



Social anxiety, alcohol expectancies, and self-efficacy as predictors of heavy drinking in college students

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Abstract

Burke and Stephens (1999) [Burke, R.S., Stephens, R.S. Social anxiety and drinking in college students: A social cognitive theory analysis. *Clinical Psychology Review*, 19, (1999) 513–530.] proposed a social cognitive theory of heavy drinking in college students. According to this theory, alcohol expectancies for social facilitation and self-efficacy for refusing heavy drinking in anxiety-producing social situations moderate the relationship between social anxiety and drinking. In the current study, a significant three-way interaction was observed among social anxiety, expectancies, and self-efficacy when amount and frequency of drinking was the dependent variable. As predicted by the model, socially anxious college students with low self-efficacy for avoiding heavy drinking in social situations and high positive expectancies for social facilitation reported more alcohol consumption than other socially anxious individuals.

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1. Introduction

Heavy drinking is common among college students and often leads to negative consequences. Wechsler, Lee, Kuo, and Lee (2000) surveyed over 14,000 college students and found that over 40% engaged in binge drinking. Among 388 college freshman, 22% reported engaging in sexual situations

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they regretted while under the influence of alcohol, and 14% endorsed driving while intoxicated (Read, Wood, Kahler, Maddock, & Palfai, 2003). In addition, some students indicated signs of physical dependence, including blackouts (45%), increased tolerance (56%), and withdrawal symptoms (5%). The college environment often encourages excessive alcohol consumption (e.g., alcohol is easily available; drinking at parties is the norm). Nevertheless, Burke and Stephens (1999) proposed that individual differences may also be important in understanding drinking behavior in this population.

Social anxiety is one individual differences variable that may be related to heavy drinking among college students. Social anxiety is characterized by fear of negative evaluation by others. In its severe form, social anxiety results in significant distress or functional impairment and is a clinical diagnosis referred to as social phobia (American Psychiatric Association [APA], 2000).

Social anxiety has been shown to be related drinking among college students in several studies. Using a structured diagnostic interview, Kushner and Sher (1993) found that having a diagnosis of social phobia significantly increased the risk of also having a diagnosis of alcohol abuse or dependence among college students. Goodwin (1990) found that a common reason college students reported for drinking was to meet new people, including members of the opposite sex. College students also report drinking to be sociable, to fit in with others, and to feel less shy (Kairouz, Gliksmann, Demers, & Adlaf, 2002).

Social phobia is often comorbid with substance abuse (Moutier & Stein, 1999) and precedes alcohol abuse in many dually-diagnosed individuals (Schneier, Martin, Liebowitz, Gorman, & Fyer, 1989). Therefore, some individuals who abuse alcohol may be drinking in response to their social anxiety. Additionally, experimental data suggest that alcohol consumption decreases performance anxiety among individuals with social phobia (Abrams, Kushner, Medina, & Voight, 2001) and that individuals with social phobia increase their alcohol intake following a performance task (Abrams, Kushner, Medina & Voight, 2002). Such studies demonstrate the negative reinforcement value of alcohol among individuals with social phobia and suggest that individuals with social phobia who routinely use alcohol to reduce social anxiety may be at risk for developing abuse or dependence problems (Abrams et al., 2001, 2002).

In addition to social anxiety, another potentially important individual differences variable that may affect drinking behavior among college students is alcohol expectancies. Alcohol expectancies are beliefs that people hold about the effects of alcohol. Alcohol expectancies have been implicated as playing a role in amount of drinking in multiple studies. For example, two longitudinal studies have demonstrated that greater alcohol expectancies of social facilitation held by adolescents even before they began drinking predicted increases in drinking over time (Christiansen, Smith, Roehling, & Goldman, 1989; Smith, Goldman, Greenbaum, & Christiansen, 1995).

Several studies with college students have examined both alcohol expectancies and social anxiety. Burke and Stephens (1997) found that socially anxious college students held expectancies that alcohol would produce positive social effects. Lewis and O'Neill (2000) found that college students who engaged in problem drinking had higher levels of social anxiety and held more positive alcohol expectancies than non-problem drinkers. O'Hare (1990) found that social anxiety significantly predicted alcohol expectancies of tension reduction and increased social assertiveness. Alcohol expectancies of anxiety reduction specifically in social situations have been found to moderate the relationship between social anxiety and drinking in college students (Tran, Haaga, & Chambless, 1997). More recently, Eggleston, Woolaway-Bickel, and Schmidt (2004) found that social anxiety was related to greater positive and negative alcohol expectancies. Lastly, for college men, alcohol expectancies of social

assertiveness were found to be related to increased drinking prior to confronting an anxiety-provoking speech task (Kidorf & Lang, 1999).

In addition to social anxiety and alcohol expectancies, another potentially important individual differences variable that may affect drinking behavior among college students is self-efficacy for refusing heavy drinking. In other words, some individuals may not feel capable of turning down drinks, or drinking a small amount of alcohol, in situations where other people are drinking and it is the “norm.” Among alcoholic clients who subsequently drank after leaving treatment, self-efficacy judgments at intake accounted for a significant percentage of the variance in the amount of alcohol they consumed at follow-up (Solomon & Annis, 1990). Evans and Dunn (1995) found both lower self-efficacy judgments and positive alcohol expectancies to be related to greater alcohol consumption in a college sample. Burke and Stephens (1997) found that students with high levels of social anxiety reported lower self-efficacy for avoiding heavy drinking in situations that cause social anxiety than students with low social anxiety. Among a community sample of drinkers, Lee and Oei (1993) found that participants who find it difficult to resist drinking when they are given opportunities to drink typically report higher frequency and quantity of alcohol consumption. Hasking and Oei (2002) found that alcohol expectancies and self-efficacy significantly interacted to predict volume of alcohol consumed in a community sample. Specifically, for lower drinking refusal self-efficacy, higher alcohol expectancies were associated with consumption of a greater volume of alcohol while lower alcohol expectancies were associated with consumption of a lesser volume of alcohol. For higher drinking refusal self-efficacy, there was not a significant difference in volume of alcohol consumed between levels of alcohol expectancies.

To our knowledge, no study has examined the relationship among social anxiety, alcohol expectancies, self-efficacy for drink refusal, and drinking behavior simultaneously. Burke and Stephens (1999) proposed that alcohol expectancies and self-efficacy for refusing heavy drinking are moderating factors in the relationship between social anxiety and drinking in college students. In other words, some socially anxious individuals may hold positive beliefs about alcohol’s social facilitation effects (e.g., that it will help them be more outgoing, friendly, and witty). Socially anxious individuals who hold these expectancies are predicted to be more likely to drink in social situations than their socially anxious counterparts who do not strongly hold such expectancies. Positive expectancies of social facilitation are proposed to be the most important alcohol expectancies among individuals with social anxiety (Burke & Stephens, 1999). In addition, individuals with social anxiety who do not believe strongly in their ability to resist drinking heavily in anxiety-provoking social situations are predicted to be more likely to engage in heavy drinking than their counterparts who have higher self-efficacy in this area. The current study is an attempt to test the relationship among the variables included in the social cognitive theory of social anxiety and drinking in college students of Burke and Stephens (1999).

2. Method

2.1. Participants

Participants were 118 (72 women) unselected undergraduate students. The average age of participants was 19 (SD=1.29). All participants were single. The racial composition of the sample was 86% Caucasian, 9% African-American, and 6% other ethnicities.

2.2. Measures

The *Social Phobia Scale* (SPS; Mattick & Clarke, 1998) and the *Social Interaction Anxiety Scale* (SIAS; Mattick & Clarke, 1998) are two companion measures for assessing social anxiety. According to Brown et al. (1997), “. . .the SIAS and SPS may be best considered as subscales of one larger measure” (p. 22). For the current study, the SPS and SIAS were combined into one measure of social phobia. Using the current sample of college students, internal consistency for the combined measure was very good (Cronbach’s $\alpha = .94$). The SPS assesses fears of being watched by other people while engaging in certain activities (e.g., public speaking, eating), while the SIAS measures social interaction anxiety. The SPS and the most commonly used version of the SIAS each consist of 20 items. For both measures, participants are asked to “indicate the degree to which you feel the statement is a characteristic true of you.” Items for the SPS (e.g., “I feel awkward and tense if I know people are watching me”) and SIAS (e.g., “When mixing socially I am uncomfortable”) are rated on a five-point Likert scale (0=not at all, 4=extremely) (Mattick & Clarke, 1998). The SPS and SIAS have good psychometric properties (for a review see Heimberg & Turk, 2002).

The *Comprehensive Effects of Alcohol questionnaire* (CEOA; Fromme, Stroot, & Kaplan, 1993) is a 76-item self-report inventory designed to measure expectancies about the effects of drinking alcohol, as well as subjective evaluations of alcohol’s physiological, psychological, and behavioral outcomes. The CEOA is designed to assess discrete rather than global expectancies about alcohol’s effects. The CEOA consists of two parts. Alcohol expectancies are rated on a 4-point Likert scale ranging from 1 (disagree) to 4 (agree). Each item begins with the phrase, “If I were under the influence from drinking alcohol. . .” (e.g., “I would be outgoing”). For each item, participants then evaluate the expected effect on a 5-point Likert scale (1=bad, 3=neutral, 5=good). The CEOA has demonstrated adequate internal consistency and test–retest reliability (Fromme et al., 1993). Confirmatory factor analyses have demonstrated the construct validity of the four positive factors and three negative factors for alcohol outcome expectancies. A benefit of using the CEOA is that it was developed using an undergraduate student sample (Fromme et al., 1993) and has been used with college students in subsequent research (e.g., Eggleston et al., 2004). For the current study, only the positive expectancies of social facilitation subscale of the CEOA was used.

Burke and Stephens (1997) modified the *Situational Confidence Questionnaire-39* (SCQ-39; Annis & Graham, 1988) for use with college students. The original SCQ-39 was a 39-item questionnaire designed to “assess Bandura’s concept of self-efficacy in relation to changes in drinking behavior” (Solomon & Annis, 1990, p. 661). The revised version of the SCQ (Burke & Stephens, 1997), which will be referred to as the *Situational Confidence Questionnaire-Revised* (SCQ-R), consists of 26 items. Each item begins with the phrase, “I would be able to resist the urge to drink *heavily*. . .” The measure contains subscales measuring self-efficacy for avoiding heavy drinking in positive situations, negative situations, and situations which produce social anxiety (e.g., “if I was talking to an attractive member of the opposite sex”). Participants rate the degree to which they feel confident in their ability to resist drinking heavily in each hypothetical situation on a 6-point percentage scale (0%=not at all confident, 100%=very confident). All three subscales of the SCQ-R have demonstrated good internal consistency (Burke & Stephens, 1997). For the present study, the subscale assessing self-efficacy in situations that produce social anxiety was used.

The *Alcohol Use Disorder Identification Test* (AUDIT; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993) is a 10-item self-report measure of drinking behavior. The measure includes 3 questions

about amount and frequency of drinking (e.g., “How often do you have a drink containing alcohol?”); 3 questions on alcohol dependence (e.g., “How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?”); and 4 questions on problems caused by drinking (e.g., “Have you or has someone else been injured as a result of your drinking?”). The AUDIT was developed as an early intervention screening device to identify a broad spectrum of potential drinking problems and was validated across several cultures (Saunders et al., 1993). The AUDIT subscales have been shown to have adequate internal consistency (O’Hare & Sherrer, 1999; Saunders et al., 1993). Additionally, the measure was able to correctly classify alcoholics and non-drinkers based on their scores. Specifically, 99% of subjects identified as alcoholics obtained scores of 8 or higher, and 99.5% of those identified as non-drinkers obtained scores of less than 8 (Saunders et al., 1993). O’Hare and Sherrer (1999) found the AUDIT to be a valid screening device which positively correlated with two other measures of harmful drinking, the College Alcohol Problems Scale (O’Hare, 1997a) and the Drinking Context Scale (O’Hare, 1997b).

2.3. Procedure

Participants received extra credit for taking part in the study. They were given packets containing the questionnaires in class and completed them at home. Participants brought the packets to a subsequent class where a research assistant collected them.

2.4. Statistical analyses

Baron and Kenny (1986) describe a moderator variable as: “a qualitative (e.g., sex, race, class) or quantitative . . . variable that affects the direction and/or strength of a relation between an independent or predictor variable and a dependent or criterion variable . . . a basic moderator effect can be represented as an interaction between a focal independent variable and a factor (the moderator) that specifies the appropriate conditions for its operation” (p. 1174). That is, moderator variables affect the relationship between two other variables. Specifically, moderating variables interact with an independent or predictor variable such that the impact of the independent or predictor variable on the dependent variable varies according to the value of the moderator (Holmbeck, 1997).

The current study used a multiple regression approach to test for moderator effects. Three multiple regression equations were solved in total. The three subscales served as the respective dependent measures in the models. Consistent with the recommendations of Aiken and West (1991), the independent variable and the moderators were centered. For each of the models, the main effects of the predictor (SIAS/SPS composite) and moderators (CEOA-positive for social facilitation, SCQ-R-social anxiety subscale) were entered into the regression equation at Step 1. Next, the two-way interactions of the main effect and the moderators (SIAS/SPS \times CEOA-positive for social facilitation, SIAS/SPS \times SCQ-R-social anxiety subscale, SIAS/SPS \times CEOA-positive for social facilitation \times SCQ-R-social anxiety subscale) were entered at Step 2. Finally, the three-way interaction term was entered at Step 3. In multiple regression, the main effects may be entered in any order but they must be entered before the products of these variables in order for these products to represent interactions when they enter the equation (Holmbeck, 1997). Moderation is represented when an interaction term significantly adds to the prediction beyond a main effects or nested model. Simple regression lines for high and low values of the moderator variable were plotted to interpret significant interactions (Cohen & Cohen, 1983).

3. Results

3.1. Preliminary analyses

The drinking behavior of the sample was examined. The mean AUDIT score was 9.16 (SD=6.84). In this sample, 56.8% of participants met the cutoff score of 8 or higher, which, according to Saunders et al. (1993), suggests a strong likelihood of hazardous and harmful drinking behavior. In the Saunders et al. (1993) study, 98% of a sample of known alcoholics scored 10 or higher, and 41.5% of the participants met this more stringent cut-off. O'Hare and Sherrer (1999) also used the AUDIT with a college sample and found that 67.3% obtained scores of 8 or higher and 52.6% scored 10 or higher.

Approximately 15% of the current study's participants reported never drinking alcoholic beverages, 15% reported drinking monthly or less, 28% reported drinking two to four times per month, 34% reported drinking two to three times per week, and 8% reported drinking four or more times per week. Approximately 20% of participants reported drinking one or two drinks on a typical day when they were drinking, 23% reported drinking three or four, 29% reported drinking five or six, 19% reported drinking seven to nine, and 9% reported drinking 10 or more.

Significant correlations were found among social anxiety and the subscales of the AUDIT measuring alcohol dependence and problems caused by alcohol (see Table 1). Social anxiety did not significantly correlate with AUDIT amount and frequency of drinking. Low self-efficacy for refusing heavy drinking and positive alcohol expectancies of social facilitation were significantly correlated with all subscales of the AUDIT. In addition, self-efficacy and alcohol expectancies were significantly correlated with each other but not social anxiety.

3.2. Moderation analyses

According to the main effects model predicting alcohol dependence (Step 1), social anxiety (Beta=.22), positive alcohol expectancies for social facilitation (Beta=.22), and self-efficacy for avoiding heavy drinking (Beta=-.21) all made significant, unique contributions, $R=.433$, F change (3,

Table 1

Correlations among drinking variables, social anxiety, self-efficacy for avoiding heavy drinking in social situations, and positive expectancies for social facilitation

	AUDIT dep.	AUDIT prob.	SPS/SIAS	SCQ-SSE	CEOA-SFEXP
AUDIT amount and freq.	.52**	.60**	-.04	-.48**	.38**
AUDIT dep.	–	.64**	.26**	-.32**	.29**
AUDIT prob.	–	–	.23*	-.43**	.38**
SPS/SIAS	–	–	–	-.16	.04
SCQ-SE	–	–	–	–	-.34**

AUDIT = Alcohol Use Disorder Identification Test; AUDIT amount and freq. = Amount and frequency of drinking subscale; AUDIT dep. = Alcohol Dependence subscale; AUDIT prob. = Problems caused by alcohol subscale; SPS/SIAS = Social Phobia Scale/Social Interaction Anxiety Scale Combined Total Score; SCQ-SSE = Situational Confidence Questionnaire-Sociability self efficacy scale; CEOA-SFEXP = Comprehensive Effects of Alcohol Questionnaire-Social facilitation expectancies subscale; * = Correlation is significant at the .05 level (2-tailed); ** = Correlation is significant at the .01 level (2-tailed).

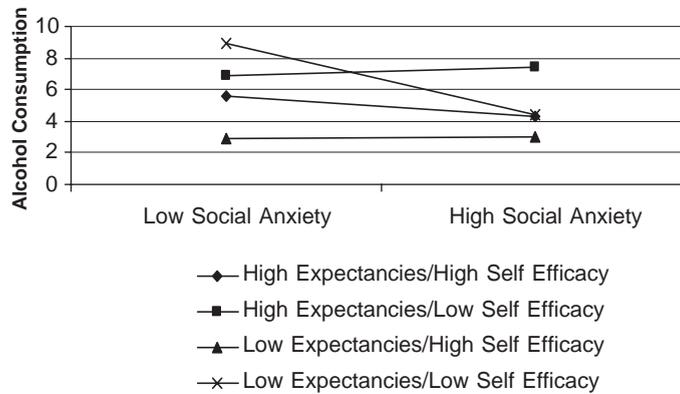


Fig. 1. Level of alcohol consumption graphed according to high and low values of alcohol expectancies of social facilitation, self-efficacy for refusing heavy drinking in social situations, and social anxiety.

114)=8.77, $p < .001$. For the models containing interaction terms (Step 2 and Step 3), none of the interactions significantly predicted alcohol dependence.

Similarly, for the main effects model predicting alcohol related problems (Step 1), social anxiety (Beta=.17), positive alcohol expectancies for social facilitation (Beta=.27), and self-efficacy for avoiding heavy drinking (Beta=-.32) all made significant, unique contributions, $R = .527$, F change (3, 114)=14.58, $p < .001$. For the models containing interaction terms (Step 2 and Step 3), none of the interactions significantly predicted alcohol-related problems.

When alcohol consumption (i.e., AUDIT amount and frequency) was the criterion variable, according to the full model (Step 3), the three-way interaction of social anxiety, positive alcohol expectancies for social facilitation, and self-efficacy for avoiding heavy drinking was significant, R^2 change=.024, F change (1, 110)=3.94, $p = .05$. Using the analysis of partial variance procedure (Cohen & Cohen, 1983), high and low values of the moderator variables were computed and graphed (see Fig. 1). For undergraduates high in social anxiety, the greatest alcohol consumption was in the context of high positive expectancies for social facilitation and low self-efficacy for avoiding heavy drinking. Almost as much alcohol consumption was observed among students low in social anxiety with similar expectancies and self-efficacy.

4. Discussion

The current study provided partial support for the social cognitive theory of social anxiety and drinking among college students of Burke and Stephens (1999). As predicted, socially anxious college students with low self-efficacy for avoiding heavy drinking in anxiety-provoking social situations and high positive expectancies for social facilitation reported more alcohol consumption than other socially anxious individuals. However, this pattern was not unique to highly socially anxious students. Students low in social anxiety with low self-efficacy for avoiding heavy drinking in social situations and high positive expectancies for social facilitation drank almost as much as their socially anxious counterparts. If anything, a single risk factor of either low self-efficacy for avoiding heavy drinking in social situations or high positive expectancies for social facilitation did not produce meaningful increases in alcohol

consumption among socially anxious college students. The presence of both risk factors was needed. In contrast, the presence of either risk factor was associated with increased alcohol consumption among college students low in social anxiety. Moreover, the interaction among social anxiety, positive expectancies, and self-efficacy was observed only for alcohol consumption. This pattern was not observed for alcohol dependence or problems caused by alcohol.

Social anxiety was positively correlated with and a significant predictor of alcohol dependence and problems caused by alcohol. In their review paper, [Burke and Stephens \(1999\)](#) point out that the strongest evidence for the link between social anxiety and alcohol problems comes from studies which examine clinically severe cases of social anxiety or alcohol abuse or dependence. The current study extends this relationship to a nonclinical sample where social anxiety and drinking problems and dependence were measured as continuous variables across the entire range of severity. Programs for students with problems caused by alcohol may do well to assess both clinical and subclinical social anxiety as a possible motivating factor for drinking.

Interestingly, social anxiety was not correlated with amount and frequency of drinking. Despite the preponderance of studies supporting the relationship between social anxiety and alcohol usage reviewed above, a few studies have found weak or even negative correlations between social anxiety and drinking behavior. For example, in a recent study by [Ham and Hope \(2005\)](#), social anxiety was either unrelated to or demonstrated a weak negative correlation with alcohol outcome measures completed by college students referred to an alcohol intervention program. Consistent with our findings, [Ham and Hope \(2005\)](#) also found that alcohol use and alcohol problems were at times predicted by different variables. Taken together, these results suggest the need to assess separately the constructs of drinking amount and problems arising from drinking among college students.

Self-efficacy for avoiding heavy drinking in social situations and positive expectancies for social facilitation were consistently related to all indices of drinking. This finding gives additional support to previous findings that alcohol expectancies and self-efficacy are both important variables which are related to drinking behavior (e.g., [Hasking & Oei, 2002](#)). [Oei and Morawska \(2004\)](#) point out that much of the literature focuses on expectancies rather than self-efficacy, although they are distinct constructs.

The current study has a number of prevention and treatment implications. A review of the literature suggests that several intervention programs have been developed for use with alcohol-abusing adults, but there is little research on interventions for younger populations ([Saunders, Kypri, Walters, Laforge, & Larimer, 2004](#)). [Oei and Morawska \(2004\)](#) report that the majority of treatments designed to decrease drinking in youth have not been successful because of the generality of the approaches and lack of theoretical basis. According to [Fromme, Marlatt, Baer, and Kivlahan \(1994\)](#), traditional alcohol interventions such as Alcoholics Anonymous, Alateen, or rehabilitation programs may be unappealing and irrelevant to young drinkers.

A few studies have examined treatments designed to reduce drinking among college students. For example, motivational interventions have some empirical support (e.g., [Borsari & Carey, 2000](#); [Roberts, Neal, Kivlahan, Baer, & Marlatt, 2000](#)). Motivational interventions typically involve a personalized feedback session with the individual in which drinking patterns, expectancies, and drinking-related problems are discussed ([Borsari & Carey, 2000](#)). Empirical support has been demonstrated for the Expectancy Challenge program of [Darkes and Goldman \(1993\)](#). In this three-session program, an in vivo experience teaches participants that expectancies are more influential than physiological effects of alcohol. Students are then taught to identify and challenge their alcohol-related expectancies outside of the treatment program. The group-based intervention of [Fromme et al. \(1994\)](#),

which challenges expectancies and encourages safer moderate drinking, also looks promising when compared with existing treatment programs which do not challenge young people's expectancies. In conclusion, while there are treatments which target college students' alcohol expectancies, there appears to be a lack of treatments which target other relevant variables such as social anxiety and self-efficacy.

This study has several limitations. All of the measures relied on the self-report of the participants. An improvement in methodology would arise from other, more objective assessment approaches (e.g., directly observe drinking behavior in social situations). The present study, in its test of the model by Burke and Stephens (1999), looked at only a few variables related to drinking in college students and other variables are likely to be important. For example, factors such as perceived drinking norms among peers significantly predicts of alcohol outcomes among college students (Ham & Hope, 2005). This study encompassed a narrow cultural range of college students, mostly Caucasians. Future research could also test Burke and Stephens' model in post-college individuals to determine whether the model extends beyond the college years.

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References

- Abrams, K., Kushner, M., Medina, K. L., & Voight, A. (2001). The pharmacologic and expectancy effects of alcohol on social anxiety in individuals with social phobia. *Drug and Alcohol Dependence*, *64*, 219–231.
- Abrams, K., Kushner, M. G., Medina, K. L., & Voight, A. (2002). Self-administration of alcohol before and after a public speaking challenge by individuals with social phobia. *Psychology of Addictive Behaviors*, *16*, 121–128.
- Aiken, L.S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- American Psychiatric Association. (2002). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author text revision.
- Annis, H. M., & Graham, J. M. (1988). *Situational confidence questionnaire (SCQ-39) user's guide*. Toronto: Alcoholism and Drug Addiction Research Foundation.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Borsari, B., & Carey, K. B. (2000). Effects of a brief motivational intervention with college student drinkers. *Journal of Consulting and Clinical Psychology*, *68*(4), 728–733.
- Brown, E. J., Turovsky, J., Heimberg, R. G., Juster, H. R., Brown, T. A., & Barlow, D. H. (1997). Validation of the social interaction anxiety scale and the social phobia scale across the anxiety disorders. *Psychological Assessment*, *9*, 21–27.
- Burke, R. S., & Stephens, R. S. (1997). Effect of anxious affect on drinking self-efficacy in college students. *Psychology of Addictive Behaviors*, *11*, 65–75.
- Burke, R. S., & Stephens, R. S. (1999). Social anxiety and drinking in college students: A social cognitive theory analysis. *Clinical Psychology Review*, *19*, 513–530.

- Christiansen, B. A., Smith, G. T., Roehling, P. V., & Goldman, M. S. (1989). Using alcohol expectancies to predict adolescent drinking behavior after one year. *Journal of Consulting and Clinical Psychology, 57*, 93–99.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Darkes, J., & Goldman, M. S. (1993). Expectancy challenge and drinking reduction: Experimental evidence for a mediational process. *Journal of Consulting and Clinical Psychology, 61*(2), 344–353.
- Eggleston, A. M., Woolaway-Bickel, K., & Schmidt, N. B. (2004). Social anxiety and alcohol use: Evaluation of the moderating and mediating effects of alcohol expectancies. *Journal of Anxiety Disorders, 18*, 33–49.
- Evans, D. M., & Dunn, N. J. (1995). Alcohol expectancies, coping resources, and self-efficacy judgments: A replication and extension of Cooper et al.'s 1988 study in a college sample. *Journal of Studies on Alcohol, 56*, 186–193.
- Fromme, K., Marlatt, G. A., Baer, J. S., & Kivlahan, D. R. (1994). The alcohol skills training program: A group intervention for young adult drinkers. *Journal of Substance Abuse Treatment, 11*(2), 143–154.
- Fromme, K., Stroot, E., & Kaplan, D. (1993). Comprehensive effects of alcohol: Development and psychometric assessment of a new expectancy questionnaire. *Psychological Assessment, 5*, 19–26.
- Goodwin, L. (1990). Social psychological bases for college alcohol consumption. *Journal of Alcohol and Drug Education, 36*, 83–95.
- Ham, L. S., & Hope, D. A. (2005). Incorporating social anxiety into a model of college student problematic drinking. *Addictive Behaviors, 30*, 127–150.
- Hasking, P. A., & Oei, T. P. S. (2002). The differential role of alcohol expectancies, drinking refusal self-efficacy and coping resources in predicting alcohol consumption in community and clinical samples. *Addiction Research and Theory, 10*, 465–494.
- Heimberg, R. G., & Turk, C. L. (2002). Assessment of social phobia. In R. G. Heimberg, & R. E. Becker (Eds.), *Nature and treatment of social fears and phobias*. New York: Guilford Press.
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology, 65*, 599–610.
- Kairouz, S., Gliksman, L., Demers, A., & Adlaf, E. M. (2002). For all these reasons, I do...drink: A multilevel analysis of contextual reasons for drinking among Canadian undergraduates. *Journal of Studies on Alcohol, 63*, 600–608.
- Kidorf, M., & Lang, A. R. (1999). Effects of social anxiety and alcohol expectancies on stress-induced drinking. *Psychology of Addictive Behaviors, 13*, 134–142.
- Kushner, M. G., & Sher, K. J. (1993). Comorbidity of alcohol and anxiety disorders among college students: Effects of gender and family history on alcoholism. *Addictive Behaviors, 18*, 543–552.
- Lee, N. K., & Oei, T. P. S. (1993). The importance of alcohol expectancies and drinking refusal self-efficacy in the quantity and frequency of alcohol consumption. *Journal of Substance Abuse, 5*, 379–390.
- Lewis, B. A., & O'Neill, H. K. (2000). Alcohol expectancies and social deficits relating to problem drinking among college students. *Addictive Behaviors, 25*, 295–299.
- Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*, 455–470.
- Moutier, C. Y., & Stein, M. B. (1999). The history, epidemiology, and differential diagnosis of social anxiety disorder. *Journal of Clinical Psychiatry, 60*, 4–8.
- O'Hare, T. (1990). Alcohol expectancies and social anxiety in male and female undergraduates. *Addictive Behaviors, 15*, 561–566.
- O'Hare, T. (1997a). Measuring problem drinking in first time offenders: Development and validation of the College Alcohol Problems Scale. *Journal of Substance Abuse Treatment, 14*, 383–387.
- O'Hare, T. (1997b). Measuring excessive alcohol use in college drinking contexts: The drinking context scale. *Addictive Behaviors, 22*, 469–477.
- O'Hare, T., & Sherrer, M. V. (1999). Validating the alcohol use disorder identification test with college first-offenders. *Journal of Substance Abuse Treatment, 17*, 113–119.
- Oei, T. P. S., & Morawska, A. (2004). A cognitive model of binge drinking: The influence of alcohol expectancies and drinking refusal self-efficacy. *Addictive Behaviors, 29*, 159–179.
- Read, J. P., Wood, M. D., Kahler, C. W., Maddock, J. E., & Palfai, T. P. (2003). Examining the role of drinking motives in college students: Alcohol use and problems. *Psychology of Addictive Behaviors, 17*, 13–23.

- Roberts, L. J., Neal, D. J., Kivlahan, D. R., Baer, J. S., & Marlatt, G. A. (2000). Individual drinking changes following a brief intervention among college students: Clinical significance in an indicated preventive context. *Journal of Consulting and Clinical Psychology, 68*, 500–505.
- Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction, 88*, 791–804.
- Saunders, J. B., Kypri, K., Walters, S. T., Laforge, R. G., & Larimer, M. E. (2004). Approaches to brief intervention for hazardous drinking in young people. *Alcoholism, Clinical and Experimental Research, 28*(2), 322–329.
- Schneier, F. R., Martin, L. Y., Liebowitz, M. R., Gorman, J. M., & Fyer, A. J. (1989). Alcohol abuse in social phobia. *Journal of Anxiety Disorders, 3*, 15–23.
- Smith, G. T., Goldman, M. S., Greenbaum, P. E., & Christiansen, B. A. (1995). Expectancy for social facilitation from drinking: The divergent paths of high-expectancy and low-expectancy adolescents. *Journal of Abnormal Psychology, 104*, 32–40.
- Solomon, K. E., & Annis, H. M. (1990). Outcome and efficacy expectancy in the prediction of post-treatment drinking behaviour. *British Journal of Addiction, 85*, 659–665.
- Tran, G. Q., Haaga, D. A. F., & Chambless, D. L. (1997). Expecting that alcohol use will reduce social anxiety moderates the relation between social anxiety and alcohol consumption. *Cognitive Therapy and Research, 21*(5), 535–553.
- Wechsler, H., Lee, J. E., Kuo, M., & Lee, H. (2000). College binge drinking in the 1990s: A continuing problem. Results of the Harvard School of Public Health 1999 college alcohol study. *Journal of American College Health, 48*, 199–210.