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Middle School Drinking: Who, Where, and When

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Abstract

The goal of this research was to describe the most common drinking situations for young adolescents (N=1171; 46.6% girls), as well as determine predictors of their drinking in the seventh and eighth grades. Middle school students most frequently drank at parties with three to four teens, in their home or at a friend's home, and reported alcohol-related problems including conflicts with friends or parents, memory loss, nausea, and doing things they would not normally do. Differences emerged in predicting higher levels of drinking on the basis of sex, race, grade, positive alcohol expectancies, impulsivity, and peer drinking. These findings suggest both specific and general factors are implicated in drinking for middle school students. Contextual factors, including drinking alone, in public places, and at or near school, are characteristic of the most problematic alcohol involvement in middle school and may have utility in prevention and early intervention.

Keywords

binge drinking; drinking; early adolescents; middle school; peer use

INTRODUCTION

National survey data have indicated that as many as 40% of youths have ingested alcohol by the end of middle school (eighth grade; Patrick & Schulenberg, in press) with 17.9% of these youths reporting drinking to intoxication (Johnston, O'Malley, Bachman, & Schulenberg, 2008). Research links early onset alcohol use to both alcohol-related problems (Sartor, Lynskey, Heath, Jacob, & True, 2006) and the development of alcohol dependence (Grant & Dawson, 1997). Heavy episodic drinking seems to be the rule rather than the exception with adolescent drinkers (Windle et al., 2008), with middle school students reporting drinking 5 or more drinks per episode at rates of 8% (seventh grade) to 17% (eighth grade; Guilamo-Ramos, Jaccard, Turrissi, & Johansson, 2005). Longitudinal research has shown that youths engaging in high levels of heavy episodic drinking by age 13 years have lower rates of college completion, and higher rates of violent and criminal behavior than peers who begin drinking later (Tucker, Orlando, & Ellickson, 2003). Better understanding of the mechanisms involved in drinking initiation and rapid progression to

heavy and problematic drinking in late childhood and early adolescence can better inform our attempts to intervene with these age groups (Anderson et al., 2005).

The primary aim of this investigation was to characterize the contexts in which middle school students drink alcohol. While research has examined the situational features of use for older adolescents, much less is known about the contexts of early adolescent alcohol involvement. Situational factors appear to play a critical role in alcohol access, perceived reinforcement, and decision-making processes that influence drinking progression (Anderson, Frissell, & Brown, 2007; Brown, Baken, Ameringer, & Mahon, 2008; Hussong, 2002). To our knowledge, this is the first investigation examining the contexts for use in middle school youths. We first characterize middle school student drinking groups, and then compare the drinking situations for youths with varying drinking histories. By examining differences between youths grouped by drinking history, we are better able to explicate the contextual features associated with the most problematic drinking patterns in middle school. A priori, we expected drinking alone to be prevalent only among youths already exhibiting alcohol problems, and greater diversity in drinking contexts to be associated with the greatest alcohol involvement.

Our second aim was to examine the ability of several well-identified risk factors of drinking onset, including personality, cognitive, and social factors, to predict severity of drinking behavior for youths in seventh and eighth grade. Impulsivity and negative affectivity were selected to examine the role of externalizing and internalizing tendencies on lifetime drinking, and for current drinkers, more hazardous drinking (e.g., Bates & Labouvie, 1995; Colder & Chassin, 1997; Zucker, Donovan, Masten, Mattson, & Moss, 2008). Given the large body of literature on the impact of alcohol expectancies, perceived norms, and peer influence on drinking onset and maintenance (D'Amico & McCarthy, 2006; Miller, Smith, & Goldman, 1990; Windle et al., 2008), these cognitive and social variables were selected as proximal factors potentially involved in decisions regarding intensity of alcohol use. Given the role of these factors in previous investigations of alcohol use in this age group (Anderson et al., 2005; Wills, Walker, Mendoza, & Ainette, 2006), we expected personality and cognitive variables to predict lifetime drinking rates. However, we expected positive expectancies, perceived norms, and peer drinking behavior to have a greater impact on current level of alcohol involvement. Social contextual features were expected to be the most consistent predictor of current drinking intensity. Given the impact of gender, age, and race/ethnicity in past models of early adolescent alcohol involvement (Kelder et al., 2001; MacPherson, Frissell, Brown, & Myers, 2006; Patrick & Schulenberg, 2010; Wills et al., 2006), the influence of these variables on the estimation of these models was also considered.

METHODS

Participants

A total of 1,379 seventh- and eighth-grade students completed a survey of health-related behaviors in 4 middle schools in San Diego County in 2002. Respondents were dropped from analyses ($N=208$) if they responded inconsistently (i.e., saying *no* to lifetime drinking but *yes* to 30-day drinking) or did not provide data on the drinking outcome variables (see

Data Analysis below). Inconsistent responders were more likely to be Hispanic ($\chi^2[df=1]=540.3, p<.0001$) or of mixed minority background ($\chi^2[df=4]=9.5, p<.05$).

The 1,171 participants included were equally split between the seventh (49.4%) and eighth (50.6%) grades with a mean age of 13.1 years ($SD=0.73$). Most of the participants were male (53.4%), and youths identified themselves as Caucasian (59.9%), multiracial (15.9%), other (12.6%), Asian-American/Pacific Islander (10.6%) and African American (1.7%). Any individuals who marked multiple racial categories were coded as Multiracial. Independent of racial categorization, 5.3% of youths endorsed being of Hispanic or Latino/a ethnicity.

Measures

Alcohol use and problems—Alcohol use measures included single-item, categorical measures of lifetime drinking (“During your life, how many times have you had at least one drink of alcohol [regular size can/bottle of beer of wine cooler, glass of wine, shot of liquor, etc.]: 1=never, 2=1 to 2 times, 3=3 to 10, 4=11 to 50, 5=51+ times), age of first drink (0=never, 8= 8 years, 9=9 years, 10=10 years, 11=11 years, 12=12 years, 13=13 years, 14=14 years+), and frequency of past 30-day drinking (“During the past 30 days, how many times have you had at least 1 drink of alcohol?” [0 to 20+ times/month]). Average drinks per occasion (“When you drank alcohol during the past month [30 days], about how many drinks did you have in one day?” [0 to 12 drinks/occasion]), heavy episodic drinking (... “how many times did you have five or more drinks at one time?” [0 to 12 times/month]), and maximum drinks per occasion (... “what is the most drinks you had on one day?” [0 to 12 times/month]) were continuous measures.

Students identified whether they had experienced any of the following experiences from drinking alcohol: *feeling high or drunk, memory loss, nausea, getting into trouble at school or school event, missing school, difficulties with friend/parent, physical fights, illegal behaviors, unusual behavior, or embarrassment from behavior while drinking* (0=never, 1=once, 2=2+ times). These items were based on items used in the *California Healthy Kids Survey* (CHKS). However, wording of items relating to drinking-related consequences are predicated on youths identifying problems as a result of their alcohol consumption and might lead to under-endorsement (Chung & Martin, 2005). A sum score was derived for these analyses (range=0 to 21). While this strategy equates problems of different magnitudes, it allows for the estimation of total number of problems in younger samples with a low base rate of reported alcohol-related problems.

Alcohol use situations—Twelve drinking situation items were included in this survey. These items were selected from the Structured Clinical Interview for Adolescents (Brown et al., 1989) that has been designed for youths and psychometrically evaluated in diverse adolescent and young adult samples (e.g., Anderson et al., 2007; Brown et al., 1998) and were modified for a survey format. These items assessed whether youths drank alone or with others (e.g., same sex, opposite sex, with boyfriend/girlfriend), location (e.g., own home, friend’s home, party, park/other outdoor context, school, near school), and social contexts (e.g., number of people, before going out) during the past 30 days from 0 to 10+ times.

Friends drinking—Two items assessed the drinking patterns of friends: one focused on drinking (“How many of your friends would you estimate drink alcoholic beverages?”) and the other on “drunkenness” (“How many of your friends get drunk once per week?”) taken from the CHKS. Responses were on a 5-point Likert scale (0=None, 1=A Few, 3=Some, 4=Most, 5=All).

Perceived peer norms—Subjective peer norms were measured via two items in this survey (CHKS): grade-based norms of quantity (“When students in your grade drink alcohol, on average, how many drinks do you think they have?” [1 to 12 drinks]) and frequency (“When students in your grade drink alcohol, about how many times in the past month do you think they drink alcohol?” [0=0 times, 1=1 to 2 times, 2=3 to 9 times, 3=10 to 19 times, 4=20+ times]).

Alcohol expectancies—Positive and negative alcohol expectancies were assessed using seven true-false items, both positive and negative, drawn from the Alcohol Expectancy Scale for Adolescents (AEQ-A; Christiansen, Goldman, & Inn, 1982) and four additional items to capture dimensions of negative alcohol expectancies designed to be age-appropriate for middle school students (e.g., Teenagers drink alcohol to get attention; Teenagers drink because they feel forced to; Drinking alcohol makes a bad impression on others; People become harder to get along with after they have a few drinks of alcohol). These four items were selected from responses in middle school focus groups and selected for unique content by concurrence of these alcohol researchers to capture novel content identified for youths in this age group. Reliability estimates (coefficient alpha) for these variables were .78 (positive expectancies) and .66 (negative expectancies) in this sample.

Impulsivity—Impulsivity was measured with two items from the Disinhibition Scale of the General Temperament Survey (Watson & Clark, 1993) that measure propensity to take chances and not worry about potential consequences for one’s actions. Response options were a 5-point scale ranging from *never* to *almost always*. The alpha coefficient for these two items considered as a scale was .55 (inter-item $r=.38$) and was therefore entered separately in analyses.

Negative affectivity—Negative features of temperament were measured using a derivative of the Negative Temperament Scale from the General Temperament Survey (Stice, Myers, & Brown, 1998; Watson & Clark, 1993). This 6-item measure, including the highest loading items from the original measure, captures negative affectivity associated with sadness (“Do you feel sad or hopeless ... felt so sad that you could not do things you should do [go to school, be with friends]?”), anger and frustration (“Do you feel angry, frustrated or irritated ... so angry that you need to do something about it [hit something] ... anger frequently gets the best of me ... small annoyances often irritate me”) and has been used successfully with adolescents in past investigations (Stice et al., 1998). Reliability estimate (α) for this scale in this sample was .89.

Procedures

Parents were notified of the survey via mail. This biannual survey assesses health-related behaviors (e.g., alcohol, drug use, nutrition, activity level), school engagement, and behaviors related to the school environment (i.e., aggression, Internet use, etc.). Parents who did not wish their children to participate could notify the school verbally or in writing (0.5%). Youth participation was voluntary and assent was obtained at the time of the survey. As this survey was part of the schoolwide assessment of health-related behaviors, we had a high level of student involvement (>99%), affording the opportunity to evaluate almost all members of the school community. Trained research staff from the University of California, San Diego (UCSD), administered surveys in classroom settings, and the UCSD Institutional Review Board and participating school districts approved all procedures.

Data Analysis

In the first stage of data analysis, chi-squares and ANOVAs were conducted on all available data. A total of 187 cases were missing data on at least one independent variable and were considered missing completely at random. Multiple imputation was used to compensate for patterns of missing data within the predictor variables (Schafer & Graham, 2002). Similar to the strategy outlined in Anderson, Ramo, Schulte, Cummins, and Brown (2007, 2008), each missing value was replaced by a set of $m > 1$ plausible values to generate m complete data sets; each estimate was combined to provide parameter estimates and standard errors in the regressions (Sinharay, Stern, & Russell, 2001). Thirty-five data sets were generated for multiple imputation using chained equations (van Buuren, Boshuizen, & Knook, 1999) using variables associated with drinking outcomes in this sample (e.g., demographics, personality, cognitive, social variables) but not the drinking outcome variables themselves. The overall estimates for the model (χ^2 and R^2) were averaged across all imputation sets and used in the Stata SE 10.0 analyses. As imputation was not conducted on the drinking variables, slight variations in sample sizes should be noted below.

Alcohol Use Patterns

Overall, 32.1% youths in seventh and eighth grade reported consuming at least one drink in their lifetime with 21.5% reporting current drinking (past 30 days). As in previous research, students were classified into five lifetime drinking groups: nondrinkers (67.9%), experimenters (1 to 2 lifetime drinking episodes; 18.9%), social drinkers (3 to 10 drinking episodes; 4.4%), hazardous users (11 to 50 drinking episodes; 4.4%), and problematic users (51+ lifetime episodes; 4.4%). Demographic characteristics of these groups are provided in Table 1 as well as alcohol use patterns (age of first drink, % current drinkers, problem scale scores). Groups significantly differed on sex ($\chi^2[df=4]=9.9, p<.04$) and age ($F[4, 1152]=10.2, p<.0001$). However, the magnitude of the age differences ranged between 0 and 5 months and was not considered clinically significant. The lifetime alcohol exposure groups differed on current drinking status ($\chi^2[df=3]=45.5, p<.0001$), age of first drink ($F[3, 363]=10.2, p<.0001$) and alcohol problems score ($F[3, 348]=39.9, p<.0001$). Youths with greater drinking history were more often boys, had an earlier age of onset of drinking, more likely to have ingested alcohol in the prior month, and reported more alcohol-related problems.

Prediction of Lifetime Drinking

Multinomial logistic regression, using a hierarchical model, was conducted to examine predictors of the five lifetime drinking categories ($N=1168$; non-drinkers, experimenters, social drinkers, hazardous drinkers, problematic drinkers). Odds ratios and standard errors were estimated for this model. Demographic variables were entered in the first step of the model. In Step 2, the negative temperament and impulsivity items, cognitive (positive and negative alcohol expectancies, and perceived norms) and social variables (friends drinking and drunkenness) entered the model. The average pseudo R^2 across imputation sets was .05 for the demographic variables ($LR\chi^2[df=32]=109.70, p<.0001$). In Step 1, being an eighth-grader predicted membership in all drinking groups (ORs=1.58 to 4.72, $SE=0.32$ to $1.87, p<.05$), except social drinkers (OR=1.51, $SE=0.58, ns$). Age was a unique predictor of being a hazardous drinker (OR=1.95, $SE=0.57, p<.05$) with older youths more likely to be in this drinking category. Being in the problematic drinker group was predicted by being male (OR=2.37, $SE=0.78, p<.01$) and African American (OR=10.09, $SE=6.81, p<.001$).

Adding impulsivity, negative temperament, and cognitive and social variables to the demographic variables of Step 1 substantially improved the fit of the model for lifetime drinking (Step 2 pseudo $R^2=.29, LR\chi^2[df=80]=661.85, p<.0001$). In Step 2, both positive and negative alcohol expectancies were associated with each drinking category, with positive expectancies leading to greater likelihood of group membership (range: OR=5.03 to 24.47, $SE=1.76$ – $18.15, ps<.01$) whereas negative expectancies decreased likelihood (range: OR=0.10 to 0.24, $SE=0.02$ to $0.16, ps<.05$). As expected, friends' drinking emerged as a significant predictor across groups as well (range: OR=0.28 to 0.94, $SE=0.94$ to $18.15, ps<.01$). The more friends in a youth's peer network who ingested alcohol, the greater their likelihood of being in a heavier alcohol use group.

Contexts of Use for Current Drinkers

To better characterize and understand contextual features linked to drinking levels, current (past 30 days) drinkers were examined. Current drinkers ($N=252$) indicated that their first drink was at 10 to 11 years old on average (Table 1). A total of 5.7% of seventh-graders and 12.4% of eighth-graders reported binge (5+ drinks per occasion) drinking in the past 30 days. Middle school drinkers most frequently drank alcohol with friends (same sex=62.7%; opposite sex=57.5%) at home (53.6%) or their friend's home (56.8%). More than half of these occasions were considered parties (57.9%) with an average of 3 to 4 friends ($M=3.8, SD=3.2$). The most common problems reported were behaving unusually while drinking (44.1%), having difficulties with a friend or parent (42.9%), memory loss (39.9%), and nausea (38.7%). While youths self-identified *behaving unusually* as problematic, this may refer to multiple behaviors.

Table 2 presents contexts of alcohol use by drinking patterns. Groups differed significantly on the contexts and locations for use. Those with greatest history of alcohol involvement reported a greater diversity of contexts (range $\chi^2[df=3]=40.8$ to $76.4, ps<.0001$), locations (range $\chi^2[df=3]=30.4$ to $76.7, ps<.0001$), and greater number of peers in these contexts (range: 2.9 [2.8] to 6.3 [3.4]; $F[3, 240]=14.9, p<.0001$). As predicted, problematic drinkers

report having drank alone substantially more (85.1%) than other groups: experimenters (13.5%), social drinkers (37.2%), and hazardous drinkers (41.9%; $\chi^2[df=3]=76.4, p<.0001$).

Prediction of Current Drinking

Hierarchical linear regressions were conducted to predict past 30-day drinking patterns (average drinks per day, heavy episodic drinking [5+ drinks], and maximum drinks per day), controlling for demographics (Table 3). In Step 1, demographics accounted for 5% ($N=248$; daily drinks), 8% ($N=247$; heavy episodic drinking), and 10% ($N=251$; maximum drinks/episode) of past 30-day drinking. Being African American was most commonly associated with higher mean drinks per drinking episode, heavy episodic drinking, and maximum drinks per episode in the past 30 days. In addition, being male and being in the eighth grade emerged as predictors of a higher number of maximum drinks per episode.

In Step 2, the inclusion of the impulsivity and negative temperament, cognitive and social variables accounted for an additional 20% of daily drinks, 26% of heavy episodic drinking, and 21% of maximum drinks per episode, respectively (Table 3). The most consistent predictor in Step 2 across all the current drinking measures was the drinking patterns of friends. Youths reporting a greater proportion of friends who drank also indicated higher mean drinks per episode, binge episodes, and maximum drinks per episode. For the more extreme variables of heavy episodic drinking and maximum drinks per episode, the proportion of friends youths reported drinking to intoxication contributed independently of peer drinking. In addition, youths who reported that they believed most schoolmates drank 10 to 19 times in the past month were less likely to endorse higher daily drinks. Positive alcohol expectancies consistently predicted current middle school drinking patterns for average and maximum drinks, albeit only as a trend for heavy episodic drinking ($p=.06$). Only one of the impulsivity items emerged as a significant personality predictor of drinking (i.e., taking chances) and only for the heavy episodic drinking variable (Table 3).

DISCUSSION

The purpose of this investigation was to identify the common drinking patterns and drinking contexts of middle school students and to examine the ability of personality, cognitive, and social contextual variables to predict features of intensity of alcohol use. Consistent with national rates, one-third of students in our samples consumed alcohol in their lifetime with almost 8% of seventh- and 12% of eighth-graders reporting recent heavy episodic drinking (Guilamo-Ramos et al., 2005; Johnston et al., 2008; Patrick & Schulenberg, 2010). While four out of five students were nondrinkers or had limited experience with alcohol, almost one-tenth of the sample had more significant alcohol engagement associated with substantially higher rates of alcohol-related problems (i.e., hazardous and problematic drinkers) and had the earliest age of first drink (around age 9.5 years). This is consistent with findings from other studies indicating that early engagement with alcohol is predictive of a rapid progression to alcohol-related problems (Sartor et al., 2006).

A central question to this study was where and with whom middle school students drink alcohol. These results highlight the extent to which alcohol consumption during middle school is linked to social factors such as drinking with friends, either at home or a friend's

home, and label these as parties. While somewhat similar to patterns for later adolescents (Anderson et al., 2007), middle school drinking evidences considerable range in contexts and locations, particularly for those with the greatest lifetime experience. Of note is the high rate of drinking alone among youths typified as problematic drinkers, as these youths might be at greater risk for later alcohol dependence (MacPherson et al., 2006). Furthermore, while a minority of youths with more limited alcohol exposure indicated they drank out of doors/in a public setting, or at or near school, the majority (60% to 80%) of those with problematic use acknowledged this drinking pattern.

As hypothesized, items reflecting positive alcohol expectancies and perceptions of friends drinking emerged as the most consistent predictors of current drinking patterns among middle schoolers after considering demographics (i.e., age, sex, ethnicity). Endorsing positive alcohol expectancies and reporting that more friends drink were associated with higher mean levels of drinking, binge-like episodes, and maximum drinks per occasion. These findings are consistent with those for children in late elementary school age (grade 5) and in high school whereby positive alcohol expectancies predicted lifetime drinking (Anderson et al., 2005; Anderson & Smith, 2006). However, in these investigations of youths ranging from 10 years through high school, negative expectancies were not always predictive of drinking. Wiers, Hoogveen, Sergeant, and Gunning (1997) suggested that negative expectancies might play a greater role in the prediction of drinking patterns with greater drinking experience; however, others have argued that negative expectancies increase with anticipated dosage but are not a robust predictor of drinking (e.g., Brown, 1993). The evidence from this cross-sectional investigation, in tandem with those in other samples (e.g., Anderson et al., 2005), suggests further longitudinal investigation is needed to examine whether age-related or experience-related changes occur with regard to the development and impact of negative alcohol outcome expectancies on drinking in comparison to positive expectancies across the adolescent developmental period. Furthermore, as adolescents begin drinking in more diverse contexts, understanding the expectations associated with abstaining in these predominantly social situations may substantially add to our understanding of the development of underage drinking (Brown et al., 2008; Metrik, McCarthy, Frissell, MacPherson, & Brown, 2004).

Consistent with numerous findings from past research (see Windle et al., 2008), youths reporting that a greater number of friends consumed alcohol, and having friends who drank to intoxication, predicted more extreme forms of alcohol use (i.e., heavy episodic drinking and maximum drinks). This finding supports the notion that homophily has a great impact on youth drinking. Of note, perceived peer norms, when considered in concert with other risks, were not associated with drinking in this sample. It is possible that our method of assessing perceived school-based norms was not optimal, that actual peer use accounts for perceived norm influence, or that perceptions play a stronger role only in initiation of drinking, at later age, or when linked to access to alcohol (which may be less likely in middle school). Although peer use was a strong predictor, we relied on self-reported drinking behavior of friends, which may be contaminated by reporting biases, and potentially increase the magnitude of effects in comparison to assessments of the peers themselves. Similarly, our reliance on self-reported drinking behavior might have also led to biased estimates. Further study of the specific nature of peer influence contexts in this age

group is needed to develop nuanced, process-oriented models of the potential differential impact of peer selection or peer contagion in early alcohol involvement and its progression.

Items associated with impulsivity were less predictive of alcohol use in this age group. While a preference to take chances predicted heavy drinking episodes, negative affectivity and the other impulsivity item did not predict lifetime drinking status or current drinking patterns. Our operationalization of impulsivity, two single-item measures, most likely disadvantaged these constructs in estimation. Stronger representation of negative temperament and impulsivity in future work with this age group might better elucidate these relations when considered concurrently with cognitive, social, and situational factors.

Several demographic features were associated with drinking variables in early adolescents. As might be expected, boys were most likely to be represented in the higher lifetime-use groups as well as children in the eighth grade. The strength of grade rather than age differences suggest contextual changes may be important in understanding the significant shifts in drinking onset and progression to heavy use during middle school (Guilamo-Ramos et al., 2005; Kelder et al., 2001). Interestingly, being African American predicted current drinking behavior (average, heavy episodic, maximum drinks). However, extreme caution should be used in interpreting these results as the number of African-American students within this sample of current drinkers was quite small ($N=30$) and reflect students living within a restricted geographic area. Research examining ethnic differences in drinking among a large sample of middle school students ($N=5,721$) found that African-American students were engaging in binge drinking at rates higher than any other racial or ethnic group (Kelder et al., 2001). Recent work suggests that racial/ethnic differences, such as being African American, should be considered in combination with other moderators (e.g., gender, self-esteem) when considering heavy episodic drinking in middle school (Patrick & Schulenberg, 2010). Unfortunately, our method for eliminating inconsistent responders or those without outcome variables from our data set eliminated a disproportionate number of Latino/a youths. This might have been due to issues in understanding the survey materials or reticence in completing these items, and limits our conclusions about this group.

Given the array of developmental changes unfolding during this period (Windle et al., 2008), more research is needed to understand processes involved in escalation of alcohol use and mechanisms of behavioral training within high-risk groups and prevalent contexts. More process-oriented investigations, examining longitudinally the sequence of contextual changes or in the-moment decision-making of youths in social contexts associated with drinking and other drug use, would be useful in understanding the patterns identified here. Only through elaboration of the dynamics underlying young adolescent initiation of alcohol use and transitions to heavier use and alcohol use disorders can we design better-informed, more effective prevention and intervention programs.

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Characteristics of Five Patterns of Lifetime Drinking in Middle School Students (N=1,171)

TABLE 1

	Nondrinkers (n=793)	Experimenters (n=221)	Social (n=53)	Hazardous (n=52)	Problematic (n=52)	Current (n=252)
% Boys	50.8	57.5	55.8	56.0	70.6*	53.8
% Caucasian	60.3	61.1	51.9	60.8	41.2	57.1
Current Age	13.0 (.07)	13.2 (.08)	13.2 (0.7)	13.5 (0.6)	13.2 (1.0)**	13.3 (0.8)+
Age First drink	—	11.0 (1.9)	10.6 (1.8)	10.4 (2.0)	9.4 (1.8)**	10.6 (2.0)+
% Current drinkers	—	54.3	82.7	84.3	94.0**	—
Problems	—	2.4 (3.7)	4.6 (4.7)	5.1 (5.7)	10.7 (7.3)**	5.4 (5.9)+

Note: Differences between use groups tested using chi-square and one-way ANOVAs. 68% of lifetime drinkers were current drinkers. AFD: age of first drink.

+ Comparisons made against individuals not reporting current drinking (past 30-days; includes both lifetime drinkers and nondrinkers).

* $p < .05$

** $p < .0001$.

TABLE 2

Contexts of Alcohol Use among Middle School Students Who Drank in Prior 30 Days: Comparison of Lifetime Exposure Groups ($n=252$)

Variable	Experimenters ($n=119$)	Social drinkers ($n=43$)	Hazardous drinkers ($n=43$)	Problematic drinkers ($n=47$)
<i>Context</i>				
Alone	13.5	37.2	41.9	85.1***
Same sex friends	44.5	67.4	72.1	95.7***
Opposite sex friends	38.7	62.8	62.8	95.7***
Boy/girlfriend	18.5	23.3	41.9	72.3***
Number of people	2.9 (2.8)	3.1 (2.8)	4.5 (3.1)	6.3 (3.4)***
<i>Location</i>				
Family home	34.5	58.1	74.4	78.7***
Friend's home	41.2	60.5	62.8	87.2***
Party	45.4	53.5	58.1	93.6***
Public place	20.2	41.9	44.2	80.9***
School	6.7	23.3	16.3	61.7***
Near school	6.7	27.9	16.3	70.2***

Note: Differences between lifetime use groups were tested using chi-square and one-way ANOVAs. Public place includes park, beach, shopping mall, recreation center or any other outdoor place.

 $p < .0001$.

TABLE 3

Hierarchical Linear Regressions Predicting Hazardous Drinking Patterns of Middle School Students Reporting Recent (Prior 30 days) Drinking

	Average drinks (<i>n</i> =248)	Heavy episodic drinking (<i>n</i> =247)	Max drinks/episode (<i>n</i> =251)
Step 1			
Age	−0.61 (.35)	−0.76 (.33)	−0.52 (.36)
Sex	0.50 (.48)	0.65 (.45)	1.01 (.48) *
Ethnicity			
Af-Am	3.46 (1.4) *	3.40 (1.3) **	5.50 (1.4) ***
As-Am	0.70 (.97)	−0.25 (.94)	0.10 (.99)
Eu-Am	−0.78 (.67)	−1.16 (.63)	−0.64 (.69)
Other	0.24 (.88)	−0.66 (.83)	−0.96 (.89)
Hispanic	0.77 (.95)	0.44 (.89)	0.22 (.97)
Grade	1.02 (.60)	0.91 (.57)	1.27 (.61) *
Step 2			
NegTemp	0.42 (.27)	0.29 (.20)	0.13 (.23)
Consequence	0.04 (.18)	−0.12 (.16)	0.02 (.17)
Chances	0.15 (.19)	0.33 (.17) *	0.30 (.19)
PosExp	2.05 (.79) **	1.33 (.71)	1.91 (.78) *
NegExp	−0.47 (.75)	0.43 (.66)	−0.97 (.75)
Grade norm=Freq			
1–2 times	−1.27 (1.0)	−0.70 (.89)	−0.99 (1.0)
3–9 times	−1.46 (.96)	−0.43 (.84)	−0.46 (.95)
10–19 times	−2.06 (1.0) *	−0.81 (.92)	−0.65 (1.0)
20+ times	−0.87 (1.1)	0.16 (.07)	−0.43 (1.1)
Grade norm/Quantity	0.01 (.08)	0.01 (.07)	−0.09 (.08)
Friends Drink	0.67 (.27)	0.60 (.24) **	0.60 (.27) *
Friends Drunk	0.41 (.26)	0.70 (.23) **	0.74 (.26) **
<i>R</i> ² Step 1/Step 2	.05 **/.25 ***	.08 **/.34 ***	.10 ***/.31 ***

Note: Values represent unstandardized regression coefficients (B) and standard errors (SE). Ethnicity and Grade norm/frequency were dummy coded. Multiracial ethnicity and 0 frequency were not estimated as reference points in coding. Af-Am: African American, As-Am: Asian-American/Pacific Islander, Eu-Am: European-American, Other: Other/Native American. NegTemp: negative temperament. PosExp: positive alcohol expectancies. NegExp: negative alcohol expectancies.

*
p<.05,

**
p<.01,

p<.001.