Evaluations of alcohol consequences moderate social anxiety risk for problematic drinking

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HIGHLIGHTS

- SA risk for problematic drinking remains unclear among undergraduates.
- Evaluations of negative alcohol consequences (NACs) was tested as a moderator.
- NAC evaluations did not moderate SA risk for elevated drinking levels.
- SA was associated with experiencing NACs when NACs were evaluated less negatively.
- NAC evaluations help clarify the SA risk pathway for problem drinking.

ARTICLE INFO

ABSTRACT

The link between social anxiety (SA) and problematic drinking is complex; this seems predominantly true among young adults. Individuals high on SA are thought to be particularly sensitive to the negative effects of alcohol, which should deter them from drinking. Yet, some evidence suggests that those high on SA continue to drink despite experiencing negative alcohol-related consequences (NACs) (Morris, Stewart, & Ham, 2005). Although traditionally, researchers assume NACs are perceived as averse, emerging evidence suggests these are not categorically viewed as negative by undergraduates. The study goal was to test whether evaluations of NACs moderate the effect of SA on problematic drinking. It was hypothesized that high SA would predict elevated alcohol use and number of NACs experienced, but only for those who evaluate NACs as less negative. Undergraduate drinkers ($N = 130$, 80 women) completed self-reports of social anxiety, NAC evaluations (ratings of how 'bad' experiencing each alcohol-related consequence would be), alcohol use, and NACs experienced. Regression analyses revealed that NAC evaluations moderated the effect of SA on number of NACs experienced, but not the effect of SA on weekly alcohol use. Simple slopes analyses showed that high SA was associated with elevated NACs experienced for those with weak negative NAC evaluations, controlling for alcohol use. These findings help explain the mixed SA-problematic drinking literature by identifying perceptions of NACs as an important moderator of SA risk for experiencing NACs. Moreover, clinical interventions aimed at reducing SA risk for undergraduate problematic drinking may benefit from targeting NAC evaluations.

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1. Introduction

Social anxiety (SA) is characterized by a fear of being judged by others (Montagne et al., 2006) and has been identified as a risk factor of problematic drinking (Burke & Stephens, 1999). Problematic drinking is defined here as a continuous construct that includes both heavy drinking (elevated levels of alcohol use) and experiencing negative alcohol-related consequences (NACs) (e.g., hangovers). In adult populations, the comorbidity between SA and alcohol use disorders is high (Crum & Pratt, 2001; Schneider et al., 2001). However, earlier in the risk trajectory, the link between SA and problematic drinking is less clear. Among undergraduates – >5% experience clinical SA (Wittchen, Stein, & Kessler, 1999), >13% experience SA symptoms (Purdon, Antony, Monteiro, & Swinson, 2001) – evidence supports a positive (Buckner, Eggleston, & Schmidt, 2006), negative (Ham & Hope, 2005) and null (Ham, Bonin, & Hope, 2007) SA-problematic drinking association. These findings suggest the SA risk pathway for problematic drinking is complex, particularly at the early stages.

According to tension reduction theory, those high on SA are sensitive to the positive, anxiety-reducing effects of alcohol, and drink to self-medicate when distressed (Conger, 1956). Students in university face

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novel, anxiety-provoking social situations unique to this context (Terlecki, Ecker, & Buckner, 2014), situations that may be particularly distressing for those high on SA. Drinking is normative and present in many of these social settings (e.g., parties), and thus, may prove to be especially risky for those high on SA. Undergraduates high on SA indeed report drinking to reduce anxiety (Ham & Hope, 2005) and do so in distressing university contexts (Adlaf, Demers, & Glicksman, 2005). However, cognitive theories (Clark & Wells, 1995) suggest high SA individuals should be sensitive to the negative effects of alcohol intoxication (e.g., embarrassing oneself, risk of unplanned sex), and be deterred from drinking. This theoretical complexity is reflected in the inconsistent empirical support of the SA-problematic drinking risk pathway.

In order for those high on SA to drink (heavily), it would seem that they must either temporarily disregard NACs or undervalue the negativity of these consequences, potentially perceiving these to be _not so bad_. The first possibility suggests that when distressed, these individuals drink to alleviate their tension _despite_ the prospect of experiencing NACs. Supporting this is evidence that those high on SA drink to cope with negative affect (Lewis et al., 2008) and that when distressed, attention is directed to immediate reward over long-term threat (Vassilopoulos, 2005). The delayed discounting literature also shows that those high on anxiety make hazardous or impulsive decisions for immediate reward, at the cost of negative outcomes (Rounds, Beck, & Grant, 2007). The second, less explored possibility is that these so-called 'negative outcomes' of drinking may not be unanimously perceived as aversive. Undervaluing the 'negativity' of NACs, or perceiving these to be benign would mean these are not a deterrent. Without this deterrent, alcohol may be a particularly attractive coping strategy for those high on SA. The current study aims to investigate this possibility.

Although extant research and drinking interventions typically assume students perceive NACs as undesirable, emerging evidence highlights the variability of NAC evaluations among students. The university context presents a culture whereby drinking is not only normalized, but where light drinking or abstinence from alcohol can lead to social rejection and stigma (Peralta, 2007; Romo, 2012). Recent work reveals that students perceive NACs to be commonplace, and evaluate them as neutral and even positive (Mallett, Bachrach, & Turrisi, 2008). Mallett et al. (2008) found that less than half of university students who experienced hangovers and unintentionally waking up in someone else's bed evaluated these as negative. They also found that almost half of students who had blacked out or got into physical fights after drinking perceived these to be neutral or positive outcomes. There is evidence that evaluating NACs as less negative is associated with risky drinking (Mallett, Lee, Neighbors, Larimer, & Turrisi, 2006) and experiencing NACs (Gaher & Simons, 2007). Further, the norms literature suggests that undergraduates overestimate the frequency with which their peers experience NACs, and underestimate how negatively others view NACs (Lee, Geisner, Patrick, & Neighbors, 2010). High SA individuals are specifically attuned to their social surroundings and preoccupied with what others consider to be socially desirable, and thus may be particularly influenced by perceived norms. Given that drinking and experiencing NACs are perceived as a rite of passage by undergraduates (Crawford & Novak, 2006; Schulenberg, O'Malley, Bachman, Wadsworth, & Johnston, 1996), high SA individuals may come to view NACs as a measure of 'fitting in' and adjust their perceptions to align with those believed to be held by their peers.

Variability in NAC evaluations is consistent with expectancy value theory (Wigfield & Eccles, 2000). Accordingly, individual differences and experiences shape evaluative interpretation of behavioral outcomes (Stevenson, 1986). In turn, evaluations influence subsequent behavior (Maisto, Carey, Bradizza, Leonard, & Blane, 1999). Extending theory to alcohol use, depending on experience, some individuals high on SA may come to perceive NACs as extremely negative and be deterred from drinking, while others may come to evaluate these outcomes as benign and thus continue to use alcohol for its anxiolytic effects (Mallett, Varvil-Weld, Turrisi, & Read, 2011).

In sum, theory and recent work on NAC evaluations suggest that SA may be linked to problematic drinking not because NACs are disregarded, but rather because they are not viewed as negative. The goal of the current study was to test NAC evaluations as moderating SA risk for problematic drinking. It is well established that those high on SA are at risk for experiencing NACs independent of alcohol quantity/frequency (Gilles, Turk, & Fresco, 2006; Morris et al., 2005). As such, amount of alcohol consumed and number of NACs experienced were considered as unique problematic drinking outcomes in the current study. We hypothesized that SA would be a positive predictor of alcohol use and NACs (independent of each other), and that this relation would be observed only for those who evaluate NACs as less negative.

2. Materials and method

2.1. Participants and procedure

Participants were undergraduates from mid-sized Canadian universities. Data for the current study was part of the baseline assessment for a larger lab-based alcohol administration study. Participants completed an online screening. Eligibility criteria included alcohol use in past month (non-alcohol abstainer), ≤35 drinks per week (no indication of alcohol abuse), no medical condition/medication contraindicated for alcohol use, English fluency, and 18–25 years old. Participants were sampled across levels of SA. Sixty-three percent of students screened met eligibility criteria, of which 38% completed the study. The final sample included 130 undergraduates (62% women, M_{age} = 20.77 yrs; SD_{age} = 1.73) (see Table 1). T-tests confirmed that those eligible who did and did not take part in the study did not differ on critical study variables (i.e., SA, alcohol use). As expected, those who were ineligible reported heavier alcohol use (due to exclusion criteria) but not higher SA than those included in the study.

The testing session took place in a simulated bar lab. Written informed consent was obtained. Participants were compensated $10/h or course credit. The baseline questionnaires (relevant to current study) were completed within the first 90 min; the full study typically took 3.75 h. The study was approved by the institutional ethics review board.

2.2. Questionnaire measures

2.2.1. Social anxiety

The Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998), which is a 19-item questionnaire (e.g., _I worry about expressing myself in case I appear awkward_), was used to assess anxiety characterized by a fear of interacting with others. Participants indicated how representative each statement was of them using a 5-point scale (0 = _Not at all_

Table 1
Descriptive statistics and bivariate correlations.

	1	2	3	4
1. Social anxiety	1.00	−0.17	−0.02	0.04
2. Alcohol use		1.00	0.57**	−0.27*
3. NACs experienced			1.00	−0.27*
4. NAC evaluations				1.00
M	2.24	7.68	12.30	4.64
SD	0.72	5.59	7.99	0.74
Skew	0.39	1.48	0.76	−0.28
Kurtosis	−0.51	3.17	0.31	0.58

Note. N = 130.
The majority of participants identified as White (68%). Other ethnic groups included Asian (12%), Middle Eastern (5%), South Asian (3%), Indigenous Canadian (3%), Hispanic/Latino (3%) [5% indicated 'other']. Participants primarily lived on their own off-campus (65%), with a smaller number living at home with family (23%), and on campus (12%). There was a relatively even distribution across year of undergraduates study (27% first, 29% second, 29% third, 13% fourth year).

* _p_ < 0.01.
** _p_ < 0.001.