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Social Networks and Alcohol Use among Nonstudent Emerging Adults: A Preliminary Study

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Abstract

We examined the social networks and alcohol use of a community-based sample of nonstudent emerging adults (N = 59). The research examined (1) personal network characteristics and the drinking habits of its members, (2) the link between network alcohol use and personal alcohol involvement, (3) perceived social norms as they related to network alcohol use, and (4) relationship between perceived social norms and personal alcohol involvement. Men and women (*M* age = 27 years) were equally represented in the social network. Level of educational attainment of members was diverse. On average, respondents were in contact on a daily basis with network members and about 38% of the network was known between 1 and 5 years. The majority (57%) of the network consisted of household or family members. There were some associations between network drinking and personal alcohol involvement. The proportion of "drinking buddies" in one's network was directly associated with perceived drinking norms. Perceived drinking norms also were positively associated with personal alcohol use, alcohol-related problems, and approval of drinking behaviors. Findings from this study have implications for understanding social factors in the drinking behavior of nonstudent emerging adults and could inform the development of effective prevention and treatment interventions for this important, but understudied group of drinkers.

Keywords

alcohol; social network; drinking norms; emerging adults; nonstudents

1. Introduction

The period between the approximate ages of 18 to 25 years has been conceptualized as a distinct developmental stage termed "emerging adulthood" (Arnett, 2000). During this period, individuals face many transitions and challenges. On many markers of health, from sexually transmitted infections to being victims of violence to motor vehicle accidents, emerging adults show a higher level of risk than other segments of the population (Park,

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Mulye, Adams, Brindis, & Irwin, 2006). Rates of problem behavior frequently peak during emerging adulthood (e.g., Grant, Dawson, & Stinson, 2006; Hingson, Heeren, Winter, & Wechsler, 2005; Park et al., 2006).

One area of significant public health concern is the prevalence of alcohol use among this age group. The prevalence of heavy drinking is highest among emerging adults compared to all other age groups (Substance Abuse and Mental Health Services Administration [SAMHSA], 2006). About 42% of emerging adults reported engaging in heavy drinking, defined as consuming five or more drinks on a single occasion, in the past 30 days. About 15% reported consuming five or more drinks on one occasion on at least 5 days in the past 30 days. Furthermore, emerging adults have the highest 12-month prevalence rates of DSM-IV alcohol abuse and dependence (Grant et al., 2006). Alcohol use has also been linked to higher rates of physical and sexual assaults, sexually transmitted diseases, unintended pregnancies, legal involvement, and short-term health problems, such as blackouts and hangovers (Perkins, 2002; Wechsler, Lee, Kuo, & Lee, 2000).

1.1. Nonstudent Emerging Adults

According to the U.S. Census Bureau, approximately 52% of individuals between ages 18 to 24 have no postsecondary educational attainment (U.S. Census Bureau, Current Population Survey, 2007). This represents an estimated 14.5 million individuals residing within the United States. Further, in 2006, only about 37% of 18 to 24 year-olds was enrolled in college full- or part-time in either 2- or 4-year colleges (U.S. Census Bureau, Current Population Survey, 2006). These statistics indicate that while many emerging adults will go on to pursue higher education, many do not.

Educational attainment has been linked to a number of negative economic (e.g., Kienzl & Kena, 2006), health (e.g., Jemel et al., 2008), and psychological (e.g., Kessler et al., 1994) outcomes. More specifically, lower educational attainment has been associated with greater alcohol-related problems in later adulthood (White, Labouvie, & Papadaratsakis, 2005) and future risk of alcohol use disorders (Harford, Yi, & Hilton, 2006). Nonstudents are less likely to transition out of heavy drinking patterns then their college-attending counterparts (White et al., 2005). While the prevalence of drinking is higher among college students than high school dropouts or non-college bound high school graduates, the frequency and quantity of daily alcohol use may be greater among noncollege aged peers (Crowley, 1991; O'Malley & Johnston, 2002).

As noted previously, the prevalence of heavy drinking is highest among emerging adults (SAMHSA, 2006). However, much of our knowledge of emerging adult drinking has been based on research with the college student samples (Arnett, 2000). College-nonattenders, sometimes called the "forgotten half" (W. T. Grant Foundation, 1988), have not received the same attention and there is a need to broaden the scope of research efforts to include other emerging adults. Relatedly, research conclusions drawn from college-based studies or from in-school samples may not be representative of nonschool populations (Crowley, 1991; Muthen & Muthen, 2000). Problematic alcohol use is an issue relevant to a wide spectrum of emerging adults, and research that specifically targets nonstudents is warrant.

1.2. Social Networks

The study of social networks and its association to substance use in nonclinical and clinical samples has gained prominence in recent years. Among adolescents, ample research suggests that peer behaviors and peer networks influence alcohol and drug use (e.g., Curran, Stice, & Chassin, 1997; Musher-Eizenman, Holub, & Arnett, 2003; Reifman, Barnes, Dintcheff, Farrell, & Uhteg, 1998). While less research has focused on the social networks of adults relative to adolescents, studies among adults have consistently revealed a relationship between one's drinking and the drinking of his or her network members. For example, studies have shown that greater presence of "drinking buddies" in one's network is associated with heavier personal drinking among newly married couples (Leonard, Kearns, & Mudar, 2000) and is predictive of subsequent alcohol misuse among college students (Reifman, Watson, & McCourt, 2006). Similarly, young adult problem drinkers with more heavy drinkers in their networks are more likely to engage in heavy episodic drinking (Delucchi, Matzger, & Weisner, 2008).

Studying social networks may be particularly useful for enhancing our understanding of social influences on alcohol use and misuse among nonstudent emerging adults so as to develop more effective interventions for this subgroup. One benefit of the social network approach is that it allows us to describe and examine social network characteristics among emerging adults. This approach could provide richly descriptive and detailed data regarding each member of a person's social network, as well as help us to begin to understand the complexities of the social network. Further, the approach allows us to examine the association between network characteristics and key factors previously shown to be linked to alcohol use (e.g., normative perceptions, drinking buddies in social network). The knowledge gained could contribute to the development of innovative alcohol interventions for emerging adults that incorporate an individual's social network (e.g., Litt, Kadden, Kabela-Cormier, & Petry, 2007).

1.3. Normative Perceptions, Social Networks, and Personal Alcohol Use

Perceived social norms for drinking represent our perceptions of the drinking habits and approval of alcohol use by others. Norms may be descriptive or injunctive. Descriptive norms refer to another's quantity and frequency of drinking, while injunctive norms represent the perceptions of approval of drinking by others (Borsari & Carey, 2001). Consistently, college student young adults overestimate the quantity and frequency of peers' drinking, regardless of referent group (e.g., close friends, typical student; Baer & Carney, 1993). Also, students commonly perceive others to drink more than themselves (e.g., Baer & Carney, 1993; Thombs, Wolcott, & Farkash, 1997). Similar results are evident regarding injunctive norms. Students often misperceive peers' approval of alcohol use or heavy drinking (Perkins & Berkowitz, 1986). Further, others are viewed as more permissive and accepting of excessive alcohol use than themselves (Perkins & Berkowitz, 1986; Prentice & Miller, 1993). Normative misperceptions of drinking and drinking approval by others may contribute to and perpetuate the belief that alcohol use is prevalent and acceptable (Borsari & Carey, 2001). Such elevated perceptions of descriptive and injunctive norms have been associated with greater personal alcohol consumption and alcohol-related problems among

college student samples (Baer, Stacy, & Larmier, 1991; Read, Wood, Kahler, Maddock, & Palfai, 2003; Lo, 1995; Larimer, Turner, Mallett, & Geisner, 2004).

According to the theory of reasoned action, perceived norms are learned from observing peer behaviors and will influence our intentions to act (Fishbein & Ajzen, 1975). Based on this theory, the drinking characteristics of one's social network or social environment should relate to his or her perceived norms of alcohol use. However, normative perceptions have not been examined with respect to the alcohol-related features of the social network. For example, previous research has not examined the associations between norms (injunctive and descriptive) and number of "drinking buddies," as well as types of drinkers in one's network. Further, we know relatively little about the normative perceptions of emerging adults who are not college students; thus, studies that broaden our knowledge of social networks in a variety of populations are needed.

1.4. Purpose of Study

The focus of the present preliminary study was to examine the social networks and alcohol use of a community-based sample of nonstudent emerging adults. Specifically, this research examined (1) personal network characteristics and the drinking habits of its members, (2) the link between network alcohol use and personal alcohol involvement, (3) perceived social norms as they related to network alcohol use, and (4) relationship between perceived social norms and personal alcohol involvement. In general, based on previous research, it was expected that network alcohol use would show a positive association with personal alcohol use. Further, it was hypothesized that perceived social norms would be positively correlated with social network drinking behaviors and personal alcohol involvement.

2. Materials and Methods

2.1. Participants

The sample consisted of 59 men and women recruited from the community. To be eligible for the study, participants had to be: (1) between 18 to 25 years old and (2) not currently enrolled or have ever been enrolled in any college courses (including technical/vocational programs, associates degree programs, or four year college programs).

Mean age of the sample was 21.41 years (*SD* = 2.28) (see Table 1). Fifty-seven percent were men. The majority of the sample was European American (57%), followed by African American (26.8%). Most of the sample has never been married (95%). Fifty-four percent were unemployed, 23.7% worked full-time, and 22% part-time. Forty-three percent reported an annual income of $5,000 or less, 25% reported $5,000–9,999, and 16% reported $10,000–$19,999. Almost half the sample resided within a parent's or relative's home (47.5%) or a house/apartment/room (49.2%). Approximately 43% of the sample completed high school, while 54% earned general equivalency diplomas (GED). The present study was approved by the IRB at the University at Buffalo.

2.2. Procedure

Participants were recruited through local newspaper advertisements, flyers distributed at local businesses, and internet postings (e.g., www.craigslist.com). An initial telephone screening was conducted to assess study eligibility. Participants were provided with details regarding the general purpose of the study (e.g., learn more about the drinking habits of young adults) and the requirements of participation (i.e., attend an in-person meeting to complete self-report questionnaires). Once determined eligible, each interested participant was scheduled for an in-person data-collection session. Upon arrival to the session, each participant provided informed consent followed by the administration of the study questionnaires, in small groups of three to six participants. At the conclusion of the 1.5-hour session, each participant was debriefed and compensated $30 for his/her time.

2.3. Measures

2.3.1. Background questionnaire—A general background questionnaire was administered to assess demographics variables including, gender, ethnicity, martial status, current living arrangement, occupational status, educational status, and financial status.

2.3.2. Alcohol use—The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985) was used to assess typical weekly drinking patterns over the past year. The DDQ was scored to derive estimates of: frequency of drinking in a typical week and total consumption for a typical week. The DDQ has been shown to demonstrate convergent validity with other measures of alcohol involvement (Collins et al., 1985; Collins & Lapp, 1992).

2.3.3. Alcohol-related problems—Alcohol-related negative consequences were measured by the 48-item Young Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, & Colder, 2006). The YAACQ assesses past year alcohol-related problems. Responses are rated dichotomously using a yes-no format. The YAACQ is scored by summing all the positively endorsed items, with higher scores indicating greater severity. The YAACQ has been shown to demonstrate concurrent validity with alcohol quantity, frequency, and another measure of alcohol-related problems (Read et al., 2006).

2.3.4. Perceived norms—Descriptive norms were evaluated using the Descriptive Norms Rating Form (DNRF; Baer et al., 1991). Based on the DDQ, the DNRF asks participants to estimate perceived frequency and quantity of consumption for peers for an average week during the past year. The DNRF assessed perceived descriptive norms for the referent group, “your *closest friends* of the same gender.” Perceived weekly consumption was calculated by summing the participants’ estimations for each day of the week. The DNRF has demonstrated good test-retest reliability and convergent validity with indices of alcohol use (Baer et al., 1991; Borsari & Carey, 2000).

Consistent with previous research (Baer, 1994), injunctive norms were evaluated using four items assessing approval of: drinking alcohol every weekend, drinking alcohol daily, driving a car after drinking, and drinking enough alcohol to pass out. Participants indicated current perceived approval for the referent group, “your *closest friends* of the same gender”. Responses are based on a 7-point scale, ranging from “strong disapproval” (1) to “strong

approval" (7). An overall score was calculated by averaging the four items. This measure demonstrated acceptable coefficient alpha in a sample of undergraduate students (Read, Wood, & Capone, 2005).

2.3.5. Social network—Characteristics and composition of social network was measured using a modified version of the Social Network Map[1] (SNM; Tracy & Whittaker, 1990). Using a self-report, written format, participants were asked to identify a maximum of 10 individuals within their social network with whom they had any form of contact in the past year. More specifically, participants were instructed to list 10 "people who have been the most important to you during the past year. This could be family members, friends, coworkers, boyfriend/girlfriend, spouse/partner, neighbors, teachers, etc." For the 10 network members, detailed questions were asked regarding each specific member. The SNM provides, among other aspects, the following information of the social network: Network composition (i.e., interpersonal domain of network member, such as household, family), domain size (i.e., proportion of members in each interpersonal domain), frequency of contact, and stability of network (i.e., length of relationships). Several questions were added to the SNM that asked about the demographics of each network member, including gender, age, and educational achievement. Social network data regarding social support collected using the SNM has demonstrated convergent construct validity with other measures of social support (Tracy & Abell, 1994)[2]. Reliability analysis of social network data has shown that objective questions (e.g., lengths of relationships, frequency of contact), produce stable or reliable ratings (Tracy, Catalano, Whittaker, & Fine, 1990).

To obtain information regarding the alcohol use of network members, additional questions were included drawn from previous research (Leonard et al., 2000; Tracy & Whittaker, 1990). Specifically, participants were asked to indicate for each person in the network: (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 (responses options were nondrinker, light social drinker, moderate social drinker, heavy social drinker, problem drinker), (3) if he/she is considered a "drinking buddy," defined as someone that "you got together with on a regular basis to do activities that centered around drinking, going to bars or nightclubs."

2.4. Statistical Analyses

For social network data, descriptive statistics and proportions were derived for all network variables, with the exception of age of network members, in which mean score was used. Correlational analyses were conducted to examine the relationship between: (1) network

[1]To view a copy of the original Social Network Map, please refer to Tracy & Whittaker, 1990.

[2]Regarding the validity of social network data in general, arguments have been made that many respondents are erroneous in reporting their past interactions with others (e.g., Bernard, Killsworth, Kronenfeld, & Sailer, 1985). On the other hand, other researchers have argued that respondents recall long-standing ties or typical patterns of interaction rather accurately (e.g., Freeman and Romney, 1987). Also, research has shown that one characteristic that affects the quality of measurement of the characteristics of the network is actual network size, where respondents with smaller social networks had higher validity of measurement (Kogovsek & Ferligoj, 2005). In the current study, the network map is limited to a core network maximum of 10 people "who were important to you in one way or another during the past year." It has also been shown that respondents in greater frequency of contact with network members had more accurate reports regarding the behaviors of the group (e.g., Romney & Faust, 1982). In the present sample, respondents were in contact on a daily basis with 45% of the network, on average. An additional 26% of the network was seen weekly and 11% were seen monthly.

alcohol use and personal alcohol involvement, (2) perceived normative perceptions and network drinking, and (3) perceived normative perceptions and personal alcohol involvement.

3. Results

3.1. Social Network Characteristics

3.1.1. Demographics of network members—On average, 48% of network members were men and 45% were women (see Table 2). The mean age of network members was 27.03 (*SD* = 6.41) years. With respect to educational achievement, on average, 34% of network members were high school graduates, 28% never finished high school, 18% had some college, and 10% were college graduates. A closer examination of educational attainment of network members identified as "friends" revealed, on average, comparable percentage of those who finished high school (33.6%), did not finish high school (34%), and had at least some college (30%).

3.1.2. Network composition—On average, 57% of all network members were either household members or family. Friends represented 33% of the network, while members from work consisted of 3.8% of the network, on average.

3.1.3. Frequency of contact—On average, respondents were in contact on a daily basis with 45% of the social network. An additional 26% of the network was seen weekly, 11% seen monthly, and 8% seen a few times per year.

3.1.4. Length of relationship—On average, 46% of the network had been known for more than five years, while 37.7% of the network was known between one to five years. Consistent with previous work (Tracy & Whittaker, 1990), length of relationship is viewed as representing network relationship stability.

3.2. Network Alcohol Use

3.2.1. Substance type—Networks were examined to reveal the composition of users of alcohol and other drugs. On average, 32% of the network used both alcohol and drugs. An additional 31% used alcohol only, while 4% used drugs only. About 25% of the network did not use either substance.

3.2.2. Drinking habits—Each network member was categorized into one of five drinker groups: "nondrinker," "social light drinker," "moderate social drinker," "heavy social drinker," and "problem drinker." On average, 26% of network members were nondrinkers, 21% were light social drinkers, 27% were moderate social drinkers, 10% were heavy social drinkers, and 7% were problem drinkers.

3.2.3. "Drinking buddies" in network—The respondents indicated whether each network member was or was not a drinking buddy. On average, 36% of the network was considered to be "drinking buddies." On average, participants reported drinking 7.07 (*SD* = 6.67) days in a typical month with their network drinking buddies. Across all members of

the network (both drinking and non-drinking buddies), on average, participants reported drinking 2.79 (*SD* = 2.53) days in a typical month with members of their network.

3.3. Network Alcohol Use and Personal Alcohol Involvement

3.3.1. Substance type—The relationship between type of substance use among network members (i.e., alcohol-only, drug-only, alcohol and drug) and participants' self-reported quantity of drinking, frequency of drinking, as well as alcohol-related negative consequences was examined with correlational analyses (see Table 3). The proportion of non-substance users in one's social network was negatively associated with personal drinking quantity ($r = -.32$, $p = .016$), frequency ($r = -.41$, $p = .002$), and alcohol-related problems ($r = -.40$, $p = .003$). The relationship between the proportion of non-substance users in network and personal drinking quantity was only marginally significant following the Holm Procedure (1979), a modified Bonferroni test to control for Type I error (adjusted alpha level = .006). Findings showed that quantity of alcohol consumption was associated with the proportion of drug users in the network ($r = .29$, $p = .029$). Experience of alcohol-related problems was found to be positively associated with the proportion of alcohol and drug users in the network ($r = .36$, $p = .007$). However, both of these relationships only approach statistical significance following correction (adjusted alpha levels were .006 and .005, respectively).

3.3.2. Drinking habits—Associations between the drinking habits of network members (i.e., nondrinker, light, moderate, heavy, problem drinker) and self-reported alcohol consumption levels and experience of alcohol-related problems were examined. Results indicated that the proportion of heavy social drinkers in one's network is positively correlated with self-reported alcohol-related problems ($r = .47$, $p < .001$). The network proportion of heavy social drinkers in one's network also was related to self-reported drinking quantity ($r = .32$, $p = .016$), but was only marginally significant following Type I error correction (adjusted alpha level = .004). The proportion of nondrinkers in the network was negatively associated with alcohol-related problems ($r = -.41$, $p = .002$). In addition, the proportion of network nondrinkers was correlated with drinking quantity ($r = -.29$, $p = .03$) and frequency ($r = -.36$, $p = .009$). However, these relationships were only marginally significant following Type I error correction (adjusted alpha levels were .005 and .004, respectively). The proportion of light social drinkers, moderate social drinkers, and problem drinkers in the network was not significantly related to personal alcohol involvement.

3.3.3. "Drinking buddies" in network—Examination of the relationship between the proportion of drinking buddies in one's network and the respondent's self-reported consumption and problems revealed no significant findings.

3.4. Normative Perceptions, Network Drinking, and Personal Drinking

Perceived injunctive and descriptive norms were examined in relation to the drinking habits of network members. The proportion of problem drinkers in the network was associated with perceived approval of drinking behavior among their friends ($r = .39$, $p = .003$; see Table 4). The proportion of heavy social drinkers ($r = .33$, $p = .011$) in the network was associated with perceived approval of drinking behavior among their friends. The proportion

of heavy social drinkers in the network also was associated with perceived frequency (r = .43, p = .001) and quantity (r = .33, p = .012) of drinking among their friends. However, the latter relationship was only marginally significant following Type I error correction (adjusted alpha level = .005).

The proportion of non-drinkers in the network was negatively correlated with perceived drinking frequency (r = −.41, p = .002) among their friends. Further, the proportion of non-drinkers in the network was negatively correlated with perceived approval of drinking by peers (r = −.31, p = .017), but only approached significance after correction (adjusted alpha level = .005). The number of drinking buddies in one's network was directly related to perceived approval of drinking (r = .27, p = .038) and perceived drinking frequency (r = .27, p = .041) of friends, but the latter relationship was non-significant following Type I correction (adjusted alpha level = .025). Perceptions of drinking norms of peers were examined in relation to the respondents' personal alcohol use quantity, frequency, alcohol-related problems, as well as their own approval of drinking behavior.

Perceived drinking quantity by peers was directly related to personal weekly quantity of alcohol use (r = .66, p < .001), frequency of alcohol use (r = .49, p < .001), and alcohol-related problems (r = .48, p < .001; see Table 5). Similarly, perceived frequency of drinking by peers was positively associated with the respondents' drinking quantity (r = .40, p = .002), frequency (r = .66, p < .001), and alcohol-related problems (r = .39, p = .004). Personal approval of drinking was directly related to perceived approval of drinking (r = .74, p < .001), perceived drinking quantity (r = .32, p = .017), and drinking frequency (r = .44, p = .001) by friends.

4. Discussion

This study represents a preliminary investigation of social network characteristics and alcohol use among a community-based sample of nonstudent emerging adults. Relatively little alcohol research has focused on emerging adults who do not attend college as compared with their college-attending counterparts. Little is known about aspects of nonstudents' social networks, their associations to perceptions of peer alcohol use and approval of drinking behavior, and their personal alcohol use. The present study had four main objectives. First, we sought to explore the social network characteristics and network alcohol use of a nonstudent emerging adult sample. Second, it examined the relationship between network alcohol use and personal alcohol involvement. Third, it investigated perceived peer drinking norms as it relates to peer alcohol use. Finally, it examined associations between perceived peer drinking norms and personal alcohol involvement.

With respect to the demographics of social network members, men and women were equally represented (48% vs. 45%), and the mean age was 27 years. For approximately half of the social network, on average, respondents were in contact on a daily basis with network members. About 38% of the network was known between 1 and 5 years and 7% known for less than 1 year (vs. 46% known for more than 5 years), suggesting that some of the social networks may be relatively unstable (cf. Tracy & Whittaker, 1990) as defined by the longevity of the relationships. Arnett (2000) has suggested that emerging adulthood is an

age of instability, characterized by exploration in many areas of their lives including relationships. This appears to be somewhat supported by the current finding.

Regarding network composition, the majority (57%) of social networks consisted of household or family members, while 33% were friends. Interestingly, co-workers made up only about 4% of the network, on average. It appears that nonstudent emerging adults may be more likely to socialize or consume alcohol with friends and household or family members than with co-workers. However, it also is possible that the lower proportion of co-workers in the network reflects the fact that 54% of the sample was unemployed.

The educational attainment of network members was largely equally represented by those who had dropped out of high school (28%), those with at least some college (28%), and those who were high school graduates (34%). When only “friends” in the network were examined, the average percentage of high school drop-outs and completers were comparable (34%), while about 30% had at least some college. This finding suggests that diverse educational levels are represented in nonstudent emerging adults’ social networks. These varying levels of education should be taken into consideration when developing strategies to recruit participants for alcohol intervention efforts targeting nonstudents.

Examination of substance use among network members revealed that, on average, comparable percentage of members used alcohol-only (31%) versus both alcohol and drugs (32%). About 25% of the network did not use alcohol or drugs. It appears that participants were exposed to as many substance-using models as non-using models in their social networks. When level of alcohol use among network members were examined, findings showed comparable proportions of nondrinkers (26%), light social drinkers (21%), and moderate social drinkers (27%). Heavy social drinkers (10%) and problem drinkers (7%) comprised the lowest proportions of drinkers in the network. These findings complement previous research showing a relationship between the drinking habits of network members and personal alcohol involvement (e.g., Leonard et al., 2000; Mohr et al., 2001; Reifman et al., 1998). For example, in this study, a higher proportion of nondrinkers in one’s social network showed a pattern of negative associations with drinking quantity, frequency and experience of alcohol-related problems. Conversely, the proportion of heavy social drinkers in one’s network showed a trend of positive relations to drinking quantity and alcohol-related problems. On average, 36% of the network members were described as drinking buddies. While the proportion of drinking buddies in the network was not correlated with personal alcohol use or problems, it was directly associated with perceived peer approval of alcohol use and was marginally correlated with how frequently their peers drank alcohol.

It is interesting to note that the proportion of problem drinkers in the network was not associated with personal alcohol involvement. Further, having problem drinkers in the network was not associated with perceived drinking quantity and frequency among peers, but the proportion of heavy social drinkers in the network showed a trend of positive association with perceived approval and drinking norm frequency and quantity. Thus, it appears that having more heavy social drinkers, rather than problem drinkers, in one’s network may be more influential in personal alcohol involvement and norms perception of close peers.

The most robust pattern of associations in this study was that between perceived norms and personal alcohol involvement. Specifically, drinking quantity and frequency, as well as reports of alcohol-related consequences, were associated with descriptive and injunctive perceived norms. Furthermore, there were significant relationships between personal approval of alcohol use and perceived normative approval, as well as perceived alcohol use by one's peers. This pattern of findings is consistent with previous research with college student samples, where it was shown that higher perceived norms were correlated with greater drinking and drinking-related negative consequences (Baer & Carney, 1993; Perkins & Wechsler, 1996). Thus, findings regarding the connection between alcohol use and perceived norms of peers appear to generalize beyond college students to nonstudent emerging adults. Given these preliminary results, it may be that norms-based interventions developed and tested with college students (e.g., Neighbors, Lewis, Bergstrom, & Larimer, 2006; LaBrie, Hummer, Neighbors, & Pedersen, 2008) may be helpful and promising with nonstudent populations.

Findings from this study may have implications for informing the development of alcohol interventions for nonstudent emerging adults. Again, given the significant relationship between personal alcohol use and perceived norms of use by peers, norms-based intervention may be useful. For example, given that both college and noncollege peers are represented in their social networks, it may be helpful to provide norms feedback for both students and nonstudents, as both could serve as salient referent groups. Furthermore, because social network ties may act to reinforce or promote particular risky behaviors (e.g., Fraser & Hawkins, 1984; Schroeder, et al., 2001), it may be useful to tap into social networks as a means to minimize potentially harmful behaviors, such as alcohol abuse. The present study is only one step toward gaining additional information about the role of social networks and their association with alcohol use among nonstudent emerging adults. Additional research is needed to examine how to access social networks as a potentially powerful approach to intervention.

There are limitations of this study that should be addressed. First, the current study is a preliminary investigation of the social networks of nonstudent emerging adults, and thus, the sample size is smaller than ideal. It is most likely that the marginally significant *p* levels in the correlational analyses would reach statistical significance following Type I error rate correction with increased sample size. Second, this is a cross-sectional study, which limits causal interpretation of the findings. Future studies should recruit larger samples and use prospective data collection methods that allow for the use of sophisticated analytical techniques to permit examination of selection and socialization effects. Such data also would help to illuminate the nature of social networks at various points in life transitions as well as the relationships between social networks and changes in substance use in this understudied subpopulation. Further, our data were based on the respondents' self-report and the social network data were not independently verified. Consequently, the data reported by participants regarding their networks may be susceptible to reporting or recall bias. Even so, respondents reported a range of drinker types within their networks. Future research may benefit from going beyond collecting egocentric network data, whereby data is gathered only from one member of a network, to collecting data from the members of an individual's

defined social network. Self-selection may be another potential limitation in this study given that participants responded to study advertisements. Lastly, it should be noted that several demographic features of the current sample may not represent averages from the general population (e.g., high school graduation rate, income). For example, the unemployment rate of high school graduates is 21.3% nationally (U.S. Census Bureau, 2009) compared to 30.4% in the current sample. Consequently, generalization of findings should be made with caution by considering the potential impact of demographic differences.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sample Characteristics (N = 59)

	%	M (*SD*)
Age		21.41 (2.28)
Gender		
Men	57.6	
Women	42.4	
Race		
European American/White	57.1	
African American/Black	26.8	
American Indian/Alaskan Native	7.1	
Hispanic	8.9	
Marital status		
Never married	94.9	
Married	3.4	
Separated/Divorce	1.7	
Annual income		
$4,999 or less	42.9	
$5,000 – 10,000	25	
$10,000 – 20,000	16.1	
$20,000 – 30,000	8.9	
$30,000 or more	7.2	
Living arrangement		
Parents/Relative home	47.5	
House/Apartment	49.2	
Educational attainment		
General equivalency diploma (GED)	53.7	
High school diploma	46.3	
Employment status		
Full-time	23.7	
Part-time	22	
Unemployed	54.2	

Table 2

Social Network Characteristics as Mean Proportions of Networks

	Network proportions
Variable	**Mean (*SD*)**
Network demographics	
Gender	
Men	.48 (.22)
Women	.45 (.22)
Education	
Never finished high school	.28 (.25)
High school graduate	.34 (.23)
Some college	.18 (.19)
College graduate	.10 (.18)
Network composition	
Household	.24 (.27)
Family/Relatives	.33 (.30)
Work	.04 (.11)
Clubs/Organizations	.01 (.03)
Friends	.33 (.31)
Neighbors	.03 (.09)
Professionals	.00 (.00)
Network characteristics	
Contact frequency	
Does not see	.03 (.08)
Few times per year	.08 (.15)
Monthly	.12 (.15)
Weekly	.26 (.22)
Daily	.45 (.28)
Network stability	
Known less than 1 year	.07 (.12)
Known 1 to 5 years	.38 (.25)
Known more than 5 years	.46 (.26)
Network substance use	
Substance use type by members	
None	.26 (.26)
Alcohol-only	.31 (.25)
Drug-only	.04 (.11)
Alcohol and drug	.32 (.28)
Alcohol use habits	
Non-drinker	.26 (.26)
Light social drinker	.21 (.16)
Moderate social drinker	.27 (.23)

	Network proportions
Variable	**Mean (*SD*)**
Heavy social drinker	.10 (.15)
Problem drinker	.07 (.13)
Drinking buddies in network	.36 (.27)

Note. Mean proportions do not sum to 100 percent as data were averaged across cases and network members.

Table 3

Correlations between Network Substance Use and Personal Use Variables

	Personal alcohol use		
Variable[a]	**Quantity**	**Frequency**	**Personal alcohol-related problems**
Substance use type by members			
Non-user	−.32[b]	−.41**	−40**
Alcohol-only	.07	.15	−.04
Drug-only	.29[b]	.12	−.01
Alcohol and Drug	.02	.26	.36[b]
Network alcohol use habits			
Non-drinker	−.29[b]	−.36[b]	−.41**
Light social drinker	−.17	.08	.05
Moderate social drinker	.07	.22	−.10
Heavy social drinker	.32[b]	.27	.47**
Problem drinker	.12	.10	.24
Drinking buddies in network	.14	.17	.22

[a] Proportions of each category were used for correlational analyses.

[b] Correlation coefficient was no longer statistically significant following modified Bonferroni adjustment.

* $p < .05$,

** $p < .01$

Table 4

Correlations between Perceived Norms and Drinking Characteristics of Network Members

	Perceived alcohol norms of peers		
Variable[a]	**Approval of alcohol use**	**Alcohol use quantity**	**Alcohol use frequency**
Network alcohol use			
Non-drinker	−.31[b]	−.25	−.41**
Light social drinker	.08	−.07	.08
Moderate social drinker	−.03	−.07	.18
Heavy social drinker	.33[b]	.33[b]	.43**
Problem drinker	.39**	.20	.12
Drinking buddies in network	.27*	.17	.27[b]

[a] Proportions of each category were used for correlational analyses.

[b] Correlation coefficient was no longer statistically significant following modified Bonferroni adjustment.

* p <.05,

** p < .01

Table 5

Correlations between Perceived Norms and Drinking Characteristics of Respondents

	Perceived alcohol norms of peers		
Variable	**Approval of alcohol use**	**Alcohol use quantity**	**Alcohol use frequency**
Personal alcohol involvement			
Typical weekly quantity	.38**	.66**	.40**
Typical weekly frequency	.46**	.49**	.66**
Alcohol-related problems	.39**	.48**	.39**
Personal drinking approval	.74**	.32*	.44**

* p <.05,

** p < .01