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## Alcohol use variability in a community-based sample of nonstudent emerging adult heavy drinkers

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### Abstract

**Background**—While nonstudent emerging adults are at elevated risk for experiencing alcohol-related problems, there remains a paucity of research devoted specifically to addressing drinking in this group.

**Objectives**—The present study sought to offer unique insights into nonstudent drinking by examining drinking variability across 30 days using a retrospective diary method. Specific aims were to: (1) compare within- and between-person variability in alcohol use across 30 days, and (2) determine the extent to which central social-cognitive between-person factors (i.e., social expectancies, perceived drinking norms, social drinking motivations) predict between-person alcohol use as well as within-person variability in drinking.

**Methods**—Participants were 195 (65.1% men) nonstudent emerging adults recruited from the community with a mean age of 21.88 ( $SD = 2.08$ ) years.

**Results**—Findings showed that a substantial portion of variation in daily alcohol consumption was attributable to the within-person (83%) rather than between-person (17.2%) level. Social expectancies, perceived drinking norms, and social motives were found to influence variability in daily alcohol consumption.

**Conclusion**—Our findings contribute to knowledge that could guide efforts to design and tailor intervention strategies to minimize the harms experienced by an understudied and at-risk population of drinkers.

### Keywords

Alcohol; daily drinking; nonstudents; noncollege; expectancies; motives; norms

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Emerging adults between 18 to 25 years exhibit high rates of drinking and are at-risk for alcohol-related harms (1). While significant research has been devoted to addressing this problem among college students, far less effort is focused on their non-college-attending peers, despite epidemiological data showing comparable drinking rates. For instance,

Monitoring the Future (2) data indicate prevalence rates for past-30 day use, daily use, and occasions of heavy drinking for students and nonstudents are 63.0% vs. 56.0%, 4.3% vs. 4.1%, and 35.0% vs. 29.0%, respectively. Nonstudents, however, are at higher risk for maintaining or increasing problematic drinking and are less likely than college-attending peers to mature out of heavy drinking behaviors (3, 4). Furthermore, findings from community-based (3, 4) and targeted samples (i.e., emergency department patients; 5) indicate that nonstudents are at higher risk than college students for alcohol-related problems, and are more likely to develop alcohol use disorder symptoms in adulthood (3, 4, 5). These educational disparities on drinking-related risk may be associated with socio-environmental differences between the groups. It is possible that college campuses have a protective effect against alcohol-related consequences, such as driving while intoxicated (4, 5). Furthermore, nonstudents may experience more social constraints whereby certain demands (e.g., work, marriage, children) put them at greater risk of experiencing problems from drinking (4). Given that 59% of emerging adults in the U.S. are not currently enrolled in college (6), and that noncollege status is associated with prolonged risk, research devoted to understanding drinking patterns of this group is critical.

### Alcohol Use Variability

One way to gain a more nuanced perspective of nonstudent drinking is to examine within-person variability in drinking. Collecting data on daily drinking provides the fine-grain data necessary to examine within-person variations. In addition, because drinking levels vary across occasions and are not necessarily stable over time (e.g., 7, 8), efforts to accurately capture typical drinking is enhanced by utilizing diary methods (via retrospective or prospective reports) whereby respondents are not asked to average or summarize their drinking across some timeframe (8, 9).

Research on daily drinking has been limited, and with a few exceptions, has focused exclusively on college students, thus restricting the generalizability of findings to other emerging adult groups. In one of the first studies to capture drinking using an intensive repeated assessment approach, Del Boca et al. (7) examined weekly drinking fluctuations. Daily drinking was assessed using the Timeline Follow-back (TLFB) procedure, a retrospective diary method, administered monthly over the course of an academic year. Results showed that drinking varied within the week and drinking varied week-to-week contingent upon external factors such as academic requirements and specific events (e.g., holidays, local events). Extending findings on drinking variations across weeks, Maggs et al. (8) examined variations across days. Daily drinking was assessed over 10 weeks using the 7-day TLFB method. Among the study findings were that 1/6 of variation in daily drinking was between-person while 5/6 was within-person. Findings showed a significant effect for day of week and drinking fluctuations across days were predicted by between-person risk factors (e.g., gender, drinking onset). These investigations of drinking among college freshmen illustrated that drinking is not a stable behavior but fluctuates weekly or daily and is associated with environmental and individual characteristics.

There have been few investigations of daily drinking patterns with noncollege populations. One examined temporal variability in daily alcohol use over winter months among Canadian

residents (10), showing that daily drinking peaked on Fridays and Saturdays and weekly drinking peaked during holidays. In another investigation including both college and noncollege young adults, researchers compared drinking levels and patterns over a calendar year (11). Both groups exhibited considerable variation in drinking week-to-week and varied as a function of holidays and events. Similar patterns of daily drinking across the week were observed across groups. Similarly, a recent study investigating daily drinking over five years found that binge drinking participation and intensity did not differ between college and noncollege young adults (12). Despite the inclusion of nonstudents in these limited investigations, knowledge gaps remain to fully understand nonstudent drinking. More specifically, research is needed to extend the work of Maggs and colleagues (8) by identifying sources of variation in daily drinking within nonstudent populations. Additional efforts are needed to examine between-person factors that could account for both within and between-person variability in drinking.

## Social-cognitive Predictors of Drinking

Particularly relevant factors shaping drinking behavior among emerging adults may include the social aspects of cognitively-based processes related to drinking, such as alcohol expectancies, motivations for drinking, and drinking norms. Social expectancies, or one's beliefs regarding the social effects of drinking, relate positively to typical (13) and heavy drinking (14). They also predict temporal variations in alcohol consumption (7) and distinguished latent classes of drinking trajectories (15). Moreover, general positive alcohol expectancies are predictive of young adult binge drinking participation over time (12). Drinking motives are one's reasons for drinking alcohol (16). Social motives, in particular, are the most common reason for drinking by college students (17, 18) and are predictive of moderate drinking quantity (19). Within a daily process model, stronger social motives were associated with increases in drinking and heavy drinking with college freshmen (8). Perceived drinking norms (descriptive norms) refer to the perception of others' drinking behaviors (20). An individual's peer group can guide personal consumption indirectly by providing information about the normative nature of drinking practices. The influence of normative perceptions is well supported among college samples (e.g., 20, 21) and limited research supports that norms are also relevant in nonstudent samples (22), such that the more individuals perceive others to drink, the greater their personal drinking. In sum, cognitively-based social factors each relate to alcohol use outcomes but additional research is warranted to explore their value in accounting for drinking behavior given the lack of prior work with nonstudents. Research findings could guide efforts to tailor intervention strategies that consider relevant social factors contributing to drinking decisions by this subgroup.

## Study Purpose

The present study contributes to the limited body of research on nonstudent drinking patterns by examining drinking using a retrospective diary method. We aimed to: (1) compare within- and between-individual variability in alcohol use across 30 days (via TLFB), and (2) determine the extent to which central social-cognitive between-person factors related to drinking (i.e., social expectancies, perceived drinking norms, social

drinking motivations) predict between-person alcohol use (aim 2a) as well as within-person variability (aim 2b) in a nonstudent sample of emerging adults.

## Method

### Participants and Procedure

Participants were 195 (65.1% men) individuals recruited from the community of a mid-size, urban southeastern city in the U.S. between 2011 and 2014. They were recruited from advertisements posted online and local newspaper listings for two separate studies (i.e., two phases of a larger study to develop a brief alcohol intervention). To be eligible, participants had to be between 18–25 years old, had no prior or current college attendance, had consumed fewer than 40 drinks weekly, had engaged in at least two heavy drinking episodes (4+/5+ drinks for women/men) in the past month, and had no history of alcohol treatment.

The mean age of the sample was 21.88 ( $SD = 2.08$ ) years. The majority of participants were single/never married (64.1%). Employment status was 45.4% unemployed, 28.9% full-time, and 25.8% part-time; 0.5% did not respond. Sample ethnicity was 52.9% African-American, 40.1% Caucasian, 5.9% Hispanic, 1.1% Native American, and 4.1% did not respond. Median individual income was between \$10,000 to \$20,000 yearly. Approximately 28% reported being a parent.

Interested participants were screened via telephone to determine eligibility. Data collection occurred in-person. Participants provided informed consent and completed a set of self-report surveys. Participants were compensated \$40 to \$60, depending on the phase of the study. The study was approved by the university's Institutional Review Board and followed APA (23) guidelines.

### Measures

**Alcohol use**—Self-reported daily drinking during the past 30 days was assessed using the TLFB (24), a calendar-based method in which one estimates the number of standard drinks consumed each day during a given time period.

**Alcohol use severity**—Alcohol use severity was assessed using the 10-item Alcohol Use Disorder Identification Test (AUDIT; 25). Response choices on first eight items (e.g., “How often do you have a drink containing alcohol”) vary, but participants respond using a 5-point Likert scale from 0 to 4. On the last two items (e.g., “Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down”), participants respond using a scale of 0 (*no*), 2 (*yes, but not in the last year*), or 4 (*yes, during the last year*). The item scores were summed to create a composite score ( $M = 12.99$ ;  $SD = 7.02$ ), with higher scores indicating more severe alcohol use ( $\alpha = .81$ ).

**Alcohol expectancies**—Social alcohol expectancies were assessed using the sociability subscale of the Comprehensive Effects of Alcohol questionnaire (CEOA; 26). The sociability subscale includes eight items (e.g., “I would be outgoing”). Responses range from 1 (*disagree*) to 4 (*agree*). Items were summed to create a composite score ( $M = 27.29$ ;  $SD = 3.90$ ), with higher scores indicating stronger beliefs ( $\alpha = .71$ ).

**Drinking motives**—Social drinking motives were assessed using the Social subscale from the Drinking Motive Questionnaire (DMQ-R; 16). The Social subscale consists of five items (e.g., “Because it makes social gatherings more fun”), and responses range from 1 (*almost never/never*) to 5 (*all of the time*). Items were summed to create the composite score ( $M = 18.47$ ;  $SD = 4.27$ ), with higher scores indicating greater frequency of drinking for social reasons ( $\alpha = .80$ ).

**Perceived norms**—Descriptive norms were measured using the Descriptive Norms Rating Form (DNRF; 27). The DNRF asks participants to estimate the number of drinks they perceive their closest friends consume on each day in a typical week during the past three months. Descriptive norms were converted into drinks per drinking day by dividing the total quantity of drinks across the week by the number of drinking days ( $M = 5.54$ ;  $SD = 3.57$ ). The DNRF has demonstrated good test-retest reliability and convergent validity (19, 26).

### Analysis Approach

To examine within- versus between-individual variability in alcohol use across 30 days (aim 1), and to determine the extent to which social-cognitive between-person factors relate to between-person alcohol use (aim 2a), data were analyzed using a multilevel structure where daily drinking (level-1) was nested within individuals (level-2) using the statistical software HLM version 7.01 (28). These values were based on the TLFB reports, thus included 30 days of data per participant. To account for the count nature of number of drinks as well as non-drinking days, an over-dispersed Poisson distribution was specified. All level-2 predictors were grand-mean centered; we interpreted unit-specific results using robust standard errors.

To determine the extent to which social-cognitive between-person factors relate to within-person variability (aim 2b), regressions were conducted on the outcomes of daily variability (i.e.,  $SD$  of drinks across all 30 days) and weekly variability (i.e.,  $SD$  of weekly sums across the first four weeks [days 1–7, 8–14, 15–21, and 22–28]). Each calculation resulted in a single value for each person representing their within-person variability. Because all values were at the person-level, we were able to use multiple regressions to examine the relationships. Weekly variability was examined in addition to daily variability because number of drinks consumed by the current sample varied greatly by day of the week. As seen in Figure 1, relatively fewer drinks were consumed Monday through Wednesday. Drinking was slightly elevated for Thursday and Sunday but strong increases are observed for Friday and Saturday. Thus, variance of daily drinking across all 30 days will include these strong fluctuations due to day of the week, whereas variance of weekly drinking totals will exclude this particular kind of variability by summing across days, focusing on other reasons for change (e.g., social occasions). By including both types of variability, we can examine fluctuations before (daily) and after (weekly) accounting for day of the week changes.

All four predictors were entered simultaneously to examine their unique contributions to variability, controlling for all other constructs. Age, gender, and employment status were

explored as covariates using a series of multilevel analyses where each was the sole predictor of drinking. Age and employment were both unrelated to the outcome variable. Because gender related to drinking in the sole predictor analysis, it was included in a model with the four main predictors. However, gender was not associated with the outcome after controlling for the main variables of interest. Because gender was not associated with the outcomes after controlling for the other predictors and because results for the four main predictors were consistent with and without controlling for it, only the model without gender is presented here. Alcohol use severity (i.e., AUDIT score) was included as a predictor in the models as a way to control for its contribution to alcohol use patterns.

In addition, we coded whether a holiday occurred during the 30-day period assessed for each participant. Because the occurrence of a holiday during the assessment period might influence within-person variability, we conducted *t* tests to determine if holiday occurrence (coded *yes* or *no*) influenced either daily variability,  $t(193) = -0.07, p = .941$ , or weekly variability,  $t(193) = 1.19, p = .238$ . Because holiday status did not influence either outcome, it was not included as a covariate for either regression analysis.

## Results

### Preliminary Analyses

Out of 5850 days with number of drinks reported, 11 were identified as outliers and winsorized. Normality was confirmed for social-cognitive variables. See Table 1 for correlations among study variables.

### Within-person vs. Between-person Variability in Daily Drinking

The unconditional model revealed a grand mean for the log of drinks per day,  $\beta_{00}$ , of 0.63 ( $SE = 0.07$ ),  $p < .001$ , indicating that nonstudent emerging adults consumed 1.88 drinks per day on average (about 13 drinks per week). In addition, random effects indicated significant between-person variability around this mean,  $\chi^2(194) = 5617.62, p < .001$ , signifying significant variability between individuals that should be explored (aim 2a). The same model demonstrated an intraclass correlation (ICC) of .172 (see Table 2), indicating 17.2% of daily drinking variability is between-individuals, leaving 82.8% of variance within individuals. This substantial within-person variability was examined by exploring predictors of variations in alcohol use across days and weeks (aim 2b).

### Between-individual Predictors of Drinking

Person-level variables (i.e., social expectancies, social drinking motives, descriptive norms, AUDIT scores) served as level-2 predictors (see Table 2), which were grand-mean centered. The social-cognitive predictors ranged from uncorrelated to moderately correlated with one another (see Table 1).

After model building procedures, we arrived at the following final model:

$$\text{Level 1: } \log[\text{Drinks}_{ij}] = \pi_{0j}$$

$$\text{Level 2: } \pi_{0i} = \beta_{00} + \beta_{01}*(\text{Social Expectancies}_i) + \beta_{02}*(\text{Social Motives}_i) + \beta_{03}*(\text{Norms}_i) + \beta_{04}*(\text{AUDIT}_i) + r_{0i}$$

In the above model, the log transformation in the level-1 equation reflects the use of a Poisson distribution, thus all unstandardized coefficients reference the log of number of drinks<sup>1</sup>. All subscripts *i* indicate *individual*, and *t* indicate *time* (or day). The  $\pi$  value is a level-1 (or within-person) parameter (i.e.,  $\pi_{0i}$  refers to an individual's random intercept). The  $\beta$  values are level-2 parameters (e.g.,  $\beta_{03}$  refers to the between-person association for norms). The symbol  $r_{0i}$  refers to random influence on the intercept. Thus, the level-1 equation indicates that the log of drinks on day *t* for participant *i* is represented by the random intercept of participant *i*. The level-2 equation indicates participant *i*'s random intercept is a function of the overall intercept for the sample ( $\beta_{00}$ ), as well as the influence of participant *i*'s social expectancies, social motives, descriptive norms, alcohol use severity, and random error.

All predictors were significantly associated with daily drinking. Drinking was higher when social expectancies ( $b = .03, p = .043$ ), social motives ( $b = .03, p = .034$ ), descriptive norms ( $b = .08, p < .001$ ), or AUDIT scores ( $b = .05, p < .001$ ) were higher. In addition, the ICC was substantially reduced (see Table 2), indicating a great deal of between-subjects variability was explained. Using a formula proposed by Snijders and Bosker (29), we calculated that our model explained 49% of level-2 variance in drinking.

### Variability in Daily and Weekly Drinking

Two regressions were conducted: one to examine daily variability in drinking across all 30 days, and one to examine variability across four weekly quantity sums. As seen in Table 3, higher social expectancies were associated with significantly more daily ( $\beta = 0.147, p = .023$ ) and weekly ( $\beta = 0.191, p = .002$ ) variability, whereas social drinking motives were not significantly related to variability after controlling for other predictors. Similarly, descriptive norms and AUDIT were both positively associated with daily (norms:  $\beta = 0.363, p < .001$ ; AUDIT:  $\beta = 0.271, p < .001$ ) and weekly (norms:  $\beta = 0.252, p < .001$ ; AUDIT:  $\beta = 0.422, p < .001$ ) variability such that higher norms and stronger drinking severity were related to significantly more variation across days and weeks. This non-significant association of social motives may be due, in part, to its shared prediction with the other predictors, as evidenced by stronger correlations in Table 1.

### Discussion

The present study fills a critical gap in the limited literature on nonstudent drinkers. Our investigation advances knowledge of this at-risk and understudied group by examining between- versus within-person drinking variability and identifying relevant social-cognitive correlates for each. Our findings showed that a substantial portion of variation in daily alcohol consumption was attributable to the within-person rather than between-person level. Approximately 83% of the total variance in nonstudent drinking was within-person while

<sup>1</sup>To revert back to the original metric, readers can exponentiate the listed results, raising to the base *e*. For example, the grand mean is the log of 0.63, so in the original metric it is  $\exp(0.63) = 1.88$  drinks. The full re-expressed equation in the raw metric is  $E[\text{Drinks}_{it}] = \exp(\beta_{00} + \beta_{01}*(\text{Social Expectancies}_i) + \beta_{02}*(\text{Social Motives}_i) + \beta_{03}*(\text{Norms}_i) + \beta_{04}*(\text{AUDIT}_i))$ .



17% was between-person. Hence, there is considerable within-person variation in daily drinking, and greater variance in drinking was attributable to how drinking patterns may differ day-to-day within the individual rather than between individuals. The large within-person variance in daily drinking suggests that there is substantial within-person heterogeneity in drinking and that efforts to explore potential sub-groups of nonstudent drinkers could lead to identification of those at the highest risk.

Interestingly, the considerable portion of drinking variation attributable to within-person differences is consistent with studies of college drinkers. Maggs and colleagues (8) found among first-year college students that 83% of the variance in drinking quantity was attributable to within-individual fluctuations. However, unlike Maggs et al.'s (8) study whose sample typically consumed over 7 drinks weekly, our sample typically consumed 13 drinks weekly. Thus, despite apparent differences in average alcohol use across college status, sources of variation in daily drinking are similar across emerging adult samples.

Our second aim was to determine the extent to which supported social-cognitive between-person factors were associated with alcohol consumption overall as well as with variability in daily and weekly consumption. We found that drinking was significantly predicted by social expectancies, social motives, and social drinking norms, even after controlling for drinking severity. Results showed that drinking was higher the more individuals expected social rewards as a consequence of drinking. We also found that stronger expectancies are predictive of greater fluctuations in drinking from day-to-day or week-to-week. This could suggest that people who expect alcohol to facilitate their interactions will vary their drinking more, possibly to correspond with whether social interactions occurred that day/week.

Two other cognitively-based social factors emerged as significantly accounting for drinking. Perceptions of "close friends" drinking behavior impacted nonstudents' personal drinking, such that the more they perceived their peers to drink, the higher their alcohol consumption. Higher norms also significantly predicted drinking variability. These findings are consistent with prior evidence demonstrating between-subject (e.g., 30, 31) and within-subject (32, 33) normative influence on individual drinking among college students. Our results support that social norms processes are also relevant to nonstudents (22) and that perceived drinking by nonstudents' peers can guide personal drinking behavior by providing information about what is typical in their particular social setting or peer network (34, 35). Because of the emphasis on peer norms, correcting misperceptions about drinking norms by nonstudents may be one useful intervention strategy.

Social reasons for drinking significantly accounted for drinking, such that stronger endorsement of drinking to enhance social activities or facilitate social interactions predicted higher consumption. Overall, adding to existing evidence that social drinking motives are common (17, 18) and predictive of general (e.g., 21, 36) and daily drinking (8), we provide support of their unique impact on drinking of nonstudents, which had not been previously demonstrated. However, we did not find evidence supporting social motives as accounting for drinking fluctuations beyond the influence of other key social-cognitive factors.

In examining variability in daily and weekly drinking, a close examination revealed distinctions across similar patterns. Effect sizes indicate that descriptive norms had the strongest relationship with daily variability, whereas severity had the strongest relationship with weekly variability. This may be due to the social nature of daily drinking decisions (e.g., “my friends are going out to a party”) as opposed to the more entrenched nature of weekly cyclical patterns, affected most strongly by stable drinking severity. These findings highlight the value of examining associations with drinking at both daily and weekly levels as to gain a more nuanced understanding of alcohol use behaviors in at-risk populations.

Overall, our findings underscore social influence as a general factor contributing to nonstudent drinking behavior. Peer or social factors have been extensively studied in college populations (e.g., 34, 37, 38). The milieu of the college environment lends itself to peer influences given the social nature of drinking (39, 40) and the availability of social opportunities surrounding drinking (41, 42). Our findings support the view that social motivators play a potent role in drinking by nonstudents, even in the absence of a college drinking culture. The current study results complement findings of prior qualitative work showing that among the core motivations for drinking by nonstudents are social enhancement effects and perceived social pressures to drink (43). Accordingly, it may be that the social aspects of drinking reflect a commonality for emerging adult drinkers in general rather than a unique representation of the college drinking culture.

Given the potential commonality of some risk factors for drinking among college students and nonstudents, similar intervention techniques developed for college students may be adapted to nonstudents. The Brief Alcohol Screening and Intervention for College Students (BASICS; 44) is a harm reduction-based approach effective in reducing problematic drinking behavior among college drinkers. BASICS incorporates personalized feedback on several aspects of drinking (e.g., personal beliefs about alcohol, drinking norms, strategies to reduce alcohol-related risks). As social influence variables were uniquely associated with drinking in our study, such an intervention may be promising for reducing problematic drinking among nonstudent populations. However, empirical evaluation of approaches tailored to this at-risk group remains a critical area of investigation.

One challenge contributing to the relative lack of intervention research with nonstudents may be issues due to recruitment. Unlike a college campus, nonstudents do not generally congregate in one location; this makes nonstudents more difficult to reach in order to identify those in need of intervention services. However, nonstudent recruitment efforts may be enhanced by targeting settings where they are likely to seek help related to alcohol problems or to present with alcohol related injuries, such as hospital emergency departments, worksite employee assistance programs, and DUI programs (45).

The findings of the current investigation should be interpreted in light of several study limitations. Our results were based on participants’ retrospectively self-reported data which may have been susceptible to reporting or recall bias. While the TLFBS is a reliable tool to assess changes in alcohol use (e.g., 24) and represents a strength over traditional summary or aggregate measures of drinking, fine-grained characteristics of drinking patterns may be more accurately assessed with real-time or daily recall methods (46). Another study

limitation is that generalization beyond our target population should be made with caution. Our population of interest was heavy drinking emerging adults without a history of college attendance. Further, our sample recruitment was restricted to those residing in a mid-size city in the Southeast region of the U.S., and 45.4% of our sample reported being unemployed, which is a higher rate than other national samples of nonstudents (e.g., 47). Finally, we did not examine other potentially important and relevant socially-oriented variables, including social network characteristics. The impact drinking peers or drinking supportive individuals in one's social network have on daily consumption should be considered in future research. Future work could also examine key demographic factors (e.g., age, gender, employment status) that could moderate associations as to better understand the conditions under which social factors relate to drinking patterns.

The present study contributed to addressing the dearth of information concerning nonstudent drinkers and factors contributing to their decisions to drink. Drinking by nonstudents was significantly predicted by key cognitively-based social factors. Such knowledge could guide efforts to design and tailor intervention strategies to minimize harms experienced by this understudied and at-risk population.

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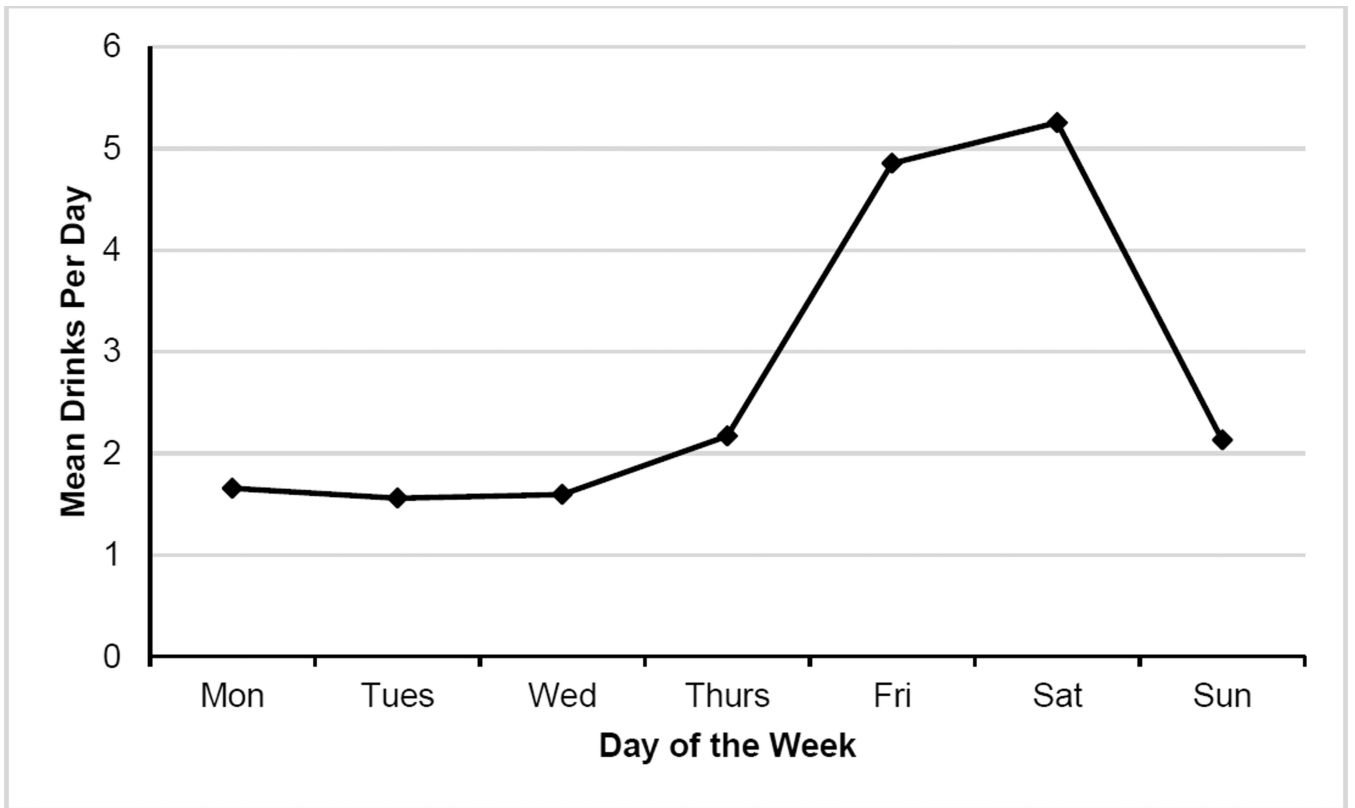
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**Figure 1.**  
Mean drinks of alcohol consumed by day of the week.

**Table 1**

Correlations among Social-Cognitive Predictors and Alcohol Variables

	1	2	3	4	5	6	7
1. Social Expectancies	-	.39**	.10	.04	.16*	.20**	.24**
2. Social Motives		-	.16*	.28**	.22**	.22**	.25**
3. Descriptive Norms			-	.48**	.63**	.51**	.48**
4. Alcohol Severity (AUDIT)				-	.62**	.46**	.56**
5. Drinks					-	.67**	.84**
6. Daily Variability ( <i>SD</i> )						-	.67**
7. Weekly Variability ( <i>SD</i> )							-

\*  $p < .05$ .\*\*  $p < .01$ .

**Table 2**  
Coefficients for Models Predicting Daily Alcohol Use using Multilevel Modeling

	<i>b</i>	<i>SE</i>	$e^b$	<i>t</i>	<i>df</i>	<i>p</i>	$\sigma^2$	$\tau_{00}$	ICC
Unconditional (Null) Model									
Intercept ( $\beta_{00}$ )	0.63**	0.066	1.878	9.50	194	<.001	3.732	0.777	.172
Final Model									
Intercept ( $\beta_{00}$ )	0.63**	0.046	1.882	13.66	190	<.001	3.708	0.338	.083
Social Expectancies ( $\beta_{01}$ )	0.03*	0.016	1.033	2.04	190	.043			
Social Motives ( $\beta_{02}$ )	0.03*	0.014	1.029	2.14	190	.034			
Norms ( $\beta_{03}$ )	0.08**	0.019	1.083	4.14	190	<.001			
AUDIT ( $\beta_{04}$ )	0.05**	0.008	1.056	7.04	190	<.001			

Note. AUDIT = Alcohol Use Disorder Identification Test. *b* = unstandardized regression coefficient.  $e^b$  represents the exponentiation of the coefficient, also called the odds ratio. ICC = Intraclass correlation.

\*  $p < .05$ ,

\*\*  $p < .01$ .



**Table 3**  
Predicting Variability in Daily and Weekly Alcohol Use using Standard Regression

Predictor	<i>b</i>	$\beta$	SE	<i>t</i>	<i>p</i>	Semi-partial $r^2$
<i>SD</i> across all 30 days						
Social Expectancies	0.07*	0.147	0.03	2.30	.023	.018
Social Motives	0.01	0.028	0.03	0.42	.676	.001
Descriptive Norms	0.19**	0.363	0.04	5.41	<.001	.100
AUDIT	0.07**	0.271	0.02	3.92	<.001	.053
<i>SD</i> across weekly sums						
Social Expectancies	0.11**	0.191	0.04	3.12	.002	.031
Social Motives	0.01	0.017	0.03	0.27	.789	.000
Descriptive Norms	0.16**	0.252	0.04	3.93	<.001	.048
AUDIT	0.14**	0.422	0.02	6.39	<.001	.128

Note. AUDIT = Alcohol Use Disorder Identification Test. *b* = unstandardized regression coefficient.  $R^2 = .347$ . Note that results were consistent with and without controlling for gender (which was not a significant predictor, controlling for other constructs).

\*  $p < .05$ ,

\*\*  $p < .01$ .