for men and 4 or more drinks for women).

Alcohol-related problems—Alcohol-related problems were measured using the Young Adults Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, & Colder, 2006). The YAACQ is a 48-item self-report instrument that measures problems experienced in the past year with *yes* or *no* response options (e.g., "While drinking, I have said or done embarrassing things"). The overall scale score is calculated by summing the number of positive endorsements with higher scores indicating greater likelihood of experiencing alcohol-related problems. Our study demonstrated an excellent overall internal consistency (Cronbach's $\alpha = .94$).

Perceived norms—Injunctive norms were assessed using a 4-item instrument (Baer, 1994) on a 7-point scale (1 = *strongly approve*, 7 = *strongly disapprove*). The measure examines the extent to which the participant perceives their closest friends approve or disapprove of particular drinking behaviors (e.g., "Drinking alcohol every weekend"). Our study demonstrated adequate internal consistency ($\alpha = .74$).

Descriptive norms were assessed using the Descriptive Norms Rating Form (DNRF; Baer et al., 1991). Similar to the DDQ, participants reported the number of drinks they perceive their closest friends to consume on each day during a typical week in the past three months. Descriptive norms were defined as the perceived number of drinks consumed each drinking day in a typical week by their closest friends. This is calculated by dividing the total quantity of drinks in a typical week by the number of days of alcohol consumption in a week.

Social network—Characteristics of participant's social network were assessed using a modified version of the Social Network Map (SNM; Tracy & Whittaker, 1990). The SNM is a self-report instrument in which participants identify a maximum of 10 individuals (e.g., family, co-workers, boyfriend/girlfriend, teachers, etc.) within their social network with whom they had contact in the past year. Participants responded to questions regarding various characteristics of each person listed in their social network (i.e., age, gender, frequency of contact, length of relationships, closeness). To obtain information pertaining to alcohol consumption among network members, several questions were included for each person: (1) if he/she uses alcohol or drugs (responses were none, alcohol only, drug-only, drugs and alcohol), (2) what is his/her general drinking pattern during the past year (non-drinker, light social drinker, moderate social drinker, heavy social drinker, problem drinker), (3) if he/she is considered a "drinking buddy", defined as a person whom "you got together with on a regular basis to do activities that centered around drinking, going to bars or

nightclubs.” This modified version of the SNM has been previously used in a study examining drinking buddies (Lau-Barraco & Collins, 2011).

RESULTS

Sample Characteristics

The sample was primarily women (72.8%) with an average age of 19.69 years ($SD = 1.59$). The population was predominately Caucasian (54.4%) and African American (24.2%); others were Asian (5.6%), Hispanic (3.2%), Native American (2.4%), Alaskan Native (2%) and “other” (8.1%). Participants were 42% freshmen, 31.6% sophomores, 16.8% juniors, and 9.6% seniors. Participants reported consuming an average of 12.22 ($SD = 11.59$) standard drinks per week with a frequency of 2.36 ($SD = 1.41$) drinking days per week and a binge drinking frequency of 1.32 ($SD = 1.37$) days per week.

Analyses

Prior to analyses, data were cleaned and examined for outliers, and statistical assumptions were assessed. Using the total sample of 250 participants, moderation was tested with linear regressions as outlined by Baron and Kenny (1986). More specifically, all predictor variables (i.e., main effects, interaction terms) were centered to reduce multicollinearity. To examine descriptive norms as a moderator of the relationship between number of drinking buddies and alcohol outcomes, we entered the main effects (i.e., descriptive norms, number of drinking buddies) and the interaction between descriptive norms and number of drinking buddies in to the regression model. The same method was used to examine injunctive norms as a moderator of the relationship between drinking buddies and alcohol outcomes. Separate models tested the moderation of descriptive and injunctive norms across each alcohol outcome (i.e., drinking quantity, drinking frequency, binge drinking frequency, alcohol-related problems)¹. Significant interactions were followed up using simple slope analyses at different levels (i.e., 1 SD below the mean and 1 SD above the mean; Hayes & Matthes, 2009). See Table 1 for descriptive statistics and correlation of study variables. Analysis examining the general characteristics of drinking buddies from the social network were conducted only on participants who reported at least one drinking buddy ($n = 209$).

Moderation Analyses

Drinking quantity—Descriptive norms of close friends’ drinking moderated the relationship between the number of drinking buddies and drinking quantity. This was such that those with low descriptive normative perceptions of peer consumption and high in number of drinking buddies consumed more alcohol. Simple slopes analyses revealed that as drinking buddies increased, alcohol use also increased for those with moderate perceived norms, $B = 0.530$, $SE = 0.217$, $p = .016$, but stronger for those with lower perceived norms, $B = 1.256$, $SE = 0.320$, $p < .001$. For those with higher perceived norms, this relationship was non-significant, $B = -0.196$, $SE = 0.299$, $p = .514$ (see Figure 1). Injunctive norms did

¹Moderation analyses were conducted with and without gender as a covariate. The pattern of results was similar across both sets of analyses. For parsimony, we presented the results without gender as a covariate.

not significantly moderate the relationship between drinking buddies and drinking quantity (see Table 2).

Drinking frequency—Perceived descriptive norms of close friends moderated the relationship between the number of drinking buddies and one's own drinking frequency. This was such that those with low descriptive normative perceptions of peer consumption and high in number of drinking buddies drank more frequently. Simple slope analyses showed that the relationship between number of drinking buddies and drinking frequency was significant for individuals with both lower perceived norms, $B = 0.213$, $SE = 0.047$, $p < .001$ and moderate perceived norms, $B = 0.103$, $SE = 0.0328$, $p = .002$. Again, for students with higher perceived norms, this relationship was non-significant, $B = -0.007$, $SE = 0.045$, $p = .884$ (see Figure 2). Injunctive norms did not significantly moderate the relationship between drinking buddies and drinking frequency (see Table 2).

Binge drinking frequency—Descriptive norms moderated the relationship between the number of drinking buddies and one's own binge drinking frequency. Individuals with low perceptions of peer consumption and high in the number of drinking buddies binge drank more frequently. Simple slope analyses demonstrated that the relationship between number of drinking buddies and binge drinking frequency was significant for individuals both lower in perceived norms, $B = 0.153$, $SE = 0.043$, $p < .001$ and moderate perceived norms, $B = 0.072$, $SE = 0.032$, $p = .024$, such that their reported number of drinking buddies significantly predicted own binge drinking frequency. However, for students with higher perceived norms, this relationship was non-significant, $B = -0.009$, $SE = 0.041$, $p = .818$, in that their binge drinking frequency remained high regardless of their reported number of drinking buddies (see Figure 3). Injunctive norms did not significantly moderate the relationship between number of drinking buddies and binge drinking frequency (see Table 2).

Alcohol-related problems—Descriptive norms of close friends' drinking moderated the relationship between the number of drinking buddies and alcohol-related negative consequences. Students with low perceptions of peer consumption and high number of drinking buddies experience increased alcohol-related problems. Simple slope analyses demonstrated that the relationship between number of drinking buddies and alcohol-related problems was significantly positive for individuals low in perceived norms, $B = 1.437$, $SE = 0.320$, $p < .001$ and moderate perceived norms, $B = 0.855$, $SE = 0.217$, $p < .001$. This relationship was non-significant for individuals with higher perceived norms, $B = 0.273$, $SE = 0.299$, $p = .363$ (see Figure 4). Injunctive norms did not significantly moderate the relationship between drinking buddies and alcohol-related problems (see Table 2).

Drinking Buddies Characteristics

General characteristics of drinking buddies were examined for participants who reported at least one drinking buddy ($n = 209$). Descriptive statistics and proportions were derived for the following variables averaged across all drinking buddies: age, gender, education level, composition, frequency of contact, closeness of relationship, perceived social support, and drinking habits. To provide a basis for comparison, drinking buddies characteristics also

were examined separately for heavy drinking ($n = 140$) and non-heavy drinking ($n = 69$) participants (see Table 3). Significant differences between groups are tested with independent t-tests with Bonferroni adjustments for multiple comparisons. Heavy drinking status was defined as participants who reported at least one binge drinking episode (4/5 drinks in one sitting for men/women) in a typical week of alcohol consumption as assessed on the DDQ.

Demographic variables—On average, for the overall sample, 43% of drinking buddies were men and 57% were women. The mean age of drinking buddies was 21.49 ($SD = 5.41$) years. Regarding educational attainment, on average, 14% of drinking buddies were high school graduates, 12% never finished high school, 10% had some college, and 8% were college graduates.

When separated by heavy drinking status, non-heavy drinkers had a significantly higher proportion of women, $t(207) = 4.14$, $p < .001$, and lower proportion of men, $t(207) = -4.13$, $p < .001$, as drinking buddies. No other differences were found for demographic variables.

Composition—On average, 76% of all drinking buddies were peers. Family represented 11% and romantic partner (i.e., boyfriend/girlfriend, spouse) consisted of 12% of drinking buddies, on average. No significant differences were found based on heavy drinking status.

Frequency of contact—On average, participants were in contact on a daily basis with 44% of their drinking buddies. An additional 29% of drinking buddies were seen weekly, 19% seen monthly, and 7% seen a few times per year. No significant differences were found based on heavy drinking status.

Length of relationship—On average, 40% of drinking buddies had been known for more than five years, while 51% of drinking buddies were known between one to five years. Fifteen percent of drinking buddies were known for less than 1 year, on average. Consistent with previous work (Tracy & Whittaker, 1990), length of relationship was viewed as representing network relationship stability. No significant differences were found based on heavy drinking status.

Closeness of relationship—On average, 72% of drinking buddies were viewed as being “very close.” Twenty one percent were considered “sort of close,” while 5% were seen as “not very close.” No significant differences were found based on heavy drinking status.

Perceived social support—Participants perceived that, on average, 63% of drinking buddies were “almost always” available to provide concrete social support (e.g., help with a chore or errand). Seventy-one percent of drinking buddies were seen as “almost always” providing emotional support (e.g., listen to feelings). No significant differences were found based on heavy drinking status.

Alcohol and other substance use—Each drinking buddy was categorized into one of five drinking groups: “non-drinker,” “social light drinker,” “moderate social drinker,” “heavy social drinker,” and “problem drinker.” On average, 21% of drinking buddies were

light social drinkers, 49% were moderate social drinkers, 26% were heavy social drinkers, and 3% were problem drinkers. On average, participants reported drinking with their drinking buddies 7 days in the previous month. Drinking buddies were examined to reveal their use of alcohol and drugs. On average, 29% of the drinking buddies used both alcohol and drugs. An additional 67% used alcohol only, while 1% used drugs only.

Analysis based on heavy drinking status revealed that non-heavy drinkers ($M = 0.31$, $SD = 0.37$) had a significantly higher proportion of light social drinkers as drinking buddies than heavy drinkers ($M = 0.17$, $SD = 0.26$), $t(102) = 2.83$, $p = .006$. Heavy drinkers ($M = 0.29$, $SD = 0.32$), however, had a higher proportion of heavy social drinkers as drinking buddies than non-heavy drinkers ($M = 0.19$, $SD = 0.29$) but the difference was no longer significant following Bonferroni adjustment, $t(207) = -2.29$, $p = .023$. There was a significant difference in the proportion of drinking buddies that used both alcohol and drugs for heavy drinkers ($M = 0.33$, $SD = 0.35$) and non-heavy drinkers ($M = 0.20$, $SD = 0.33$), $t(207) = -2.55$, $p = .012$. Finally, heavy drinkers ($M = 8.39$, $SD = 14.22$) reported greater frequency of drinking with buddies than non-heavy drinking ($M = 3.79$, $SD = 4.91$) participants, $t(207) = -2.61$, $p = .010$.

DISCUSSION

The present study sought to further examine the role of peers on alcohol use and problems among young adults. In particular, we focused on a specific subset of peers in one's social network mostly for activities related to alcohol use called "drinking buddies." The presence of drinking buddies have been shown to predict heavy drinking over time (Homish & Leonard, 2008; Lau-Barraco et al., in press; Reifman et al., 2006); however, scant research has explored the potential factors that may moderate the relationship. Perceived normative perceptions have been demonstrated to be a consistent predictor of alcohol use among college students. Consequently, the primary aim of this study was to examine the relationship between drinking buddies in one's network and personal alcohol outcomes as moderated by peer descriptive and injunctive alcohol norms.

Findings revealed that the influence of drinking buddies on drinking outcomes was moderated by perceived descriptive norms. We found that if the student perceived a low level of use among their peers, then the influence of drinking buddies on personal drinking quantity was strengthened. However, if the student perceived a high level of use by their peers, then the influence of drinking buddies on personal drinking quantity was attenuated; their drinking quantity remained high regardless of the number of drinking buddies in their social network. Similarly, descriptive norms moderated the relationship when drinking frequency, binge drinking frequency, and alcohol-related problems were examined as outcomes. Results showed consistently that the influence of drinking buddies on alcohol involvement was stronger for those who perceived a lower prevalence of drinking by peers. Overall, these findings suggest that for students who believe others engage in increased drinking, they are likely to engage in drinking themselves and this relationship exists regardless of the number of drinking buddies they have in their social network. In contrast, however, drinking buddies matter in personal alcohol use when individuals have perceptions of low peer drinking.

These findings are interesting and are opposite from our initial predictions. It was originally hypothesized that drinking buddies' influence on use would be stronger for those with higher perceived norms. This prediction was based on the norms literature indicating the positive associations between descriptive norms and alcohol use and alcohol-related negative consequences (e.g., Larimer et al., 2004; Neighbors et al., 2007; Neighbors et al., 2006). On the basis of this research, it was predicted that greater drinking buddies would interact with greater norms to influence greater drinking. However, findings showed that for those with higher perceived norms, the number of buddies was not particularly relevant in their consumption level. What appears to be more important is their perception of the quantity of drinking among their peers. However, drinking buddies became much more relevant for students with lower perceived norms. It is possible that drinking buddies convey the normative nature of drinking, and for individuals with lower perceived norms, their drinking is more guided by their immediate drinking buddies. Perhaps in the absence of elevated norms that would drive the drinking behavior, individual drinking is influenced by observation of their drinking buddies, whereby the greater number of drinking buddies in one's social network relates to greater individual drinking and drinking related consequences.

The perceived approval of drinking practices among peers did not emerge as a significant moderator in the association between drinking buddies and alcohol outcomes. This is in contrast to descriptive norms, which demonstrated moderation across all outcomes assessed. Our findings add to the body of research highlighting injunctive and descriptive norms as unique constructs that, while related, often differentially or independently predict drinking behavior (Larimer et al., 2004; Lee et al., 2007). Studies on descriptive norms consistently have shown a positive link with alcohol use and alcohol negative consequences (Larimer et al., 2004; Neighbors et al., 2007; Neighbors et al., 2006). On the other hand, research on injunctive norms and drinking has been more mixed. While some studies have found positive associations between perceived approval of drinking behaviors and alcohol use and alcohol-related problems (e.g., Larimer et al., 2004; Wood et al., 2001), others found a negative relationship (e.g., Chawla, Neighbors, Lewis, Lee & Larimer, 2007; Lewis, Neighbors, Geisner, Lee, Kilmer, & Atkins, 2010). Another distinction between the two normative perceptions is that descriptive norms purportedly relate to the observation of direct drinking behavior, where injunctive norms relate to making an inference from the behaviors of others (Bosari & Carey, 2003). Because injunctive norms reflect less direct information, this may partly explain why injunctive norms failed to moderate associations between drinking buddies and alcohol involvement where descriptive norms did.

A secondary goal of the present paper was to examine the characteristics of individuals who are identified as drinking buddies. While several studies have provided both cross-sectional and longitudinal support for the unique role of drinking buddies in one's social network, no reports are available to the best of our knowledge regarding the specific characteristics of these drinking buddies. Greater understanding regarding these peers that are linked to greater future alcohol involvement allows us to better tailor alcohol interventions to better meet the needs of college drinkers. Identification of this subset of peers that are connected by the common goal of alcohol consumption could further aid in the development of interventions by identifying risky peer networks that may be targets of intervention efforts.

Findings showed that drinking buddies tend to be young adult peers rather than family or intimate partners. They reported consuming alcohol with their drinking buddies for 7 days in the previous month, on average. Approximately half of the drinking buddies were categorized as moderate social drinkers by the participant while 26% were identified as heavy social drinkers. Participants were in contact with almost half of their drinking buddies on a daily basis. Some relationships with drinking buddies were relatively stable in terms of the longevity of the relationship. Approximately half of the drinking buddies were known between 1 and 5 years, and about 40% had been known for more than 5 years. With regard to the availability of social support by drinking buddies, on average, 63% of drinking buddies were perceived as almost always available to offer concrete social support, such as providing a ride or looking after belongs while away. Seventy-one percent of drinking buddies were almost always available to provide emotional support, including offering comfort or listening. Participants reported feeling very close to 72% of drinking buddies. The level of perceived support and closeness with drinking buddies may have important implications for intervention. For instance, some alcohol intervention programs encourage drinkers to avoid high-risk situations or individuals (e.g., Dimeff, Baer, Kivlahan, & Marlatt, 1999), which often times may involve drinking buddies. These findings suggest how complicated the task may be for some to accomplish in light of the support they receive and the interpersonal connection they have with their drinking peers.

When characteristics of drinking buddies were examined separately based on participant heavy drinking status, several differences emerged. Heavy drinkers had a greater proportion of men and lower proportion of women as drinking buddies. Of their drinking buddies, heavy drinkers may be more likely to have a greater percentage of heavy social drinkers in their network while non-heavy drinkers may have more social light drinkers. Furthermore, heavy drinkers were found to have a greater proportion of drinking buddies as users of both alcohol and drugs. Heavy drinkers reported drinking with their buddies more often than non-heavy drinkers. Thus, it appears that heavier drinkers may have drinking buddies with particular characteristics that place them at elevated risk for problematic drinking. Whether these drinking buddies came about as a result of the individual selecting these peers or these peers influencing the drinking of the individual or some combination of these effects warrants additional future research.

Consistent with other research, our findings support the notion that peers designated as drinking buddies may be particularly important and may serve as a risk factor for various drinking outcomes (Lau-Barraco et al., in press; Leonard & Homish, 2008; Reifman et al., 2006). To capitalize on the potential robust influence of peers on drinking, social-network based approaches that tap into the friendship network as the unit of intervention target may prove to be a beneficial approach to drinking reduction among young adults as these network ties may act to reinforce or promote risky drinking. Intervention and treatments incorporating the social network has been limited but has been applied to different populations (e.g., dependent users, college students; Litt, Kadden, Kabela-Cormier, & Petry, 2009; Tevyaw, Borsari, Colby, & Monti, 2007) and substances (e.g., alcohol, smoking; May, West, Hajek, McEwen, & McRobbie, 2006). Based on the current findings, social-network based interventions may be particularly helpful for college drinkers with low perceived norms. Further, to the extent that high norms individuals base their perceived norms on their

own behavior by way of the false consensus effect (i.e., people tend to think others think and act as they do), a norms-based intervention that corrects the misperceptions could be beneficial. Because research has shown that young adults consistently overestimate the frequency and quantity of their peers' drinking (Borsari & Carey, 2003), interventions that incorporate their actual peers may provide behavior models for correcting these drinking norms.

The findings of the current study should be considered in light of several limitations. First, the cross-sectional nature of this study prevents causal interpretation of the findings. It is possible that the direction of influence from drinking buddies to alcohol use is reversed, whereby one's drinking leads to selection of peers with the same interest (i.e., selection effect) rather than drinking buddies influencing the drinking of the individual (i.e., socialization effect). Still, others have demonstrated the presence of both socialization and selection processes with evidence for their concurrent influence (e.g., Bullers, Cooper, & Russell, 2001; Reifman et al., 2006; Simons-Morten & Chen, 2006). However, previous research using longitudinal designs have demonstrated prospective influence of drinking buddies on subsequent alcohol use (e.g., Lau-Barraco et al., in press; Leonard & Homish, 2008; Reifman et al., 2006). While additional research on the issue of socialization and selection processes may be needed, future research to further our understanding of the unique contributions to individual drinking by peers identified as "drinking buddies" remains necessary. The current study adds to the larger literature on the peer-use relationship, however, it specifically focused on moderating factors rather than addressing why and how drinking buddies exert their influence.

Second, our data were based on self-reports and the social network data of the drinking buddies was not independently confirmed. Consequently, the data reported by participants regarding their networks may be susceptible to reporting bias. Future research would benefit from gathering data from the members of the individual's defined social network rather than relying on egocentric network data whereby only data is gathered only from one member of a network. Another limitation is that some of the variables of interest in the present study were moderately correlated (r 's range from .2 to .5). While multicollinearity could potentially impact the interpretation of the moderation analyses, we did not find any violations of multicollinearity between predictor variables in our data. Lastly, generalization of findings beyond college students should be made with caution. The current study sample consisted of mostly college freshmen (45%) and Caucasians (54%). Future studies should extend this research to include a more diverse sample.

The present study contributed to the larger body of work on peer influence and alcohol use by examining a specific subgroup of peers that may promote risky drinking. We further contributed to the understanding of the condition under which drinking buddies may be particularly influential in a young adult's drinking. We also gained knowledge on the characteristics of drinking buddies that may aid in the development and refinement of alcohol interventions.

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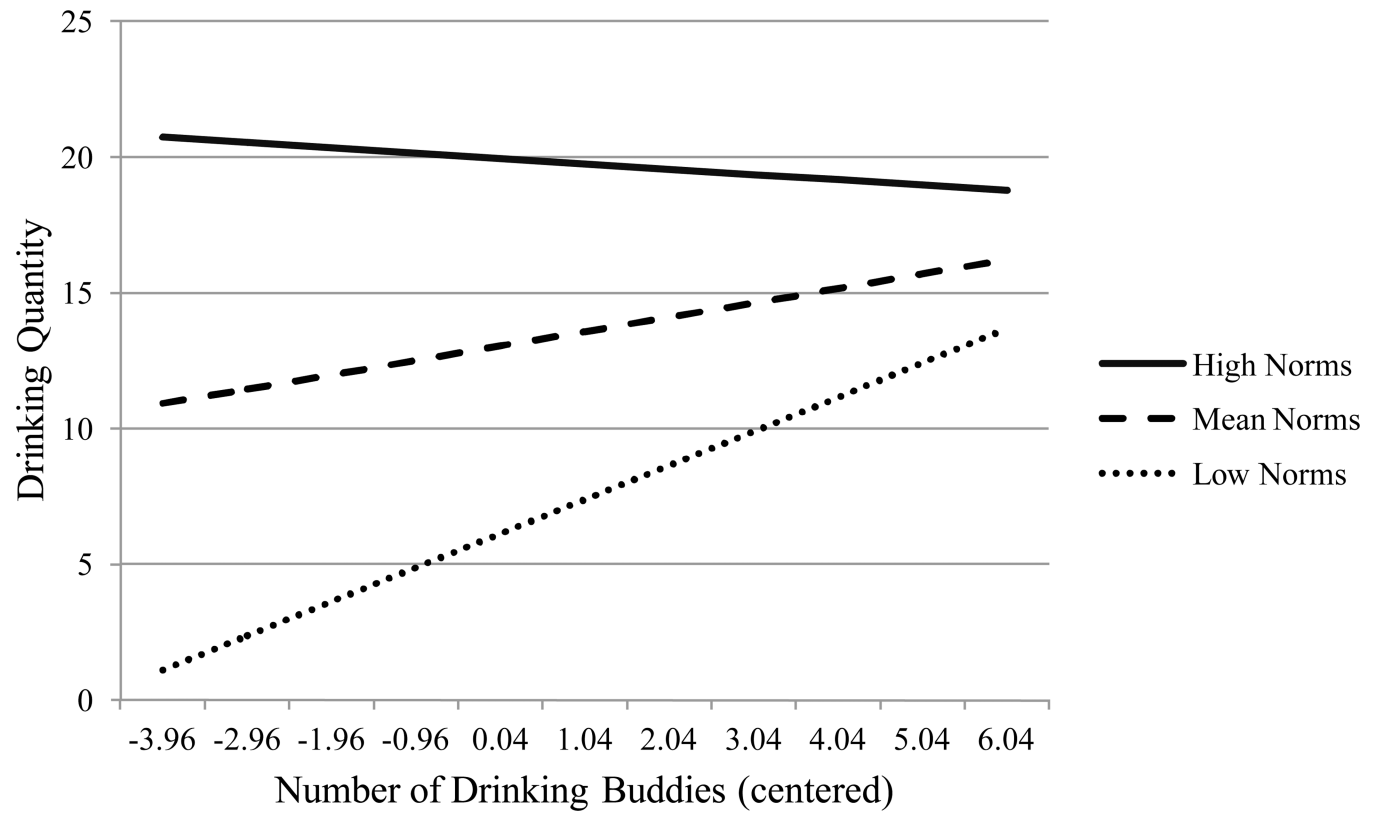


Figure 1.

The impact of perceived descriptive norms on the relationship between the number of drinking buddies in one's social network and alcohol use quantity.

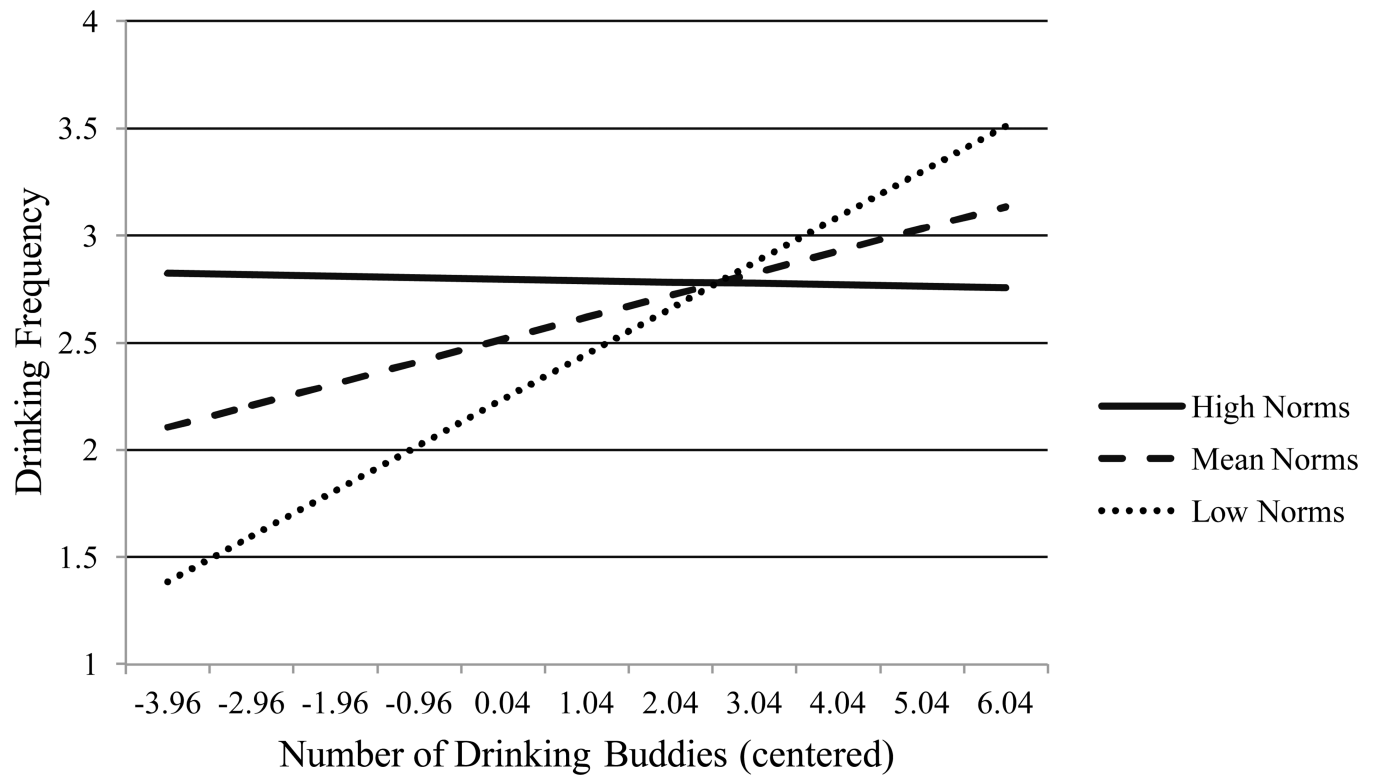


Figure 2.

The impact of perceived descriptive norms on the relationship between the number of drinking buddies in one's social network and alcohol use frequency.

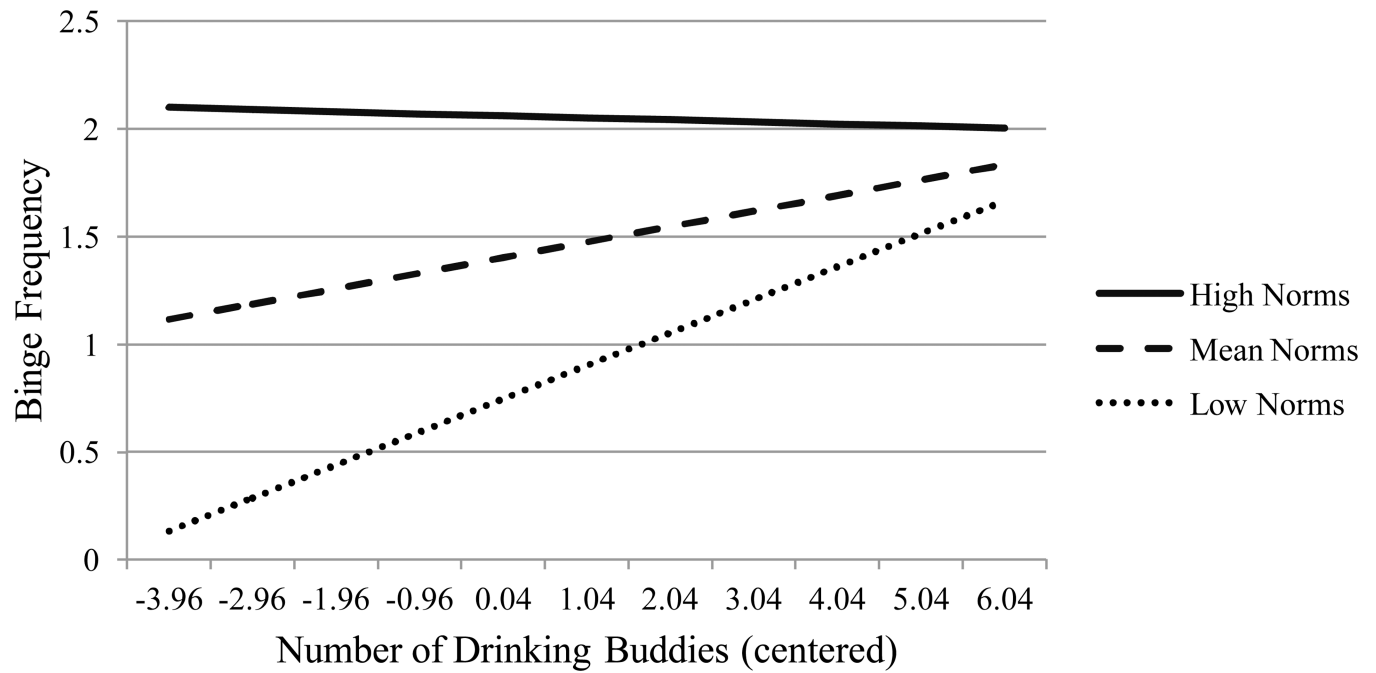


Figure 3.

The impact of perceived descriptive norms on the relationship between the number of drinking buddies in one's social network and frequency of binge drinking.

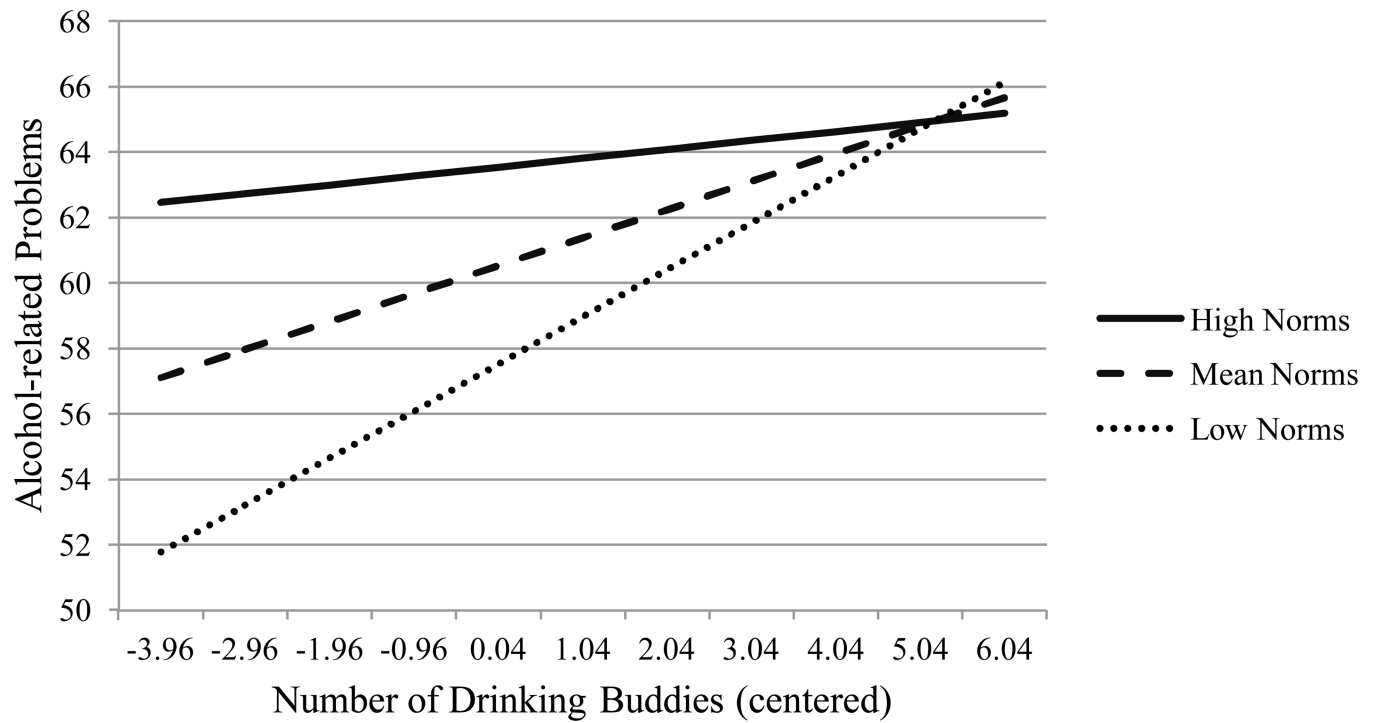


Figure 4.

The impact of perceived descriptive norms on the relationship between the number of drinking buddies in one's social network and alcohol-related problems.

Table 1

Descriptive Statistics and Intercorrelations among Variables

Variable	Mean	SD	Range	1	2	3	4	5	6	7
1. Drinking quantity	12.26	11.61	0–66	--	.70**	.88**	.59**	-.46**	.59**	.27**
2. Drinking frequency	2.38	1.49	0–7		--	.65**	.49**	-.42**	.19*	.25**
3. Binge drinking frequency	1.32	1.37	0–7			--	.50**	-.38**	.48**	.25**
4. Alcohol-related problems	59.95	9.97	48–94				--	-.43**	.33**	.30**
5. Injunctive norms	21.00	5.35	4–28					--	-.33**	-.16**
6. Descriptive norms	5.23	3.13	0.5–22.14						--	.24**
7. Number of drinking buddies	3.96	2.85	0–10							--

Note. Drinking quantity = average number of standard drinks consumed weekly. Drinking frequency = average number of drinking days weekly. Binge drinking frequency = weekly average number of days of consuming 4/5 (women/men) drinks in one sitting.

* $p < .01$.

** $p < .001$.

Table 2
Regression Coefficients for Descriptive and Injunctive Norms, Drinking Buddies, and their Interaction on Alcohol Outcomes

Regressions and Predictors	Drinking Quantity			Drinking Frequency			Binge Frequency			Alcohol-related Problems		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Descriptive Norms												
Drinking Buddies	0.530	0.217	.015	0.103	0.033	.002	0.072	0.028	.010	0.855	0.218	.000
Norms	2.216	0.200	.000	0.091	0.030	.003	0.211	0.026	.000	0.969	0.197	.000
Drinking Buddies × Norms	−0.232	0.068	.001 ^a	−0.035	0.010	.001 ^b	−0.026	0.009	.003 ^c	−0.186	0.068	.006 ^d
Injunctive Norms												
Drinking Buddies	0.791	0.229	.001	0.097	0.030	.001	0.094	0.028	.010	0.827	0.201	.000
Norms	−0.931	0.122	.000	−0.108	0.016	.000	−0.088	0.015	.000	−0.729	0.108	.000
Drinking Buddies × Norms	0.037	0.045	.410	0.007	0.006	.275	0.003	0.006	.637	0.047	0.040	.244

Note.
^a partial $r^2=.0306$.
^b partial $r^2=.0428$.
^c partial $r^2=.0279$.
^d partial $r^2=.0269$, $N = 250$. “Drinking Buddies” represent the total number of said individuals reported by participants on the social network measure.

Table 3

Characteristics of Drinking Buddies as Mean (standard deviation) Proportions for the Total Sample and by Heavy Drinking Status

Variable	Proportion of Drinking Buddies		
	Total Sample (<i>n</i> = 209)	Heavy Drinkers (<i>n</i> = 140)	Non-heavy Drinkers (<i>n</i> = 69)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Gender			
Men	0.43 (0.33)	0.49 (0.32)	0.30 (0.32)***
Women	0.57 (0.33)	0.51 (0.32)	0.70 (0.32)***
Education			
Never finished high school	0.12 (0.24)	0.12 (0.24)	0.13 (0.24)
High school graduate	0.14 (0.23)	0.13 (0.22)	0.14 (0.24)
Some college	0.10 (0.23)	0.08 (0.18)	0.15 (0.29)
College graduate	0.08 (0.18)	0.09 (0.18)	0.08 (0.18)
Composition			
Peers	0.76 (0.31)	0.78 (0.28)	0.71 (0.35)
Family members	0.11 (0.22)	0.10 (0.19)	0.14 (0.26)
Romantic partner	0.11 (0.21)	0.11 (0.19)	0.13 (0.25)
Contact Frequency			
Few times per year	0.07 (0.18)	0.07 (0.18)	0.07 (0.19)
Monthly	0.19 (0.27)	0.20 (0.27)	0.19 (0.27)
Weekly	0.29 (0.30)	0.28 (0.27)	0.31 (0.34)
Daily	0.44 (0.35)	0.44 (0.35)	0.43 (0.37)
Network Stability			
Known less than 1 year	0.15 (0.27)	0.18 (0.30)	0.08 (0.18)
Known 1 to 5 years	0.51 (0.35)	0.49 (0.33)	0.55 (0.39)
Known more than 5 years	0.40 (0.34)	0.39 (0.33)	0.41 (0.38)
Alcohol Use Habits			
Light social drinker	0.21 (0.31)	0.17 (0.26)	0.31 (0.37)**
Moderate social drinker	0.49 (0.36)	0.49 (0.35)	0.48 (0.39)
Heavy social drinker	0.26 (0.31)	0.29 (0.32)	0.19 (0.29) ^a
Problem drinker	0.03 (0.10)	0.03 (0.12)	0.02 (0.07)
Substance Use Type			
Alcohol only	0.67 (0.37)	0.63 (0.36)	0.74 (0.38)
Drugs only	0.01 (0.08)	0.01 (0.04)	0.02 (0.12)
Alcohol and drugs	0.29 (0.35)	0.33 (0.35)	0.20 (0.33)*
Frequency of Drinking Days with Buddies in Past 30 Days	6.87 (12.15)	8.39 (14.22)	3.79 (4.91)*
Concrete Social Support			
Almost always	0.63 (0.35)	0.61 (0.35)	0.65 (0.36)

Variable	Proportion of Drinking Buddies		
	Total Sample (<i>n</i> = 209)	Heavy Drinkers (<i>n</i> = 140)	Non-heavy Drinkers (<i>n</i> = 69)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Sometimes	0.28 (0.31)	0.29 (0.30)	0.27 (0.32)
Hardly ever	0.09 (0.19)	0.10 (0.20)	0.08 (0.18)
Emotional Social Support			
Almost always	0.71 (0.34)	0.70 (0.34)	0.73 (0.34)
Sometimes	0.21 (0.37)	0.22 (0.26)	0.17 (0.27)
Hardly ever	0.08 (0.20)	0.08 (0.19)	0.10 (0.21)
Relationship Closeness			
Not very close	0.05 (0.15)	0.05 (0.14)	0.07 (0.16)
Sort of close	0.21 (0.28)	0.21 (0.27)	0.21 (0.30)
Very close	0.72 (0.33)	0.73 (0.32)	0.72 (0.34)

Note. Mean proportions do not sum to 100% as data were averaged across cases and drinking buddies. Heavy drinking status is defined as having one or more binge drinking episodes (4/5 drinks in one sitting for men/women) in typical weekly alcohol consumption.

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.

^a No longer significant after a Bonferonni correction.