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## A Daily Diary Study of Drinking and Non-drinking Days in Nonstudent Alcohol Users

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### Abstract

**Background:** Emerging adults with lower educational attainment are at higher long-term risk for problematic drinking and alcohol use disorders. Efforts to gain a more in-depth understanding of the drinking habits of nonstudent emerging adults are critical to reduce disparities and to shed light on targets of intervention for this vulnerable group.

**Objectives:** The current investigation aimed to: (1) provide a description of the daily drinking habits of nonstudent emerging adult drinkers using a 14-day diary method, and (2) examine non-drinking days by assessing their reasons for not drinking as well as strategies used to avoid drinking.

**Methods:** Participants were 27 (55.5% women) emerging adult drinkers recruited from the community. Results: On drinking days, multilevel results indicated that heavier alcohol use was positively associated with level of subjective intoxication and alcohol-related problems. Men reported higher alcohol use outcomes than women across all alcohol use indicators. Regarding non-consumptive days, the most frequently endorsed reasons for not drinking largely reflected an internal motivation, while the least endorsed reasons were related to external constraints. Pertaining to strategies used to avoid drinking, the most frequently endorsed response related to choosing alternative enjoyable activities. Diary compliance with the 14-day protocol was 90.9% for at least one daily survey.

**Conclusion/Importance:** The present investigation represents one of the first to examine drinking behaviors using a daily diary approach with nonstudent emerging adult drinkers. Study findings filled an important gap regarding our understanding of the context of drinking of an at-risk and understudied group of drinkers.

### Keywords

alcohol; daily diary; nonstudent; emerging adults; alcohol-related problems; subjective intoxication

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Among emerging adults between ages 18 to 24 years old in the United States, 46% are without any postsecondary education (U.S. Census Bureau, 2014). Disparities based on education level have been found across a number of health behaviors (see Beckles & Truman, 2013). Specific to alcohol use, lower educational attainment has been associated with more alcohol-related problems experienced in later adulthood (White, Labouvie, & Papadaratskis, 2005) and future risk of alcohol use disorders (Harford, Yi, & Hilton, 2006). Given these findings, targeted research efforts are critical in reducing disparities in this vulnerable population. Efforts to gain a more in-depth understanding of the drinking habits of emerging adults without higher educational attainment could inform targets for intervention.

One way to gain a more fine-grained perspective on drinking behavior is the use of time-based sampling. Time-based sampling is when assessments are scheduled at either fixed or random intervals (Shiffman, 2007). The most common implementation of ecological momentary assessment using fixed-interval scheduling is the daily diary design (Shiffman, 2007). Participants record their day's experience (e.g., alcohol use) at a specific time each day. Daily recording of behavior closer to the time it occurs reduces recall bias inherent in conventional retrospective designs by using the participant's estimates of their average behavior over a period of days or weeks (Shiffman, 2007). Because drinking levels may not necessarily be stable across time (e.g., Del Boca, Darkes, Greenbaum, & Goldman, 2004), efforts to accurately capture typical alcohol use is augmented by the use of daily diary methods.

To our knowledge, there has only been one prior investigation examining the drinking behavior of nonstudents utilizing a daily diary approach (Patrick, Yeomans-Maldonado, & Griffin, 2016); however, this study was restricted only to recent high school graduates, and thus, findings regarding generalizability to other nonstudents remain limited. While there have been a handful of investigations of daily drinking patterns with noncollege populations (e.g., Goldman, Greenbaum, Darkes, Brandon, & Del Boca, 2011; Lau-Barraco, Braitman, Linden-Carmichael, & Stamatos, 2016; Lau-Barraco, Braitman, Stamatos & Linden-Carmichael, 2016a, 2016b; Reich, Cummings, Greenbaum, Moltisani, & Goldman, 2015), these investigations used a retrospective method via the timeline follow-back (TLFB) procedure, which has been shown to yield less accurate reports of drinking than daily approaches (Carney, Tennen, Affleck, Del Boca, & Kranzler, 1998). Also, these studies focused only on days when drinking occurred without considering days when drinking did not occur. An examination of nondrinking days at the daily level is critical to understand the full context surrounding the use behaviors of nonstudents, including reasons they chose not to drink and the strategies used to inhibit drinking.

Reasons for not drinking have been examined among college student populations. Students have reported a wide spectrum of reasons for not drinking. These include self-control, family upbringing, self-reform, performance, health concerns, risks and negative effects, social responsibility, disapproval of drinking, and lack of availability (Greenfield, Guydish, & Temple, 1989; Johnson & Cohen, 2004). Endorsing more reasons for not drinking has been shown to relate to drinker status, with abstainers endorsing more than drinkers, and light drinkers endorsing more than heavy drinkers (Huang, DeJong, Schneider, & Towvim, 2011).

Furthermore, changes in reasons for abstaining and limiting drinking correspond with transitions (turning 21 years old, leaving college) in alcohol consumption (Epler, Sher, & Piasecki, 2009).

The only study to examine daily-level reasons for not drinking was conducted by O'Hara, Armeli, and Tennen (2014). This study found that the most common reasons for not drinking among college students were having no desire to drink, not usually drinking on that night of the week, and having too much school work. College students' reasons for not drinking were related to particular daily- and person-level factors, including daily anxiety, drinking motives and alcohol expectancies. This study established the relevance of avoidance motives in contributing to a decision not to drink alcohol on a daily level among college drinkers; however, such an approach to assess reasons for inhibiting alcohol consumption among nonstudents has not been conducted. Relatedly, although prior daily diary research has demonstrated that protective behavioral strategies used while drinking vary within-person and covary with daily drinking behavior (Pearson, D'Lima, & Kelley, 2013), previous research has not examined the extent to which strategies used to avoid drinking are employed on a given non-consumptive day. These strategies include choosing to participate in enjoyable activities that do not include alcohol use and finding other ways besides drinking to reduce stress. Prior cross-sectional aggregate data from college students has found a negative association between general use of alternative strategies and typical weekly alcohol consumption (Linden, Kite, Braitman, & Henson, 2014; Sugarman & Carey, 2007, 2009), average Blood Alcohol Concentration (BAC) (Sugarman & Carey, 2007), as well as quantity and frequency of alcohol consumption during one's heaviest drinking week in the prior month (Pearson & Henson, 2013). A daily examination of nonstudents' specific strategies employed to avoid drinking, as well as their reasons for not drinking, could yield a more comprehensive understanding of their drinking, which could reveal potential mechanisms by which to intervene in drinking-reduction programs for nonstudents.

The current study had two overarching goals. The first was to provide a preliminary description of the daily drinking habits of nonstudent emerging adult drinkers using a daily diary method. Participants provided daily reports of drinking over a consecutive 14-day period. These reports were utilized to examine daily patterns of drinking quantity, hours of consumption during the drinking episode, and heavy drinking frequency. Daily drinking habits were examined in relation to alcohol-related harms and level of subjective intoxication reported on the same drinking occasion. The second goal was to examine non-drinking days by assessing their reasons for not drinking as well as strategies used to avoid drinking on a given day.

## Method

### Participants and procedure

Participants were 33 emerging adults who were formerly part of another study that tested a brief motivational intervention for nonstudent heavy drinkers (see Lau-Barraco, Braitman, & Stamates, 2018). Participants were initially recruited for a study "to learn more about the drinking habits of young adults" from the community via online (e.g., [www.Craigslist.com](http://www.Craigslist.com)) and local newspaper advertisements. They were subsequently contacted following

completion in the initial intervention trial (December 2015) for potential participation in the current investigation examining alcohol consumption using a daily diary approach (March-May 2016). At the time of the initial intervention study, participants must have: (1) been 18 to 25 years old, (2) not had previous postsecondary education, (3) engaged in two or more heavy drinking episodes in the past month, (4) consumed fewer than 40 standard drinks weekly, and (5) had no previous treatment for alcohol use disorders.

Of the 33 participants who completed the baseline survey, 30 (90.9%) completed at least one of the 14 daily surveys. Of the 30 participants, seven (23.3%) completed all 14 days, 22 (73.3%) completed at least half (7+) daily surveys and 17 (51.5%) completed at least two-thirds (10+) of the daily surveys. The average number of reports completed were 10.11 ( $SD = 3.86$ ) out of 14 possible days.

As recommended by Black, Harel, and Matthews (2011), only participants who provided two or more daily surveys were included in study analyses. Consequently, the sample for analysis was comprised of 27 individuals (15 women). Mean age was 23.96 ( $SD = 2.03$ ) years. Ethnicity was 33.3% Caucasian, 33.3% African American, 14.8% Hispanic, 3.7% Native American, and 14.8% indicated that they were self-identified as “other” or biracial. At baseline, participants reported an average of 13.55 ( $SD = 12.47$ ) drinks per week. The analytic sample provided 273 daily reports in which 176 (64.5%) were non-drinking days and 97 were drinking days. The average proportion of drinking days across participants was 39%.

An online survey was administered at baseline and a daily online survey was administered over 14 consecutive days. The baseline survey took approximately 40 minutes to complete and participants were compensated with a \$20 gift card. Each day, participants were emailed a survey link with questions about *yesterday's* drinking behavior. Daily surveys took an average of 5 minutes to complete. Participants were asked to complete the daily survey between 2:30 and 7 pm each day to control for potential time of day effects (e.g., Armeli, Todd, Conner, & Tennen, 2008; Linden-Carmichael & Lau-Barraco, 2017). Survey links were closed at the end of each reporting day so that participants could not backlog responses. Participants were provided with \$3 per survey with a \$10 bonus if they completed at least 12 daily surveys. All participants provided informed consent. The current study was approved by the university's Institutional Review Board. All APA ethical guidelines were followed (APA, 2010).

### Baseline measures

**Alcohol-related problems.**—The Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ; Kahler, Strong, & Read, 2005) was used to measure typical alcohol-related problems experienced in the past year. The questionnaire consists of 24 items with “yes” or “no” response options. The total number of problems experienced was used as an indicator of alcohol-related harms, with higher scores indicating more problems experienced. Cronbach alpha was .956.

## Daily measures

**Alcohol use.**—Participants were asked how many standard alcohol drinks they consumed yesterday. If they indicated any alcohol use, they were provided with an additional question asking how many hours they spent drinking yesterday. Drinking days were coded as 0 (*did not report any drinking yesterday*; “non-drinking day”) or 1 (*reported alcohol use yesterday*; “drinking day”). On days when participants consumed alcohol, heavy drinking was coded as 0 (*did not consume 4+/5+ [women/men] drinks yesterday*; “non-heavy drinking day”) or 1 (*consumed 4+/5+ [women/men] drinks yesterday*; “heavy drinking day”).

**Level of subjective intoxication.**—On days when participants reported drinking, they were asked how drunk they felt yesterday on a continuous scale of 0 (*not drunk at all*) to 100 (*extremely drunk*) in increments of 10.

**Alcohol-related problems.**—On days when participants reported drinking, they were provided with the above-mentioned BYAACQ (Kahler et al., 2005), which was adapted to ask about problems that occurred as a result of yesterday’s drinking.

**Alternatives to drinking strategies.**—If participants did not report drinking alcohol yesterday, they were asked whether they used a variety of strategies derived from the Alternatives to Drinking subscale on the Strategy Questionnaire (Sugarman & Carey, 2007), which assesses ways to achieve reinforcing effects without alcohol. This subscale consists of four items such as, “Found other ways besides drinking to reduce stress” with *yes* (1) or *no* (0) response options.

**Reasons for not drinking.**—If participants did not report drinking yesterday, they were asked about their reasons for not drinking. The 6-item daily measure was adapted from O’Hara et al. (2014) to assess reasons nonstudents would not drink, such as, “I couldn’t obtain alcohol” or “I had too much work to do.” Response options included *true* (1) or *false* (0).

## Data Analytic Strategy

Before conducting analyses, data were cleaned and statistical assumptions were addressed. In particular, extreme outliers (i.e., those outside the 3 *SD* range) were winsorized (Barnett & Lewis, 1994). These included two values for daily drinking quantity, three values for daily number of hours drank, and three values for the daily BYAACQ. Descriptive statistics presented reflect the aggregated mean for the sample, taking into account the number of daily reports provided by each participant. Information regarding drinking behavior was averaged across only drinking days and information regarding non-drinking behavior was averaged across only non-drinking days. For all other analyses, multilevel modeling was used due to the nested nature of the data. Here, daily (level 1) predictors were nested within person (level 2). Level 1 predictors were group-mean centered and level 2 predictors were grand-mean centered. Multilevel modeling was conducted using HLM 7.01 software (Raudenbush, Bryk, & Congdon, 2013).

## Results

Descriptive information across drinking days and non-drinking days are presented in Table 1 for the entire sample as well as separately for men and women. On days in which alcohol was consumed, the overall sample reported drinking an average of 4.0 ( $SD = 4.0$ ) drinks the night prior, with the episode lasting an average of 2.8 ( $SD = 2.3$ ) hours. Approximately 37% ( $SD = 0.4$ ) of the drinking days were heavy drinking episodes (4+/5+ drinks for women/men) and 58.9% ( $SD = 0.4$ ) of the days involved the experience of at least one alcohol-related problem with the number of problems experienced last night being 2.2 ( $SD = 2.2$ ) problems, on average. For non-drinking days, the two most frequently reported reasons for not drinking were “usually don’t drink this night” and “no desire to drink”, which was endorsed on 74.4% ( $SD = 0.3$ ) and 82.6% ( $SD = 0.3$ ) of non-drinking days, respectively. With regard to strategies used for not drinking, “choosing to participate in enjoyable activities that do not include alcohol use” and “found other ways besides drinking to reduce stress” were most frequently endorsed relatively, with endorsement on 79.9% ( $SD = 0.3$ ) and 75.1% ( $SD = 0.3$ ) of non-drinking days, respectively.

Multilevel modeling was conducted to examine several relationships on drinking days. An example equation involving the number of drinks (NumDrinks) consumed predicting level of subjective intoxication (Intoxication) while controlling for baseline alcohol-related problems (BYAACQ), gender (Gender) and the aggregated mean number of drinks consumed across all 14 days (NumDrks<sub>aggregated</sub>) is provided in which drinking days (t) were nested within individuals (i):

Level 1:

$$\text{Intoxication}_{it} = \pi_0 + \pi_1 (\text{NumDrinks}_{it} - \overline{\text{NumDrinks}_{.i}})$$

Level 2:

$$\begin{aligned} \pi_0 &= B_{00} + B_{01}(\text{BYAACQ}_i - \overline{\text{BYAACQ}}) + B_{02}(\text{Gender}) + B_{03}(\text{NumDrks}_{\text{aggregated } i} - \overline{\text{NumDrks}_{\text{aggregated}}}) + r_{0i} \\ \pi_1 & \\ &= B_{10} \end{aligned}$$

Multilevel results indicated that heavier alcohol use yesterday was positively associated with level of subjective intoxication (see Table 2) and alcohol-related problems yesterday (see Table 3). Higher levels of subjective intoxication were positively related to number of alcohol-related problems experienced (see Table 4). The intraclass correlation (ICC) for the outcomes of alcohol-related problems and subjective intoxication was 0.30 and 0.46, respectively, indicating that 30% of the variance in alcohol-related problems was due to between-person differences and 46% of the variance in subjective intoxication is due to between-person differences.

## Discussion

The present pilot study sought to provide a preliminary description of the daily drinking habits of nonstudent emerging adult drinkers using a 14-day diary method. We also aimed to broaden our understanding of the context of drinking in this at-risk group by assessing motivations and behaviors on non-consumption days. Regarding days in which alcohol was consumed, the sample reported drinking an average of 4 drinks the night prior, with the episode lasting an average of 2.8 hours. About 37% of the drinking days were considered heavy drinking days and about 60% of the drinking days involved the experience of at least one alcohol-related problem. At the within-person level, we found that heavier alcohol use on a given day was positively associated with their level of subjective intoxication and number of alcohol-related problems experienced on that same drinking occasion. We also found that higher levels of subjective intoxication were related to the number of drinking-related problems experienced.

While we were underpowered to examine differences in daily drinking by gender, it appears that descriptively, in comparison to women, men reported heavier drinking and more alcohol-related problems experienced on average, across all days. For example, men reported an average of 6.3 drinks over 4 hours per drinking day while women reported 2.3 drinks over 1.8 hours. Almost 54% of drinking days were heavy drinking days for men versus 25% for women. These descriptive findings are congruent with the larger body of literature showing that emerging adult men are heavier and more frequent drinkers than women (Chen, Dufour, & Yi, 2004/2005; O'Donnell, Wardle, Dantzer, & Steptoe, 2006), even though women have been exhibiting increasing trends in alcohol use and alcohol use disorders over the past few decades (Keyes, Grant, & Hasin, 2008). Though nonstudent men descriptively reported heavier alcohol use and more harms experienced, it should be noted that noncollege women in the 21–25 age group are showing the greatest increase in drinking, and should be targets of future research (White, Castle, Chen, Shirley, Roach & Hingson, 2016).

Regarding non-consumptive days, we sought to understand why nonstudents chose not to drink on those days and to assess the strategies they used to avoid drinking. Of the six possible reasons for not drinking, the two most frequently reported reasons were, “Usually don’t drink this night” and, “No desire to drink”. The two most infrequent reasons were, “Couldn’t obtain alcohol” and, “No one to drink with.” Thus, the most frequently endorsed reasons for not drinking largely reflected an internal motivation, while the least endorsed reasons were related to situational or external constraints. When reasons for not drinking were examined by gender, the only relative difference to emerge was that women were more likely to report not drinking due to having no desire. O’Hara et al. (2014) also found this reason to differ between men and women in their college sample. Thus, it appears that a lack of desire to drink may have a protective effect given that women were a less risky group of drinkers in the current sample. Our findings support efforts to promote this ambivalence about drinking and increasing their motivation to avoid drinking through approaches such as motivational enhancement interventions (Center for Substance Abuse Treatment, 1999) in nonstudent drinkers.

When asked about the strategies nonstudents used for not drinking in a daily context, the most frequently endorsed strategy was, “Choosing to participate in enjoyable activities that do not include alcohol use”. This is a notable finding that supports the use of environmentally focused approaches to prevention and intervention (DeJong & Langford, 2002) with nonstudents in the community. For example, guided by a social ecological framework, environmental strategies may be implemented in the surrounding community whereby collaborative partnerships with city government and private organizations within the community may lead to the creation and promotion of alcohol-free recreational events and activities (DeJong & Langford, 2002) and could serve as one dimension of a comprehensive community program (Hingson & Howland, 2002) to address drinking-related harms in this underserved group.

As an ancillary aspect of the present study, we were able to investigate how well a nonstudent emerging adult sample adheres to a method to intensively measure their drinking behavior. The implementation of such a method with this population has been extremely limited. For the current study, we found that short-term diary participation over a period of 14-days had a compliance rate of 91% for at least one daily survey, 73% for at least half the days (i.e., 7+ days), and 52% for at least two-thirds the days (i.e., 10+ days). The average number of reports completed was around 10 out of the 14 possible days. These compliance rates are similar to those reported previously by Patrick and colleagues (2016) with a sample of recent high school graduates. They found a compliance rate of 82.7% for at least one daily survey, 75% for at least half of days, and 67% for at least 10 days. They also found the mean reported diaries to be 10 daily surveys. It should be noted that the compliance rates for Patrick et al.’s study also included college student respondents, which comprised 66.7% of the sample. Despite this sample difference and the specific participants recruited in the present study, however, the consistency in compliance rates across the two studies is encouraging. It provides evidence to support that a daily diary approach to collecting data on drinking and contextual information is a viable research tool, particularly for recording daily activities and experiences by nonstudent emerging adult drinkers.

There are limitations to this study to consider. While the use of a daily diary approach to assess drinking and related behaviors represents an improvement over aggregate reports or one-time ratings, the use of a more intensive ecological momentary design may yield an even more fine-grained perspective. For example, participants may be prompted to respond with their drinking intentions for that evening and their reasons for drinking or not drinking. They could then respond the next morning regarding their actual consumptive behavior. The use of such an approach would also shed light on understanding why nonstudents choose not to drink across various contexts and situations. Additionally, consistent with the only prior daily diary study of avoidance motivations (O’Hara et al., 2014), we assessed only six possible reasons for not drinking on a given day. Future research is needed to expand the scope of potential reasons to be more comprehensive, such as those identified in prior cross-sectional survey research (e.g., Epler et al., 2009; Huang et al., 2011). Another limitation is that we assessed behaviors via daily surveys over 14 days. A longer timeframe may provide a more complete representation of typical use patterns. Finally, the sample size lacked sufficient power to permit examination of potential mediators, moderators, or gender differences in daily associations. For example, it may be useful for future research to

consider the mediational role of subjective intoxication in the link between daily alcohol use and daily alcohol-related problems. Relatedly, given the limited sample size, and because current sample reflected those participants from the parent study who were reachable for this pilot and actually initiated baseline, this reduces the generalizability of our findings.

Despite these study limitations, the present investigation filled an important gap in the literature regarding our understanding of the context of drinking of an at-risk and understudied group of drinkers. Nonstudents are at heightened vulnerability to experience a number of general health and drinking-related harms. To date, little is known about their daily drinking habits. This study represents one of the first to examine drinking behaviors using a daily diary approach with nonstudent emerging adult drinkers. These findings regarding daily drinking, as well as inhibiting motivations and behaviors on non-consumption days, highlight potential areas for consideration (e.g., increasing intrinsic motivation to avoid drinking, participating in enjoyable non-alcohol involved activities) in intervention development.

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**Definitions of Key Terms and Concepts**

**Nonstudents:** Individuals who have had no postsecondary education.

**Emerging adults:** Individuals aged 18 to 25 years old.

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**Table 1**

Daily Descriptive Information for the Overall Sample and by Gender

	Overall	Men	Women
<i>Drinking Days</i>			
Average number of drinks consumed last night	4.0 drinks (SD = 4.0)	6.3 drinks (SD = 5.1)	2.3 drinks (SD = 1.4)
% drinking days that were heavy drinking days	37.4% (SD = 0.4)	53.8% (SD = 0.5)	24.5% (SD = 0.2)
Average number of hours they drank last night	2.81 hours (SD = 2.3)	4 hours (SD = 2.8)	1.8 hours (SD = 1.2)
Average level of subjective intoxication last night	34.3 (SD = 25.9)	44.4 (SD = 27.7)	26.4 (SD = 22.2)
Average number of problems experienced last night	2.2 problems (SD = 2.2)	3.4 problems (SD = 2.5)	1.2 problems (SD = 1.4)
% of drinking days involving an alcohol problem	58.9% (SD = 0.4)	78% (SD = 0.3)	44% (SD = 0.3)
<i>Non-drinking Days (% of days)</i>			
SQ: Chose to participate in enjoyable activities that don't include alcohol use	79.9% (SD = 0.3)	83.1% (SD = 0.2)	77.7% (SD = 0.3)
SQ: Found other ways besides drinking to reduce stress	75.1% (SD = 0.3)	75.7% (SD = 0.3)	74.6% (SD = 0.4)
SQ: Practiced ways to be more comfortable in social settings without using alcohol	55.1% (SD = 0.4)	58.6% (SD = 0.4)	52.8% (SD = 0.4)
SQ: Was prepared with effective coping strategies in situations where you thought heavy drinking was likely	48.4% (SD = 0.4)	47.6% (SD = 0.4)	48.9% (SD = 0.5)
RFND: Had to work at job	28.8% (SD = 0.4)	27.7% (SD = 0.5)	29.6% (SD = 0.4)
RFND: Had too much work to do	19.1% (SD = 0.3)	8.2% (SD = 0.2)	26.3% (SD = 0.4)
RFND: No one to drink with	10.4% (SD = 0.3)	16.8% (SD = 0.4)	6.1% (SD = 0.2)
RFND: Couldn't obtain alcohol	8.4% (SD = 0.2)	16.1% (SD = 0.3)	3.3% (SD = 0.1)
RFND: No desire to drink	74.4% (SD = 0.3)	50.9% (SD = 0.4)	90.1% (SD = 0.2)
RFND: Usually don't drink this night	82.6% (SD = 0.3)	28.9% (SD = 0.3)	35.1% (SD = 0.3)

Note. SQ = Strategy Questionnaire. RFND = Reasons for Not Drinking. Average level of subjective intoxication last night is assessed on a scale ranging from 0 (*not drunk at all*) to 100 (*extremely drunk*).

\*\* $p < .01$ .

\* $p < .05$ .

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**Table 2**

## Multilevel Models of Number of Drinks Predicting Daily Level of Subjective Intoxication

	<i>B (SE)</i>
Intercept	32.48 (11.47)*
Level 1: Daily level	
Number of drinks	6.72 (0.89)**
Level 2: Person level	
Gender	2.01 (6.99)
Baseline BYAACQ	-0.04 (0.42)
Aggregate number of drinks	5.20 (0.90)**

*Note.* BYAACQ = Brief Young Adult Alcohol Consequences Questionnaire. "Aggregate number of drinks" represents the average number of drinks for each individual across days.

\*\*  
 $p < .001$ .

\*  
 $p < .05$ .

**Table 3**

## Multilevel Models of Number of Drinks Predicting Daily Alcohol-Related Problems

	<i>B (SE)</i>
Intercept	3.70 (1.48) *
Level 1: Daily level	
Number of drinks	0.31 (0.12) *
Level 2: Person level	
Gender	-1.08 (0.90)
Baseline BYAACQ	0.15 (0.05) *
Aggregate number of drinks	0.08 (0.12)

*Note.* BYAACQ = Brief Young Adult Alcohol Consequences Questionnaire. "Aggregate number of drinks" represents the average number of drinks for each individual across days.

\*  $p < .05$ .

**Table 4**

## Multilevel Models of Subjective Intoxication Predicting Daily Alcohol-Related Problems

	<i>B (SE)</i>
Intercept	1.54 (0.67) *
Level 1: Daily level	
Subjective intoxication	0.03 (0.00) **
Level 2: Person level	
Gender	-0.84 (0.42)
Baseline BYAACQ	0.07 (0.03) *
Aggregate subjective intoxication	0.00 (0.01)

*Note.* BYAACQ = Brief Young Adult Alcohol Consequences Questionnaire. “Aggregate subjective intoxication” represents the average level of subjective intoxication for each individual across days.

\*\*  
 $p < .001$ .

\*  
 $p < .05$ .