Social Context of Drinking and Alcohol Problems Among College Students

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Abstract

Objective—To examine how social contexts of drinking are related to alcohol use disorders, other alcohol-related problems, and depression among college students.

Methods—Logistic regression models controlling for drinking frequency measured the association between social context and problems, among 728 current drinkers.

Results—Drinking for social facilitation was associated with drinking and driving and housing violations. Drinking in the context of motor vehicles was associated with alcohol abuse/dependence. Drinking in a context of emotional pain was associated with clinical depression.

Conclusions—Alcohol-free programming that fulfills needs for conviviality and addresses early signs of depression might reduce alcohol problems among college students.

Keywords

social context; alcohol abuse and dependence; impaired driving; college students; mental health

Heavy alcohol consumption and associated alcohol problems among college students are recognized as major public health concerns.[1,2] Recent data indicate that 24% of males and 13% of female college students in the United States meet clinical criteria for an alcohol use disorder.[3] Moreover, it is estimated that 44% of college students have had 5 or more drinks on a single occasion in the month prior to being surveyed[4] and that close to one-third drive while intoxicated.[5,6] The 1995 Centers for Disease Control and Prevention National College Risk Behavior Survey reported that 38.9% of college students ages 18–24 rode with a drinking driver in the past month. In many cases, college drinking patterns are an extension of behaviors established in high school. Wechsler et al[7] found that binge drinking (defined as having 5 or more drinks in a row for men and 4 or more for women) in high school was a significant predictor of binge drinking in college. According to the most recent Monitoring the Future study, 75% of high school seniors have consumed alcohol, and 58% report having been drunk at least once in their life.[8]

Alcohol consumption is related to several untoward consequences among college students,[9] ranging from missing class and falling behind in schoolwork[10,11] to unsafe sex and accidental

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injury, assaults, and death.[5] From 1998–2001, alcohol-related unintentional injury deaths increased from 1600 to more than 1700.[5]

A variety of reasons that young adults drink and the psychosocial factors associated with various consumption patterns have been reported in the literature.[12,13] Among these factors are certain personality traits,[14] parental and peer influences,[15,16] positive expectancies about the effects of alcohol,[17] overestimations about what are normative drinking levels,[18] and the social context within which drinking occurs. The social context of drinking refers to the immediate situational, temporal, and motivational factors that influence drinking behavior.[19–21] Knowing where, when, why, and with whom a person drinks provides a clearer picture for explaining different drinking patterns than do purely descriptive measures (ie, quantity and frequency of alcohol intake) or motivational measures alone. Scales have been developed and validated to measure the different social contexts that are pertinent to college student drinkers.[19,20] Six distinct social contexts of drinking have been identified: social facilitation, where drinking is done in a context of conviviality and social enhancement (eg, drinking at a party with friends, to have a good time); peer acceptance, where drinking is done to be part of a group or to gain someone's approval (eg, to act older or feel more grown up, to fit in); emotional pain, where drinking is done to medicate negative thoughts or stressors (eg, to get rid of depression, to forget about academic or personal problems); family drinking, where drinking is part of a family religious or celebratory circumstance; sex seeking, where drinking occurs as a means of establishing a sexual relationship with someone (eg, to build up courage to talk to someone of the opposite sex, to make it easier to go to bed with someone); and motor vehicle, where drinking occurs while sitting in a parked car or while driving around. These scales have been shown to possess acceptable reliability across genders, and discriminant validity in identifying high-intensity drinkers,[22] drinking drivers, and those who ride with a drinking driver.[19,20]

Previous research findings on college student drinking support a multifactorial etiological model. For instance, clear and consistent associations have been found between various personality traits, motives, or expectancies as well as perceived norms with a variety of drinking outcomes (eg, quantity and frequency of alcohol consumption as well as alcohol-related problems). To date, few studies have considered how these traits or motives operate under different social circumstances. In contrast to a focus on purely intrapersonal or cognition factors alone, social context considers the larger array of cognitive as well as situational factors that covary and interact to influence drinking patterns. By considering the larger matrix of motivational, situational, relational, and temporal factors, the social context perspective provides a more complete means of understanding the circumstances under which college students drink.

The purpose of this study was to examine how these social contexts of drinking scales related to a variety of self-reported alcohol problems in a sample of college freshmen, as well as clinically significant problems (ie, alcohol abuse and dependence). Entry into college is often a time of transition and adaptation to new roles, responsibilities, and freedoms. These new freedoms can be related to an increased likelihood of experiencing alcohol-related problems. Identifying students who are prone to experiencing a variety of alcohol problems that may threaten their success in college, if not their physical or emotional well-being, may offer a means for early identification and intervention with these at-risk individuals. Given the ability of the social context of drinking scales to distinguish certain kinds of drinkers (eg, frequent and excessive drinkers as well as those inclined to drive impaired) in a general college population, the study focused on understanding how social context was associated with problem drinking behaviors that are likely to be common among incoming freshmen.

METHODS

Study Design

The College Life Study (CLS) is a longitudinal study of a cohort of 1253 undergraduate college students, with a focus on understanding the natural history and course of substance use and other health behaviors during the transition to adulthood. Briefly, sampling occurred in 2 stages. First, a brief screening survey was administered to 3401 incoming freshman students who were 17 to 19 years old and attended summer orientation sessions at one large, public university in the mid-Atlantic region. Next, a sample of the screening participants was invited to participate in the longitudinal study, with oversampling of participants who had tried illicit drugs in high school. The baseline interview consisted of a 2-hour face-to-face interview during their freshman year. Students were then followed up 6 months later with a self-administered survey, which was made available in both web-based and paper versions. Respondents received $5 for participating in the screening survey, $50 for completing the baseline interview, and $20 for completing the 6-month follow-up assessment. Informed consent was obtained under Institutional Review Board (IRB)-approved protocols for participation in all phases of the longitudinal study and a federal Certificate of Confidentiality was obtained. Additional information on sampling, recruitment, and assessment methods have been described in detail elsewhere.[23]

Participants

Participant data for the current analyses are drawn from 2 waves of the study. Data on alcohol use, abuse, and dependence were gathered at baseline. Other alcohol problem behaviors, depression, and social context of drinking scales were assessed at the 6-month semiannual assessment. A total of 892 students completed both the baseline and the 6-month assessment, representing a 72% response rate of all students who completed the baseline interview. This investigation was further confined to current drinkers; that is, students who had nonmissing data on all variables of interest and who had consumed alcoholic beverages on 5 or more days during the past 12 months (n = 728).

Measures

Social context—The Social Context of Drinking Scales—College Version[19] consists of 30 items that measure the frequency of drinking in 6 different contexts. Each item is followed by the response options of "never" (scored as 0), "seldom" (scored as 1), "occasionally" (scored as 2) and "frequently" (scored as 3). The reliability coefficients for these scales have been previously established.[18,20]

Alcohol use disorders (abuse, dependence)—Current alcohol users (n = 728) were defined as those who indicated 5 or more days in response to the question "During the past 12 months, on how many days did you have a drink containing alcohol?" Whether or not students met standard psychiatric criteria for a DSM-IV diagnosis for an alcohol use disorder[24] (either dependence or abuse) was determined by a series of specific questions about experiencing specific problems related to alcohol drinking. Alcohol dependence is defined by meeting 3 or more of the following criteria: spending a great deal of time obtaining, consuming, or recovering from alcohol use; giving up important activities (social, occupational, recreational); continued using despite knowledge of physical or psychological problems; acquiring tolerance; having unsuccessfully tried to cut down on one's level of drinking; and consuming larger amounts than intended. Abuse is defined by meeting 1 or more of the following criteria: regularly using alcohol and putting oneself in physical danger; continued using despite problems with family or friends; serious problems at home, work, or school; and/or repeated trouble with the law. The interview method used to ascertain whether or not a student met criteria was modeled after the National Survey on Drug Use and Health.[25]

Students were classified into 3 categories: non-problem drinkers (n = 168), who did not meet any of the criteria for abuse or dependence; alcohol abusers (n = 108), who met at least 1 of the criteria for alcohol abuse but not dependence; and alcohol-dependent drinkers (n = 121), who met at least 3 of the criteria for dependence. In addition, there were 319 drinkers who only met only 1 or 2 of the criteria for dependence (ie, they were below the threshold necessary for classifying them as dependent drinkers) but did not meet any of the criteria for abuse. Because the diagnostic status of these drinkers fell between the 2 extreme groups, they were excluded from analyses in which non-problem drinkers were compared with students who met criteria for an alcohol use disorder. Twelve additional drinkers whose missing data prevented them from being classified were also excluded.

Alcohol problem behaviors—In addition to alcohol-related problems that were subsumed under DSM-IV criteria for an alcohol use disorder (ie, alcohol abuse or dependence), additional problems related to alcohol consumption were ascertained by asking a series of questions about the number of times in the past 6 months the person "was a passenger in a vehicle driven by someone who was under the influence of alcohol," "drove after drinking," "drove while drunk on alcohol," and "got into trouble for a housing violation due to alcohol use (eg, possession, having an open container, or having a party where alcohol was present)." We believed these other behaviors were important to assess because of the high likelihood they would occur among college students, even if the student did not meet criteria for an alcohol use disorder. Given the skewed distribution of the responses, these problems were coded into a dichotomous variable ("ever" versus "never" experienced).

Depression—The Center for Epidemiologic Studies Depression scale (CES-D)[26] was used to assess the presence of depressive symptoms. The median score was 9 (M = 10.81, SD = 7.72). Using standard criteria, clinically depressed students (n = 55) were defined by a CES-D score or 23 or higher.[27] Nondepressed students (n = 386) were defined by a CES-D score of 9 or less. The remaining students (n = 287) whose score fell between these 2 extreme groups were excluded from analyses involving the depression outcome variable.

Statistical Analyses

A series of multivariate logistic regression analyses were conducted in which the 6 social context of drinking scale scores used as predictors of each of the dichotomously defined problems (ie, alcohol abuse, alcohol dependence, 4 other alcohol-related problems, and depression). In each analysis, gender, ethnicity, frequency of drinking, and frequency of drunkenness were used as covariates. The resultant adjusted odds ratios reflected the relative degree of risk that drinking in each of the 6 social contexts was associated with a problem outcome, controlling for the other social context variables, demographic factors as well as the amount of alcohol intake (ie, number of days in a typical month in which a respondent drank alcohol and number of days in a typical month in which a respondent got drunk). These last 2 measures of alcohol intake were used as covariates in order to determine if the relationships between the various social context of drinking scales and the problems were independent of frequency of drinking or drunkenness, and not just an artifact of consumption patterns.

RESULTS

Table 1 describes the demographic composition of the sample of current drinkers (n = 728). The sample contained more females (57.3%) than males (42.7%), and it was predominantly white (77.0%), with relatively equal representation of people who described their race as African American (6.2%), Asian (7.4%), or some other unspecified category (9.4%). In addition, 5% described themselves as Hispanic. At baseline, the students ranged in age from 17 (5.3%) to 20 (0.4%) with most being 18 years old (71.6%).

Approximately 23% of the sample were classified as non-problem drinkers (ie, did not report any of the criteria for alcohol abuse or dependence), 15.1% met the DSM-IV criteria for alcohol abuse, and an additional 16.9% met the DSM-IV criteria for dependence. The rest of the drinkers were "diagnostic orphans" who did not meet the criteria for abuse or dependence, but reported 1 or 2 dependence criteria. With respect to other alcohol-related problems, more than half (53.9%) of current drinkers reported riding with a driver who was under the influence of alcohol, 50.2% drove after drinking, and 23.0% admitted driving when they knew they were intoxicated. Slightly more than 14% had received an alcohol-related housing violation. Finally, 7.6% were classified as being depressed.

Table 2 contains the frequency distributions of the social context scale items by subscale. As can be seen, students reported drinking most frequently in the context of social facilitation as compared to other contexts.

The means and standard deviations for the social context of drinking scales are presented in Table 3. The scales were not highly intercorrelated and possessed acceptable internal consistencies that did not vary across gender.

Association Between Social Context and Alcohol Abuse, Dependence, and Depression

The first set of analyses used the social context of drinking measures, along with the covariates, to predict the binary categorization of drinkers (ie, non-problem vs alcohol abusers, non-problem vs alcohol-dependent drinkers, nondepressed vs depressed students). The results (Table 4) revealed that alcohol abusers were less likely to drink in a context of family drinking than were non-problem drinkers. Both alcohol abusers and alcohol-dependent drinkers were more likely to drink in a motor vehicle context than were non-problem drinkers. In both of these analyses, the covariate of frequency of drunkenness was significantly and positively associated with abuse as well as dependence. An additional analysis (data not shown in a table) compared dependent drinkers to alcohol abusers and found that alcohol-dependent drinkers were more likely to drink in a context of sex seeking (AOR = 1.22, 95% CI 1.04, 1.42). No other covariates were significant in the final model.

A second set of analyses compared student drinkers who met the criteria for clinical depression (CES-D $\geq$ 23) with students who clearly did not meet criteria for depression (CES-D < 10). Depressed students drank significantly less frequently in a context of social facilitation but more in a context of emotional pain. Some of the covariates in the model were associated significantly with being depressed. For instance, females were more likely than males to be classified as depressed. Moreover, 1 in 5 (21.1%) of African American/black students and almost one third (30%) of students who described themselves as belonging to a racial/ethnic category other than white, African American, Asian, or Hispanic met criteria for depression, as compared to 10.1% of white students and 12.1% of Asian students.

Association Between Social Context and Other Alcohol Problems

Also shown at the bottom of Table 4 are the results of a third set of regression models examining the association between social context variables and 4 additional problem behaviors: riding with a driver who was under the influence of alcohol, driving after drinking, driving while intoxicated, and receiving an alcohol housing violation. Students who rode with drinking drivers, or were inclined to drink and drive themselves (even to the point where they know they were intoxicated), were significantly more likely to drink in a motor vehicle context than were individuals who did not experience these problems. Furthermore, those who reported riding with impaired drivers and drinking and driving themselves, as well as receiving an alcohol-related housing violation, were more likely to drink in a context of social facilitation. Finally, passengers of alcohol-impaired drivers drank more often in a context of sex seeking.

When examining the association between covariates and these behaviors, we observed a few significant findings; namely, males were more likely to drive after drinking, drive while intoxicated, and receive an alcohol-related student-housing violation. Moreover, African American students were less likely to report driving after drinking than were students of other racial/ethnic backgrounds.

DISCUSSION

Students entering college face great changes in their social environment. Typically, they are living away from home for the first time in their lives, and they are free from direct parental supervision and control. They are also faced with the challenges of making new friends and acquaintances, establishing new living arrangements, and negotiating their way around a college campus. It is likely that their drinking patterns that were established in high school become more developed or at least more likely to be expressed in this new environment. The social and psychological factors among college students relevant to their drinking behavior relate to these new social and emotional challenges.

The most consistent contexts that distinguished problem from non-problem drinkers were social facilitation and in the context of motor vehicles. To enhance general well-being and conviviality and to facilitate social interaction with others are common motivations for drinking among college students.[12] Students who frequently drank in this context were more likely to have ridden with an impaired driver, to have driven after drinking themselves, and to have received an alcohol-related housing violation. It is important to keep in mind that the logistic regression analyses controlled for gender, ethnicity, and frequency of drinking and drunkenness. Thus, the discriminatory ability of the social facilitation context is not merely an artifact of consumption. Rather, it reflects important social psychological reasons pertaining to when, where, and why a student consumes alcohol.

One implication of the study's findings for prevention is to address the needs for conviviality that these students possess and rechannel them around nonalcohol alternatives. This may be challenging in that many college student drinkers have already learned to associate drinking with having a good time and socializing with friends at a party or in a group setting. Yet colleges and universities have an obligation to address this problem as these early problem drinkers may be at risk for subsequent academic and/or personal problems.[28] One possible solution would be to design creative, exciting, and entertaining opportunities for students to engage in so that they meet their needs for conviviality and develop and express their social competencies without the use of alcohol. Such activities have to be created and advertised to students as more than just another "alcohol-free" event. They have to be sufficiently interesting, novel, and exciting to those types of students who are prone to being adventurous and convivial (ie, extroverted, thrill-seekers).

As expected, emotionally depressed students were significantly less likely to drink in a context of social facilitation, but they were more likely to drink for relief of negative emotional symptoms. This is evidence of the construct validity of the social context scales and shows that depressed drinkers are more prone to relief drinking and slightly less prone to convivial drinking. It is not surprising that the alcohol-dependent drinkers were more likely to be depressed than the non-problem drinkers. Drinking in a context of emotional pain as a means of coping for relief from stress, tension, and worries may be a self-medicating strategy that depressed drinkers have adopted. This strategy may not be perceived as inappropriate or ineffective as immediate negative outcomes have not yet occurred. As these students are followed over the next 3 years, we will be able to observe the longer-term patterns of drinking and their relationship to academic success as well as physical and mental health outcomes.

Drinking in a context of motor vehicle use was related to those students who drank and drove, drove while intoxicated, rode as a passenger with a drinking driver, and those who were classified as alcohol abusers or alcohol dependent. The prevalence of impaired driving among college students is of concern,[6] yet relatively little research has been conducted into the psychosocial dynamics underlying this behavior. Thombs et al[20] found that drinking and driving as well as riding with an impaired driver were strongly related to normative influences (ie, the frequency with which one's closest friends engaged in these behaviors). Although there is evidence to support the effectiveness of social norm modification programs at reducing the incidence of alcohol abuse on college campus,[29] what may be needed is a personal norm modification approach, in which the proximal norms of one's closest friends are changed rather than the distal norms of so-called "typical students" on campus.[30] How one would go about doing this is not exactly clear. It may be that those students who are inclined to drink in a motor vehicle context tend to associate with others who do so as well, and this proximal norm may not be as modifiable a risk factor in that it would require working with a student to choose more appropriate peers.

Drinking in a family context was unrelated to alcohol problems, but appeared to be protective for alcohol abuse. This finding may be related to the fact that the items that constitute the scale convey a context of drinking inconsistent with alcohol abuse (eg, drinking at home with their parents in a celebratory fashion or for religious holidays, birthdays, weddings, or other social events). Several research studies indicate that adolescent drinking behavior is significantly influenced in a complex fashion by drinking patterns of their parents.[31,32] Early parenting practices, such as parental monitoring and supervision, as well as setting healthy expectations about drinking behavior might help students avoid problematic alcohol consumption patterns. Prospective studies are needed to determine the longitudinal relationship between family drinking and subsequent alcohol problems that students may encounter.

The findings of this study must be tempered by several limitations. First because the study sample was recruited from a single large public university, the findings may not be generalizable to non-college-attending young adults or college students attending colleges with a different demographic composition, such as smaller private colleges or colleges in other regions with different levels of social acceptance of alcohol drinking. Second, sample estimates reported herein should not be misinterpreted to be population prevalence estimates as illicit drug users were deliberately oversampled at the start of the study, and the study sample for these analyses was restricted to current drinkers, namely, students who drank at least 5 days in the past 12 months. Third, although our response rates were quite acceptable, there is the possibility of attrition bias; where excluding the students who did not participate in the 6-month assessment might have somehow changed the observed results regarding the association between social context of drinking behavior, alcohol problems, and depression. Fourth, our analytic strategy called for comparisons of extreme groups at either end of an alcohol problem continuum and exclusion of students who were diagnostic orphans. Post hoc analyses were conducted to determine if our decision to exclude this group would have changed the results significantly. In short, the diagnostic orphans resembled the non-problematic drinkers more than they resembled the students who met criteria for an alcohol use disorder, and thus, the observed associations between social context variables and alcohol problems did not change when this group was combined with the non-problematic alcohol users. In a similar fashion, the results did not change significantly when the group of students with intermediate depression scores was included in a post hoc analysis that used the continuous CES-D score as a predictor variable.

Lastly, other potential covariates of alcohol problems, such as illicit drug use, perceived harmfulness, personality, family characteristics, or high school drinking patterns, were not investigated in the current set of analyses. We believe that although the present analyses

highlight the important influence of social context variables, social context is certainly not deterministic of behavior, and further analyses using longitudinal modeling techniques will investigate the directionality of the observed relationships more carefully as well as a wide array of potential influences on young adult drinking behavior. Moreover, future research will investigate the significance of potential interactions between social context and gender and race, which were found to be associated with depression in the current study.

The social context of drinking scales showed a pattern of relationships with various alcohol problems that suggests their validity as a means of identifying unique social and psychological patterns of college student drinking. These relationships were independent of frequency of drinking, as well as drunkenness, and reflected distinct contextual circumstances that seem to be independent of levels of alcohol intake. Measuring the situational as well as motivational and relational aspects of drinking allows a more complete understanding of the various forces that affect students and that may shape subsequent drinking outcomes. Future research is needed to examine these relationships prospectively to determine how they compare against other interpersonal (ie, perceived norms) as well as intrapersonal (ie, personality traits) factors in predicting future patterns of alcohol involvement, as well as to determine the extent to which the social contexts of drinking can be manipulated to reduce adverse consequences of drinking among college students.

References

1. Hingson RW, Heeren T, Zakocs RC, et al. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24. J Stud Alcohol 2002;63(2):136–144. [PubMed: 12033690]

2. White AM, Kraus CL, Swartzwelder H. Many college freshmen drink at levels far beyond the binge threshold. Alcohol Clin Exp Res 2006;30(6):1006–1010. [PubMed: 16737459]

3. Slutske WS. Alcohol use disorders among US college students and their non-college-attending peers. Arch Gen Psychiatry 2005;62(3):321–327. [PubMed: 15753245]

4. Wechsler H, Lee JE, Kuo M, et al. College binge drinking in the 1990's: a continuing problem: results of the Harvard School of Public Health 1999 College Alcohol Study. J Am Coll Health 2000;48:199–210. [PubMed: 10778020]

5. Hingson R, Heeren T, Winter M, et al. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24: changes from 1998 to 2001. Ann Rev Pub Health 2005;26:259–279. [PubMed: 15760289]

6. Paschall MJ. College attendance and risk-related driving behavior in a national sample of young adults. J Stud Alcohol 2003;64(1):43–49. [PubMed: 12608482]

7. Wechsler H, Dowdall GW, Maenner G, et al. Changes in binge drinking and related problems among American college students between 1993 and 1997. Results of the Harvard School of Public Health College Alcohol Study. J Am Coll Health 1998;47:57–68. [PubMed: 9782661]

8. Johnston, LD.; O'Malley, PM.; Bachman, JG., et al. Monitoring the Future: national results on adolescent drug use: overview of key findings 2005 (online). [Accessed July 5, 2006]. Available at: http://monitoringthefuture.org/pubs/monographs/overview2005.pdf

9. O'Hare TM. Drinking in college: consumption patterns, problems, sex differences and legal drinking age. J Stud Alcohol 1990;51:536–541. [PubMed: 2270062]

10. Engs RC, Diebold BA, Hansen DJ. The drinking patterns and problems of a national sample of college students, 1994. J Alcohol Drug Educ 1996;41(3):13–33.

11. Presley, CA.; Meilman, PW.; Cashin, JR., et al. Alcohol and Drugs on American College Campuses: Use, Consequences, and Perceptions of the Campus Environment. IV. Carbondale, IL: Core Institute, Southern Illinois University; 1996. p. 1992-1994.

12. Baer JS. Student factors: understanding individual variation in college drinking. J Stud Alcohol 2002;63(Suppl):40.

13. Jessor R, Costa FM, Krueger PM, et al. A developmental study of heavy episodic drinking among college students: the role of psychosocial and behavioral protective and risk factors. J Stud Alcohol 2006;67(1):86–94. [PubMed: 16536132]

14. Brennan AF, Walfish S, AuBuchon P. Alcohol use and abuse in college students. I. A review of individual and personality correlates. Int J Addict 1986;21(45):449–474. [PubMed: 3533794]

15. Catalano RF, Morrison DM, Wells EA, et al. Ethnic differences in family factors related to early drug initiation. J Stud Alcohol 1992;53(3):208–217. [PubMed: 1285743]

16. Wechsler H, Dowdall GW, Davenport A, et al. Correlates of college student binge drinking. Am J Public Health 1995;85(7):921–926. [PubMed: 7604914]

17. Werner MJ, Walker LS, Green JW. Relation of alcohol expectancies to changes in problem drinking among college students. Arch Ped Adolesc Med 1995;149(7):733–739.

18. Perkins HW, Haines MP, Rice R. Misperceiving the college drinking norm and related problems: a nationwide study of exposure to prevention information, perceived norms and student alcohol misuse. J Stud Alcohol 2005;66(4):470–478. [PubMed: 16240554]

19. Beck KH, Thombs DL, Mahoney CA, et al. Social context and sensation seeking: gender differences in college student drinking motivations. Int J Addict 1995;30(9):1101–1115. [PubMed: 7591351]

20. Thombs DL, Beck KH, Mahoney CA. Effects of social context and gender on drinking patterns of young adults. J Counseling Psychol 1993;40(1):115–119.

21. Thombs DL, Wolcott BJ, Farkash LG. Social context, perceived norms and drinking behavior in young people. J Subst Abuse 1997;9:257–267. [PubMed: 9494953]

22. Thombs DL, Beck KH, Pleace DJ. The relationship of social context and expectancy factors to alcohol use intensity among 18–22 year-olds. Addict Res 1993;1(1):59–68.

23. Arria AM, Caldeira KM, O'Grady KE, et al. Drug exposure opportunities and use patterns among college students: results of a longitudinal prospective cohort study. Subst Abuse. In press

24. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders: DSM-IV. 4. Washington, DC: American Psychiatric Press; 1994.

25. Substance Abuse and Mental Health Services Administration. 2002 National Survey on Drug Use and Health Questionnaire (online). [Accessed September 26, 2006]. Available at: http://www.drugabusestatistics.samhsa.gov/nhsda/2k2MRB/2k2CAISpecs.pdf

26. Radloff LS. The CES-D Scale: a self-report depression scale for research in the general population. Appl Psychol Meas 1977;1(3):385–401.

27. Audrain-McGovern J, Lerman C, Wileyto EP, et al. Interacting effects of genetic predisposition and depression on adolescent smoking progression. Am J Psychiatry 2004;161(7):1224–1230. [PubMed: 15229055]

28. Windle M, Mun EY, Windle R. Adolescent-to-young adult heavy drinking trajectories and their prospective predictors. J Stud Alcohol 2005;66:313–322. [PubMed: 16047520]

29. Berkowitz, AD. The social norms approach: theory, research and annotated bibliography (online). [Accessed October 20, 2006]. Available at: http://www.higheredcenter.org/socialnorms/theory

30. Thombs DL, Ray-Tomasek J, Osborn CJ, Olds RS. The role of sex-specific normative beliefs in undergraduate alcohol use. Am J Health Behav 2005;29(4):342–351. [PubMed: 16006231]

31. Dishion TJ, McMahon RJ. Parental monitoring and the prevention of child and adolescent problem behavior: a conceptual and empirical formulation. Clin Child Fam Psychol Rev 1998;1(1):61–75. [PubMed: 11324078]

32. DeVore ER, Ginsburg KR. The protective effects of good parenting. Curr Opin Pediatr 2005;17:460–465. [PubMed: 16012256]

Table 1

Characteristics of College Students Studied (Current Drinkers; n=728)

	%
Demographics	
Gender	
Male	42.7
Female	57.3
Ethnicity	
White	77.0
AfricanAmerican	6.2
Asian	7.4
Other	9.4
Hispanic	5.0
Living Situation (on campus)	95.3
Depression (CES-D ≥ 23)	7.6
Alcohol Problems	
DSM-IV Alcohol Use Disorder Classification	
Alcohol Abuse	15.1
Alcohol Dependence	16.9
Non-problem drinkers	23.5

Other Alcohol-related Problems	At least once	Frequency (number of times)			
		1–2	3–6	7–9	10+
Rode with a driver who was under the influence of alcohol	53.9	31.0	12.6	4.2	6.1
Drove after drinking	50.2	32.4	9.6	3.2	5.0
Drove while drunk or intoxicated	23.0	14.1	4.8	1.4	2.6
Alcohol-related student-housing violation	14.1	13.7	0.3	0.1	0.0

Table 2

Social Context of Drinking Scale Items

How often do you drink alcohol (%)	Never	Seldom	Occasi[a]	Freque[b]
Social Facilitation				
At a party with friends?	2.5	8.0	37.1	52.4
To have a good time?	2.9	8.7	37.5	51.0
On a college campus? (eg, at parties, in dormitories, at fraternities or sororities)	4.1	7.5	28.2	60.2
As part of a drinking game?	7.3	19.8	47.2	25.6
On weekend nights?	4.0	14.6	29.8	51.6
When bars have drink specials?	41.2	19.1	20.8	18.9
At a bar?	31.3	24.1	26.4	18.2
With a small group of friends?	2.5	10.7	54.7	32.1
With a large group of friends?	3.2	10.3	44.8	41.7
When you have no classes or other obligations the next morning?	9.2	21.2	42.7	26.9
To get drunk?	6.2	13.7	43.4	36.7
Before "going out"? (ie, to a party or bar)	9.5	17.1	38.1	35.4
When a friend from home visits for the weekend?	15.9	20.4	30.9	32.7
Peer Acceptance				
To be part of a group? (eg, to be accepted, fit in, not feel left out)	59.2	29.1	9.5	2.2
To maintain your image?	74.4	17.6	6.2	1.8
To act older or feel more grown up?	76.1	18.9	3.6	1.4
Because it's cool?	66.1	20.2	9.1	4.5
To get someone's approval? (eg, a close friend, a boyfriend or girlfriend)	77.3	16.4	4.8	1.5
Emotional Pain				
To forget about academic problems?	55.9	31.0	10.6	2.5
To get rid of depression?	59.3	28.6	9.5	2.6
To forget about personal problems?	46.6	36.0	12.9	4.5
Family				
At home with your parent(s)?	49.4	34.0	14.4	2.2
At family social events? (eg, birthday parties, dinners, weddings)	26.4	40.6	24.9	8.0
To celebrate a religious holiday?	37.6	33.1	20.6	8.7
Sex Seeking				
To reduce inhibitions?	40.5	30.5	22.5	6.5
To build up courage to talk to someone of the opposite sex?	47.0	30.0	19.3	3.7
To make it easier to go to bed with someone?	72.9	17.4	7.2	2.6
Motor Vehicle				
While driving or riding in the car to another night spot?	74.2	19.3	5.4	1.1
In a parked car?	65.6	28.2	5.1	1.1
While driving around?	79.5	17.6	2.4	0.6

Note.

[a] Occasi=Occasionally

[b] Freque=Frequently

Table 3

Intercorrelations, Cronbach Alpha (α), Means (M), and Standard Deviations (SD) for the Social Context of Drinking Scales

	Social Facilitation (13 items)	Peer Acceptance (5 items)	Emotional Pain (3 items)	Family Drinking (3 items)	Sex Seeking (3 items)	Motor Vehicle (3 items)
Peer Acceptance	.307[a]					
Emotional Pain	.380[a]	.374[a]				
Family Drinking	.312[a]	.061	.224[a]			
Sex Seeking	.463[a]	.490[a]	.479[a]	.128[a]		
Motor Vehicle	.376[a]	.307[a]	.322[a]	.151[a]	.337[a]	
Total α	.933	.839	.758	.776	.765	.780
Males α	.931	.819	.746	.743	.765	.797
Females α	.937	.853	.769	.799	.759	.765
Mean	39.09	7.02	4.90	5.84	5.15	3.99
(sd)	(8.69)	(2.75)	(2.06)	(2.22)	(2.12)	(1.50)

Note.

[a] Results are significant at P<.01 level

Table 4

Results of Multivariate Logistic Regression Models on the Relationship Between the Social Context of Drinking Scales and DSM-IV Alcohol Abuse, Alcohol Dependence, and Depression Among College Students

	Alcohol Abuse[a] OR (95% CI)	Alcohol Dependence[a] OR (95% CI)	Depression[b] OR (95% CI)
	DSM-IV Criteria for Alcohol Use Disorders		
Social Context Scale			
Social Facilitation	1.03 (0.96, 1.10)	1.06 (0.99, 1.14)	**0.92** (0.87, 0.97)
Peer Acceptance	0.99 (0.87, 1.13)	0.91 (0.80, 1.04)	0.93 (0.81, 1.07)
Emotional Pain	1.08 (0.91, 1.29)	1.18 (0.99, 1.40)	**1.31** (1.10, 1.57)
Family Drinking	**0.80** (0.68, 0.94)	0.87 (0.74, 1.02)	0.89 (0.76, 1.04)
Sex Seeking	1.05 (0.87, 1.27)	1.18 (0.98, 1.41)	1.15 (0.94, 1.40)
Motor Vehicle	**1.40** (1.10, 1.78)	**1.37** (1.05, 1.78)	1.18 (0.95, 1.46)

	RWID[c] OR (95% CI)	DAD[d] OR (95% CI)	DWI[e] OR (95% CI)	Violation[f] OR (95% CI)
	Other Alcohol Problems (not included in DSM-IV Criteria)			
Social Context Scale				
Social Facilitation	**1.04** (1.00, 1.07)	**1.05** (1.02, 1.09)	1.02 (0.98, 1.06)	**1.05** (1.01, 1.10)
Peer Acceptance	1.01 (0.93, 1.09)	1.00 (0.93, 1.08)	0.95 (0.88, 1.03)	1.01 (0.92, 1.10)
Emotional Pain	0.98 (0.89, 1.09)	0.99 (0.90, 1.09)	1.10 (0.99, 1.22)	1.04 (0.91, 1.17)
Family Drinking	1.03 (0.95, 1.12)	1.00 (0.92, 1.09)	0.93 (0.84, 1.03)	0.93 (0.82, 1.04)
Sex Seeking	**1.13** (1.02, 1.26)	1.03 (0.93, 1.15)	1.06 (0.94, 1.18)	0.92 (0.81, 1.04)
Motor Vehicle	**1.63** (1.37, 1.92)	**1.39** (1.20, 1.60)	**1.51** (1.31, 1.73)	1.12 (0.97, 1.30)

Note.

Odds ratios adjusted for gender, ethnicity, frequency of drinking, and frequency of drunkenness. Significant (P<.05) OR's in bold print.

[a] compared to non-problem drinkers

[b] As measured by the CES-D ≥ 23, compared to non depressed drinkers (CES-D < 10)

[c] Rode with a driver who was under the influence of alcohol

[d] Drove after drinking

[e] Drove while drunk or intoxicated

[f] Alcohol-related student-housing violation (The block of social context variables failed to add significantly to the overall model)