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## TO DRINK OR NOT TO DRINK: WHEN DRINKING INTENTIONS PREDICT ALCOHOL CONSUMPTION AND CONSEQUENCES

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### Abstract

In two micro-longitudinal studies of college students ( $Ns = 1641, 540$ ), we examined daily drinking intention-behavior associations and tested past drinking and current social environment as moderators. We expected more frequent past drinking and high drinking environments to weaken the association. We also tested whether intentionality moderated the drinking-next-day outcomes association, expecting less intentional alcohol consumption would predict greater stress and regret. Drinking intentions more strongly predicted drinking behavior among less frequent drinkers and, in Sample 1, more strongly predicted drinking behavior in a low drinking environment. Individuals with low drinking intentions were more likely to experience next-day stress, particularly if they consumed less alcohol. Greater consumption was related to greater odds of experiencing regret, but this was stronger among individuals with higher intentions. Findings are discussed in terms of the complex interplay between intentions and both social environment and contextual factors with respect to predicting drinking and related problems.

**Objectives:** We examined daily associations between drinking intentions and drinking behavior and tested past drinking behavior and current social environment as potential moderators of the daily intention-behavior association. We expected both more frequent past drinking and being in a high drinking environment to weaken the intention-behavior association. We also tested intentionality as a moderator of the association between alcohol consumption and next-day negative outcomes, expecting that less intentional alcohol consumption would be related to greater stress and regret.

**Design:** We tested these hypotheses using two separate micro-longitudinal studies of college students ( $Ns = 1641, 540$ ).

**Results:** Consistent with our predictions, drinking intentions more strongly predicted drinking behavior among individuals with less frequent past drinking behavior and, in Sample 1, drinking intentions more strongly predicted drinking behavior among individuals in a low drinking environment. Contrary to hypotheses, results indicated that individuals with low drinking intentions were more likely to experience stress the next day, particularly if they consumed less

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alcohol. Greater consumption, however, was related to greater odds of experiencing regret, but this was stronger among individuals with higher drinking intentions.

**Conclusions:** Findings are discussed in terms of the complex interplay between intentions and both social environment and contextual factors with respect to predicting drinking level and related problems.

### Keywords

INTENTIONS; ALCOHOL CONSUMPTION; SOCIAL ENVIRONMENT; STRESS; COLLEGE STUDENTS

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In a recent national survey, 62% of college students reported that they had consumed alcohol within the past 30 days, 33% reported that they had consumed 5 drinks or more in a row in the last two weeks, and 2% reported that they consume alcohol every day (Schulenberg et al., 2020). Although models of health behavior posit intentions as a primary predictor of drinking behavior (Cooke et al., 2016), there remains an intention-behavior gap (Sheeran & Webb, 2016) such that the association between drinking intentions and alcohol consumption is weaker than expected. To better understand the intention-behavior link with respect to alcohol use, the current study examined possible moderators of this association (i.e., past drinking behavior and the individuals' current social environment) using a micro-longitudinal (daily) design. In addition, consistent with research indicating that less intentional drinking is more strongly related to drinking-related problems (Fairlie et al., 2019), we examined whether daily intentions moderated the effect of drinking on next day negative outcomes.

### Drinking Intentions and Drinking Behavior

The Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Theory of Planned Behavior (Ajzen, 1991) postulate that an individual's behavior is most immediately and directly predicted by their intention to perform that behavior. Much research supports these models across a variety of health behaviors including alcohol consumption. Indeed, a meta-analysis supports drinking intentions as a predictor of alcohol consumption and suggests that intentions may be a viable target in interventions designs to reduce alcohol consumption (Cooke et al., 2016).

Most studies examining the link between drinking intentions and behavior have either measured both variables simultaneously (Glassman et al., 2010) or prospectively measured behavior in a single follow-up assessment (DiBello et al., 2020; Elliott & Ainsworth, 2012; Norman, 2011; Norman et al., 2012). Drinking behavior has commonly been operationalized as frequency over the designated time period, e.g., the past week (Norman et al., 2012), past two weeks (Elliott & Ainsworth, 2012), or past month (DiBello et al., 2020; Norman, 2011). While informative, this approach may underestimate intention-behavior associations given evidence suggesting that intentions better predict health behaviors separated by shorter temporal lags (McEachan et al., 2011). For example, Zimmermann and Sieverding (2010) found that drinking intentions at the start of a weekend predicted the amount of alcohol consumed during the weekend (reported early the next week). Similarly, French and Cooke

(2012) found that drinking intentions measured upon entry into a student bar predicted the number of drinks participants reported consuming by the end of the evening. Griffin and colleagues (2021) also found in an ecological momentary assessment study that going to a bar and spending more time with people was related to greater odds of unintentional alcohol consumption but not the amount consumed. In line with these studies, the current research measured intentions proximal to alcohol consumption by assessing daily intentions to consume alcohol that evening.

In addition to proximity of measurement, another issue concerns the potential for intentions to change within-person. Using a weekly ecological momentary assessment design, Conroy and colleagues (2011) established that an individual's health behavior intentions varied over time and that this variability was related to behavioral outcomes. The current study therefore used a daily diary methodology to examine within-person associations between daily drinking intentions and evening alcohol consumption. Showing that drinking behavior is more likely on occasions when intentions to drink are relatively higher than usual thus helps rule out between-person confounding variables that might account for this association.

## Moderators of the Intention-Behavior Association

Despite evidence suggesting that drinking intentions predict alcohol consumption, there remains a sizeable intention-behavior gap (Sheeran & Webb, 2016) and many individuals report exceeding their drinking intentions particularly when drinking began early in the evening and occurred with a larger group (Labhart et al., 2017). This raises the possibility that this association between drinking intentions and actual alcohol consumption might vary as a function of individual differences and contextual factors. One factor thought to play a key role in moderating the intention-behavior link is past drinking behavior. A meta-analysis found that past behavior was a stronger predictor of future behavior for risky activities (including alcohol consumption) than for other activities (e.g., dieting; McEachan et al., 2011). However, findings testing past behavior as a moderator of the intention-behavior link have been inconsistent (see Gardner et al., 2020). Although some studies have failed to find a moderating effect (Marks Woolfson & Maguire, 2010; Norman, 2011), other studies have found that intentions to binge drink predict binge drinking behavior only when past binge drinking behavior is low – moderate (Norman & Conner, 2006) or more automatic (Gardner et al., 2012). However, comparison across studies is difficult given the disparate designs and methods employed. The current study extended this research by examining past drinking behavior as a moderator of the proximal within-person intention-behavior link.

Less than robust effects found in studies of the drinking intention-behavior association might also be due to the dynamic nature of the factors that play a role in activating or diminishing intentions. For example, intentions assessed earlier in the day might not reflect influences that occur later in the day. Indeed, college student drinking has been commonly found to be highly linked to contextual factors such as the social environment (i.e., the number of people an individual is interacting with and the alcohol consumption of those people) in which the potential behavior is situated. The social environment has been identified as an important contributor to risky drinking behavior among college students (Wilkinson & Ivsins, 2017) and research has found that being with heavier-drinking peers is associated with students'

own alcohol consumption (Hamilton et al., 2021). Therefore, the current study examined the social environment of the drinking occasion as a daily moderator of the intention-behavior association.

## Intentionality and Drinking-related Outcomes

Finally, the current study examined how drinking intentions influence the outcomes of drinking episodes. Pearson and Henson (2013) introduced the Model of Unplanned Drinking Behavior (MUDB), in which impulsivity-like traits are theorized to predict alcohol-related consequences via unplanned drinking. Specifically, they suggested that planning and impulse control (i.e., selecting a designated driver, drinking responsibly) are required to minimize the negative consequences of alcohol consumption. Supporting this theory, Pearson and Henson (2013) found that students with higher scores on a measure of unplanned drinking reported having experienced more alcohol-related problems (i.e., neglecting responsibilities, passing out from drinking) over the past 90 days controlling for frequency of alcohol use. They also found that unplanned drinking partially mediated the association between trait negative urgency and alcohol-related consequences, suggesting that intentionality is a more proximal predictor of drinking outcomes than trait factors such as impulsivity. Although informative, these between-person findings do not inform us about the within-person question of whether drinking on occasions characterized by intentions that are relatively lower than one's usual level results in more negative consequences.

Only a few studies have examined how within-person differences in the intentionality of drinking was related to proximal negative outcomes. For example, Fairlie and colleagues (2019) used a daily measurement burst design and found that unintentional heavy drinking days were associated with more negative drinking consequences. However, unintentional heavy drinking days were contrasted with a combination of all non-heavy drinking and intentional heavy drinking, thus making it difficult to tease apart the effects of intentionality and drinking quantity. The same issue arises in interpreting Lauher and colleagues' (2020) finding that students reported fewer alcohol-related consequences following drinking events that were unplanned compared to those that were planned. Specifically, the relative risk of planned drinking may have occurred because students reported greater consumption on days when they planned to consume alcohol, as this effect was no longer significant when controlling for number of drinks. The current study addressed this issue by testing intentionality as a moderator of the association between evening alcohol consumption and next day outcomes. This allowed us to disentangle the additive and multiplicative effects of drinking level and intentionality in evaluating their effects on drinking-related negative consequences.

In the present study, we examined two commonly reported negative outcomes from drinking: regrets and stress. Research shows regrets are a common outcome of alcohol use (Crawford et al., 2021; Jones et al., 2020) and that regretting behavior that occurred during a drinking occasion is more common among college students than non-attending peers and following binge drinking (versus non-binge drinking; Patrick et al., 2020). In addition, although there is less evidence directly connecting alcohol consumption to stress, widely used drinking-related problems scales (e.g., Kahler et al., 2005) commonly include stressors

such as interpersonal conflict or behaviors that might foster stress such as neglecting academic/occupation responsibilities or engaging in reckless behavior.

## Current Research

The current study used daily diary methodology to test potential moderators of the within-person association between daily drinking intentions and evening alcohol consumption and to examine drinking intentions as a moderator of the within-person association between evening alcohol consumption and next-day negative consequences in two samples of undergraduate students (who typically consume greater quantities of alcohol than non-college attending peers and are at greater risk of alcohol-related problems; Carter et al., 2010). In both samples, we examined previous frequency of alcohol consumption and daily drinking context as potential moderators of the link between daily alcohol consumption intentions assessed mid-day and drinking behavior later that evening reported the following day. We predicted that both more frequent past drinking behavior and being in a high social drinking context would weaken the intention-behavior association. This would be consistent with the notion that drinking behavior may at times occur without conscious intentions. Additionally, we predicted that higher drinking intentions would weaken the association between drinking and stress (Samples 1 and 2) and odds of regretting something that occurred during the drinking episode (Sample 2).<sup>1</sup>

## Method

### Participants

Participants for both samples were initially recruited as undergraduate students. Sample 1 is comprised of data from 1641 individuals (out of an initial 1848) who completed at least 15 of 30 daily surveys. Participants completed an average of 26.30 daily surveys ( $SD = 3.86$ ) out of a possible 30 daily surveys. Participants were an average of 19.23 years old ( $SD = 1.41$ ). About half were women (54%) and most were White (80%).

Sample 2 is comprised of data from 540 individuals (out of an initial 575) who completed at least 15 of 30 daily surveys in at least one of four consecutive years of data collection. Out of the four annual waves of data collection, each participant contributed an average of 3.22 waves of data ( $SD = 1.06$ ; total number of waves = 1739) containing an average of 25.21 daily surveys per wave ( $SD = 4.06$ ) out of 30 possible. Participants were an average of 20.00 years old ( $SD = 1.12$ ). About half were women (52%), most were White (87%), and participants were still in college during most Waves (92%).

### Procedure

All procedures were approved by the institutional review board of a large northeastern university. Sample 1 consisted of a 30-day daily diary survey. Sample 2 used a four-wave micro-longitudinal burst methodology in which undergraduate students were recruited to participate in four annual 30-day diary surveys. Undergraduate students were recruited via the psychology participant pool and campus-wide emails. During each data collection

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<sup>1</sup>Hypotheses and analyses were preregistered at: [https://osf.io/w67dj/?view\\_only=4d39a3fc2ff34b61bf98eb542d34b21b](https://osf.io/w67dj/?view_only=4d39a3fc2ff34b61bf98eb542d34b21b)

burst, participants provided informed consent, completed an initial online survey with demographic and background measures, and completed an online daily diary survey about their daily experiences and alcohol consumption each day for 30 days. Specifically, participants were asked to indicate how much alcohol they consumed the previous night, answer questions about the social context they were in the previous night and indicate if there was a reason why they had not consumed alcohol. They also reported whether they had done something the previous evening that they regretted (Sample 2 only), the overall amount of stress they had experienced that day, and their intentions to drink alcohol in the evening after completing that day's survey. The online survey was available between 2:30pm and 7:00pm (time window selected to coincide with undergraduate students' naturally occurring end of school day before typical evening activities begin). In Sample 1, we analyzed data from 43,166 daily surveys. In Sample 2, we analyzed data from 43,837 daily surveys.

## Background Measures

**Previous Alcohol Consumption**—In Sample 1, participants reported on how many days they had consumed a drink of alcohol in the past 30 days (0–30). In Sample 2, participants reported their number of drinking occasions in the past 30 days on a 7-point scale (0 = none, 1 = 1 to 2, 2 = 3 to 5, 3 = 6 to 9, 4 = 10 to 19, 5 = 20 to 39, 6 = 40 or more; Wechsler et al., 1994).

## Daily Measures

**Evening Alcohol Consumption**—Participants were provided information on the definition of a standard drink and then indicated how many alcoholic beverages they had consumed the previous evening (more than 15 drinks was coded as 16). In Sample 1, participants indicated number of drinks consumed alone and number consumed with others; these two counts were added to calculate total number of drinks consumed.

**Social Environment**—Participants indicated how many people they were with the previous night (0–10 or greater than 10, coded as 11) and how many drinks those people had on average (0–15 or more than 15, coded as 16). Participants who indicated that they were not with other people were coded as 0 for number of drinks consumed by others.

**Stress**—Participants rated that day's overall stressfulness on a 7-point scale (1 = *not at all stressful*, 7 = *extremely stressful*). Single item measures of stress are preferred for daily diary surveys and research finds they are as reliable as longer measures (Littman et al., 2006).

**Regret**—In Sample 2, participants indicated whether they did something the previous night that they regret (0 = *no*, 1 = *yes*).

**Drinking Intentions**—Participants indicated whether they intended to drink alcohol that evening on an 8-point scale (0 = *not at all*; 7 = *definitely*). This is similar to French and Cooke's (2012) 1-item intentions to binge drink measure.

## Analysis Plan

Because multiple daily observations were obtained from the same individuals, we conducted generalized estimating equations (GEE) using SPSS to handle the non-independence of data. Because we predicted evening drinking (reported the next day) from daily drinking intentions, participants had to have consecutive days of data (i.e., a participant missing one day resulted in losing two days of data). Level 1 predictor variables were person-centered (i.e., each participant's mean across the 30 days was subtracted from daily levels), product terms were calculated from centered variables, and between-subjects means were entered allowing us to disentangle within- versus between-persons associations (Kenny et al., 1998; Nezlek, 2001). Therefore, a participant's coefficient for intentions describes the relation between changes from that person's average reported drinking intentions and the outcome variable. For count outcomes (i.e., number of drinks consumed) we specified a negative binomial error distribution and a log-link function. We also calculated exponentiated slopes ( $\exp[b]$ ), which represent the expected count (i.e., an exponentiated slope of 1 indicates no change in expected count while an exponentiated slope of 2 indicates that an individual is expected to have an outcome 2 times larger for each one unit increase in the predictor variable). For binary outcomes (i.e., did versus did not experience regret), we specified a binomial error distribution with a logit-link function. We also calculated exponentiated slopes ( $\exp[b]$ ), which represent the odds ratio (i.e., an exponentiated slope of 1 indicates no change in odds while an exponentiated slope of 2 indicates that an individual is twice as likely to report the behavior for each one unit increase in the predictor variable). All figures show the outcomes of these exponentiated slopes. Expected number of drinks are low due to the inclusion of all days in analyses including non-drinking days. Moderation analyses were conducted separately for past drinking behavior and social environment. We controlled for Wave (Sample 2 only), day of week (weekday = -1, weekend = 1), age, gender (male = -1, female = 1), race (White = 1, non-White = -1), and whether participants were current undergraduates (undergraduate = 1, not an undergraduate = -1; Sample 2 only). Significant interactions were examined using the procedures outlined by Aiken and West (1991) using  $\pm 1$  *SD* to represent high and low levels for the moderator.

## Results

Table 1 presents means, standard deviations, and correlations of between-subjects and aggregated daily variables separately for Samples 1 and 2. All drinking and social environment variables were positively correlated with one another. In Sample 1, stress was negatively correlated with number of drinks consumed and number of drinks consumed by others. In Sample 2, stress was negatively correlated with others' drinking quantity and regret was positively correlated with stress and all drinking and social environment variables.

### Number of Drinks Consumed<sup>2</sup>

As predicted, participants reported consuming more drinks on evenings when they reported higher drinking intentions (see Table 2). In addition, as predicted, results revealed a significant Past Drinking Behavior  $\times$  Intention interaction in both samples (see Table 2). In both samples, although the effect sizes are small, participants with less frequent (versus

more frequent) past drinking behavior had a stronger nonlinear association between daily drinking intentions and the expected number of drinks consumed that evening (see Table 3, Figure 1).

We found the predicted Social Environment  $\times$  Intention interaction in Sample 1 only (see Table 2). Participants in Sample 2 were more likely to consume alcohol if the people they were with were consuming greater amounts of alcohol. In Sample 1, consistent with hypotheses, participants who reported lower than average (versus higher than average) peer alcohol consumption had a stronger nonlinear association between daily drinking intentions and odds of alcohol consumption that evening, although the effect sizes are small (see Table 3, Figure 2).

### Next-day Stress

Table 4 shows the results of the model predicting next-day stress. As predicted, we found a significant Intention  $\times$  Drinking Behavior interaction in both samples. In Sample 1, consuming more drinks was associated with higher next-day stress only among individuals with high (versus low) drinking intentions (see Table 5, Figure 3). In Sample 2, greater alcohol consumption was associated with lower next-day stress only among individuals with low (versus high) drinking intentions (see Table 5, Figure 3).

### Next-day Regret

As predicted, we found a significant Intention  $\times$  Drinking Behavior interaction in Sample 2 (see Table 4). Contrary to hypotheses, the association between alcohol consumption and regret was stronger among participants who had reported higher than average (versus lower than average) drinking intentions, although the effect sizes are small (see Table 5, Figure 4).

## Discussion

Across two samples using micro-longitudinal designs, drinking intentions assessed mid-day were associated with drinking behavior that evening. This extends findings from past research in which drinking intentions predicted drinking frequency over the next several weeks (see Norman, 2011) by reducing retrospection error and allowing us to examine within-person associations.

We also examined moderators of this intention-behavior association. In both samples, our hypothesis that the intention-behavior association would be weaker among individuals with more frequent past drinking behavior was supported. This supports research in which more frequent past binge drinking behavior weakened the association between binge drinking intentions and behavior over the period of one week (Norman & Conner, 2006). These results are in line with research suggesting that drinking intentions are no longer a significant predictor of excessive drinking when self-reported drinking habits are included in the model (Cooke et al., 2021) and the notion that frequent behaviors may become less

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<sup>2</sup>We also conducted analyses predicting odds of any alcohol consumption and using did/did not drink as a predictor for next-day outcomes in place of number of drinks consumed. Results of these analyses can be found in our supplemental materials: [https://osf.io/e682h/?view\\_only=b7d197047f274fd3923a561a6768cdf7](https://osf.io/e682h/?view_only=b7d197047f274fd3923a561a6768cdf7)



intentional and more automatic over time due to habit formation (Ouellette & Wood, 1998; Sheeran et al., 2017). However, Sheeran et al. (2017) found that this is typically true only when past experience is moderate to high. For individuals with little past experience with a behavior, obtaining greater experience may lead to stronger intention-behavior associations as intentions become more stable. Further research is therefore needed to test whether the results of the current study would replicate among individuals with very little or no previous drinking behavior. In addition, as Ajzen (2002) noted, frequency of past behavior should not be taken as evidence of habituation. It may be that individuals who frequently consume alcohol are more likely to have friends who drink alcohol, find themselves in a heavy drinking environment, or be offered alcohol. Thus, the weaker intention-behavior association found among participants with more frequent past drinking behavior may not represent habituation or automaticity of drinking. Instead, it may be that individuals who frequently consume alcohol are more likely to be presented with opportunities to drink without intending, at mid-day, to seek out a drinking opportunity for that evening.

Our hypothesis that being in a heavier drinking social environment would weaken the drinking intention-behavior association was supported in Sample 1 only. In Sample 1, intentions had a stronger association with the number of drinks consumed that evening when participants reported that they were around others who were consuming lower than average amounts of alcohol. This may indicate that mid-day drinking intentions are more predictive of drinking behavior that occurs in lower alcohol consumption environments but that the social environment is a strong predictor of alcohol consumption even for individuals with low drinking intentions. However, there may be other explanations and other factors in the decision to drink alcohol that were not measured in the current study. Future research should examine whether intentions to drink motivate individuals to enter environments in which alcohol is more readily available.

Examinations of the next-day outcomes of alcohol consumption did not support our hypotheses. In Sample 1, greater alcohol consumption predicted greater next-day stress. However, this was found only for participants with high drinking intentions. Those with low drinking intentions reported consistently high stress. In Sample 2, participants with low drinking intentions reported lower next-day stress when they reported greater consumption. Due to the conflicting results between the two samples, these results should be interpreted with caution. In addition, these results are not consistent with the theory that unplanned drinking may exacerbate negative alcohol-related consequences (Pearson & Henson, 2013). Although not tested here, one explanation for these findings is that drinking intentions are influenced, in part, by knowledge of next-day obligations (i.e., individuals may have lower drinking intentions for evenings prior to exam days). This possibility is in line with research findings that specific alcohol outcome expectancies are related to both drinking intentions and consumption (Wall et al., 1998) in that students may consume alcohol primarily when they expect to experience positive (versus negative) outcomes. Students with next-day obligations may have anticipated negative outcomes of alcohol consumption and thus had lower drinking intentions. Future research could measure and control for anticipated stress or planned next-day activities and obligations to determine how intentionality moderates the association between alcohol consumption and unanticipated next-day stress. It is also important to note that alcohol consumption is not the only cause of stress among college

students. It is possible that the conflicting results found in the current study are due to the fact that many potential stressors other than drinking were not included in the current models and may have obscured the associations between alcohol consumption and next-day stress.

Finally, in analyses predicting next-day regret, the pattern of results was opposite of predictions. Specifically, participants in Sample 2 reported higher odds of experiencing regret on days following evenings with higher than average alcohol consumption. However, these associations were stronger on days when participants reported higher drinking intentions than average. Again, contrary to the theory that unplanned drinking should exacerbate alcohol-related consequences (Pearson & Henson, 2013), alcohol consumption in the current study had more negative consequences when participants indicated higher drinking intentions. One explanation for the difference between current results and previous research may be the different measure of drinking outcomes used. It should also be noted that regret was reported in relatively few of the daily surveys. This may be due in part to the fact that calculations of regret days included days following evenings in which no drinking occurred. The low prevalence rate of this outcome measure suggests that results should be interpreted with care. Analyzing daily stress and experiences of regret as the outcome does not capture all experiences of next-day outcomes, however it does have two benefits. First, by examining stress and regret, we were able to analyze all reported days including those in which no alcohol was consumed. Studies examining alcohol-specific outcomes typically assess these outcomes only on days when drinking occurs. For example, participants are typically not asked if they experienced a hangover if they did not consume any alcohol. Second, by asking participants about their experiences of stress and whether they regret something that they did, we avoid asking participants to identify the cause of their behaviors and experiences. That is, participants were not asked whether drinking caused them to experience stress the next day or if alcohol consumption was a factor in their regretted behavior. This is important, given evidence that people are often unaware of their own cognitive processes and unable to accurately report on the process through which a specific stimulus led to their response (Nisbett & Wilson, 1977).

However, the current study did have some limitations. First, it should be noted that drinking intentions were assessed in the afternoon or early evening and could have changed before the opportunity to drink arose. Thus, although the current study reduced retrospection error and bias and decreased the time in between the measurement of intentions and behavior, future researchers should consider measuring drinking intentions more proximally to drinking behavior (see Zimmermann & Sieverding, 2010). It should also be noted that effect sizes in the current study were small. Our ability to detect these effects can be attributed to the high power of the study afforded by the large sizes of both samples. However, although the effects were small, these daily effects likely accumulate over time such that even small differences in daily drinking behavior or next-day outcomes may have important implications for individuals. Greater confidence can also be placed in results that were replicated across both samples such as the pattern of moderation by past drinking behavior and associations between alcohol consumption and next-day stress.

In conclusion, the current study found evidence in two large samples that daily drinking intentions are related to evening alcohol consumption, particularly among individuals with

less frequent past drinking behavior. Further research is needed to understand the interplay between the social drinking environment and drinking intentions and the interaction between drinking intentions and behavior in predicting consequences. However, given the stronger associations between alcohol consumption next-day outcomes found here, the current findings do suggest that interventions should target drinking intentions. Future research should also continue to take advantage of research designs (such as the daily diary methodology used here) that allow for the examination of drinking intentions proximal to the drinking occasion and within-person influences of the environment in which drinking occurs.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## Data availability statement:

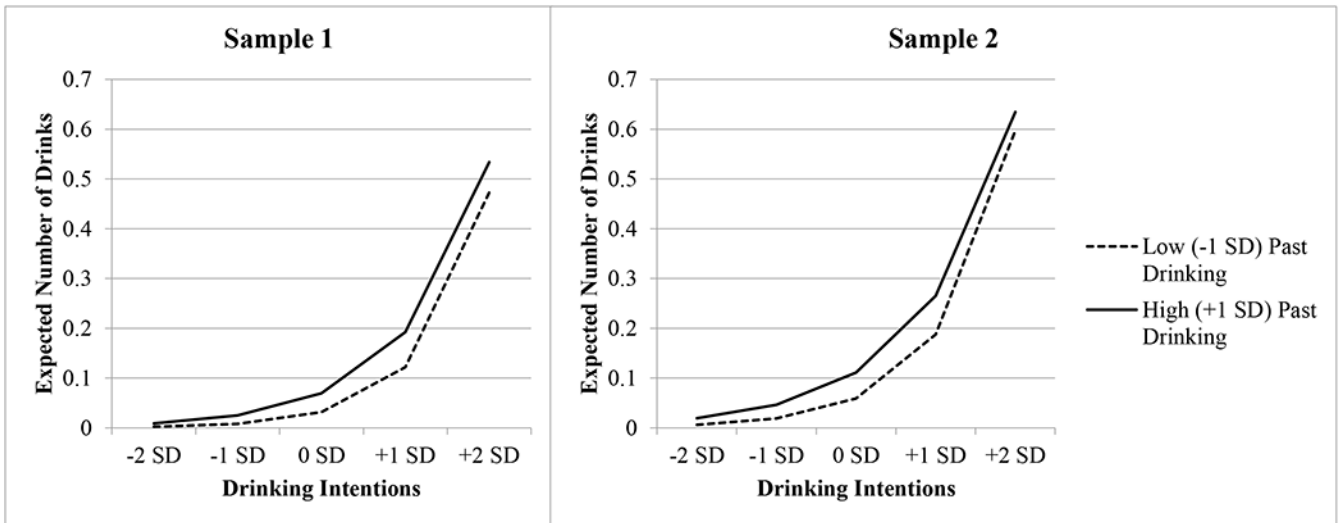
The data that support the findings of this study are available upon reasonable request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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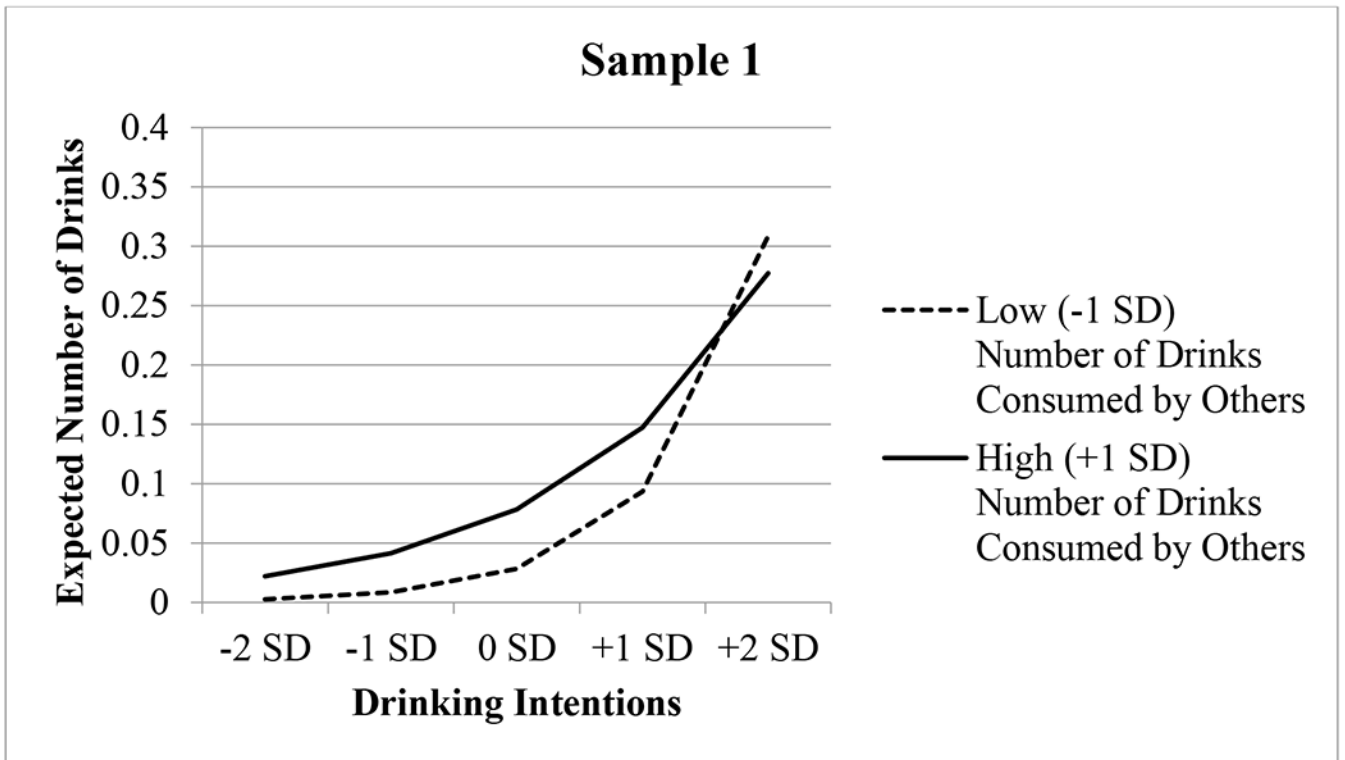
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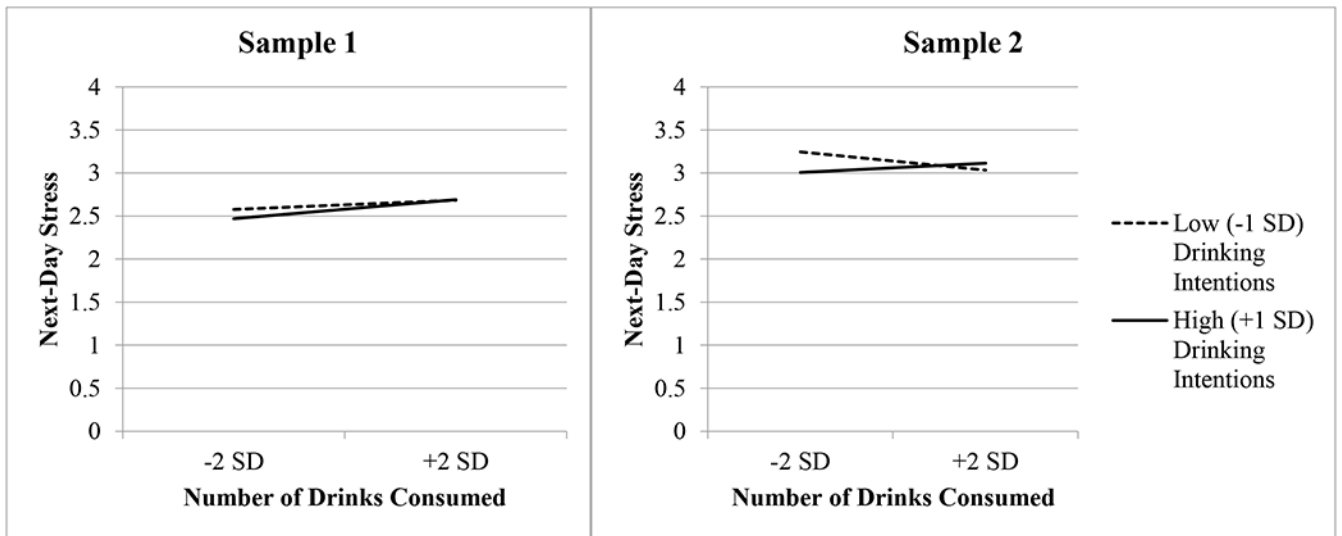
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**Figure 1.**  
Expected Number of Drinks as a Function of Drinking Intentions and Past Drinking Behavior



**Figure 2.**  
Expected Number of Drinks as a Function of Drinking Intentions and Evening Social Environment



**Figure 3.**  
Next-Day Stress as a Function of Drinking Intentions and Number of Drinks Consumed

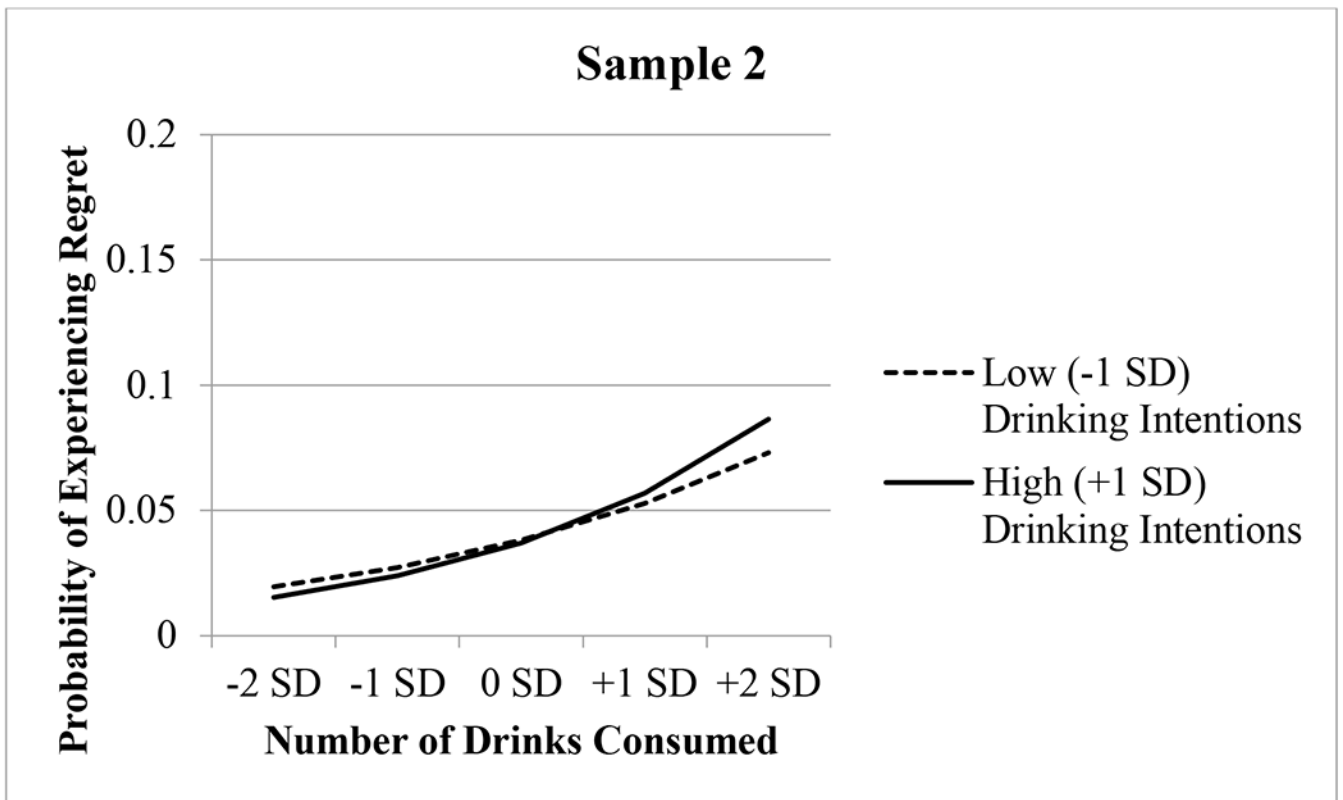
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**Figure 4.** Probability of Experiencing Regret as a Function of Drinking Intentions and Number of Drinks Consumed

**Table 1**  
Means, Standard Deviations, and Correlations of Between-Subjects and Aggregate Daily Variables

	Sample 1 <i>M</i> ( <i>SD</i> )	Sample 2 <i>M</i> ( <i>SD</i> )	1	2	3	4	5	6	7	8	9
1. Age	19.23 (1.41)	20.00 (1.12)	—	-.04	-.02	-.05	-.03	-.07	-.05	.02	.04
2. Gender	0.07	0.03	-.05*	—	.02	-.39**	-.24**	-.16**	-.28**	.20**	-.04
3. Race	0.59	0.73	-.06*	.02	—	.12**	.12**	.18**	.18**	-.02	.02
4. Number of drinks	1.11 (1.27)	1.40 (1.33)	.09**	-.29**	.17**	—	.71**	.71**	.85**	-.07	.18**
5. Drinking intentions	2.21 (0.80)	2.48 (0.85)	.17**	-.15**	.17**	.68**	—	.65**	.69**	.01	.13**
6. Number of others	4.45 (2.22)	1.59 (1.04)	-.11**	-.01	.15**	.31**	.28**	—	.89**	-.08	.15**
7. Other drinking quantity	1.44 (1.23)	1.56 (1.23)	.06	-.23**	.21**	.83**	.64**	.47**	—	-.09*	.18**
8. Stress	2.86 (0.94)	3.25 (0.84)	.000	.27**	-.08**	-.10**	-.01	-.03	-.09**	—	.15**
9. Regret		0.04									—

\*  $p < .05$ ;

\*\*  $p < .01$ .

Note. Sample 2 correlations are presented above the diagonal. In Sample 2, age refers to age at Wave 1. Gender was coded -1 = male, 1 = female. Race was coded 1 = White, -1 = non-White. Any alcohol consumption was coded 1 = yes, -1 = no. Regret was coded 0 = no, 1 = yes.

**Table 2**  
 Alcohol Consumption as a Function of Drinking Intentions, Past Drinking Behavior, and Social Environment

	Sample 1			Sample 2		
	Exp(B)	[95% CI]	p	Exp(B)	[95% CI]	p
Wave				0.97	[0.87, 1.07]	.48
Weekend	1.63	[1.38, 1.93]	<.001	1.33	[1.21, 1.45]	<.001
Age	1.03	[0.85, 1.25]	.76	1.05	[1.00, 1.11]	.06
Gender	0.79	[0.62, 1.00]	.05	0.74	[0.69, 0.79]	<.001
Race	1.49	[1.01, 2.19]	.04	1.12	[1.02, 1.23]	.02
Student status				1.09	[0.94, 1.27]	.26
Average drinking intentions	2.07	[1.66, 2.59]	<.001	2.34	[2.15, 2.54]	<.001
Daily drinking intentions	1.72	[1.59, 1.87]	<.001	1.75	[1.68, 1.83]	<.001
<i>Moderation by Past Drinking Behavior</i>						
Past drinking behavior	1.10	[1.04, 1.15]	<.001	1.37	[1.25, 1.50]	<.001
Drinking intentions × Past drinking behavior	0.98	[0.97, 0.99]	<.001	0.93	[0.91, 0.95]	<.001
<i>Moderation by Social Environment</i>						
Average number of others	0.94	[0.93, 0.95]	<.001	1.00	[0.91, 1.10]	1.00
Average number of drinks consumed by others	1.35	[1.31, 1.39]	<.001	1.17	[1.04, 1.33]	.01
Number of others	1.06	[1.06, 1.07]	<.001	1.08	[1.06, 1.09]	<.001
Number of drinks consumed by others	1.49	[1.47, 1.51]	<.001	1.26	[1.12, 1.42]	<.001
Drinking intentions × Number of drinks consumed by others	0.94	[0.94, 0.95]	<.001	0.98	[0.95, 1.00]	.09

Note. Moderation analyses were conducted in separate models. Weekend was coded -1 = weekday, 1 = weekend. Gender was coded -1 = male, 1 = female. Race was coded 1 = White, -1 = non-White. Student status was coded 1 = undergraduate student, -1 = not an undergraduate.

**Table 3**  
Alcohol Consumption as a Function of Drinking Intentions at High and Low Levels of Past Drinking Behavior and Social Environment

	Sample 1		Sample 2	
	Exp(B) [95% CI]	p	Exp(B) [95% CI]	p
<i>Moderation by Past Drinking Behavior</i>				
High past drinking behavior (+1 SD)	1.78 [1.66, 1.90]	<.001	1.63 [1.60, 1.67]	<.001
Low past drinking behavior (-1 SD)	2.15 [1.95, 2.38]	<.001	1.91 [1.85, 1.97]	<.001
<i>Moderation by Social Environment</i>				
High number of drinks consumed by others (+1 SD)	1.44 [1.42, 1.46]	<.001		
Low number of drinks consumed by others (-1 SD)	1.97 [1.92, 2.02]	<.001		

**Table 4**  
Next-day Experiences as a Function of Evening Drinking Behavior and Drinking Intentions

	Sample 1		Sample 2	
	<i>B</i> [95% CI]	<i>p</i>	<i>B</i> [95% CI]	<i>p</i>
<b>Stress</b>				
Wave			-0.03 [-0.09, 0.03]	.32
Weekend	-0.22 [-0.24, -0.20]	<.001	-0.17 [-0.19, -0.15]	<.001
Age	-0.004 [-0.04, 0.03]	.82	0.03 [-0.02, 0.08]	.20
Gender	0.24 [0.19, 0.28]	<.001	0.20 [0.15, 0.24]	<.001
Race	-0.10 [-0.16, -0.04]	.002	-0.07 [-0.13, 0.003]	.06
Student status			0.08 [-0.02, 0.18]	.12
Average drinking intentions	0.10 [0.02, 0.18]	0.01	0.06 [-0.002, 0.12]	.06
Average drinking behavior	-0.05 [-0.10, -0.09]	.10	-0.04 [-0.09, 0.01]	.09
Daily drinking intentions	-0.10 [-0.11, 0.03]	<.001	-0.10 [-0.11, -0.09]	<.001
Daily drinking behavior	0.01 [0.001, 0.02]	.03	-0.01 [-0.02, 0.003]	.16
Drinking intentions × Daily drinking behavior	0.004 [0.00, 0.01]	.05	0.01 [0.004, 0.01]	<.001
<b>Regret</b>			<b>Exp(<i>B</i>) [95% CI]</b>	<b><i>p</i></b>
Wave			0.85 [0.76, 0.96]	.01
Weekend			0.92 [0.86, 0.99]	.03
Age			1.09 [1.00, 1.18]	.04
Gender			1.11 [1.00, 1.24]	.06
Race			0.96 [0.82, 1.12]	.58
Student status			1.05 [0.86, 1.28]	.64
Average drinking intentions			1.02 [0.88, 1.19]	.77
Average drinking behavior			1.15 [1.04, 1.28]	.01
Daily drinking intentions			0.98 [0.93, 1.02]	.29
Daily drinking behavior			1.15 [1.12, 1.19]	<.001
Drinking intentions × Daily drinking behavior			1.01 [1.00, 1.02]	.03

*Note.* Drinking behavior was coded -1 = did not drink, 1 = did drink. Weekend was coded -1 = weekday, 1 = weekend. Gender was coded -1 = male, 1 = female. Race was coded 1 = White, -1 = non-White. Student status was coded 1 = undergraduate student, -1 = not an undergraduate.

Next-day Experiences as a Function of Evening Drinking Behavior at High and Low Levels of Drinking Intentions

**Table 5**

	Sample 1		Sample 2		<i>p</i>
	<i>B</i> [95% CI]	<i>p</i>	<i>B</i> [95% CI]	<i>p</i>	
<b>Stress</b>					
High drinking intentions (+1 <i>SD</i> )	0.02 [0.01, 0.03]	<.001	0.01 [-0.001, 0.01]	.10	
Low drinking intentions (-1 <i>SD</i> )	0.01 [-0.01, 0.03]	.42	-0.02 [-0.04, -0.01]	.01	
<b>Regret</b>					
High drinking intentions (+1 <i>SD</i> )			<b>Exp(<i>B</i>) [95% CI]</b>	<b><i>p</i></b>	
Low drinking intentions (-1 <i>SD</i> )			1.18 [1.15, 1.21]	<.001	
			1.14 [1.09, 1.02]	<.001	