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The impact of defensiveness and incident reactions on post-sanction drinking behaviors among mandated students

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Abstract

Introduction—Prior studies with mandated students (students referred for an intervention following violation of a campus alcohol policy) have suggested that decreases in drinking behaviors may occur before clinical intervention. Others studies have suggested that greater reductions were associated with lower defensiveness and stronger incident reactions, such as responsibility and aversiveness. The current study sought to integrate these findings and examine the influence of pre-sanction drinking and perceptions on mandated students' post-sanction drinking levels prior to attending a brief intervention.

Methods—Data were collected as part of a longitudinal study of brief interventions in a mandated student sample ($N = 61$, 43% female, 97% White). Participants completed demographic measures, scales measuring incident reactions and defensiveness, and a Time Line Follow Back assessing drinking quantity and frequency both pre-and post-sanction.

Results—Analyses revealed significant post-sanction decreases in quantity (average total drinks per month) and frequency (number of monthly drinking days). Pre-sanction drinking quantity and frequency significantly predicted post-sanction quantity and frequency, respectively. Interaction effects suggest higher post-sanction quantities among moderate and heavier drinkers with higher defensiveness and lower aversiveness perceptions, while perceptions did not influence outcomes among light drinkers. None of the interactions involving blame or responsibility, or predicting post-sanction frequency, were significant.

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Contributors

Drs. Logan, Kilmer, and Larimer designed the study and wrote the protocol. Drs. Mastroleo and Logan conducted literature searches and provided summaries of previous research studies. Drs. Lewis and Logan conducted the statistical analysis. Drs. Logan, Mastroleo, and Kilmer wrote the first draft of the manuscript and all authors contributed to and have approved the final manuscript.

Conflict of interest

All authors declare that they have no conflicts of interest.

Conclusions—These findings suggest a complex relationship between pre-sanction drinking and student reactions. Implications for mandated student interactions and future research directions are discussed.

Keywords

Alcohol interventions; College students; Mandated students; Incident reactions; Defensiveness

1. Introduction

Mandated students are a unique population at greater risk for heavy alcohol use and related consequences compared to their non-mandated peers (Barnett & Read, 2005). The continued rise in university alcohol violations nationwide (Hoover, 2003; Nicklin, 2000; Porter, 2006) suggests that an effective and sustainable approach is needed to reduce harmful drinking and associated negative consequences among mandated students (i.e. those found in violation of a campus alcohol policy). Campuses often sanction these students to receive an alcohol intervention (Lewis & Marchell, 2006; Wechsler et al., 2002) as a targeted effort to reduce heavy drinking (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2002, 2007). While mandated students are most likely to benefit from similar interventions (e.g. brief motivational interventions (BMI), cognitive-behavioral skills, and norms clarifications; Cronce & Larimer, 2011; Larimer & Cronce, 2002; 2007; NIAAA, 2002), study findings from mandated samples tend to be less robust as compared to their non-mandated peers. In general, research with mandated samples has demonstrated greater reductions following BMIs among heavier drinkers (LaBrie, Lamb, Pedersen, & Quinlan, 2006; LaBrie, Thompson, Huchting, Lac, & Buckley, 2007) and modest post-sanction effects in lighter drinkers (Borsari et al., 2012; Hustad et al., 2011). However, studies with mandated students tend to report smaller decreases (and occasionally even increases) in drinking behaviors and smaller effect sizes when drinking reductions are detected (e.g., Carey, Henson, Carey, & Maisto, 2009; Cimini et al., 2009; Doumas, Workman, Smith, & Navarro, 2011; Hustad et al., 2014; LaBrie et al., 2006).

1.1. Sanction effects

The majority of studies examining alcohol interventions with mandated students are limited in their ability to determine the role the intervention has on drinking over and above the alcohol sanction itself (White, Mun, & Morgan, 2008). Past studies have shown a significant reduction in drinking post-intervention regardless of the type of intervention used (e.g. Barnett, Murphy, Colby, & Monti, 2007; Borsari & Carey, 2005; Carey, Scott-Sheldon, Carey, & DeMartini, 2007), leaving questions surrounding the role of the intervention versus the role of the sanctioning event and subsequent process. Indeed, one study found that mandated students made significant reductions in alcohol-related behaviors prior to any intervention, with students with the most serious infractions demonstrating the greatest reductions (Morgan, White, & Mun, 2008). Pre-intervention reductions were also noted in a sample of students mandated for minor infractions, with greater reductions associated with heavier drinkers and those with greater readiness to change and pre-sanction consequences (Carey et al., 2009). Finally, one study (Hustad et al., 2011) found heavier drinking rates on the sanction day compared with the typical pattern and slight reductions for the 2 weeks

post-sanction, though drinking levels remained above hazardous levels for both men and women.

1.2. The impact of perceptions

A number of characteristics may be influencing these post-sanction reductions among mandated students, including reactions related to the sanction (e.g. defensiveness) and the sanctioning incident (e.g. responsibility, blame, and aversiveness). Defensiveness is prominent in students who receive an alcohol violation (Sharkin, 2007) and is higher in mandated students than non-mandated students (Palmer, 2004; Palmer, Kilmer, Ball, & Larimer, 2010). Palmer et al. (2010) found that defensiveness moderated drinking outcomes such that students lower in defensiveness had better outcomes after a brief intervention than students high in defensiveness. Thus mandated students lower in defensiveness may react differently following a sanction than their more defensive peers.

Second, reactions to the sanctioning incident, including personal attributions (i.e., feeling responsible or blaming others) and perceived aversiveness of the experience have been found to be positively related to motivation to change (Barnett, Goldstein, Murphy, Colby, & Monti, 2006; Longabaugh et al., 1995), and may be a contributing factor to intervention effectiveness. However, the relationship between attitudes and post-sanction behaviors is complex. In a study examining the moderating effects of responsibility and aversiveness, Mastroleo, Murphy, Colby, Monti, and Barnett (2011) found that personal attributions were not associated with drinking outcomes after a computer-delivered intervention, but were significant after a BMI (aversiveness did not moderate outcome). The authors propose that students with lower responsibility may have been less invested in and more defensive toward the BMI, which required additional interpersonal demands and specific focus on the incident itself, and thus were associated with more drinking at 3 months post intervention. These counterintuitive findings highlight the potential influence of perceptions, and warrant additional exploration of the nuanced relationships between attitudes and post-sanction drinking among mandated students. Furthermore, investigation of the role of attitudes and drinking behaviors prior to and independent of clinical intervention is particularly warranted.

The current study sought to integrate and extend previous findings related to mandated student drinking following a sanction but prior to a formal intervention. First, we hypothesized significant decreases in drinking quantity and frequency following the sanction. Next, we anticipated a positive relationship between pre-sanction drinking patterns and post-sanction drinking patterns. Third, we hypothesized lower post-sanction drinking quantity and frequency among students endorsing lower defensiveness and external blame, and greater personal responsibility and aversiveness, particularly among pre-sanction heavier drinkers.

2. Material and methods

2.1. Participants

Participants were recruited for a longitudinal study (Logan, Kilmer, King, & Larimer, 2015) evaluating the effectiveness of three brief interventions for students who had received

sanctions due to violation of a campus alcohol policy. Participants included 61 full-time undergraduates (mean age = 19.16; 42.6% female; 96.7% Caucasian) from a university in the Southern US.

2.2. Procedures

The longitudinal study evaluated three single-session interventions for mandated students, with participants completing web assessments at baseline and follow ups at 2, 4, and 6 months. All data included in the current analyses were collected at baseline (thus measured prior to the required clinical intervention). Researchers received contact information for potential participants who were at least 18 years of age and had been mandated to a clinical intervention between October 2009 and April 2010. Researchers attempted multiple contacts of prospective participants by phone and email. Overall, 61 of the 90 students (67.8%) identified by the research team provided informed consent and completed baseline measures including the daily estimates of pre-sanction and post-sanction alcohol use and incident reactions included in this study. Among the students identified who did not participate, 16 (17.8%) cited time commitments, 10 (11.1%) did not respond to any contact attempts by the research team, and 4 (4.4%) had their sanctions later dropped by Judicial Services. The university Institutional Review Boards of both the research site and the study site approved all procedures.

Participants were randomized to one of three single-session intervention conditions: an Alcohol Skills Training Program (ASTP; Miller, Kilmer, Kim, Weingardt, & Marlatt, 2001) intervention, an individual personalized feedback session consistent with the Brief Alcohol Screening and Intervention for College Students (BASICS, Dimeff, Baer, Kivlahan, & Marlatt, 1999) protocol and feedback sheet, or an Alcohol Diversion Program (ADP) treatment-as-usual education-only group. Both ASTP and BASICS conditions integrated cognitive-behavioral skills, norms clarification, and motivational enhancement or Motivational Interviewing (MI; Miller & Rollnick, 2002) in group or individual formats, respectively. The ADP condition provided existing services of a slide-based presentation provided by campus law enforcement. Further intervention details are available elsewhere (Logan, Kilmer, King, & Larimer, 2015).

All of the mandated students were required to attend a clinical intervention in order to fulfill their sanction (those who opted out of the research were assigned to ADP for usual services while those who consented to the research were randomized into one of the three conditions). Participants had a choice of incentives (movie ticket(s) or entry into a drawing for a gift card to the business of their choice that did not serve alcohol or beer) for each survey, which increased at each follow up (1 movie ticket or \$250 drawing at baseline, 2 movie tickets or \$250 drawing at two months, 2 movie tickets or \$500 drawing at four months, and both 3 movie tickets and a \$750 drawing at six months).

2.3. Measures

2.3.1. Demographic information—Participants provided demographic information, including age, birth sex, place of residence, and year in school.

2.3.2. Alcohol use—Participants entered their quantity of drinks (including 0) in an online Time Line Follow Back (TLFB; (Sobell & Sobell, 1992) calendar. Pre-sanction data was collected for the 30 days prior to the sanction date. Post-sanction data was collected for the 30 days prior to the baseline assessment. In cases where the sanction date was less than 30 days prior, averages were calculated to allow comparison with the full 30-day month of pre-sanction data. In those cases ($n = 31$), the ratio of drinking days (frequency) and amounts (quantity) were converted for equivalence with the 30-day pre-sanction period. For example, if the sanction date was 20 days prior to the baseline assessment, and within those 20 days the participant endorsed drinking 3 drinks on one occasion and 1 drink on another (with 0 drinks the other 18 days), calculations would include conversions for frequency ($2 \text{ actual drinking days} / 20 \text{ possible days} \times 30 \text{ days} = 3 \text{ average total monthly drinking days}$) and quantity ($4 \text{ drinks on 2 occasions} = 2 \text{ drinks per drinking day} \times 3 \text{ days} = 6 \text{ average total monthly drinks}$). In this example, the participant's actual pre-sanction quantity and frequency were compared with the average post-sanction quantity (6 drinks) and frequency (3 days). GEE analyses confirmed the consistency of participant drinking behaviors in the 30 days post-sanction as within-group variables were non-significant when comparing consumption in each post-sanction weekly period.

2.3.3. Defensiveness—Resistance to the intervention was measured through a *Defensiveness* scale (Palmer, 2004) and included 10 items with 7 responses ranging from “Strongly disagree” to “Strongly agree.” Items included statements like “I am open-minded about [the intervention],” and “Attending the [intervention] feels like punishment.” Seven of the items were reversed coded and a mean was calculated with higher scores corresponding to greater defensiveness. The measure yielded an α estimate of .86.

2.3.4. Incident reactions—The initial 9 items of the *Incident Reaction* scale (Barnett et al., 2006) assessed student reactions to the sanctioning event, separating perceptions of internal responsibility (3 items), external blame (2 items), and aversiveness (4 items) of the incident that led to the policy violation. Items were scored on a 7-point scale ranging from “not at all” to “totally” or “completely.” Example items include, “To what extent do you believe your alcohol consumption was responsible for this incident?” (internal responsibility), “To what extent was the incident someone else's fault?” (external blame), and “How unpleasant has this incident been for you?” (aversiveness). Mean scores were calculated independently for each subscale. Reliability estimates were adequate, with α estimates of .68, .80, and .88 respectively for internal responsibility, external blame, and aversiveness.

2.4. Data analysis plan

Our primary goals were to 1) evaluate post-sanction changes in drinking behaviors, 2) evaluate the relationship between pre-sanction and post-sanction drinking levels, and 3) examine the influence of perceptions (defensiveness, internal responsibility, external blame, and aversiveness) on post-sanction drinking. Using SPSS 20, we explored correlations between variables of interest and evaluated post-sanction changes in drinking behaviors using paired-samples *t*-tests. We then tested each moderation model individually, using the SPSS macro Process (Hayes, 2013) to mean center variables and simultaneously evaluate

the influence of pre-sanction drinking, the perception, and the interaction between pre-sanction drinking and the perception, while controlling for potential sex effects. Significant interactions were further explored by testing and plotting simple slopes at the mean, $+1 SD$, and $-1 SD$ of each perception and pre-sanction drinking level (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). As the pre-sanction and post-sanction drinking quantities had non-normal distributions, they were square root transformed for all analyses but original descriptive values are presented for interpretability. G*Power calculations (Erdfelder & Faul, 1996; Faul, Erdfelder, Lang, & Buchner, 2007) estimated our power based on our overall sample size ($N = 61$), yielding estimates of .80 power to detect medium to large effect sizes for independent means ($d = 0.65$ – 0.67) and medium to large effect sizes for multiple regression ($f^2 = 0.23$ – 0.57) (Cohen, 1992).

3. Results

3.1. Descriptives and correlations

Table 1 displays descriptive statistics and correlations for pre-sanction and post-sanction drinking along with the variables of interest (defensiveness, internal responsibility, external blame, and aversiveness). All drinking measures were positively correlated with each other. Pre-sanction drinking measures were also positively correlated with internal responsibility, and negatively correlated with external blame. Post-sanction drinking measures were not significantly correlated with perceptions. Within perceptions, internal responsibility was negatively associated with external blame and positively associated with aversiveness.

3.2. Sanction effects

Paired samples *t*-tests evaluated changes in drinking behaviors before and after the sanction (and all prior to an intervention) measured by the TLFB. Pre-sanction data was included if all of the 30 days prior had data entered; five cases were excluded for missing data. Post-sanction data was included if all possible days had data entered; two cases (one of which overlapped the previous five already excluded for missing data) were excluded for missing data, yielding a final sample size of $n = 55$. For those remaining cases, participants responded with number of drinks (including 0) for consecutive days ($M = 24.67$, $SD = 6.48$, range = 10–30). As described above, these responses were adjusted for equivalence with the 30-day pre-sanction data and compared with pre-sanction quantity and frequency. Results indicated significant reductions in total monthly drinks (pre-sanction $M = 39.09$, $SD = 40.77$; post-sanction $M = 30.50$, $SD = 38.70$; $t(54) = 3.89$, $p < .001$) and drinking days per month (pre-sanction $M = 7.27$, $SD = 4.31$; post-sanction $M = 5.66$, $SD = 4.52$; $t(54) = 4.13$, $p < .001$). These findings indicate large effect sizes for the significant changes ($d = 1.06$ for quantity and 1.12 for frequency).

3.3. Predicting post-sanction drinking

We next evaluated whether each perception (defensiveness, internal responsibility, external blame, and aversiveness) moderated the influence of pre-sanction drinking on post-sanction drinking (see Table 2). None of the moderators or interactions was significant for predicting post-sanction frequency beyond the influence of pre-sanction frequency. A similar pattern emerged with non-significant moderation for internal responsibility and external blame

predicting post-sanction quantity. However, the other two perceptions (defensiveness and aversiveness) demonstrated significant main effects, such that higher defensiveness and lower aversiveness were associated with heavier post-sanction drinking. These two perceptions also demonstrated significant interactions with pre-sanction drinking quantity. Fig. 1 illustrates the relationships between these variables and examination of the simple slopes. Defensiveness and aversiveness were not associated with post-sanction drinking among pre-sanction lighter drinkers. However, defensiveness and aversiveness were associated with post-sanction drinking for pre-sanction moderate drinkers and even more strongly associated for pre-sanction heavy drinkers. Pre-sanction heavy and moderate drinkers with higher defensiveness and lower aversiveness reported the greatest post-sanction drinking.

4. Discussion

Prior research has demonstrated that mandated students comprise a unique but heterogeneous high-risk population on college campuses. They tend to be heavier drinkers and more defensive than their non-mandated peers (Barnett & Read, 2005; Palmer, 2004; Palmer et al., 2010). While some interventions have positive impacts on drinking behaviors, effect sizes tend to be smaller than for non-mandated samples and results are inconsistent across groups of mandated students. One potential explanation for minimal findings is that mandated students may have already changed their behaviors in reaction to the sanction, prior to attending an intervention. The goal of the current study was to build on previous studies documenting post-sanction drinking reductions by testing the intervening influence of perceptions (defensiveness, internal responsibility, external blame, and aversiveness). Our results suggest that mandated students significantly decreased their alcohol consumption following a sanction, with lighter pre-sanction drinkers endorsing lower post-sanction quantity and frequency than heavier drinking peers. Among moderate to heavier drinkers, those reporting greater defensiveness and lower aversiveness drank the most post-sanction. Perceived responsibility and blame were not differentially associated with post-sanction drinking levels. Further, while the mandated students reduced the frequency of their drinking, none of the putative perceptions moderated the relationship between pre- and post-sanction drinking frequency.

The finding that higher levels of defensiveness were associated with greater post-sanction drinking is consistent with prior research (Palmer, 2004; Palmer et al., 2010) where highly defensive participants evidenced the worst outcomes, including increased their drinking, following a sanction and mandated intervention. Our study extends these findings by suggesting that defensiveness is associated with the heaviest post-sanction drinking among moderate to heavy drinkers, while lighter drinkers consumed less regardless of defensiveness level. Our findings of the influence of aversiveness are consistent with and extend prior studies (Barnett et al., 2006; Longabaugh et al., 1995), suggesting that moderate to heavy drinkers with lower perceived aversiveness drank the most post-sanction, with no influence among light drinkers. The relationship between higher aversiveness and lower post-sanction drinking for moderate to heavy drinkers might suggest a shift in perceived consequences, such that denial or minimization of the potential costs of alcohol use was no longer feasible. This hypothesis is consistent with prior research demonstrating shifts in

perceived likelihood and negative valence with a greater number of consequences (Logan, Henry, Vaughn, Luk, & King, 2012). Finally, our findings suggested no direct or interactive influence of responsibility or blame perceptions on post-sanction drinking behaviors, though a previous study (Mastroleo et al., 2011) identified a differential impact of attributions post-intervention. Taken together, these findings suggest the influence of responsibility and blame may be related to the mandated intervention rather than the sanction event itself.

The heaviest amount of post-sanction drinking was reported by heavier drinkers with greater levels of defensiveness and lower perceptions of aversiveness, suggesting they might be considered a higher priority for more immediate and/or personalized intervention. Additionally, it may be beneficial for judicial and conduct-related staff to manage and minimize defensiveness and/or highlight the aversiveness and personally relevant consequences associated with alcohol sanctions in order to maximize independent drinking reductions. Further research could explore attempts to directly target defensiveness and aversiveness in this population, for example by identifying specific sanctions (e.g. fines, probation, parental notification, etc.) that would be considered more aversive by students without increasing overall defensiveness.

The findings of post-sanction reductions in drinking are particularly important given the often lengthy wait times for campus services, where student affairs professionals and clinicians struggle to balance shrinking budgets and limited schedules with prioritizing clinical needs. Attempts to minimize defensiveness while emphasizing aversiveness may not only impact current behaviors, but improve outcomes following a clinical intervention as well (e.g. Mastroleo et al., 2011; Palmer et al., 2010). These findings also highlight the importance of assessing current drinking behaviors versus those present prior to the sanction, given the possibility of the sanction to have moved the student from a pre-contemplative or contemplative stage of change (Prochaska & DiClemente, 1991) to taking action and reducing quantity.

While the findings of this study supplement the growing body of literature on mandated students as well as intervening variables impacting changes in drinking behaviors over time, a number of limitations should be noted. All data were collected at a single time point, thus prospective or causal influences cannot be inferred. Further, the recollection time varied by participant, so it is possible that recall bias may have influenced reporting. The sample size was relatively small, and missing data further restricted our overall sample which may have limited our ability to detect change. Our recruitment rate of 67.8%, while not inconsistent with other studies with mandated populations, introduces questions of the representativeness of our sample as the declining participants' drinking patterns are unknown. The sample was homogenous, composed primarily of heterosexual Caucasian undergraduates at a Southern US campus, and limiting generalizability. Finally, measurement issues may have influenced our findings, including quantifying perceptions by combining only two to four items, and noting a large standard deviation for drinking measures. Further studies could extend these findings through replication in a larger heterogeneous sample, examine specific characteristics of sanction meetings and student reactions, and include prospective data to predict post-sanction drinking behaviors.

In spite of the limitations, this study extends the current literature by exploring the complex relationship between internal responsibility, externalized blame, aversiveness, and defensiveness among heavier-drinking mandated students. Findings suggest ways to maximize influence while maintaining existing time- and cost-effective sanction procedures through efforts to increase perceptions of responsibility and aversiveness while reducing external blame and defensiveness. Findings also indicate significant post-sanction reductions for heavy drinkers, suggesting clinicians assess pre-sanction and current drinking behaviors independently and tailor any brief interventions to be useful for the student (e.g. strategies to reduce drinking if changes have not been made versus strategies to maintain motivation if reductions have occurred).

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HIGHLIGHTS

- We examine drinking changes after a sanction but before clinical intervention.
- Students significantly decreased alcohol quantity and frequency post-sanction.
- Heavier drinkers high in defensiveness had higher post-sanction drinking quantities.
- Heavier drinkers low in aversiveness had higher post-sanction drinking quantities.

Fig. 1. Perceptions as a moderator of pre-sanction drinking quantity on post-sanction quantity. $*p < .05$. $**p < .01$.

Table 1

Means, standard deviations, and intercorrelations for variables of interest.

	Descriptives		Correlations							
	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5	6	7
<i>Pre-sanction drinking</i>										
1. Monthly quantity	39.09	40.77	0–192	–						
2. Monthly frequency	7.27	4.31	0–21	.85	–					
<i>Post-sanction drinking</i>										
3. Monthly quantity	30.51	38.70	0–205	.84	.70	–				
4. Monthly frequency	5.66	4.52	0–17	.72	.77	.78	–			
<i>Perceptions</i>										
5. Defensiveness	3.95	1.03	1.8–6.4	–.02	–.08	.17	.02	–		
6. Internal responsibility	2.95	1.49	1.0–7.0	.28	.32	.07	.16	–.14	–	
7. External blame	4.12	2.03	1.0–7.0	–.23	–.26	–.12	–.25	.14	–.45	–
8. Aversiveness	3.61	1.68	1.0–7.0	–.03	.07	–.18	–.07	–.16	.21	–.02

Note. *n* = 55. Correlations in *bold* are significant, *p* < .05. Reported *M* and *SD* are untransformed data.

Table 2

Hierarchical regression results predicting post-sanction drinking outcomes.

	Post-sanction drinking quantity				Post-sanction drinking frequency			
	<i>b</i>	<i>SE</i>	<i>t</i>	95% CI	<i>b</i>	<i>SE</i>	<i>t</i>	95% CI
Defensiveness	Model $R^2 = .76^{***}$				Model $R^2 = .62^{***}$			
Intercept	4.94	0.35	14.33	4.25, 5.63	6.29	0.61	10.30	5.07, 7.52
Sex	-0.70	0.47	-1.48	-1.65, 0.25	-1.11	0.83	-1.34	-2.78, 0.56
Pre-sanction drinking	0.90	0.08	11.65	0.75, 1.06	0.86	0.10	8.84	0.66, 1.05
Defensiveness	0.51	0.22	2.33*	0.07, 0.94	0.41	0.39	1.06	-0.37, 1.19
Drinking $\times$ perception	0.17	0.07	2.47*	0.03, 0.30	0.02	0.09	0.17	-0.16, 0.19
Internal responsibility	Model $R^2 = .73^{***}$				Model $R^2 = .62^{***}$			
Intercept	4.81	0.38	12.68	4.05, 5.57	6.04	0.64	9.47	4.76, 7.32
Sex	-0.35	0.52	-0.67	-1.40, 0.70	-0.81	0.87	-0.93	-2.56, 0.94
Pre-sanction drinking	0.95	0.08	11.42	0.78, 1.12	0.85	0.10	8.60	0.66, 1.05
Internal responsibility	-0.29	0.17	-1.67**	-0.64, 0.06	-0.26	0.30	-0.86	-0.87, 0.35
Drinking $\times$ perception	-0.07	0.05	-1.50	-0.16, 0.02	0.04	0.05	0.75	-0.07, 0.15
External blame	Model $R^2 = .71^{***}$				Model $R^2 = .62^{***}$			
Intercept	5.00	0.39	12.91	4.22, 5.78	6.19	0.62	9.94	4.94, 7.44
Sex	-0.70	0.52	-1.35	-1.74, 0.34	-1.04	0.83	-1.25	-2.71, 0.64
Pre-sanction drinking	0.91	0.09	10.38	0.73, 1.08	0.82	0.10	8.31	0.62, 1.02
External blame	-0.01	0.13	-0.07	-0.26, 0.24	-0.13	0.20	-0.64	-0.54, 0.28
Drinking $\times$ perception	0.05	0.04	1.24	-0.03, 0.12	-0.03	0.04	-0.68	-0.11, 0.05
Aversiveness	Model $R^2 = .75^{***}$				Model $R^2 = .63^{***}$			
Intercept	4.97	0.35	14.12	4.26, 5.68	6.34	0.61	10.46	5.12, 7.56
Sex	-0.86	0.48	-1.78	-1.84, 0.11	-1.21	0.82	-1.47	-2.87, 0.45
Pre-sanction drinking	0.93	0.08	11.61	0.77, 1.10	0.86	0.10	8.69	0.66, 1.06
Aversiveness	-0.28	0.14	-2.06*	-0.55, -0.01	-0.40	0.23	-1.70	-0.87, 0.07
Drinking $\times$ perception	-0.09	0.04	-2.06*	-0.17, -0.02	0.00	0.05	0.02	-0.11, 0.11

Note. $n = 55$. Pre-sanction drinking quantity predicted post-sanction drinking frequency; pre-sanction drinking quantity; pre-sanction drinking frequency predicted post-sanction drinking frequency.

* $p < .05$.
** $p < .01$.
*** $p < .001$.