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Social contexts of drinking and subsequent alcohol use disorder among college students

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Abstract

Background—Previous research has suggested important contextual factors that can differentiate problem and non-problem drinkers.

Objectives—To evaluate the strength of the prospective association between social contexts of drinking and subsequent alcohol use disorder and drunk driving 2 to 3 years later.

Methods—The sample consisted of 652 individuals who were originally recruited at college entry, had complete data on at least one social context subscale, met minimum criteria for Year 1 drinking, and had non-missing data on at least one of the outcome variables in Years 3 and/or 4. Social contexts of drinking were assessed in Year 1 using previously-validated scales measuring six different situational and motivational contexts in which alcohol is consumed. DSM-IV criteria for alcohol abuse and dependence and drunk driving were assessed annually.

Results—Holding constant gender, race/ethnicity, and baseline drinking frequency, the frequency of drinking in a context of social facilitation, sex-seeking, or in a motor vehicle during Year 1 was significantly related to a greater likelihood of alcohol abuse, alcohol dependence, and drunk driving in Years 3 and/or 4. Drinking in a context of emotional pain was related to alcohol dependence and drunk driving but not to alcohol abuse.

Conclusions—The Social Context of Drinking Scales have utility for identifying students who are at risk for developing alcohol-related problems. Scientific Significance: Identifying college students who might develop alcohol dependence requires an assessment of both situational and motivational factors that influence drinking, especially drinking in a motor vehicle.

Keywords

Alcohol use disorder; college students; social context; longitudinal study

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DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

INTRODUCTION

Heavy drinking among college students is recognized as a significant public health problem (1–3). National data indicate that 45% of students consume five or more drinks on an occasion during the past month (4); and 17% meet criteria for alcohol abuse or dependence (5). Excessive drinking among college students has been related to a variety of negative outcomes including missing class and falling behind in schoolwork, unsafe sex, accidental injury, assaults, and death (6–9).

A variety of intra- and inter-personal factors has been studied in relation to young adult drinking patterns and associated problems. For instance, certain personality traits such as neuroticism and conscientiousness are related to problematic alcohol involvement (10). Other studies have investigated the role of stress, tension-reduction (11), and coping (12,13) on alcohol drinking patterns. In their review of the literature, Kuntsche et al. (14) concluded that drinking for social motives appears to be associated with moderate alcohol use, whereas drinking for coping reasons is associated with alcohol-related problems.

While research has highlighted the importance of social motives for drinking among college students, few studies have examined the interdependent relationship that exists between drinking motives and the environmental or situational aspects of drinking. Different reasons for drinking may be more likely in different environments or with people whose role and relationship to the drinker vary in meaningful ways and shape their drinking patterns.

The social context of drinking refers to the immediate situational, temporal, and motivational factors that influence drinking behavior (15–18). Taking into account these contexts (i.e., why, with whom, and under what conditions a person drinks) provides more information about the individual drinking pattern over and above information about quantity-frequency of alcohol consumption or motives alone. Scales have been developed and validated to measure these contexts and have identified the following six contexts of drinking within a college population (15): 1) social facilitation (drinking in a context of conviviality and social enhancement such as a party with friends or to have a good time); 2) peer acceptance (drinking to be part of a group or to gain peer approval); 3) emotional pain (drinking to reduce depression or stress, or to forget about academic or personal problems); 4) family drinking (drinking during family religious or celebratory circumstances); 5) sex-seeking (drinking to establish sexual relationships such as drinking to bolster confidence to talk to or have sex with someone); and 6) motor vehicle (drinking while in a parked car or while driving around). These scales have been shown to have acceptable reliability across genders (18), and discriminant validity in identifying high-intensity drinkers (15,17,19), drinking drivers, and those who ride with a drinking driver (15,17).

In an earlier study, the Social Context of Drinking Scales were investigated as correlates of DSM-IV criteria (20) for alcohol abuse and dependence in first-year college students (18). Drinking in a context of a motor vehicle was the only social context associated with alcohol dependence. Both social facilitation and motor vehicle were associated with driving after drinking, whereas motor vehicle was associated with driving while drunk. It is unclear to what extent drinking in these various contexts might place an individual at risk for developing subsequent alcohol use disorder (AUD), including alcohol dependence. This study aimed to estimate the strength of the association of Social Context of Drinking Scales measured during the first year of college with subsequent AUD (i.e., abuse or dependence) and drunk driving up to three years later.

DATA AND METHODS

Study Design

Data for this study were derived from the College Life Study (CLS), focused on understanding the natural history and course of substance use and other health behaviors during the transition to adulthood. In short, a cohort of first-time, first-year college students were screened at new student orientation during the summer of 2004 at one large, public university in the mid-Atlantic region of the U.S. ($N=3,401$; 82% of all first-year students). Next, a sample of screened participants was invited to participate in the longitudinal study, with purposive oversampling of participants who used an illicit drug or nonmedically used a prescription drug at least once during high school; all others were selected randomly. A two-hour personal interview and self-administered questionnaires were administered at some point during the first year of college ("baseline" assessment, $n=1,253$, 86% response rate). Six months later, students were asked to complete an online self-administered questionnaire including the Social Context of Drinking Scales. Thereafter, participants completed annual assessments similar to the baseline, regardless of continued college attendance. Sampling, recruitment and follow-up methods are described in more detail elsewhere (21,22).

Participant Characteristics

Of the original 1,253 participants, the analytic sample for this investigation was restricted to 652 individuals who met the following four inclusion criteria: 1) completed the online survey at six months, 2) had complete data on at least one social context subscale, 3) met our minimum criteria for Year 1 drinking (i.e., 5 days/year at baseline and 1 day/month at six months), and 4) had non-missing data on at least one of the outcome variables in Years 3 and/or 4 (i.e., drunk driving, AUD). Excluded were 356 individuals who did not complete the online survey at six months, 1 missing all social context subscales, 184 Year 1 non-drinkers, 1 missing data on Year 1 drinking, 30 assessed at neither Year 3 nor 4, and 29 missing data on both outcome variables. Follow-up rates were 70% at six months among baseline drinkers (i.e., 5 days/year), and 96% in Years 3 and 4 among Year 1 drinkers (see definition above). Among baseline drinkers, overall attrition was slightly but significantly lower for students who maintained continuous enrollment at the home university (30%) compared with those who missed one or more semesters (38%, $p<.001$). Included participants were similar to other baseline drinkers with respect to race, ethnicity, drinking frequency, and alcohol dependence, but were overrepresented by females (58% vs. 39%, $p<.001$).

Measures

Social context—The Social Context of Drinking Scales—College Version consists of 30 items that measure the frequency of drinking in six different contexts, with four response options ranging from "never" (scored as 0) to "frequently" (scored as 3). Social facilitation consists of 13 items (possible scores 0 to 39) and peer acceptance contains 5 items (0 to 15); the remaining four scales contain 3 items each (range 0 to 9). The scales have acceptable reliability (α 's=0.76 to 0.93) and are not highly intercorrelated (18). Means for each scale are presented in Table 1.

Alcohol use disorder (AUD)—Annually, a series of questions adapted from the National Survey on Drug Use and Health (NSDUH) were used to assess AUD (23). Only individuals who had consumed alcohol on five or more days during the past 12 months were asked these questions to assess DSM-IV criteria for alcohol abuse or dependence (20). Alcohol dependence was defined by meeting three or more of the following criteria: spending a great deal of time obtaining, consuming, or recovering from alcohol use; giving up important activities; 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. In the absence of alcohol dependence, abuse was defined by meeting one 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. Responses from Years 3 and 4 were consolidated to classify participants into three categories representing various levels of alcohol involvement reported during Years 3 and 4: non-problem drinkers ($n=230$), who did not meet any of the criteria for abuse or dependence; alcohol abusers ($n=264$), those who met criteria for alcohol abuse but not dependence; and alcohol-dependent drinkers ($n=142$), who met criteria for alcohol dependence. Individuals endorsing some problems but not meeting the threshold for abuse or dependence were excluded ($n=16$).

Drunk driving—Participants were asked how many times they drove while drunk on alcohol during the past year, with five response options ranging from “never” to “ten or more times.” Responses from Years 3 and 4 were consolidated into one dichotomous variable based on whether the individual did ($n=252$) or did not ($n=400$) drive drunk at least once during either interval.

Control variables—Gender was recorded at baseline. Self-reported race and ethnicity were dichotomized as white (80.2%) and non-white (19.8%). Two additional alcohol measures assessed at baseline were frequency of drinking, measured as the number of days they drank alcohol during the past month, and frequency of drunkenness, measured as the number of days they “got drunk” during the past month.

Statistical Analyses

A series of multivariate logistic regression analyses were conducted in which the Social Context of Drinking Scale scores at Year 1 were used as separate predictors of subsequent AUD in Years 3 and/or 4. Individuals meeting criteria for alcohol abuse and dependence were compared to one another and non-problem drinkers. A separate logistic regression model evaluated the relationship between the Social Context of Drinking Scale scores and the dichotomous drunk driving variable, regardless of AUD status. All analyses adjusted for gender, race/ethnicity, and frequency of drinking at baseline. Analyses were replicated after substituting baseline frequency of drunkenness for baseline frequency of drinking, and the final results were largely unchanged. For regression analyses, the raw Social Context of Drinking Scale scores were converted to standardized scores to adjust for heterogeneity in their distributions and enhance the interpretability of results.

RESULTS

With respect to sample characteristics, females were slightly over-represented (58%) and whites constituted a majority of the participants (80.2%). At baseline, the average number of past-month drinking days and past-month drunk days was 9.22 ($SD=5.45$) and 6.57 ($SD=4.73$), respectively. In Years 3 and/or 4, 41.5% met criteria for alcohol abuse, 22.3% met criteria for alcohol dependence, and more than a third (38.7%) reported driving while drunk at least once during the past year.

Several of the social contexts were associated with alcohol abuse and dependence. Specifically, higher Year 1 scores on drinking in a context of social facilitation, sex-seeking, and a motor vehicle all predicted increased likelihood of meeting alcohol abuse criteria in Years 3 and/or 4 (relative to non-problem drinking, see Table 2). Similarly, higher scores on drinking in a context of social facilitation, peer acceptance, emotional pain, sex-seeking, and

motor vehicle were all associated with increased risk of subsequent alcohol dependence. Drinking in a context of emotional pain was associated with increased risk for developing alcohol dependence relative to alcohol abuse. Finally, drinking in a context of social facilitation, emotional pain, sex-seeking, and motor vehicle all predicted increased likelihood of driving drunk. Family drinking was not related to any of the dependent variables tested.

A final series of logistic regression analyses tested all of the social context variables simultaneously, to determine whether any contexts were uniquely associated with any of the dependent variables, after controlling for the other drinking contexts. Participants who drank in a context of social facilitation or a motor vehicle were at increased risk for developing alcohol abuse (relative to non-problem drinking). Motor vehicle was the only social context uniquely associated with alcohol dependence (relative to non-problem drinking), and with drunk driving (see Table 3).

DISCUSSION

This study found that the social context of drinking was associated with subsequent AUD and drunk driving in this sample who were originally enrolled as first-year college students. Drinking in a context of social facilitation, sex-seeking, emotional pain, and motor vehicle during the first year of college distinguished alcohol dependence cases from non-problem drinkers up to three years later, and distinguished drunk drivers from individuals who did not drive drunk. With the exception of emotional pain, the same contexts also distinguished individuals who met criteria for alcohol abuse from non-problem drinkers. However, drinking in a context of emotional pain distinguished students who went on to develop alcohol dependence from those who met alcohol abuse criteria. Drinking in a context of peer acceptance was related to alcohol dependence, but not to alcohol abuse or drunk driving.

These results are consistent with and extend previous research (24,25) that has shown that drinking for social enhancement and for coping or emotional escape are two of the most prominent motives related to problematic drinking among college students. However, drinking in a context of sex-seeking and while in a motor vehicle also predicted increased risk for developing alcohol abuse, alcohol dependence, and drunk driving, suggesting that problematic drinkers, especially those meeting criteria for the most severe form of AUD (i.e., dependence), drink in a variety of contexts and that no one factor alone is likely to be sufficient at predicting their drinking patterns. Impulsivity and disinhibition have been consistently related to excessive drinking and deviant conduct among college students (24). It therefore seems reasonable to hypothesize that these social contexts of drinking might be related to underlying personality and temperament traits that predispose college students to become problematic drinkers.

Drinking in a context of motor vehicles was associated with increased risk for developing AUD as well as driving drunk. Drunk driving is an important manifestation of an AUD in this population and is most likely related to heightened impulsivity and behavioral disinhibition, reflected in rebellious and risky behavior (24). It is interesting to note that drinking in a context of a motor vehicle was a particularly robust predictor of subsequent AUD and drunk driving, independent of the other social context scores. Given that drinking in a context of motor vehicle was the only social context that uniquely predicted alcohol dependence and drunk driving, future alcohol problem screening instruments should include an item about this, given its prevalence among college students (26).

The sample was obtained from one large, mid-Atlantic, public university. As such, the results may not be generalizable to non-college attending youth, or students attending

institutions with different characteristics. Also, the demographic composition of our sample was predominantly white and was restricted to current drinkers who remained in the study over a 3 to 4 year period. The study also relied on self-report data; the possibility of recall bias and underreporting cannot be ruled out. Finally, we were unable to collect data on the social context of drinking concurrently with measures of AUD and drunk driving. Thus, we cannot say how changes in drinking context are associated with changes in problem drinking.

This study provides evidence of a prospective relationship between the social contexts of drinking of first-year college students and their subsequent AUD and drunk driving. This suggests that college students who develop AUD might drink in situational and motivational contexts that place them at greater risk for subsequent alcohol dependence and traffic-risk behaviors. The findings have implications for both assessment as well as treatment. These scales, along with other more comprehensive measures of personality, alcohol motivations, and expectancies, might be useful for identifying first-year students who are at risk for developing AUD, and could be useful for confidential screening, evaluation, and intervention purposes. For instance, measures of social contexts of drinking could be part of a routine screening of incoming freshmen, perhaps utilizing web-based technology. Interventions that involve personalized feedback for DUI offenders that have focused on assessing and modifying their drinking levels have been shown to be effective (27–29) and have potential for use in college students. Future research is needed to evaluate the effectiveness of this type of approach among college students.

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TABLE 1
Descriptive statistics comparing the Social Context of Drinking Scale scores on the basis of alcohol use disorder groups and drunk driving

Social Context of Drinking Scale	Total (<i>n</i> =652)	Alcohol Use Disorder Group			Drunk Driving	
		Non-problem drinking (<i>n</i> =230)	Alcohol Abuse (<i>n</i> =264)	Alcohol Dependence (<i>n</i> =142)	No (<i>n</i> =400)	Yes (<i>n</i> =252)
Social facilitation (<i>M, SD</i>)	26.52 (7.99)	23.66 (8.42)	27.44 (6.88)	29.55 (7.38)	25.34 (8.18)	28.34 (7.33)
Peer acceptance (<i>M, SD</i>)	2.03 (2.68)	1.61 (2.44)	2.07 (2.59)	2.58 (2.95)	1.97 (2.73)	2.12 (2.61)
Emotional pain (<i>M, SD</i>)	1.90 (2.00)	1.47 (1.75)	1.90 (1.88)	2.57 (2.31)	1.71 (1.88)	2.20 (2.15)
Family drinking (<i>M, SD</i>)	2.84 (2.19)	2.63 (2.18)	2.94 (2.29)	3.01 (2.06)	2.80 (2.21)	2.91 (2.17)
Sex-seeking (<i>M, SD</i>)	2.13 (2.07)	1.57 (1.74)	2.24 (1.95)	2.77 (2.47)	1.89 (1.94)	2.50 (2.22)
Motor vehicle (<i>M, SD</i>)	0.95 (1.44)	0.43 (0.94)	1.08 (1.46)	1.47 (1.68)	0.64 (1.15)	1.44 (1.69)

TABLE 2

Results of multivariate logistic regression models on the relationship between the social context of drinking scales, alcohol use disorder, and drunk driving among college students

Social Context of Drinking Scale	Meeting DSM-IV Criteria for Alcohol Use Disorders			
	Alcohol Abuse ^a AOR (95% CI)	Alcohol Dependence ^a AOR (95% CI)	Dependence vs. Abuse ^b AOR (95% CI)	Drove while Drunk ^c AOR (95% CI)
Social facilitation	1.68 (1.28, 2.19)	1.99 (1.43, 2.76)	1.34 (0.97, 1.86)	1.42 (1.12, 1.79)
Peer acceptance	1.17 (0.96, 1.43)	1.34 (1.06, 1.68)	1.14 (0.93, 1.40)	1.01 (0.85, 1.19)
Emotional pain	1.19 (0.96, 1.47)	1.57 (1.24, 2.00)	1.30 (1.06, 1.60)	1.19 (1.01, 1.41)
Family drinking	1.07 (0.89, 1.29)	1.04 (0.82, 1.32)	0.94 (0.76, 1.17)	0.98 (0.82, 1.16)
Sex-seeking	1.34 (1.08, 1.66)	1.56 (1.24, 1.97)	1.21 (0.98, 1.49)	1.21 (1.02, 1.43)
Motor vehicle	1.87 (1.43, 2.45)	2.36 (1.74, 3.21)	1.21 (0.99, 1.47)	1.69 (1.41, 2.03)

Note: Odds ratios adjusted for gender, race/ethnicity, and frequency of drinking. Significant ($p < .05$) AOR's in bold print.

^a Compared to non-problem drinkers

^b AOR refers to likelihood of meeting criteria for dependence relative to abuse

^c Compared to non-alcohol impaired drivers

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Results of the full multivariate logistic regression models on the relationship between the social context of drinking scales, alcohol use disorder, and drunk driving among college students

TABLE 3

Social Context of Drinking Scale	Meeting DSM-IV Criteria for Alcohol Use Disorders			
	Alcohol Abuse ^a AOR (95% CI)	Alcohol Dependence ^a AOR (95% CI)	Dependence vs. Abuse ^b AOR (95% CI)	Drove while Drunk ^c AOR (95% CI)
Social facilitation	1.40 (1.03, 1.88)			
Peer acceptance				
Emotional pain				
Family drinking				
Sex-seeking				
Motor vehicle	1.70 (1.28, 2.27)	1.93 (1.40, 2.67)		1.65 (1.35, 2.02)

Note: Odds ratios adjusted for gender, race/ethnicity, and frequency of drinking. Significant ($p<.05$) *AOR*'s in bold print.

^aCompared to non-problem drinkers

^b*AOR* refers to likelihood of meeting criteria for dependence relative to abuse

^cCompared to non-alcohol impaired drivers