

# Decisions to Attend and Drink at Party Events: The Effects of Incentives and Disincentives and Lifetime Alcohol and Antisocial Problems

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**Background:** Alcohol use disorders are associated with patterns of impulsive/risky decision making on behavioral economic decision tasks, but little is known about the factors affecting drinking-related decisions.

**Methods:** The effects of incentives and disincentives to attend and drink at hypothetical alcohol-related party events as a function of lifetime (LT) alcohol and antisocial problems were examined in a sample of 434 young adults who varied widely in LT alcohol and antisocial problems.

**Results:** Moderate and high disincentives substantially discouraged decisions to attend the party events and were associated with decisions to drink less at the party events. High versus low party incentives were associated with more attendance decisions. LT antisocial problems were associated with being less deterred from attending by moderate and high disincentives. LT alcohol problems were associated with greater attendance at high party incentive contexts. LT alcohol problems were associated with drinking more at the majority of events; however, the results indicate that young adults with high levels of alcohol problems moderate their drinking in response to moderate and high disincentives. Finally, attendance and drinking decisions on this hypothetical task were significantly related to actual drinking practices.

**Conclusions:** The results suggest that antisocial symptoms are associated with a reduced sensitivity to the potential negative consequences of drinking, while alcohol problems are associated with a greater sensitivity to the rewarding aspects of partying. The results also underline the value of directly assessing drinking-related decisions in different hypothetical contexts as well as assessing decisions about attendance at risky drinking events in addition to drinking amount decisions.

**Key Words:** Decision-Making, Drinking, Alcohol Problems, Antisocial Problems.

**S**TUDIES OF DECISION making in those with alcohol use disorders (AUDs) or other substance use disorders (SUDs) typically use behavioral economic decision tasks that employ monetary rewards or losses to characterize individual differences in decision-making biases that presumably underlie their risky and impulsive decisions regarding alcohol and other substance use (Bechara et al., 2001; Bobova et al., 2009). These studies suggest that AUDs/SUDs show a bias toward greater discounting of future rewards (e.g., Bobova et al., 2009; Finn et al., 2015; Mitchell, 2011; Petry, 2001) and a relative insensitivity to the negative consequences of decisions (Bechara et al., 2001; Brevers et al., 2014; Cantrell et al., 2008; Endres et al., 2015; Mazas et al., 2000). Studies

also indicate that comorbid antisocial psychopathology amplifies the association between AUDs and discounting of delayed rewards (Bobova et al., 2009; Petry, 2002), as well as increased insensitivity to negative consequences of decisions (Dom et al., 2006; Finn et al., 2002; Mazas et al., 2000). Some evidence suggests that subpopulations of SUDs show greater sensitivity to reward incentives on decision tasks (Ahn et al., 2014; Bechara et al., 2002; Rossiter et al., 2012), but this effect has been observed less consistently.

Although the biases observed on these tasks make sense in terms of the risky and impulsive qualities of the drinking behaviors characteristic of those with AUDs (Finn, 2002), their ecological validity for modeling the processes underlying actual drinking decisions is questionable. For instance, these tasks use monetary incentives and disincentives that may not generalize well to the types of incentives and disincentives that are likely to affect decisions about drinking (Bogg and Finn, 2009). The cue-reactivity literature also indicates that while alcohol cues elicit craving and activation of reward-related brain areas, nonalcohol/drug reward cues do not (Arcurio et al., 2015; Schacht et al., 2012), which raises further questions about the validity of monetary incentives and disincentives as proxies for alcohol-related rewards and negative consequences. Also, economic decision tasks do not

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include the relevant social context for drinking incentives and disincentives, which have a major influence on alcohol consumption in emerging adults (Clapp et al., 2000; Wall et al., 2000). Finally, a problem with many behavior economic decision tasks is that they often do not fully cross incentives with disincentives, such as the Iowa Gambling Task (Cantrell et al., 2008), or focus primarily on reward incentives, such as delay discounting tasks, making it difficult to disentangle the respective effects of incentives and disincentives.

Despite these important considerations, it remains difficult to study actual decisions about drinking because they occur in specific social and incentive contexts that are not amenable to in vivo study. For example, contextual information specific to a drinking event is not easily measured or replicated in a laboratory setting. We propose that 1 way to address this problem is to study decisions about attending and drinking in hypothetical drinking social contexts that vary in incentive and disincentive levels (Bogg and Finn, 2009). In Bogg and Finn (2009), we varied incentive level in terms of the salience of alcohol and party fun, while disincentives represented variations in the degree of next-day responsibilities associated with potential negative consequences should a person attend and drink at the event. A similar approach has also been used very effectively in studies of sexual decision making (e.g., George et al., 2009; Purdie et al., 2011). Bogg and Finn (2009) found that the attendance and drinking decisions of young adults with alcohol dependence (AD) were moderated by disincentives, but not incentives. Those with AD attended less and drank less in contexts with high disincentives. However, as expected, overall, they drank more regardless of context. Bogg and Finn (2009) provided the novel insight suggesting that young adults with AD regulate their drinking decisions to some degree in response to disincentives; however, Bogg and Finn (2009) did not investigate the influence of antisocial problems, which co-occur at high rates in those with alcohol problems.

This study extends Bogg and Finn (2009) by examining individual differences in decision making in response to incentives and disincentives as a function of both lifetime (LT) alcohol and antisocial behavior problems using a dimensional, rather than a categorical characterization of alcohol and antisocial problems. The decision task has been refined to ensure better control of scenario information (audio and visual) and allows for a direct assessment of how decisions to attend and drink are influenced by variations in incentive and disincentive level. The study tested the hypotheses that a higher incentive level would be associated with more attendance and drinking, while higher disincentive level would be associated with less attendance and drinking. We also hypothesized that LT antisocial problems would be associated with being less deterred by disincentives consistent with studies that suggest a reduced sensitivity to aversive outcomes in antisocial individuals on behavioral economic decision tasks (Dom et al., 2006; Finn et al., 2002; Mazas et al., 2000). Finally, we also hypothesized that those with high LT

alcohol problems would: (i) be more responsive to the party incentive levels (more reward sensitive) on attendance and consumption decisions, and, (ii) drink more in all party contexts, but would show evidence that their drinking is moderated by disincentive level. In addition, we assessed the external validity of our decision task by examining how well typical drinking habits predict drinking task decisions.

Finally, this study also included a between-subjects working memory load condition, where 387 subjects did the task under a working memory load, but we do not report on these results because including this part and its rationale significantly increases the complexity of the study. Another paper will report the results of load–no load comparisons.

## MATERIALS AND METHODS

### *Participants*

*Recruitment.* Participants were recruited using advertisements placed around the community. This approach has been effective in attracting responses from individuals who vary widely in terms of alcohol and antisocial problems and disinhibited traits (Finn et al., 2002, 2015). The range of ads/flyers targeted “daring, rebellious, defiant individuals,” “carefree, adventurous individuals who have led exciting and impulsive lives,” “impulsive individuals,” “heavy drinkers wanted for psychological research,” persons with a “drinking problem,” persons who “got into a lot of trouble as a child,” persons “interested in psychological research,” “quiet, reflective and introspective persons,” and “social drinkers.”

*Inclusion Criteria.* To participate, individuals had to be 18 to 30 years old, able to read and speak English, have completed at least 6th grade, have consumed alcohol on at least 1 occasion, and have no history of major head trauma, cognitive impairments, or severe psychological problems. In addition, as in Finn colleagues (2015), the sample was recruited to represent a range of LT alcohol and antisocial problems such that 25% had relatively low LT alcohol and antisocial problems (no diagnosable SUD or childhood conduct disorder, and no current binge drinking), 50% with moderate levels of alcohol and antisocial problems (mild-to-moderate AUDs), and 25% with very high levels of alcohol and antisocial problems (severe AUDs and high levels of antisocial behavior). In recruiting the current sample of 434 participants, 531 persons were screened, and 97 were excluded. On the day of testing, all participants had to have a breath alcohol level of 0.0%, at least 6 hours of sleep the night before, eaten within the last 3 hours, and not taken any recreational drugs in the past 12 hours.

*Sample Characteristics.* Participants ( $n = 434$ ; 240 men, 194 women) were primarily college students (81.8%) with a mean age of 21.3 years ( $SD = 2.5$ ) and mostly Caucasian (78.0%). The remaining participants described themselves as African American (7%), Asian (6.0%), Hispanic (5%), Native American (0.8%), or other (2.3%). Table 1 displays the sample characteristics including LT DSM-IV diagnostic status for alcohol abuse, AD, child conduct disorder, antisocial personality disorder, marijuana abuse/dependence, and other drug abuse and dependence. DSM-IV diagnostic status and LT problem counts for alcohol and antisocial behavior (i.e., childhood conduct disorder and adult antisocial personality) were assessed with the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA; Bucholz et al., 1994). LT problem counts were determined by summing the total number of positive responses to SSAGA interview questions in the section on alcohol diagnoses (LT problems with alcohol) and the sections on childhood conduct

**Table 1.** Sample Characteristics

	Men	Women
Sample characteristics		
<i>N</i>	240	194
Age	21.6 (2.7)	21.0 (2.4)
Years education	14.0 (1.7)	14.2 (1.7)
LT alcohol problems	18.3 (15.1)	15.6 (12.7)
LT antisocial problems	16.8 (12.7)	12.0 (10.9)
LT marijuana problems		
Drinking habits		
Two-week drinking		
Occasions per week	2.25 (1.62)	1.99 (1.51)
Amount per occasion	6.31 (4.62)	4.85 (3.98)
Three-month drinking		
Occasions per week	2.65 (1.75)	2.58 (1.66)
Amount per occasion	6.34 (5.07)	5.07 (3.68)
Diagnostic status, % ( <i>n</i> )		
LT alcohol abuse (no dependence)	28 (68)	23 (44)
LT alcohol dependence	40 (97)	42 (82)
No LT alcohol use disorder	31 (75)	35 (68)
LT childhood conduct disorder	27 (65)	20 (38)
Antisocial personality disorder	14 (33)	9 (18)
LT marijuana abuse	39 (94)	20 (39)
LT marijuana dependence	17 (42)	13 (26)
LT other drug abuse	19 (46)	11 (21)
LT other drug dependence	6.6 (16)	3.6 (7)

LT, lifetime.

disorder and antisocial personality disorder (LT problems with antisocial behavior).

### Procedures

Participants were part of a larger, multisession, multiprotocol study of the role of working memory in decision making in those who varied widely in alcohol problems and comorbid externalizing symptoms (Finn et al., 2015). After completing a range of diagnostic and other individual difference measures, participants were administered the drinking decision task.

### Assessments

**Current Drinking.** Measures of current drinking levels used in the analyses were the mean frequency of drinking occasions (per week) and mean quantity consumed per occasion over the past 2 weeks. These measures were assessed for each day in the past 2 weeks using a timeline follow-back procedure.

**Drinking Decision Task.** Participants were presented with 6 different hypothetical drinking context scenarios (2 levels of incentives crossed with 3 levels of disincentives in a repeated-measures design) that described upcoming drinking events on a computer screen (sentence by sentence) with a simultaneous prerecorded narration of the text presented on the screen. After each scenario, participants decided whether they would attend the event and, if they would attend, they decided how much they would drink. Incentives were presented as “party” incentives that vary as a function of the presence/availability of alcohol and party fun. Disincentives were presented in terms of variations in next-day responsibility disincentives. Disincentives varied by participant role (student, homemaker, nonstudent unemployed, or nonstudent employed). The student role scenarios are outlined below. The scenarios are identical for all roles except for the disincentives. Section 1 of the Supplemental Materials includes the disincentives for the other roles.

The scenarios were organized first with an invitation to attend the event (“It’s Thursday and a friend calls and tells you that there

is a get-together or party going on right now.”). Then, information was provided about the participant’s current context in terms of what responsibilities, if any, occur the next morning (see below). The scenario finishes with information about alcohol-related incentives to attend.

### Student Role Scenarios (Postinvitation)

#### Disincentives.

**High:** You have a test the first thing in the morning after the get-together. You will have to wake up around 7:30 AM to start the day. You need to get a good grade in your class, which you must attend tomorrow, otherwise you will not get into an academic program you want, or you may not get off academic probation.

**Moderate:** You have a test the first thing in the morning after the get-together. You will have to wake up around 7:30 AM to start the day. However, you can drop one of the tests in that course and you could drop this test.

**Low:** You do not really have anything to do during the day after the get-together. You can sleep in and don’t have any major responsibilities early in the day. You are doing well in school and are not worried about your grades.

#### Party Incentives.

**High:** The get together is sure to be fun. It will be a major party event. There will be people there who you really like and other party activities that you really enjoy. There will be lots of alcohol and you do not have to pay anything for your drinks.

**Low:** There will be a few people there, some of whom you know. There will be enough alcohol, so that you can drink what you’d like, but there’s a possibility it will run out eventually.

### Data Analyses

**Predictors of decisions to attend a party event** were analyzed with a repeated-measures logistic regression model (SPSS generalized linear model—binomial distribution and logit link function; IBM Corporation, Armonk, NY). The model was a Sex by Incentive Level by Disincentive Level by LT Alcohol Problems by LT Antisocial Problems. LT marijuana problems and LT other drug problems were included as main effect covariates to control for the impact of other drug problems on drinking-related choices. Incentive level and disincentive level were repeated measures and LT alcohol and antisocial problems were treated as covariates crossed with each factor. Because alcohol problems were highly correlated with antisocial problems ( $r = 0.65$ ), interactions involving both variables were not included in the model.

**Predictors of drinking amount decisions** for those who decided to attend a party event were analyzed using multiple regressions for each specific scenario including only those participants who indicated that they would attend a particular party event. The model was LT alcohol problems, LT antisocial problems and sex, and their interactions predicting the amount (number of drinks) the participant decided to drink. LT marijuana and other drug problems were main effect covariates in each model. Bonferroni corrections were used to test significant effects in each analysis (corrected  $p$ -value = 0.008).

**Does drinking behavior predict drinking task decisions?** We hypothesized that decisions to attend party events would be associated with self-reported frequency of drinking, and the amount the participant decided to drink at the event would be associated with self-reported typical quantity of alcohol consumed per



occasion. Logistic regression (Sex by Incentive Level by Disincentive Level by past 2-week frequency of drinking) was used to assess the degree to which attendance decisions were associated with typical self-reported frequency of drinking. Regression analyses for each party scenario were conducted to examine the degree to which average quantity of alcohol consumed per drinking occasion over the past 2 weeks predicted drinking amount decisions. Bonferroni corrections were also employed (corrected  $p$ -value = 0.008).

## RESULTS

### Decisions to Attend the Party Event

*The Effects of Incentives, Disincentives, and LT Alcohol Problems.* Table 2 lists the proportion of participants who said they would attend the different scenarios and the mean LT alcohol and antisocial problems for those who attended. The repeated-measures logistic regression revealed significant main effects (reported as Wald  $\chi^2$  statistics) of Incentive level,  $\chi^2(1) = 21.1, p = 0.000$ , Disincentive level,  $\chi^2(2) = 234.7, p = 0.000$ , and LT alcohol problems,  $\chi^2(1) = 8.2, p = 0.004$ . Attendance decisions were highest in the high party incentive level (59%) compared with low party incentive level (49%). Attendance decisions were the lowest in the high disincentive level (17%) followed by moderate disincentive level (47%) and low disincentive level (97%). LT alcohol problems were associated with higher overall attendance. There were no significant main effects of sex or interactions involving sex.

*LT Antisocial and Alcohol Problems and the Effects of Incentive Context.* The analysis also revealed a significant interaction between LT antisocial problems and disincentive level,  $\chi^2(2) = 15.2, p = 0.001$ , and between LT alcohol problems and incentive level,  $\chi^2(1) = 4.6, p = 0.036$ . Those with higher LT antisocial problems were less deterred from attending (i.e., had higher attendance rates) by both the moderate,  $\chi^2(1) = 20.8, p = 0.000$  and high disincentive levels,  $\chi^2(1) = 27.5, p = 0.000$ . There was no significant effect of LT antisocial problems in the low disincentive scenarios,  $\chi^2(1) = 2.4, p = 0.12$ . Figure 1A displays these results.

**Table 2.** Percent Deciding to Attend and Mean LT Alcohol and Antisocial Problems by Incentive Context Level

	Low incentive level	High incentive level
Low Disincentive Level	95.6%	98.4%
Mean LT Alcohol Problems	17.0 ± 13.9	17.2 ± 14.2
Mean LT Antisocial Problems	14.5 ± 12.0	14.6 ± 11.9
Moderate Disincentive Level	38.5%	56.2%
Mean LT Alcohol Problems	20.4 ± 15.1	20.3 ± 14.7
Mean LT Antisocial Problems	17.7 ± 12.8	16.8 ± 12.4
High Disincentive Level	12.0%	22.1%
Mean LT Alcohol Problems	23.8 ± 16.6	22.4 ± 16.1
Mean LT Antisocial Problems	22.3 ± 14.2	20.6 ± 13.4

LT Alcohol Problems = lifetime alcohol problems.  
 LT Antisocial Problems = lifetime antisocial problems.

The interaction between LT alcohol problems and incentive level indicated that those with high LT alcohol problems had greater attendance rates in the high party incentive scenarios,  $\chi^2(1) = 8.6, p = 0.003$ , but not the low party incentive scenarios,  $\chi^2(1) = 2.1, p = 0.147$ , suggesting that the presence of alcohol problems was associated with a greater sensitivity to the alcohol/party incentives. Figure 1B displays these results.

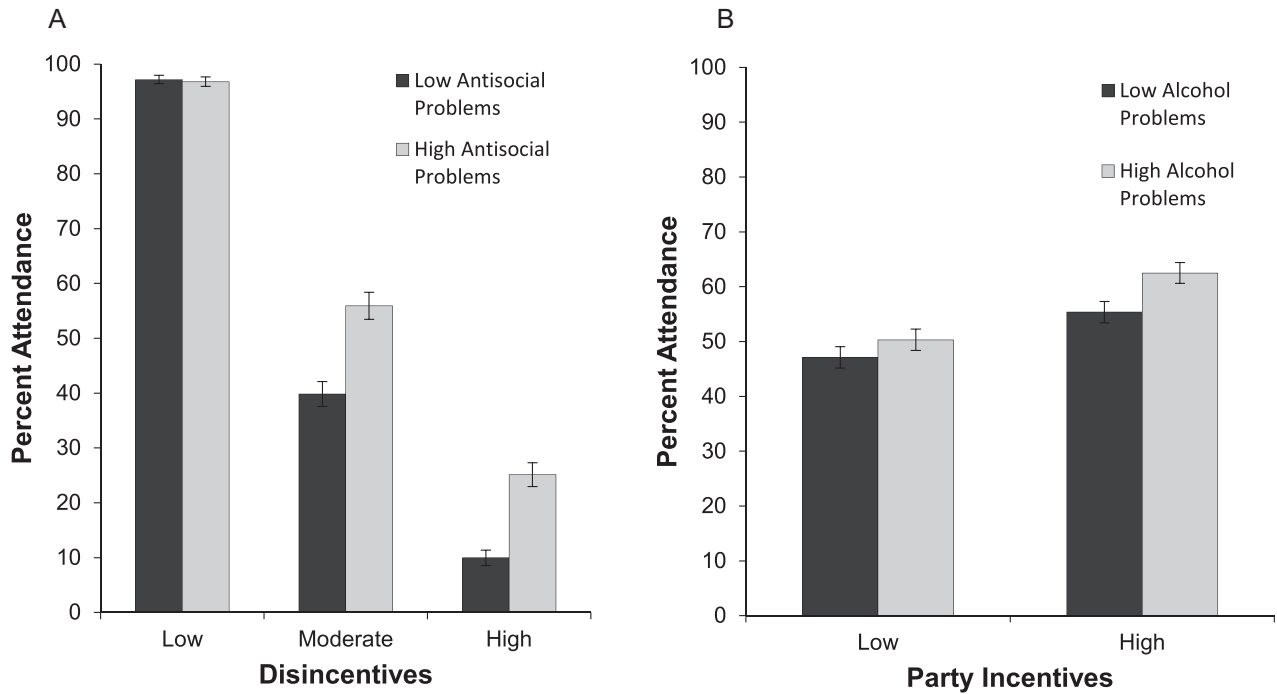
### Decisions About Amount Consumed

The analyses of the decisions about amount consumed revealed that LT alcohol problems consistently predicted the amount consumed in all scenarios (all  $ps < 0.0001$ ), except the high disincentive–low party incentive context. In the low disincentive contexts, LT alcohol problems significantly predicted decisions to consume more alcohol in both the high,  $F(1, 419) = 16.8, p < 0.0001$ , and the low party incentive conditions,  $F(1, 407) = 37.1, p < 0.00001$ . Similarly, in the moderate disincentive contexts, LT alcohol problems predicted decisions to consume more alcohol in both the high,  $F(1, 236) = 31.7, p < 0.00001$ , and the low party incentive conditions,  $F(1, 159) = 25.3, p < 0.0001$ . LT alcohol problems significantly predicted decisions to consume more alcohol in the high disincentive–high party incentive condition,  $F(1, 90) = 10.6, p < 0.0001$ , but not in the high disincentive–low party incentive condition,  $F(1, 44) = 2.1, p = 0.15$ . There were no significant sex differences, nor were there significant effects of LT antisocial problems. Figure 2 displays these data. Figure 2 also clearly displays an overall pattern that disincentives were associated with decisions to consume less alcohol, while party incentives were not associated with drinking amount decisions. There were no significant main effects of sex or interactions involving sex.

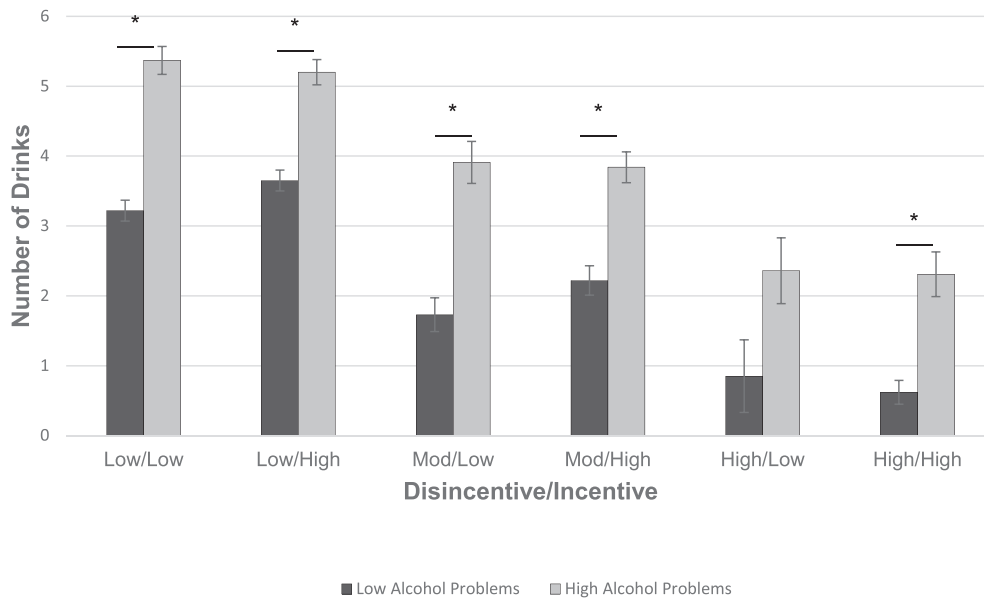
### Does Drinking Behavior Predict Task-Related Drinking Decisions?

*Frequency of Drinking Behavior and Attendance Decisions.* The logistic regression revealed that attendance decisions were significantly predicted by the self-reported frequency of drinking over the past 2 weeks,  $\chi^2(1) = 25.7, p = 0.0000$ .

*Typical Quantity Consumed and Decisions About Amount Consumed.* The average quantity of alcohol consumed per occasion over the past 2 weeks significantly predicted decisions about amount consumed in all scenarios; Low disincentive–high party,  $F(1, 424) = 85.8, p = 0.0000, R^2 = 0.18$  and low party incentives,  $F(1, 412) = 118.3, p = 0.0000, R^2 = 0.24$ ; Moderate disincentive–high party,  $F(1, 241) = 46.83, p = 0.0000, R^2 = 0.18$  and low party incentives,  $F(1, 164) = 58.7, p = 0.0000, R^2 = 0.27$ ; High disincentive–high party,  $F(1, 93) = 14.8, p = 0.0002, R^2 = 0.14$  and low party incentives,  $F(1, 49) = 11.8, p = 0.001, R^2 = 0.21$ .



**Fig. 1.** (A) Attendance decisions by disincentive level and lifetime (LT) antisocial problems, (B) attendance decisions by party incentive level and LT alcohol problems.



**Fig. 2.** Consumption amount decisions by lifetime alcohol problems for each scenario (by disincentive and incentive level). \**p* < 0.0001.

### DISCUSSION

As expected, the results indicate that incentives and disincentives significantly affected alcohol-related decisions on the hypothetical scenario decision task. Moderate and high disincentives substantially discouraged decisions to attend the party events and were associated with decisions to drink less at the party events. On the other hand, high party incentives encouraged attendance decisions but did not appear to affect

decisions about the amount consumed at the party events. Consistent with our hypothesis, high levels of LT antisocial problems were associated with being less deterred from attending events by the moderate and high disincentives. On the other hand, high LT alcohol problems were associated with higher attendance levels in high party incentive events compared with low party incentives, suggesting that LT alcohol problems are associated with being more sensitive to alcohol party rewards. Finally, the analyses indicated that

attendance and consumption amount decisions were strongly associated with actual drinking practices, which provides some concrete evidence for the validity of the drinking decision task.

The most interesting results are those involving the predictors of attendance decisions. What is particularly striking about the attendance results are the substantial effects that the next-day responsibility disincentives had on discouraging attendance decisions, even for those with high levels of alcohol problems. The party incentives also influenced decisions to attend, but the responsibility disincentives clearly had a much larger impact on decisions. These results are consistent with various studies that suggest that people are generally more sensitive to losses than gains when making decisions (Novemsky and Kahneman, 2005; Tversky and Kahneman, 1991, 1992). In fact, negative events appear to be generally more influential than positive events on a range of responses, including mood, relationships, and learning (Baumeister et al., 2001; David et al., 1997). Also notable is that responsibility disincentives were associated with reduced attendance in those with AUDs, indicating that young adults with AUDs regulate their drinking behavior to some degree in response to the potential negative effects of failing to meet important responsibilities. However, in the analyses of the decisions about how much to drink, those with AUDs, who do attend the different drinking events, consistently decided to drink more alcohol compared with those with low levels of alcohol problems. Those in our sample with high levels of LT alcohol problems (i.e., those with AUDs) are young adults who are at a relatively early stage of their AUD, and thus may not have experienced severe dependence and a significant collapse of their capacity to regulate their drinking behavior.

The results also supported predictions that a LT history of antisocial problems would be associated with being less deterred by next-day disincentives when making a decision about whether to attend a risky drinking event. In behavioral economic studies of decision making in AUDs, comorbid antisocial psychopathology has been associated with being less responsive to, or less inhibited by, the effects of aversive outcomes (Dom et al., 2006; Finn et al., 2002; Mazas et al., 2000). Consistent with these studies, we found that higher levels of LT antisocial problems were associated with being less deterred from attending by the moderate and high next-day disincentive levels. This pattern of being less deterred by important responsibility disincentives may reflect: (i) a relative insensitivity to the negative consequences of not meeting a key responsibility, (ii) a relative discounting of the rewards associated with achieving a delayed long-term goal in favor of gaining an immediate, short-lived reward, (iii) not being goal/achievement oriented, or (iv) simply not caring about the rewards associated with achieving goals. Whatever the reasons, being less deterred by next-day responsibility disincentives is consistent with being irresponsible, which is a central feature of antisocial personality disorder (American Psychiatric

Association, 1994). It remains unclear, however, whether those with high levels of LT antisocial problems may be more deterred by other kinds of disincentives, such as health-related, legal, or interpersonal. Further decision research is needed to address these key questions.

Also consistent with predictions, LT alcohol problems were associated with being more responsive to the high party incentive contexts when making decisions about whether to attend an event. Those with high LT alcohol problems were more likely to say they would attend the high party incentive scenarios compared with those low in LT alcohol problems, but LT alcohol problems were not associated with more attendance decisions at the low party incentive contexts. This suggests that those with high levels of alcohol problems are more sensitive to alcohol-related party incentives, at least in terms of their decisions to attend such events. Numerous papers suggest that AUDs or heavy drinking are associated with increased reward sensitivity (e.g., Jonker et al., 2014; O'Connor and Colder, 2005). However, relatively few studies of decision making or behavioral control show that those with AUDs are more responsive to specific reward incentives (Ahn et al., 2014; Bechara et al., 2002; Rossiter et al., 2012), and a number of decision-making studies fail to show increased reward responsivity in those with AUDs (Cantrell et al., 2008; Kamarajan et al., 2005; Mazas et al., 2000; Ramsey and Finn, 1997).

Not surprisingly, the results show that for those who attend specific events, LT alcohol problems consistently predicted how much the participant said he/she would drink. However, it is important to note that those who attended the more risky drinking events (moderate and high disincentive events) had higher levels of LT antisocial and alcohol problems to begin with (refer to Table 2), which could attenuate an association between LT antisocial problems and decisions about amount consumed. Although we could not directly assess the influence of disincentives and incentives on consumption decisions, Fig. 2 clearly shows that moderate and high disincentives were associated with drinking less at these events. The data also suggest that incentives did not affect consumption amount decisions.

Finally, the results also provide clear evidence of the validity of the task for real-world drinking decisions. Attendance decisions were associated with self-reported measures of drinking frequency over the past 2 weeks, while consumption amount decisions were associated with the average quantity consumed per occasion over the past 2 weeks.

This study has a number of limitations. First, the decisions assessed in this task are all hypothetical. While the results provide good support for the validity of the task as a model of real-world decisions to attend and drink at drinking events, we cannot determine the limits of the validity of the task as a model of real-world decisions. This may be particularly true for consumption amount decisions. For instance, an important symptom of problem drinking is drinking more alcohol at an event than was originally planned. Because drinking can further disinhibit individuals, it may be that

consumption decision amounts may underestimate what the individual actually drinks, especially for those with significant alcohol problems. However, because it is very difficult to systematically study these kinds of decisions in vivo, the results suggest that the use of tasks such as our drinking decision task is an important step in learning more about the factors that affect drinking decisions. George and colleagues' (e.g., George et al., 2009; Purdie et al., 2011) use of a similar approach to study sexual decision making supports the potential usefulness of using hypothetical scenario approaches to studying decision making about behaviors that are difficult to study in vivo. Additional research on the validity of this kind of approach is needed, such as assessing the associations between decisions regarding attendance and drinking using event sampling methodologies (Bolger et al., 2003) and decisions obtained on our drinking decision task. Second, we focused on the effects of responsibility-based disincentives on decisions to attend and drink, rather than including a more extensive set of disincentives. Future work should examine the effects of other disincentives, such as interpersonal, health, and legal disincentives, on drinking-related decisions.

In summary, we adopted an approach–avoidance framework to investigate the effects of alcohol-related party incentives, responsibility disincentives, and LT alcohol and antisocial problems on decisions to attend and drink at hypothetical party events in young adults. Next-day responsibility disincentives had substantial inhibitory effects on decisions to attend party events and decisions about the amount of alcohol consumed at these party events. Alcohol-related party incentives encouraged more attendance decisions, but this effect was not as strong as that of the disincentives. In addition, higher levels of LT antisocial problems were associated with being less deterred by next-day responsibility disincentives, which is consistent with behavioral economic studies where antisocial psychopathology is associated with a relative insensitivity to negative consequences. High levels of LT alcohol problems were associated with being more likely to decide to attend high party incentive scenarios compared with low LT alcohol problems. While higher levels of LT alcohol problems were associated with a greater likelihood to decide to attend all drinking events and drink more at the majority of events, those with high alcohol problems did modulate their drinking decisions in response to responsibility disincentives. Finally, the results underline the importance of considering contextual factors, such as role-related disincentives or the drinking/party nature of the event, as well as decisions to attend risky party events when studying drinking-related decisions in those with AUDs.

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## SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article:

**Data S1.** Disincentive levels for the roles other than student.