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Self-Reported Drinking-game Participation of Incoming College Students

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Abstract

Drinking games are associated with excess alcohol use and alcohol-related problems, yet it is unclear whether they are unique to the college environment or whether students come to college familiar with such games. The authors queried 1,252 students attending voluntary summer orientation programs about their experiences with drinking games. A majority (63%) indicated they had played drinking games and viewed them as a means to get drunk quickly and to socialize, control others, or get someone else drunk. Logistic regression analyses revealed that familiarity with drinking situations was associated with a greater likelihood of playing drinking games. Students who reported drinking more frequently and consuming greater quantities of alcohol than others, having lifetime marijuana use, and initiating alcohol consumption between the ages of 14 and 16 years were significantly more likely to have participated in drinking games. These findings demonstrate the importance of considering students' participation in drinking games when campus officials address alcohol use.

Keywords

alcohol; drinking games; education; orientation

Drinking games, which have a history dating from the fifth century BC,¹ have reemerged as a substantial influence on undergraduate drinking. Recent surveys estimate that from 50% to 62% of students have played drinking games in the past month.^{2,3} Currently, more than 500 different drinking games are popular on college campuses. They involve verbal skills (eg, tongue twisters), physical ability (eg, beer pong), or group activities such as drinking whenever a certain phrase or word is mentioned in a song or television program.⁴⁻⁶ All of these games have the same goal—causing participants to become intoxicated.

Empirical attempts to examine motives for playing drinking games have met with inconsistent results,⁷ but research with undergraduates has provided at least some indication about why drinking games are so popular. First, they are purported to have social advantages, such as lowering inhibitions and facilitating friendship and camaraderie.^{3,7,8} The rules of the games encourage social interactions,⁹ allowing fellow partygoers to observe the game and eventually to join in. Second, getting drunk is a common motivation behind playing drinking games.³ Many players also see getting drunk quickly as advantageous rather than as an undesirable consequence of their behavior.⁶ For individuals who may be anxious in social situations, drinking games provide a socially sanctioned way of getting drunk quickly, which may reduce

shyness or inhibitions.⁹ In addition, being forced to drink quickly (or “slam”) drinks during the games may be especially attractive to individuals who do not enjoy the taste of alcohol.

Getting other players intoxicated is another appealing aspect of drinking games. In this way, players can establish their dominance as drinkers.⁶ Many games allow winning players to “assign” drinks to other players, so that newcomers are often made to consume alcohol immediately as an initiation to game play (eg, in “3 man,” new players must roll the dice and drink⁵). Finally, students are attracted to the competition some games provide. Drinking games can occur in a sport-like environment replete with winners, losers, and spectators.⁴ Participants can win the game (eg, in gambling and team-style games), or they can encourage other players to drink until they are very intoxicated.

Whatever the students’ motives for playing, participants in drinking games tend to drink more often than students who do not participate in such games.⁷ In one large-scale survey of 1,028 heavy drinkers (defined for men as consuming 5 drinks and for women as 4 or more drinks at one sitting at least once a week), 94% reported playing drinking games in the past 12 months. By contrast, only 66% of 2,802 light-to-moderate drinkers (those who consume no more than 3 to 4 drinks once a week or 5 drinks no more than once a month) reported playing drinking games during the same period.¹⁰ Such increased consumption is especially evident in women. Specifically, the gender differences in the frequency and quantity of alcohol consumption that Wechsler and associates¹¹ found in large-scale surveys disappeared in the context of drinking games.^{3,7} Heavy episodic drinking during games is more likely to occur early in students’ college years. Students younger than 19 report playing games more often and drinking more while playing than older students do.¹² Many students play drinking games until they are too drunk or too sick to continue.¹³

Given the increased frequency and quantity of alcohol use associated with drinking games, it is not surprising that players are at a greater risk of experiencing alcohol-related problems.^{7, 12,14,15} However, causality between drinking games and alcohol-related problems has been especially difficult to establish. Light-to-moderate drinkers who participate in these games are more likely to experience various health consequences (eg, blackouts, vomiting) than are those who do not participate, but the relationship between participation in drinking games and adverse consequences is not evident among heavier drinkers.¹⁰ It is possible that heavy drinkers are simply exposed to more drinking games, thus increasing the frequency of playing but not significantly increasing their consumption.

Nagoshi and associates³ found that the frequency of participating in drinking games was as highly correlated with heavy drinking (and getting drunk) as it was with the occurrence of alcohol-related problems. They performed hierarchical regressions to assess the independent effect of drinking games on self-reported instances of getting drunk (beyond the influence of impulsivity), alcohol-related expectancies, drinking norms, and motives for drinking.

Although participation in drinking games predicted the frequency of getting drunk over and above the other variables studied, a parallel analysis using alcohol-related problems as an outcome variable revealed that drinking-game participation did not have a direct influence on experiencing alcohol-related consequences. Instead, getting drunk seemed to mediate the relationship between drinking games and alcohol-related problems, indicating that the level of intoxication reached during play, rather than the frequency of participation, is a better predictor of adverse consequences.

Adams and Nagoshi¹² replicated this research in a longitudinal study of first-year college students’ drinking-game participation. In that study, the changes in game participation over the course of a semester were associated with changes in alcohol use and alcohol-related problems, even after researchers accounted for alcohol-related expectancies, motives for

drinking, and perceived alcohol norms. Again, drinking-game participation appeared to contribute uniquely to students' increased risk for alcohol-related problems, especially if the participants drank heavily during the games.

Although previous research indicates that students arrive at college with established alcohol-related perceptions and behaviors,¹⁶ researchers have not clearly established whether students are exposed to drinking games for the first time when they arrive at college. In one study, Norwegian adolescents between the ages of 14 and 17 years were found to have high rates of drinking-game participation,⁹ but that type of research has yet to be performed in the United States.

To determine whether drinking games are a phenomenon restricted to college campuses, we examined the drinking-game participation of a group of high school graduates participating in a college summer orientation program. The participation of students before matriculation has important implications for risk-reduction efforts on campus. If students arrive at school unfamiliar with drinking games, preventive efforts launched during orientation or early in the school year may be effective in reducing the likelihood that students will participate in such games. However, if students come to college with a well-established repertoire of drinking games, more immediate and intensive approaches may be required to reduce the risks associated with game participation.

METHOD

Participants

Participants in our study included 1,327 high school graduates (53% women and 47% men) attending a voluntary summer orientation program at a large northeastern university. Program participants represented approximately 20% of the incoming class. The Institutional Review Board provided approval of this project, and we obtained informed consent from the participants. We collected the survey data over 3 consecutive years: 1998 = 442; 1999 = 443; 2000 = 443. Participation rates over the years ranged from 97% to 99%.

Measure

The College-Bound Student Health Risk Behavior Survey, which we created for this study, consists of 24 items assessing alcohol and other drug use. Participants who had ever used alcohol were asked to respond to these items:

- How old they were when they had their first drink of alcohol, other than a few sips (≤ 12 y; 13-15 y; and 16-18 y).
- On how many days in the past 30 they had consumed alcohol (0, 1-3, 4-9, ≥ 10).
- On how many days in the past 30 they had consumed 5 or more drinks of alcohol on 1 occasion (0, 1-3, 4-9, > 10)
- How many times in their life they had gotten drunk when alone (0, 1-3, 4-9, ≥ 10).

We used parallel items to assess marijuana use. Participants who reported playing drinking games in their life-time (yes/no) answered additional questions regarding the following:

- participation in drinking games (≥ 1 time/wk; 1-3 times/mo; $\leq$ once/y).
- reasons for playing drinking games (to get drunk, to meet other people, to control others, or to get someone else drunk).

We assessed perceived norms of alcohol and "other drug" use by having participants estimate the percentage of their college classmates who use these substances on a regular basis ($\leq 25\%$;

25%-49%; 50%-74%; $\geq 75\%$). In addition, we assessed the quantity of lifetime use of inhalants and other drugs (LSD, PCP, ecstasy, Special K, cocaine, crack, ice, heroin) using the following responses: 0, 1 to 3, 4 to 9, 10 or more. The face validity of the measure was established because the items were clearly worded and obviously assessed substance use, and longitudinal reliability was indicated by the lack of differences in response errors across the 3 years of administration, suggesting that the items were clearly understood by all 3 cohorts.

Procedure

Participants completed the questionnaire during a mandatory assembly meeting for the summer orientation programs. All incoming students were present at this assembly, and we asked all to volunteer to participate. Before we distributed the survey, we informed the participants both orally and in writing about the voluntary nature and anonymity of the survey and told them that they could choose not to continue participating at any time. We required that students under the age of 18 complete a special consent form that made it easier to obtain permission from their parents (we excluded from the study those students whose parents refused their participation). To ensure confidentiality, we asked students to place their responses in an envelope that a resident advisor then collected.

RESULTS

Demographic Characteristics

Of the 1,327 students who attended the 3 orientations, 1,250 (94%) provided usable questionnaires. Eighty-nine percent ($n = 1,118$) of the participants reported lifetime alcohol use, and half ($n = 630$) of those reported consuming 5 or more drinks on 1 occasion at least once in the past 30 days. In addition, more than half ($n = 792$, 63%) of the respondents reported they had played drinking games in their lifetimes. Of the 792 students who reported playing drinking games, 20% reported playing once a week, 47% once or twice a month, and 33% less than once a year. They endorsed the following motives for playing drinking games: to get drunk quickly ($n = 433$; 55%), to socialize and meet people ($n = 418$; 53%), and to control others or get some-one else drunk ($n = 164$; 21%). We found no gender differences in students' motives for playing drinking games.

Logistic Regression Model of Drinking-game Participation

Because drinking-game participation is a binary response variable, we conducted logistic regressions to model drinking-game participation of incoming freshmen, but we excluded participants with missing predictor variables from the logistic regression, resulting in a final sample size of 1,041 students (77% of the original sample). Our chi-square tests (on binary variables) and one-way analyses of variance did not reveal any cohort differences, so we combined the 3 cohorts to increase the power of the analyses and simplify the presentation of the results.

Model Fit

We entered variables assessing demographics, alcohol and other substance use, drinking-game motives, and perceived norms of substance use into a logistic regression predicting drinking-game participation. We subsequently dropped variables that did not significantly predict participation in drinking games. The final logistic regression model correctly classified 852 of 1,041 (82%) of the students (sensitivity = 89.9%; specificity = 61%). To evaluate how well the model fit the data, we performed 3 indices of fit.¹⁷ First, the Pearson chi-square for the model was $\chi^2(100, N = 1,041) = 108.93, p > .26$, indicative of a very good fit. Second, the Hosmer-Lemeshow goodness-of-fit test statistic (C) was 4.05 ($p > .85$), also indicating that the model fit quite well. Third, the area under the receiver operating characteristic curve (ROC)

was .86, indicating that the model was excellent at discriminating between the students who play drinking games and those who do not.

Predictors of Drinking-game Participation

We present odds ratios (OR) for each of the variables that were significantly associated with lifetime participation in drinking games. ORs approximate the likelihood of drinking-game participation associated with the initial level of the variable (Table 1).

Several significant independent predictors of drinking-game participation emerged. In terms of gender, men were half as likely (OR = 0.52) as women to report participating in drinking games. Upon further investigation, this counterintuitive finding appeared to be an artifact of excluding participants with incomplete data when we built the logistic model. Using the whole sample ($n = 1,250$), we performed a supplemental logistic regression in which we used gender as a sole predictor of drinking-game participation; 442/672 (66%) of the women had played drinking games, and 345/578 (60%) of the men had done so. This analysis revealed a more moderate OR of men to women of 0.77 ($z = 10.33$; $p = .026$).

Drinking-game participation was also associated with greater involvement with alcohol and marijuana. Specifically, students who started to drink between the ages of 13 and 15 years were nearly 3 times (OR = 2.79) as likely to play drinking games as students who started to drink after the age of 16. In addition, the number of binge drinking episodes in the past month was associated with drinking games; those respondents who binged 1 to 3 times in the past month were 4 times as likely (OR = 4.0) to have played drinking games as those who reported no binge episodes. This finding was pronounced for heavy drinkers—students who binged 4 or more times were nearly 12 times as likely as moderate drinkers to have played drinking games (ORs of 11.43 and 11.6, respectively).

The frequency of alcohol use was also associated with involvement in drinking games. Students who consumed alcohol 1 to 3 times in the past month were twice as likely to have played drinking games as those who did not consume as much (OR = 1.84). Respondents who drank 4 to 9 times in the past month were 3 times as likely to have played (OR = 2.67). Reporting 10 or more drinking occasions per month did not significantly increase a student's likelihood of playing drinking games, which suggested a ceiling effect. Finally, students who reported marijuana use in their lifetimes were more than twice as likely (OR = 2.3) to play drinking games as those who reported no use. Despite reports of widespread lifetime use of inhalants (11% of sample) and other drugs (15%) in the sample, these variables were not significantly associated with drinking-game participation.

COMMENT

Our findings indicate that drinking games are part of many college-bound students' drinking repertoires. Specifically, drinking-game participation is much more common among students who start drinking at an early age and those who drink more frequently and in greater amounts. Marijuana use is also associated with drinking-game experience, which suggests that students willing to use marijuana may also be more willing to participate in drinking games. Over-all, these findings support previous research studies that indicate that students who are familiar with drinking situations are more likely to participate in drinking games.¹⁴ The finding that men were slightly less likely than women to participate in drinking games is initially counterintuitive, given that men typically report drinking more frequently and consuming greater amounts of alcohol than women do.¹¹ However, previous research has neglected to address gender differences in the frequency of drinking-game participation.^{3,7,10,12} In one study that made such comparisons, 65% of the men and 61% of the women reported

occasionally participating in drinking games.² Thus, gender differences in the initiation of drinking games and the frequency of play are an important area for future study.

The presence of drinking games in the drinking repertoire of incoming students warrants concern because games may place students on a trajectory for developing increasingly problematic alcohol use. Longitudinal research has revealed that periods of binge drinking are common during the transition from adolescence to young adulthood (ages 18-24). In addition, we found that drinking to get drunk during senior year in high school predicted continued heavy drinking at the end of the high school to college transition.¹⁸ In the present study, we found that the most commonly endorsed motive to play drinking games was to get drunk. Therefore, precollege drinking-game participation and the heavy drinking that usually accompanies it may serve as a marker of those students who will develop problems with alcohol.

Such a relationship between drinking games and problems was corroborated by referral rates to the judicial affairs office at the institution where we conducted this study. Students who attended the orientation program were twice as likely to be referred for violations of campus regulations as were students who did not attend (Vas R, Urtz A. Longitudinal assessment of student disciplinary rates: A comparison of summer orientation participants versus nonparticipants. Unpublished manuscript. Syracuse University; 2000).

Students who come to the university with drinking-game experience and students who will be exposed to drinking games for the first time could benefit from education programs provided during orientation or during the first weeks of school that address the risks inherent in such games. Three topics are of particular importance.

1. Drinking games can result in high levels of intoxication over a relatively short time. That can, in turn, result in a variety of alcohol-related consequences (eg, blackouts, nausea, vomiting, and injuries¹⁰). Players are not likely to be in control of their personal alcohol consumption during drinking games, which affect subsequent performance. Intoxicated players become more impaired, make more mistakes, and are required to drink more alcohol. This process is labeled reversal of competence: the longer the game is played, the less adept players become at playing because of their increasing levels of intoxication.^{5(p129)}
2. Making students aware of other socialization opportunities may reduce the need to play drinking games to meet others. Despite the risks, drinking games are still popular among students because they provide opportunities to spend time with friends as well as to meet new people. Students also report that they play drinking games because of boredom.¹³ More than half of the drinkers in this study reported that they viewed drinking games as a way to socialize and meet other people, which is consistent with previous research.³
3. Women are at heightened risks for adverse consequences, especially sexual assault, following participation in drinking games. Drinking games tend to be played in male or mixed groups; all-women groups are rare.^{3,5} Women report drinking as much as men do during drinking games³; thus, because of gender differences in intoxication levels,¹⁹ most women reach higher blood-alcohol levels. In this analysis, we found that a substantial minority (21%) of the students reported that drinking games were a way to control others or to get someone else drunk. Previous research indicates that players have gotten female players drunk to facilitate sexual contact.^{6,13,20} Even women who play drinking games with friends (as is often the case) are at risk for sexual assault. In a survey of more than 6,000 students at 32 schools, 84% of the victims of rape or attempted rape knew their assailants.²¹

Limitations

We must note some caveats regarding our findings. It is possible that the students in our survey underreported their alcohol use. Inclusion of collateral data or other validation of self-reported drinking would enhance confidence in the information the participants provided. The survey we used was a novel instrument that was created for this project, but the measure had had no formal validation.

Reliability coefficients or other psychometric tests would improve confidence in the measure's ability to make accurate assessments of drinking-game participation and substance use. Cross-sectional data are limited, so the directionality of the relationship between heavy drinking and game participation cannot be determined. Finally, the generalizability of the findings is influenced by the characteristics of the students who attended the orientation program, who appear to be a high-risk sample. The students in our sample reported significantly greater use of alcohol in the past 30 days than the 1,200 high school seniors polled in 1999 as part of the Monitoring the Future project (MTF²²), 81.5% compared with MTF = 51%, marijuana (77%, MTF = 23%). Such substance use may have contributed to the elevated numbers of referrals for this group after their arrival on campus (Vas R, Urtz A. unpublished manuscript; 2000) even though lifetime prevalence rates for alcohol (84.5%, MTFs = 80%) and marijuana use (49%, MTF = 50%) were similar.

Although the orientation was not designed for problem students, it is possible that the additional structure of the program made it more attractive to parents of high-risk children. Unfortunately, we cannot evaluate these hypotheses. However, comparisons of national²³ and local²⁴ data collected in the 1999 Core survey indicate that binge drinking in the past 2 weeks was slightly above the national average (national = 46.8%; local = 48.6%), as well as annual (85.1%; 86.7%) and 30-day (73.2%; 76.7%) frequency of alcohol use. Thus, whereas students who participate in the orientation program may be high-risk drinkers compared with the population of high school seniors, the regular student body at this university also exhibits slightly elevated levels of drinking compared with other universities.

It is also possible that this elevated prevalence of high-risk behaviors indicates a sampling bias that resulted in the counterintuitive finding that men are less likely than women to participate in drinking games. Other potential biases, such as historical effects resulting from the implementation of substance abuse programs during orientation, are not readily apparent. That said, because students who exhibit such high-risk behaviors are of particular interest to college officials who plan and implement substance use programs, the higher levels of substance use evident in this sample do not reduce the importance of our findings. Given the large number of students who attend orientation programs across the country,²⁵ the possibility that these students are at greater risk for developing problems with drinking games suggests a great opportunity for education about participation in drinking games.

In short, it is apparent that the college drinking environment, by itself, is not wholly responsible for the perpetuation of drinking games. Instead, many students are familiar with drinking games before they arrive on campus. Longitudinal research suggests that those students who report that they drank to get drunk during their senior year of high school are at an elevated risk for experiencing present and future problems related to alcohol. Because drinking games can serve as a crucible for such high-risk drinking, educating students about the risks associated with participation in drinking games may deter some of the heavy alcohol use currently present on college campuses.

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Final Regression Results for Correlates of Drinking Game Participation Among 1,041 Incoming College Students

TABLE 1

Variable	OR	SE	Z	$p > z $	95% CI
Gender					
Female	—	—	—	—	—
Male	0.52	0.09	-3.71	.001	0.37-0.73
Age of first drink (y)					
16-18	—	—	—	—	—
13-15	2.79	0.52	5.47	.001	1.93-4.02
12-14	1.30	0.42	0.81	.419	0.69-2.45
Binge drinking, past month (number episodes)					
0	—	—	—	—	—
1-3	4.0	0.93	5.98	.001	2.54-6.29
4-9	11.43	5.11	5.45	.001	4.75-27.46
>10	11.60	7.15	3.98	.001	3.47-38.88
Frequency of drinking, past month (number of occasions)					
0	—	—	—	—	—
1-3	1.84	0.40	2.82	.005	1.21-2.82
4-9	2.67	0.85	3.07	.002	1.43-5.00
>10	1.85	0.81	1.41	.159	0.79-4.34
Marijuana use					
None	—	—	—	—	—
Tried	2.30	0.42	4.54	.001	1.60-3.29

Note. OR = odds ratio; SE = standard error; CI = confidence interval.