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Hilary G. Casner

*University of Arkansas - Main Campus*

Sarina Jones

*University of Arkansas - Main Campus*

Jessica Henson

*University of Arkansas - Main Campus*

Lindsay S. Ham

*University of Arkansas - Main Campus*

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# The Moderating Role of Gender in Social Anxiety and Alcohol Use

Hilary G. Casner, B.A., Sarina Jones, Jessica Henson, & Lindsay S. Ham, Ph.D.  
University of Arkansas—Fayetteville



## Introduction

The high comorbidity between alcohol use disorders (AUD) and social anxiety disorder (SAD) is well-documented (Kessler et al., 1997; Kushner, Abrams, & Borchardt, 2000). Social anxiety disorder is a debilitating disorder characterized by an intense and unrelenting fear of social situations, which can result in a lack of meaningful interpersonal relationships, as well as difficulties in obtaining education or career goals (American Psychiatric Association, 2000). The odds ratio for developing any AUD is 1.6 (95% CI = 1.26-2.06) and for developing alcohol dependence is 2.3 (95% CI = 1.68-3.13) for individuals with past-year SAD (Grant et al., 2005). However, experimental evidence has provided equivocal findings concerning the comorbidity between SAD and AUD; despite the high level of comorbidity, some research indicates that there may be a negative or even a non-existent relationship between social anxiety and problematic alcohol use (Eggleston, Woolaway-Bickel, & Schmidt, 2004; Ham & Hope, 2005; 2006). One of myriad factors that may play a role in the ambiguous relationship between AUDs and SAD is gender, as research indicates that women are more likely than men to drink in response to unpleasant emotions (Annis & Graham, 1995; Reyno, Stewart, Brown, Horvath, & Weins, 2006). Thus, it may be the case that women are more likely to use alcohol to cope with emotions such as anxiety, though men consume more alcohol overall, including in college settings (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998; Wechsler, Lee, Kuo, & Lee, 2000; Wechsler, Molnar, Davenport, & Baer, 1999).

With this backdrop, the current study sought to examine the moderating effect of gender in the association between state anxiety and urge to drink (UTD) or likelihood to drink (LTD) in two types of commonly feared social situations. The hypotheses of the present study included: 1) interaction-related social anxiety will be positively related to urge to drink (UTD) in a conversation situation, likelihood to drink (LTD) during the conversation, and levels of self-reported hazardous alcohol use for women, but unrelated for men; 2) performance-related social anxiety will be positively associated with UTD during a speech and AUDIT for women, but will be unrelated for men; and 3) gender will not moderate the association between performance-related social anxiety and LTD in the public speaking task.

## Method

Participants were 58 college students (69% female; mean age = 19.34, SD = 1.54) attending a university in the Mid-South. Participants completed a pre-study screening questionnaire battery, including the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, & de la Fuente, 1993). Participants invited for the study were between the ages of 18 and 25 years and endorsed at least occasional alcohol use on Question 1 of the AUDIT ("how often do you have a drink containing alcohol?"). Upon entering the laboratory, participants completed informed consent and provided baseline measures of anxiety using a Subjective Units of Distress Scale (SUDS), and UTD and LTD scales. These three scales were presented on a 0-100 continuum, with 0 indicating no anxiety (or UTD; LTD) and 100 indicating maximum or extreme anxiety (UTD; LTD). Participants then engaged in two behavioral analogue social situations (i.e., speech and conversation) designed to induce anxiety (see Norton & Hope, 2001) in counterbalanced order. SUDS, UTD, and LTD ratings were obtained before, during, and after each social task by the experimenter. The social situation conditions were separated by a 10-minute distracter task. After completion of the study, participants were debriefed.

**Speech:** In the speech condition, participants were instructed that they would be giving a short speech over a topic of their choice and were given five minutes alone to prepare. They were then positioned at the front of a classroom setting, behind a podium, and two research confederates were brought into the room to serve as audience members. The participant was instructed to continue speaking until instructed to stop after four minutes. The study confederates were not allowed to ask or answer questions during the speech, kept their facial expressions neutral, and maintained appropriate eye contact.

**Conversation:** In the conversation condition, participants were instructed that they would be starting and maintaining a conversation with an individual they would be meeting for the first time, and were given five minutes alone to prepare. The experimenter and a research confederate then entered the room, and the participant was instructed to begin and maintain the conversation. The participant was instructed to continue conversing with the confederate until instructed to stop after four minutes. The study confederate was trained to respond to questions asked by the participant with yes/no or short answers, and not to ask a question of the participant unless a silence lasting at least five seconds had passed.

Table 1. Mean SUDS, UTD, & LTD by Gender.

	SUDS Mean (SD)	UTD Mean (SD)	LTD Mean (SD)
Speech			
Women (n = 37)	43.24 (21.02)	5.82 (13.03)	17.59 (25.82)
Men (n = 17)	32.71 (20.93)	15.03 (20.98)	11.18 (26.36)
Conversation			
Women	29.08 (19.49)	9.92 (17.17)	15.59 (23.53)
Men	21.00 (15.27)	1.71 (4.95)	11.35 (16.41)

## Results

Gender moderated the relationship between SUDS and UTD during the speech,  $t(53) = 2.76, p = .008$ . While women's UTD remained stable across SUDS level, men's UTD decreased as SUDS increased (Figure 1). The moderating effect of gender on the relationship between SUDS and UTD during the conversation approached significance,  $t(55) = 1.81, p = .077$ . Both men and women reported increases in UTD as SUDS increased, but the positive association was stronger for women than men (Figure 2). There was a significant main effect and a positive relationship for the effect of SUDS on LTD during the speech,  $t(53) = 3.16, p = .003$ , and conversation,  $t(55) = 2.56, p = .014$ . These findings suggest that women report higher UTD than men when socially anxious, but that LTD as social anxiety increases is similar for both sexes. There was a significant main effect of gender on AUDIT scores, with men scoring significantly higher than women during the speech ( $t[52] = -4.18, p < .001$ ) and conversation ( $t[54] = -4.50, p < .001$ ).

Figure 1. Anxiety (SUDS) by Urge to Drink for the Speech Task.

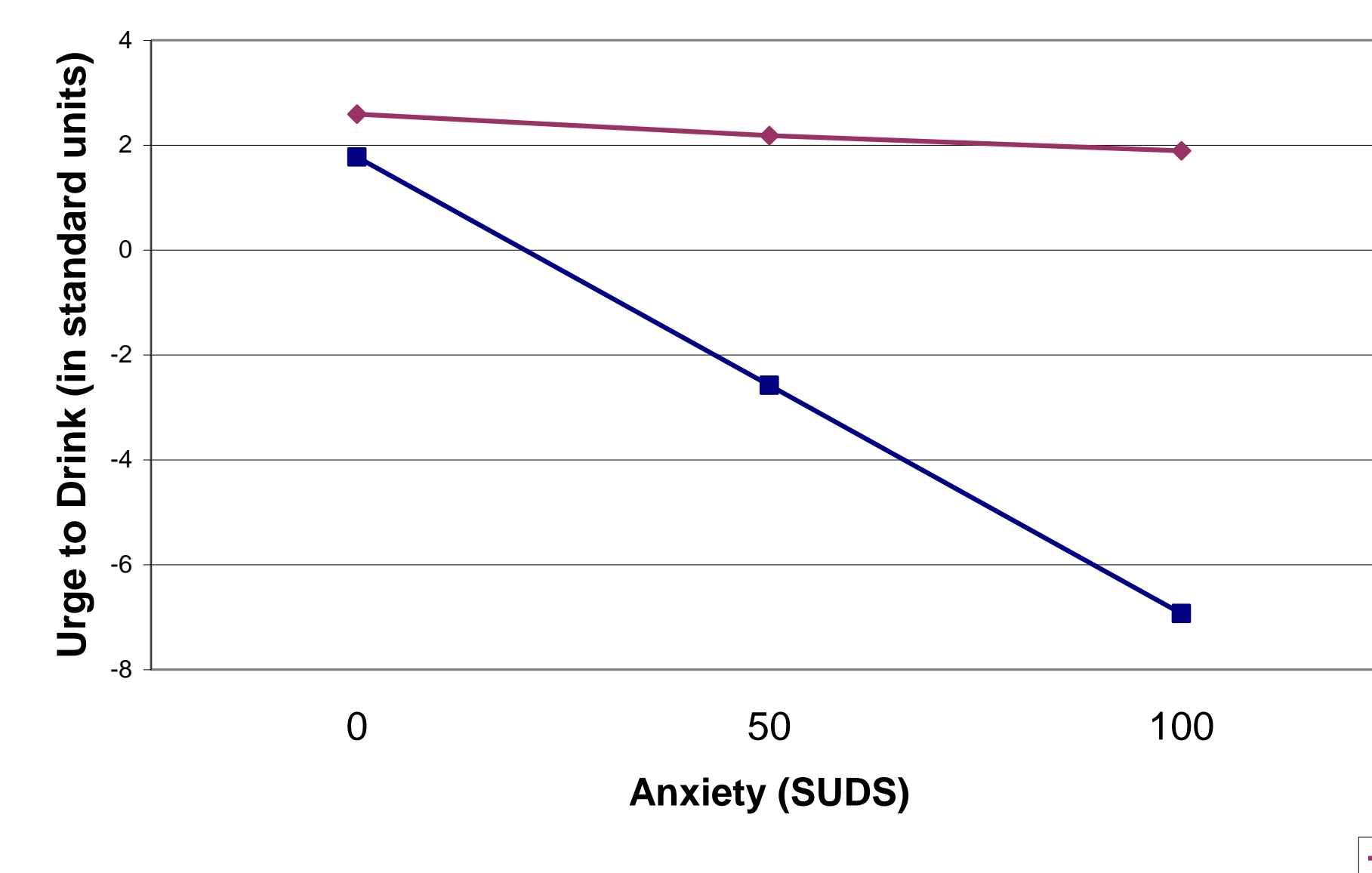
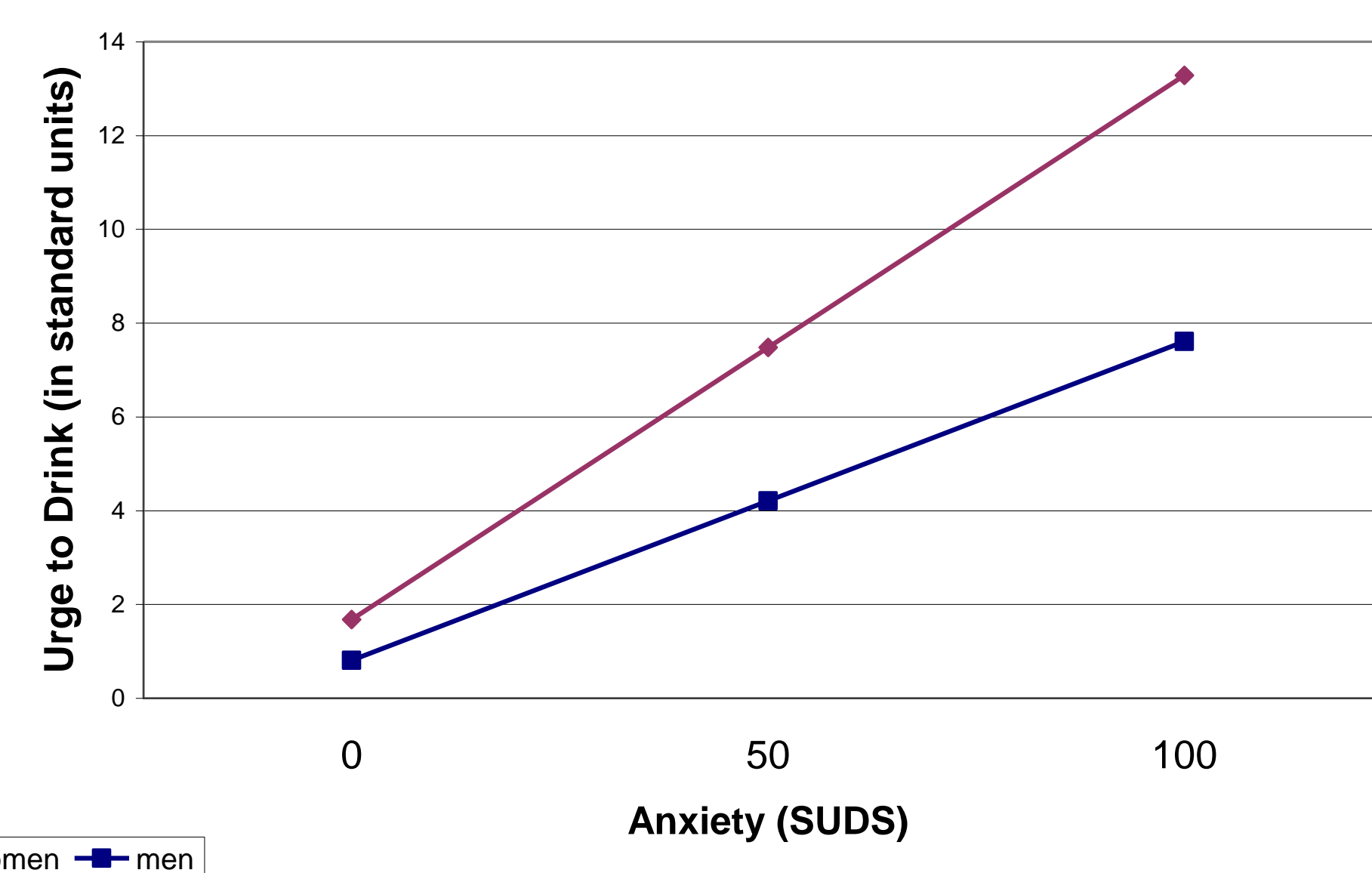


Figure 2. Anxiety (SUDS) by Urge to Drink for the Conversation Task.



## Discussion

The present study sought to explore gender as a moderator in the relationship between social anxiety, urge to drink, and likelihood to drink in two common social situations, a speech and a conversation with a stranger. It has previously been found that women tend to drink in the presence of unpleasant emotions more so than men (Annis & Graham, 1995; Reyno et al., 2006), leading to the hypothesis that desire to consume alcohol will increase for women, but not for men, as anxiety increases. A better understanding of such phenomena can aid in future development of both treatment and prevention programs for alcohol use disorders.

It was found that gender moderated the relationship between UTD and social anxiety during the two tasks. During the speech task, urge to drink ratings for women were stable regardless of anxiety rating, whereas men's urge to drink decreased as SUDS increased. While urge to drink ratings for both genders at a lower level of SUDS were very similar, UTD for men dropped off precipitously as anxiety increased, but this was not the case for women (see Figure 1). These findings may indicate that men have a relatively reduced risk for alcohol consumption at higher levels of anxiety, while an increase in anxiety does not serve a similar protective role for women. During the conversation condition, both men and women's urge to drink increased as anxiety increased, but the relationship was stronger for women than for men. This finding neared significance, and it is believed that with a larger sample size obtained after further data collection these findings reach significance. These findings partially support prior research that states that women tend to drink in response to unpleasant emotions, which has not been found in men (Annis & Graham, 1995). Women may be at relatively higher risk for increased alcohol use when experiencing anxiety in social interactions, which may speak to a potential for higher incidence of alcohol use disorders in socially anxious women as compared to socially anxious men (Kessler et al., 1997).

We were unable to find any support for a moderating effect of gender on the relationship between SUDS and LTD in the speech. Although there was an overall finding that a positive relationship existed between SUDS and LTD during both the conversation task and the speech task, this relationship was not different for men and women. It may be the case that our participants felt that it would be socially acceptable to consume alcohol prior to and during the speech because they were participating in a study rather than actually giving a presentation in a class, where they might be negatively evaluated for behaving in an intoxicated manner.

Based on our findings gender did not moderate the relationship between anxiety during either task and AUDIT scores. Men scored significantly higher than women on the AUDIT overall, consistent with epidemiological evidence that men consume more alcohol than women and are more likely to be diagnosed with an AUD. Further research into the relationship of social anxiety to problematic alcohol use for men and women separately is necessary to explicate potential gender-specific risk factors, if they exist. Future research studies may focus on gender differences in alcohol expectancies and drinking motives that may lead to alcohol use, and the impact of affect intensity and emotion regulation on the relationship between social anxiety and alcohol consumption.