The Effect of Anxious Affect on Drinking Self-Efficacy in College Students

By

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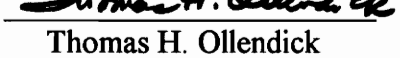

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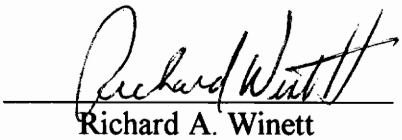

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(ABSTRACT)

Based on previous research findings, which have found significant relationships between the hypothesized components of self-efficacy judgments for avoiding heavy drinking and actual levels of alcohol consumption in college students, the present study examined the role of anxious affect on self-efficacy for avoiding heavy drinking in college students. Specifically, it was hypothesized that heavy drinking subjects who were either high or low on dispositional social anxiety would report lower levels of self-efficacy for avoiding heavy drinking in response to feelings of social anxiety induced via anticipation of a self-disclosing heterosocial interaction. In addition, it was hypothesized that subjects who were high in dispositional social anxiety would report greater alcohol expectancies of social facilitation and tension reduction than subjects who were low in dispositional social anxiety. Subjects ($\underline{N}$ = 440) completed measures of alcohol expectancies, social anxiety, and quantity/frequency of alcohol use to identify heavy drinkers who were also either high or low in dispositional social anxiety. Identified subjects ($\underline{n}$ = 73) were then assigned to either an anxiety inducing or non-anxiety inducing condition and asked to complete measures of state anxiety and self-efficacy for avoiding heavy drinking in positive, negative, and socially anxious situations. Results failed to find a significant main effect for anxiety manipulation on self-efficacy for avoiding heavy drinking, but a main effect of

dispositional social anxiousness was found on subjects' self-efficacy for avoiding heavy drinking in negative and socially anxious situations. The results of the study also failed to find significant relationships between alcohol expectancies of tension reduction and dispositional social anxiousness, but did find a significant positive relationship between social anxiety and alcohol expectancies of social facilitation. Lastly, exploratory analyses found significant relationships between positive and negative alcohol expectancies and self-efficacy for avoiding heavy drinking in socially anxious situations. Moreover, significant relationships were also found between alcohol expectancies and the frequency of drinking episodes and actual quantity consumed. Results are discussed in terms of the relationship between affect, self-efficacy, and outcome expectancies and implications for alcohol intervention programs with college students.

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Over the past ten years, the problem of binge drinking in college students has gained increased prominence in the research literature. Operationally defined as the consumption of five or more drinks during one sitting (Johnston, O'Malley & Bachman, 1992; Presley & Meilman, 1992), binge drinking is currently estimated to occur in over 40 percent of college students (Presley & Meilman, 1992) and has been found to be negatively related to a host of academic (Perkins, 1992), interpersonal (Presley & Meilman, 1992), and legal (Lloyd & Atkins, 1993) problems.

For example, several studies have found significant negative correlations between number of episodes of binge drinking and academic performance as indicated by lower GPA (Goodwin, 1990), missed classes (Lloyd & Atkins, 1993), and poor test performance (Presley & Meilman, 1992). In addition, research has found binge drinking to be related to increased incidents of verbal arguments (O'Hare, 1990a), physical fights (Engs & Hanson, 1988), and sexually regretted actions such as unprotected intercourse (Lloyd & Atkins, 1993). Lastly, research has consistently found a strong relationship between binge drinking and engaging in illegal activities such as vandalism (Engs and Hanson, 1988) and driving while intoxicated (Engs & Hanson, 1988; Lloyd & Atkins, 1993; O'Hare, 1990a; Perkins, 1992). Thus, understanding and attempting to rectify the problem of binge drinking in college students is of great concern to both university educators and administrators.

One theoretical model of behavior change that has received increased research attention in recent years is Albert Bandura's (1977, 1982) theory of self-efficacy. The basic premise of self-efficacy theory is that individuals will perform a behavior based upon their belief in their ability to successfully engage in or execute the behavior. In other words, according to self-efficacy theory, it is one's perceptions of one's ability to successfully engage in a behavior and not necessarily one's actual capabilities that influence

the performance of the behavior (Bandura, 1977, 1982; Strecher, DeVellis, Becker, & Rosenstock, 1986). In addition, the construct of self-efficacy is considered to be both behavior and situation specific. For example, one may have a high sense of self-efficacy for lifting weights at a gym and a low sense of self-efficacy for playing basketball on a neighborhood court.

Bandura (1977,1982) identified four major sources of influence on self-efficacy judgments: past performance accomplishments, vicarious experience, verbal persuasion, and affect. Bandura (1977) cites past performance accomplishments as the primary factor influencing one's sense of self efficacy. According to Bandura, previous success experiences, in performing a behavior, will strengthen an individual's efficacy or belief in his or her ability to successfully perform the behavior, and will thus, increase the likelihood of a future attempt at executing the behavior. Second, vicarious experience or ". . . learning that occurs through observation of events and/or other people" (Stretcher et al., 1986, p. 75) is also hypothesized to contribute to efficacy judgments. If one individual sees another successfully perform a behavior the observer's efficacy for performing that same behavior will increase. Third, verbal persuasion also contributes to efficacy judgments. Telling an individual that he or she can successfully perform a behavior can influence and strengthen that individual's personal belief in his or her ability to successfully execute the behavior.

Lastly, affect or emotional arousal is theorized to affect efficacy judgments. Bandura (1982) states that negative affect (e.g., anxiety) causes high arousal and "because high arousal usually debilitates performance, individuals are more likely to expect success when they are not beset by aversive arousal than if they are tense and viscerally agitated" (p.28). For example, if an individual is feeling anxious, he or she will report feeling less efficacious for performing a given behavior than an individual who is in a more relaxed affective state. In summary, self-efficacy theory posits that individuals use past

performance accomplishments, vicarious learning, verbal persuasion, and perception of affect to formulate beliefs about their abilities to successfully perform a specific behavior in a specific situation. This belief then influences whether or not an attempt will be made to successfully engage in the behavior.

Drinking Efficacy and Alcohol Use

In assessing an individual's level of self-efficacy for engaging in drinking behaviors, the approach most commonly used is to ask respondents how confident they are in their ability to avoid heavy drinking in specific situations. For example, assessment instruments designed to measure self-efficacy for avoiding heavy drinking typically ask respondents to rate on a scale ranging from 0-100 percent how confident they are in their ability to avoid heavy drinking in various situations (e.g., if I found a bottle of my favorite booze; if I stopped by a friend's house and my friend offered me a drink). The confidence ratings for these scores can then either be summed to yield a total confidence score for the individual, or specific subsets of items can be added together to yield confidence scores for different types of situations (e.g., urges and temptations, social pressure to drink).

To date, the majority of research aimed at examining self-efficacy and drinking behaviors has been conducted using adult alcoholic populations. For example, in a study by Sitharthan and Kavanaugh (1990), self-efficacy for avoiding heavy drinking was assessed for 60 subjects who completed a ten week program designed to help them achieve a controlled level of alcohol consumption. The findings of the study indicated that a significant negative correlation existed ($\underline{r} = -.35$) between post-treatment self-efficacy for avoiding heavy drinking and reported level of alcohol consumption at a six month follow-up. In addition, when entered into a multiple regression equation, ". . . post treatment self-efficacy level [was a significant predictor] of the amount of alcohol consumed during the follow-up period (p. 91). The higher the subjects' level of self-efficacy for avoiding

heavy drinking, the lower their level of alcohol consumption over a six month post-treatment follow-up.

Similarly, in a study of 53 veterans who met DSM-III-R criteria for alcohol abuse or dependence, McKay, Maisto, and O'Farrell (1993) assessed self-efficacy for avoiding heavy drinking following the subjects' completion of a behavioral marital therapy program. The results of the study indicated that at a one year follow-up, subjects who reported higher levels of self-efficacy for avoiding heavy drinking at the end of the treatment program consumed significantly less alcohol, as compared to those subjects who reported lower levels of self-efficacy.

Recently, researchers have also begun to examine self-efficacy for avoiding heavy drinking and alcohol use among non-alcoholic populations. For example, in a cross-sectional study of the relationship between self-efficacy for avoiding heavy drinking and actual levels of alcohol use, Collins and Lapp (1991) , administered a battery of measures assessing both self-efficacy for avoiding heavy drinking and daily alcohol consumption to 323 "social drinkers." The results of this cross-sectional study indicated that subjects' scores on the measure of self-efficacy for avoiding heavy drinking served as a significant predictor of both the maximum and minimum number of drinks consumed on a given occasion. Thus, the higher the individual's level of self-efficacy for restraining his or her drinking, the lower the level of alcohol consumed.

Similarly, in a study of 518 eighth grade students, Ellickson and Hays (1991) tested the predictive validity of a structural equation model they developed to examine the relationship between resistance self-efficacy for refusing offers of drugs and alcohol, and future usage of cigarettes, alcohol and marijuana. All subjects reported not using the above substances at the start of the study, and their resistance self-efficacy was assessed six times over a three year period using both a measure of resistance self-efficacy and answering questions about the quantity and/or frequency with which they used alcohol,

cigarettes, and/or marijuana. The results of the study indicated that low resistance self-efficacy measured at 15 months, directly predicted actual drug use (including alcohol) nine months later at the 24 month follow-up period.

Lastly, only two studies to date have examined the relationship between self-efficacy for avoiding heavy drinking and alcohol use in college student populations. In the first, Young, Oei, and Crook (1991) used their newly developed Drinking Self-Efficacy Questionnaire (DSEQ) to attempt to predict consumption levels in a sample of college students. The DSEQ is a 31 item questionnaire that is composed of subscales designed to measure self-efficacy for drinking in situations of social pressure (e.g., when you are at a party), opportunistic drinking (e.g., when you are watching TV), and situations characterized by a need for emotional relief (when you are angry). Respondents rate each of the items on a scale ranging from 1 (I am very sure I would drink) to 6 (I am very sure I would not drink) and the items for each subscale are summed to yield a total score for that subscale, with lower scores indicating a lower sense of drinking self-efficacy. In this cross-sectional study, subjects completed the DSEQ, along with a battery of measures assessing personality characteristics, alcohol related problems, and levels of alcohol consumption; with their DSEQ subscales scores being used as predictors of overall levels of alcohol consumption. The results of the study indicated that low self-efficacy in social pressure situations and opportunistic situations were significant predictors of greater alcohol consumption as measured by the Khavari Alcohol Test (KAT), a standardized measure of alcohol consumption.

Second, in an attempt to replicate these findings, Baldwin, Oei, and Young (1993) administered a drinking refusal self-efficacy questionnaire and the KAT to 118 undergraduates. Findings from the study indicated that subjects with higher levels of drinking refusal self-efficacy in opportunistic and high social pressure situations, as described above, drank less frequently than subjects with lower levels of drinking refusal

self-efficacy in these same situations. As a whole, the findings from the above studies provide consistent support for the relationship between self-efficacy for avoiding heavy drinking and actual quantity and frequency levels of alcohol consumption.

Outcome expectancies

In addition to the above sources and factors purported to influence efficacy judgments, an individual's outcome expectancies, or beliefs that performing a given behavior will result in a valued outcome, are also hypothesized to influence whether or not they perform the behavior (Rotter, 1966). In other words, even if one feels highly efficacious for performing a behavior, if one also feels that performing the behavior will not lead to a desired outcome then the behavior will likely not be performed. Thus, both self-efficacy and outcome expectancies are theorized to have significant roles in influencing whether or not an individual will perform a given behavior.

Unlike the limited amount of research examining the relationship between self-efficacy for avoiding heavy drinking and alcohol use however, the existence of a relationship between outcome expectancies and alcohol use in college students has been well documented (Baldwin et al., 1993). For example, Brown (1985) administered the Alcohol Expectancy Questionnaire (AEQ) (Brown, Goldman, Inn, & Anderson, 1980), a demographic information sheet, and a customary drinking record to 176 undergraduates, in order to determine if there was a relationship between college student alcohol expectancies and their drinking patterns. The results of the study indicated that the alcohol expectancy of enhanced social and physical pleasure (e.g., drinking adds a certain warmth to social occasions; drinking makes me feel good) was the best predictor of a heavy-frequent drinking pattern characterized by (a) frequent drinking in large quantities, (b) a self-labeling of one's drinking as heavy, and (c) the experiencing of occasional physical distress such as nausea or hangovers as a result of excessive drinking. In addition, the alcohol expectancy of tension reduction (e.g., alcohol makes me worry less,

I am not as tense if I am drinking) was the best predictor of a problematic drinking style that in addition to the three qualities just described, was characterized by experiencing legal or academic problems as a result of drinking. Thombs (1991) further substantiated the validity of these results in his study of 626 college students with the finding that alcohol expectancies of ". . . Physical/Social Pleasure and Relaxation/Tension Reduction most clearly distinguished problem drinkers from non-problem drinkers" (p. 493). Thus, as with the findings from studies examining the relationship between self-efficacy judgments and drinking behavior, college students' outcome expectancies also appear to play a role in predicting their levels of drinking.

Interestingly, although several studies have examined self-efficacy and outcome expectancies individually, very little research has looked at these constructs together when attempting to predict levels of drinking in college students. In terms of this population, one area where both self-efficacy and outcome expectancies may be expected to play a role is in relation to social anxiety. According to Arkowitz, Hinton, Perl, and Himadi (1978) social anxiety is highly prevalent amongst college students with up to 31% of undergraduates rating themselves as somewhat or very anxious about dating and/or interacting with other students of the opposite sex.

Leary (1982, 1983) defines social anxiety as a feeling of anxiety experienced in social interactions when individuals are motivated to make a good impression but have doubts about their ability to do so. In the context of a college setting, Arkowitz et al.'s (1978) findings become understandable. College students frequently want to make a good impression upon those with whom they interact, as this may lead to achieving desired interaction goals such as developing friendships or participating in social activities (Johnson, Springer, & Sternglanz, 1982). However, because many of these interactions will take place with new people in unfamiliar settings, students will likely be unsure of their ability to make a good impression and hence, experience feelings of social anxiety.

Support for a relationship between social anxiety and drinking comes from several studies which have examined the role of outcome expectancies and actual levels of alcohol consumed. For example, several studies (e.g., Carey, 1993, Goodwin, 1990, O'Hare, 1990a) have found that most college students report drinking in small mixed sex groups and that the two primary reasons that college students report drinking are to escape tension (i.e., relieve emotional pressures, be more relaxed) and to meet new people.

In a more formalized cross-sectional test of this relationship, Leonard and Blane (1988), had 86 male college students complete the AEQ (Brown et al., 1980) and several measures of interpersonal anxiety including: the Social Avoidance and Distress Scale (Watson & Friend, 1969), the Fear of Negative Evaluation Scale (Watson & Friend, 1969), and the Public Self-Consciousness and Social Anxiety subscales of the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975). Significant positive correlations were found between subjects' alcohol expectancies for general positive change (e.g., alcohol makes me more interesting; drinking makes the future seem brighter) and social assertiveness (e.g., A few drinks makes me less shy; a few drinks makes it easier to talk to people) and their scores on all four of the social anxiety measures ($\underline{r}s$ = .27-.46). The higher the subjects' level of social anxiety and concern over interpersonal evaluation, the greater the expectancy that drinking alcohol would reduce those concerns.

Similarly, O'Hare (1990b) found that in a sample of 606 male and female college students, a significant relationship existed between the Social Anxiety subscale of the Self-Consciousness Scale (Fenigstein et al., 1975) and alcohol expectancies of tension reduction and social assertiveness as measured by the AEQ (Brown et al., 1980). In addition, a significant relationship was also found to exist between subjects' self-reported level of social anxiety and their actual level of alcohol consumption (i.e., the higher the subjects' level of social anxiety, the more they tended to drink).

Lastly, several studies which have examined the hypothesized relationship between college student drinking and social anxiety have used a balanced placebo design (Marlatt & Rohsenow, 1980) to control for both alcohol expectancy and actual beverage content. In these studies, subjects were asked to drink a beverage that they were told did or did not contain alcohol (expectancy manipulation). In addition, for half of the subjects in each condition, the actual content of their beverage was the opposite of what they had been told (content manipulation). Following their consumption of the beverage, subjects participated in an anxiety inducing social interaction with an opposite sex confederate, during which physiological and behavioral ratings of their anxiety level were obtained. Subjects in these studies were also typically asked to complete self-report measures of anxiety both before and immediately following the interaction, in order to assess changes in the subjects' perceived levels of anxiety. The results of several of these studies have indicated that subjects who believed they had consumed alcohol, regardless of the beverage's actual content, demonstrated lower levels of anxiety as assessed by physiological indices (Wilson & Abrams, 1977), behavioral ratings by trained observers (Wilson, Abrams & Lipscomb, 1980), and self-report measures (Breslin & Wilson, 1992; de-Boer, Schippers, & Van-der-Staak, 1993).

Taken as a whole, the above findings suggest that for college students, the belief that they have consumed alcohol significantly reduces their level of interpersonal anxiety. In addition, college students who experience above average levels of social anxiety, report both higher alcohol expectancies for social assertiveness and tension reduction, and greater levels of alcohol consumption as compared to nonsocially anxious college students. Given that high and frequent levels of alcohol consumption are associated with the development of future alcohol problems (Brown, 1985), these findings, and their implications, are of great concern.

No studies to date have examined the relationship between social anxiousness and efficacy judgments for avoiding heavy drinking in college students. According to self-efficacy theory (Bandura, 1986) when college students are interacting with others in novel social encounters, such as at parties and college mixers, they are likely to experience feelings of social anxiety. Feelings of social anxiety then distract them from coping with their self-doubts and perceptions of inadequacy, which in turn lowers their self-efficacy for avoiding heavy drinking and subsequently results in increased levels of alcohol consumption (see Figure 1).

For dispositionally socially anxious college students, this effect may be particularly true because in addition to a dispositional belief that they inadequately cope with feelings of anxiety in social situations, they also have greater outcome expectancies for the anxiety reducing and social facilitative effects of alcohol (e.g., Leonard & Blane, 1988; O'Hare, 1990b). When combined, these factors likely have the additive effect of lowering self-efficacy for avoiding heavy drinking, and consequently, lead to high levels of alcohol consumption (see Figure 2).

Interestingly, however, to date, there has been no direct assessment of the effect that negative affect has on forming efficacy judgments for avoiding heavy drinking. A more precise understanding of how affective states, such as anxiety, effect the formation of self-efficacy judgments would be of great value in designing interventions, for heavy drinkers, as researchers and clinicians may be able to develop effective techniques to both lower levels of anxiety and raise levels of self-efficacy for avoiding heavy drinking. More specifically, interventions could be developed for college students that lower the levels of anxiety they experience in social situations which may in turn increase their level of self-efficacy for avoiding heavy drinking, and subsequently reduce both the amount of alcohol consumed and the problems associated with high levels of drinking.

Thus, the present study was designed to look at the additive and interactive effects of anxiety states produced by novel social encounters and the dispositional tendency to experience social anxiety on self-efficacy judgments for avoiding heavy drinking. Specifically, two hypotheses were tested. First, subjects experiencing feelings of social anxiety induced via anticipation of participating in a self-disclosing heterosocial interaction, would report lower levels of self-efficacy for drinking in moderation in social situations than control subjects. Second, an interaction between dispositional social anxiousness and experimental condition would occur such that subjects who were high in dispositional social anxiousness would show a greater effect of being exposed to the anxiety-inducing social situation on levels of self-efficacy for avoiding heavy drinking than subjects who were low on self-reported social anxiety.

In addition to the primary aim described above, a second aim of the present study was to replicate previous findings examining the relationship between social anxiousness and outcome expectancies for alcohol use using a more recent measure of social anxiousness--the Interaction Anxiousness Scale (Leary, 1983a). Specifically, it was hypothesized that binge drinkers who were high in social anxiousness would have higher expectancy scores on the Positive Social, Fun, and Tension Reduction/Negative Reinforcement subscales of the Alcohol Outcome Expectancy Scale (Leigh & Stacy, 1993) as compared to non-socially anxious binge drinkers.

Method

Screening Phase

Subjects. Four hundred forty subjects completed the screening phase of the study and were tested in groups of 10-35. All subjects were undergraduate college students, who were recruited via the Psychology Department subject pool at Virginia Tech. They received course credit for their participation. Subjects in this phase of the study were

mostly female (63.9%), had a mean age of 19.56 years (SD = 1.43) and were typically in their Freshman (29.8%) or Sophomore (38.6%) year in college.

Procedure. Upon arrival, subjects were presented with an informed consent form (see Appendix A) and were told that the purpose of the study was to examine the relationship between personality and health behaviors in college students. The experimenter explained the study, obtained informed consent, and then distributed a packet of six measures to each subject. Seating was previously arranged so that subjects could not see the responses of other subjects and all subjects were instructed not to talk to each other while completing the measures, to control for subject interaction effects. Instructions for each questionnaire were read aloud and explained by the experimenter to ensure subject comprehension, and after completing the measures, the experimenter collected the packets from the subjects. Subjects were informed that they may be selected to participate in the second part of the study which would examine personality variables and interaction styles in college students. All subjects were then debriefed by receiving written feedback (see Appendix B) about the first phase of the study and were thanked for their participation. The total time required by the subjects in the screening phase of the study was approximately one hour.

Measures. An 18 item health behaviors questionnaire (see Appendix C) was used to assess subjects' quantity, frequency, and volume of alcohol use and to screen subjects for participation in the experimental phase of the study. In their review of alcohol studies which have used verbal and/or self-report measures as a dependent measure, Babor, Stephens, and Marlatt (1987) suggest that verbal report measures of quantity and frequency of alcohol consumption are quite reliable in college students who demonstrate test-retest reliabilities ranging from .79-.95. In addition, the questionnaire asked subjects about other health related behaviors such as diet, exercise, medical check-ups, and drug use. These items were included in order to reduce subjects' ability to discern the main

focus of the questionnaire, which was to identify binge drinkers for inclusion in the second phase of the study.

The Interaction Anxiousness Scale (IAS) (Leary, 1991) (see Appendix D) is a 15 item self-report measure of "the tendency to experience subjective social anxiety independently of accompanying behaviors" (p. 168). Subjects respond to the items (e.g., I am usually at ease when speaking to a member of the opposite sex; parties often make me feel anxious and uncomfortable) using a five point scale (1, not at all characteristic of me; 5, extremely characteristic of me). The items are then summed to yield an overall social anxiousness score ranging from 15-75, with higher scores indicating greater levels of social anxiousness (i.e., the dispositional tendency to experience feelings of anxiety in social or evaluative situations). The IAS shows good internal consistency reliability (Cronbach's alpha > .87) and has an eight week test-retest reliability of .80. Leary (1983a) provided evidence for the convergent and discriminant validity of the IAS in relation to standard measures of social avoidance, fear of negative evaluation, and social desirability. In the present study, the IAS was used as a screening device to select individuals who were dispositionally high and low in social anxiousness for inclusion in the experimental phase of the study.

The COPE scale (Carver, Scheier, & Weintraub, 1989) (see Appendix E) is a ". . . multidimensional coping inventory [developed] to assess the different ways in which people respond to stress" (p. 267). The scale is composed of 60 coping behaviors to which subjects respond on a four point scale (1, I usually don't do this at all; 4, I usually do this a lot). The individual items form 15 subscales that measure various aspects of coping behaviors (e.g., problem focused coping, emotion focused coping). In the present study, several subscales of the COPE scale were used as a filler measure to reduce subjects' ability to discern the true purpose of the study.

The Private Self-Consciousness subscale of the Self-Consciousness Scale (Fenigstein et al., 1975) (see Appendix F) is a ten item measure that measures the degree to which subjects attend to their inner thoughts, motives, and feelings (Turner, Scheier, Carver, & Ickes, 1978). Subjects respond to each of the items (e.g., I reflect about myself a lot, I never scrutinize myself) on a five point scale (1, extremely characteristic; 5, extremely uncharacteristic), and the responses are summed to yield a total score. In the present study, the Private Self-Consciousness subscale was also used as a filler measure to reduce subjects' ability to discern the true purpose of the study.

The Alcohol Outcome Expectancies Scale (AOES) (Leigh & Stacy, 1993) (see Appendix G) is a 34 item questionnaire that assesses the positive and negative expectancies which respondents may experience as a result of drinking alcohol. Each of the items (e.g., I am more outgoing; I get a hangover) is preceded by the stem "When I drink alcohol" and is rated on a six point scale (1, no chance; 6, certain to happen). The AOES is composed of two primary subscales that assess both the positive and negative expectancies of drinking alcohol, and these subscales are each composed of several subfactors. Leigh and Stacy (1993) report that the subscales have good internal consistency reliabilities (Cronbach's alpha = .94 for the Positive Effects subscale and .88 for the Negative Effects subscale) and a one week test-retest reliability of .87. In the present study, the AOES was used to determine what expectancies subjects have about drinking alcohol. This data was then used to determine if significant differences exist between the expectancies of socially anxious and nonsocially anxious binge drinkers.

Lastly, the Impression Management subscale of the Balanced Inventory of Desirable Responding (BIDR) (Paulhus, 1991) (see Appendix H) is a 20 item scale that measures respondents' tendencies to ". . . systematically overreport their performance of a wide variety of desirable behaviors and underreport undesirable behaviors" (p. 37). Subjects rate each of the items (e.g., I never cover up my mistakes; I sometimes tell lies if

I have to) on a seven point scale (1, not true; 7, very true) and one point is given for each extreme response of a six or seven. The score for each of the items is then summed to yield a total score ranging from 0-20, with higher scores indicating a greater tendency to engage in impression management. The Impression Management subscale has good internal consistency reliability (Cronbach's alpha = .86) and a five week test-retest reliability of .65. Paulhus (1988, cited in Paulhus, 1991) provided evidence for the convergent validity of the Impression Management subscale of the BIDR by reporting that the subscale ". . . correlates highly with a cluster of measures traditionally known as lie scales (e.g., Eysenck's Lie scale, MMPI Lie scale)" (p. 38). Evidence for the discriminant validity of the Impression Management subscale of the BIDR is also provided by Paulhus (1991), who found low correlations between the Self-Deception subscale of the BIDR and the Impression Management subscale depending on the situational demand for self-presentation (rs = .05-.40). In the present study, the Impression Management subscale of the BIDR was used to control for the possibility that subjects high in need for impression management would underreport the level of anxiety that they were experiencing during the experimental manipulation and/or overreport their confidence levels for avoiding heavy drinking.

Experimental Phase

Subjects. From the initial pool of 440 subjects who completed the screening phase, 112 were eligible for participation in the experimental phase of the study. Eligibility criteria included drinking at least 17.5 drinks in the past month and drinking 5 or more drinks at one sitting at least once a month. These criteria are similar to those used by other researchers (e.g., Cleaveland, 1992) for selecting individuals who would be labeled as binge drinkers. Second, from the pool of subjects in the screening phase who met the alcohol consumption criteria, the distribution of scores on the Interaction Anxiousness Scale was divided into thirds. Subjects who scored in the upper third were

considered socially anxious and subjects who scored in the lower third were considered not to be socially anxious. This procedure yielded nearly equal numbers of high (n = 53) and low (n = 59) socially anxious subjects with mean IAS scores of 51.76 (SD = 5.00) and 27.67 (SD = 4.00) respectively. All eligible subjects were contacted by phone and were invited to participate in the experimental phase of the study. Of the 112 subjects contacted, 39 either declined the offer to participate (n = 37) or failed to keep the appointments scheduled for them (n = 2) leaving a total of 73 subjects who participated in the experimental phase. Multivariate analyses of variance (MANOVAs) were run on relevant demographic variables (i.e., age, sex, quantity and frequency of alcohol consumed) and no significant differences were found between eligible subjects who did not participate in the experimental phase and those that did, ps > .05.

Subjects in the experimental phase of the study reported drinking an average of one to two times a week (SD = .78) engaging in binge drinking (i.e., drinking at least 5 drinks in one four hour sitting) an average of 2.75 times a month (SD = 2.19) and consuming an average of 61 drinks a month (SD = 46.98). Additional details regarding the drinking patterns of the subjects in the experimental phase of the study are provided in Table 1.

Experimental Design. A 2 (social anxiety) X 2 (anxiety manipulation) randomized design was used in this study. The independent variable in the study was the anxiety manipulation. Social anxiety was a blocking factor created by assigning high and low socially anxious subjects based on results of the screening assessment in the screening phase. Attempts were also made to block subjects on gender prior to assignment to experimental condition. However, due to the subject attrition described above this blocking was only partially successful (see Table 2 for the number of males and females in each condition).

Procedure

Approximately one to two weeks following the completion of the measures in the screening phase of the study, subjects selected for inclusion in the second phase of the study were contacted and scheduled for participation in the experimental phase. Subjects were randomly assigned, to the anxiety or control conditions and tested individually.

Anxiety condition. Upon arrival at the research lab, the subject saw a sign on the door that read "If you are here for the experiment please wait, I will be with you in a minute." About 10 seconds after the subject's arrival, the experimenter came out of a room down the hall, and upon exiting the door to that room, the experimenter turned, faced the door, and stated "I will be back shortly." The experimenter then came down the hall, greeted the subject, brought them into the lab, and presented him or her with the informed consent form (see Appendix I). This procedure was designed to make the subject think that there was another subject in the room down the hall. Male subjects in the anxiety inducing condition were then told the following cover story:

> The following study is designed to examine the relationship between personality variables and interaction styles. The other subject in the study is a female and she is currently reviewing instructions about her task. [NOTE: The gender of the "other subject" was a male for female subjects in the study.] Your task in the study is to engage in a four minute social interaction with the other subject. During this interaction, you will do all of the talking and your goal is to make as favorable an impression as possible upon her. For the first half of the interaction time, you may talk about whatever you like. For the second half of the interaction however, we would like you to talk about what you most dislike about your body and physical appearance. After the interaction, you will be rated by the other subject on how good of an impression you made. The other subject should be

finished with her training shortly and the interaction will begin when she enters the room and sits down approximately 10 minutes from now.

This procedure had been adapted from similar procedures used by Lipscomb, Nathan, Wilson, and Abrams (1980) and Steele and Josephs (1988) which have been shown to produce significant increases in both physiological and self-report measures of anxiety.

The experimenter then asked the subject to complete a ten item version of the state portion of the State-Trait Anxiety Inventory (STAI; Devito & Kubis, 1983) (see Appendix J) and the modified version of the Situational Confidence Questionnaire (SCQ) (see Appendix K) by stating, "While you are waiting for the interaction to begin, I would like you to fill out these measures that will provide some background information about aspects of personality that have been shown to be present in college students." The experimenter then left the room "to check and see how the other subject was doing with her [or his] training."

In order to further enhance the reality of the "other subject" the chair the "other subject" was going to sit in had a jacket draped over the back of it. After eight minutes had expired, the experimenter reentered the room, collected the measures from the subject and asked him or her the following manipulation check questions:

The other subject will be entering in just a couple of minutes; before we begin, I would like to ask you a few more questions:

1. What do you think the other subject will be evaluating you on?
2. How do you think the other subject was selected?
3. How do you think the questionnaires you just completed relate to the social interaction and evaluation?
4. Is there anything about the study that you think we may not have told you?

While answering the questions, the experimenter recorded a paraphrased version of the subject's responses on a form listing the above questions (see Appendix L). Data from any

subject who expressed suspicion about the deception or correctly identified the true purpose of the experiment was excluded from the final analyses.

The experimenter then verbally debriefed the subject and provided him or her with a written debriefing form (see Appendix M) which reiterated the purpose of the study as well as provided information about the theoretical constructs from which the hypotheses were drawn.

Control condition. Subjects in the control condition, were told the following:

> The following study is designed to examine the relationship between personality variables and interaction style. Your task in this study will be to view a videotape of a social interaction and rate the tape on several variables. These variables will be explained to you once the TV monitor is brought in. I need to go downstairs to check on the arrival of the TV now however, as the one we had this morning is not working. While I am checking on this, I would like you to fill out these measures which will provide me with some background information about aspects of personality which have been shown to be present in college students.

The experimenter then left the room. To enhance the reality of the cover story, a video tape with the words "Condition 1" printed on the label and a video cassette recorder were conspicuously placed on a table where the subject would see them upon entering the room.

After a period of eight minutes had elapsed, the experimenter reentered the room and told the subject the following:

> The equipment will be here in just a couple of minutes; before we begin, I would like to ask you some questions:
>
> 1. What do you think you will be rating the subjects in the video on?
> 2. What personality variables do you think the questionnaires measured?

3. How do you think the questionnaires you just completed relate to the video that you are going to evaluate?

4. Is there anything about the study that you think we may not have told you?

While answering the questions, the experimenter recorded a paraphrased version of the subject's responses on a form listing the above questions (see Appendix N). Data from any subject who expressed suspicion about the deception or correctly identifies the true purpose of the experiment was excluded from the final analyses.

The experimenter then verbally debriefed the subject and provided him or her with a written debriefing form (see Appendix M) which reiterated the purpose of the study as well as provided information about the theoretical constructs from which the hypotheses were drawn.

Debriefing. In addition to the debriefing statement given to all the subjects, they were asked to share their feelings about the deception with the experimenter who directly addressed their concerns and questions. Furthermore, concern for treating the subjects with honesty and respect was stressed. Subjects were told that extensive planning went into the deception and that many other subjects had also not determined the nature of the deception used in the study. In addition, subjects were also asked to suggest ways in which the study could be improved. These guidelines are suggested by Carlsmith, Ellsworth, and Aronson (1976) for maintaining subjects' dignity and integrity in experiments involving deception. Following the debriefing, informed consent was again obtained from the subjects to use their data in the study, as the data was obtained via a manipulation which involved deception, (see Appendix O) and subjects were asked to not discuss the experiment with others, who may be future participants, so as to avoid confounding the study.

Measures. The primary dependent measure used in the study was a modified version of the Situational Confidence Questionnaire (SCQ-39) (Annis & Graham, 1988)

(see Appendix K). The SCQ-39 is a thirty-nine item questionnaire designed to "asses Bandura's concept of self-efficacy in relation to changes in drinking behaviour" (Solomon & Annis, 1990, p. 661) by asking respondents how confident they are in their ability to resist the urge to drink heavily in various drinking situations (e.g., if other people didn't seem to like me, if I was at a party and other people were drinking). Greaves and Stephens (unpublished data) added ten items to the SCQ-39 in order to make it more applicable to a college population (e.g., if I was at a fraternity party, if I was at a party and they were playing drinking games). Greaves and Stephens (1992) then factor analyzed this set of 49 items and found two subscales which they labeled self-efficacy for avoiding heavy drinking in positive situations (alpha = .95) and self-efficacy for avoiding heavy drinking in negative situations (alpha = .95). In order to create a briefer measure, for use in the present study, ten items were selected from the self-efficacy for avoiding heavy drinking in positive and negative situations subscales, thus yielding a 20 item scale with Cronbach's alphas of .96 and .92 respectively. Items for the two subscales were selected based on both content and empirical analyses so that the content domains of each of the original two subscales were adequately represented, albeit in a briefer format, while still maintaining an internal consistency reliability of .90 or greater.

In addition to the 20 items selected, four items from Leary's (1983) Interaction Anxiousness Scale and two items from the SCQ-39 (Annis & Graham, 1988) were modified to create a six item subscale specific to assessing self-efficacy for avoiding heavy drinking in social anxiety inducing situations. Subjects respond to the SCQ items using a 6 point scale labeled in percentage point increments of twenty (0%, not at all confident; 100%, very confident). These items were summed and divided by the total number of items in order to yield a mean efficacy score ranging from 0-100 percent, with a higher score indicating greater confidence in one's ability to avoid heavy drinking. Mean efficacy

scores were then computed for the positive situations, the negative situations, and the social anxiety subscales.

Manipulation Check. The state portion of the State Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, & Lushene, 1970) is a 20 item measure of state or transitory anxiety with good convergent and discriminant validity in relation to standard measures of acute anxiety. Subjects respond to each of the items using a four point scale (1, not at all; 4, very much so). In order to create a briefer measure of state anxiety, Devito and Kubis (1983) divided the 20 item STAI into two alternate forms of 10 items each. Devito and Kubis (1983) have shown that scores from each of the ten item versions of the STAI highly correlate with the full 20 item version, and indicate that the short forms of the STAI have adequate internal consistency reliability (Cronbach's alpha = .80). Following the procedure used by Steele and Josephs (1988), the four point scale normally used with the STAI was replaced with a seven point scale in order to increase the "variability of subjects' responses at the high end of these scales and thus the discrimination of the measure" (p. 198). Steele and Josephs (1988) implemented this modification to the STAI because of their finding that subjects were "reluctant to use the most extreme category on the 4-point scale and tended to bunch their responses in the third category" (p. 198). In the present study, a ten item version of the state form of the (STAI) (Devito & Kubis, 1983) (see Appendix J) was used as a manipulation check to determine if the subjects in the experimental condition experienced greater feelings of anxiety than subjects in the control condition.

Results

Screening Phase

In order to examine the relationship between subjects alcohol expectancies and both the frequency of drinking episodes and total quantity of alcohol consumed, a series of zero order correlations were calculated between subjects' (N = 440) scores on the

subscales of the AOES and their self-reports of quantity and frequency of alcohol consumption as measured by the HBQ (see Table 3). Because of the number of correlations that were calculated ($n = 20$), the Bonferroni correction was applied and only correlations that were significant at $p < .002$ (.05/20) were considered reliable. In terms of frequency of drinking episodes, significant positive relationships were found between subjects' frequency of drinking occasions and scores on the Positive Social Effects, Fun Effects, and Sexual Effects subscales of the AOES ($rs = .15$-$.54$, $ps < .001$). Conversely, significant negative relationships were found between subjects' frequency of drinking occasions and their scores on the Negative Emotional Effects and Physical Impairment Effects subscales of the AOES ($rs = -.19$-$.43$, $ps < .001$).

In terms of the total quantity of alcohol consumed in the past month, significant positive relationships were found between subjects' past month consumption of alcohol and expectancies scores on the Positive Social Effects and Fun Effects subscales of the AOES ($rs = .27$-$.37$, $ps <. 001$). Conversely, significant negative relationships were found between subject's past month alcohol consumption and their scores on the Negative Emotional Effects subscale of the AOES ($r = -.31$, $p < .001$). Taken together, these findings indicate that holding positive expectations regarding alcohol's effect on sex, fun, and social facilitative behaviors is related to both greater frequency of drinking episodes and greater quantity of drinking.

In order to test the hypothesis that dispositionally socially anxious binge drinkers would report greater alcohol expectancies on the Positive Social, Fun, and Tension Reduction/Negative Reinforcement subscales of the AOES correlations were examined between scores on these subscales and scores on the IAS. The results of these analyses indicated a significant positive relationship between subjects' scores on the Positive Social subscale and their scores on the IAS, $r = .19$, $p < .01$. This finding indicates that as level of dispositional social anxiety increased, so did the expectancy that drinking alcohol would

result in social facilitative effects. No significant correlations were found between subjects' IAS scores and their scores on the Fun and Tension Reduction/Negative Reinforcement subscales of the AOES ps > .05.

Experimental Phase

Manipulation Check. A 2 (Dispositional Social Anxiousness: High versus Low) X 2 (Anxiety Manipulation: Anxious versus Not Anxious) analysis of variance (ANOVA) was performed on subjects' scores on the STAI measure, to determine if subject's in the experimental condition experienced greater feelings of state anxiety than subjects in the control condition.[1] Results demonstrated a main effect of anxiety manipulation, F (1,69) = 40.51, p < .001, indicating that subjects assigned to the experimental condition experienced significantly greater levels of state anxiety (M = 3.73, SD = 1.01) than those subjects assigned to the control condition (M = 2.41, SD = 0.81). A main effect was also found for dispositional social anxiousness, F (1,69) = 9.52, p < .01, indicating that subjects who were high in dispositional social anxiousness reported experiencing significantly more state anxiety (M = 3.35, SD = 1.09) than subjects who were low in dispositional social anxiousness (M = 2.75, SD = 1.15). These findings suggest that the experimental manipulation was successful in inducing significantly higher levels of state anxiety in the experimental versus control subjects (see Table 4). A test for an interaction effect between dispositional social anxiousness and anxiety manipulation on state anxiety was not significant, p > .05.

Dependent Measures. A series of 2 (Dispositional Social Anxiousness: High versus Low) X 2 (Anxiety Manipulation: Anxious versus Not Anxious) analyses of variance (ANOVAs) were performed on subjects' total SCQ scores, as well as their subscale scores to test the hypothesis that subjects who experienced feelings of social anxiety, induced by the experimental manipulation, would report lower levels of self efficacy for drinking in moderation than control subjects. For the total SCQ score, the

analysis did not reveal a significant interaction effect between dispositional social anxiousness and assignment condition $p > .05$. Similarly, the analysis did not indicate main effects for either assignment condition or dispositional social anxiousness, $ps > .05$.

A 2 (Dispositional Social Anxiousness: High versus Low) X 2 (Anxiety Manipulation: Anxious versus Not Anxious) ANOVA performed on the positive situations subscale of the SCQ did not indicate a significant interaction effect between dispositional social anxiousness and assignment condition, $p > .05$. Similarly the analysis did not indicate main effects for either assignment condition or dispositional social anxiousness, $ps > .05$.

For the negative situations subscale of the SCQ, A 2 (Dispositional Social Anxiousness: High versus Low) X 2 (Anxiety Manipulation: Anxious versus Not Anxious) ANOVA revealed a significant main effect for dispositional social anxiousness, $F(1,69)$, $p < .05$, indicating that subjects high in dispositional social anxiety reported lower levels of efficacy for avoiding heavy drinking ($M = 3.72$, $SD = 0.88$) than subjects who were low in dispositional social anxiety ($M = 4.22$, $SD = 0.82$) (see Table 5). No significant findings were indicated for either the main effect of assignment condition, or the interaction between dispositional social anxiousness and assignment condition, $ps > .05$.

For the social anxiety subscale of the SCQ no significant findings were found for the interaction between dispositional social anxiousness and assignment condition or for the main effect of assignment condition, $ps > .05$. The main effect of dispositional social anxiousness approached significance, $p < .10$, suggesting that subjects who were high in dispositional social anxiety may have experienced lower efficacy ($M = 1.85$, $SD = .63$) levels for drinking in moderation than subjects who were low in dispositional social anxiety ($M = 2.15$, $SD = .67$).

In order to control for the possibility that impression management, as measured by subjects' scores on the BIDR, may have resulted in subjects overreporting their level of efficacy for avoiding heavy drinking, analyses of covariance (ANCOVAs) were performed on the subject's SCQ total and subscale scores with the subjects BIDR score entered as a covariate. The results of these analyses did not reveal any significant main effects for assignment condition on any of the SCQ scale or subscale scores. Consistent with the initial ANOVAs, a significant main effect was found for anxiety on the negative situations subscale of the SCQ, $p < .05$, indicating that even after controlling for the effects of impression management subjects high in dispositional social anxiousness reported lower levels of efficacy for avoiding heavy drinking in negative situations as compared to low socially anxious subjects. No significant main effects for anxiety were found on either the SCQ total scale score or the positive situations subscale. The main effect of anxiety on subjects' social anxiety subscale score no longer approached significance, $p > .10$, after controlling for the effects of impression management. It appears that subjects' premanipulation levels of impression management did not significantly alter their self-reported efficacy judgments for avoiding heavy drinking.

Exploratory Analyses. In order to explore possible relationships between subjects' self-efficacy for avoiding heavy drinking and their alcohol expectancies, zero order correlations were run between subjects' SCQ total and subscale scores, and their scores on the Positive Social, Fun, and Tension Reduction/Negative Reinforcement subscales of the AOES (see Table 6). Because of the number of correlations that were calculated ($n = 40$), the Bonferroni correction was applied and only correlations that were significant at $p < .001$ (.05/40) were considered reliable.

In terms of the total SCQ score, significant negative relationships were found between subjects' total self-efficacy ratings for avoiding heavy drinking and their scores on the Positive Social and Tension Reduction Subscales of the AOES. Similarly, a significant

negative relationship was found between subjects SCQ scores on the socially anxious situations subscale and their scores on the Positive Social and Tension Reduction/Negative Reinforcement Subscales of the AOES.

Taken together, these findings suggest that the lower one's self-efficacy for avoiding heavy drinking in socially anxious situations, the higher one's expectancies that drinking alcohol will result in social facilitation and tension reduction effects. Conversely, the higher one's level of self-efficacy is for avoiding heavy drinking in socially anxious situations, the lower one's expectancies are that alcohol will produce tension reduction and social facilitative effects.

Discussion

The primary aim of this study was to examine the effect of anxious affect on self-efficacy judgments for avoiding heavy drinking in college students. Specifically, it was hypothesized that subjects who experienced feelings of social anxiety, induced via anticipation of engaging in a self-disclosing heterosocial encounter, would report lower levels of self-efficacy for drinking in moderation as compared to control subjects. Moreover, an interaction between dispositional social anxiousness and anxiety manipulation (i.e., anxious or not anxious) was hypothesized such that subjects who were high in dispositional social anxiety would be most affected by the anxiety manipulation and would report the lowest levels of self-efficacy for avoiding heavy drinking. The results of the study did not find support for either the main effect of the anxiety manipulation or the interaction between the manipulation and dispositional social anxiousness. However, several analyses suggested a link between high dispositional social anxiety and the perceived social-facilitatory effects of alcohol. In addition, exploratory analyses revealed significant negative correlations between self-efficacy and outcome expectancies, suggesting that these constructs are not independent.

The present study failed to find support for the main effect of the anxiety manipulation or the interaction between the manipulation and dispositional social anxiousness on subjects' self-efficacy for avoiding heavy drinking. The lack of support for the primary hypothesized effects may be explained by the relatively weak effect of the manipulation. Although subjects in the experimental condition reported significantly higher levels of state anxiety than control subjects, as indicated by self-report, the level of anxiety experienced by these subjects may not have been at a level high enough to lower their efficacy judgments. The subjects in the anxious condition may not have experienced levels of social anxiety intense enough to cause them to question their ability to engage in appropriate coping strategies. In the present study, subjects in the experimental condition reported a mean score of 3.73 (SD = 1.01) on the brief form of the STAI. When placed in the context of the scale's range of 1 (not at all) to 7 (very much so), the experimental subjects' scores suggest that they experienced only moderate levels of state anxiety, and consequently did not experience the debilitative effects associated with high levels of arousal. According to self-efficacy theory (Bandura, 1986), individuals interpret high levels of physiological arousal as indicative of lowered ability to successfully engage in a specific behavior and consequently, report lower levels of self-efficacy for performing that behavior. Moderate levels of arousal, may actually have a facilitative effect by making individuals aware of the need to engage in appropriate coping behaviors, and it may assist them in engaging in these behaviors. Thus, both their levels of self-efficacy and the likelihood of successfully executing the behavior may be enhanced.

A second possible explanation for the lack of findings is that despite considerable efforts to make the laboratory situation similar to a "real world" situation in which feelings of social anxiety and drinking occur, subjects in the study may not have perceived the laboratory situation as similar to one in which drinking would take place. For example, subjects in the anxious condition were not provided with the opportunity to engage in

drinking behavior during the interaction. As a result, they may have perceived the anticipated self-disclosure and evaluation by the "other subject" as more of an interview scenario as compared to a social gathering and consequently, although they may have experienced greater feelings of anxiety, as compared to the control subjects, they may not have even considered drinking as an appropriate coping response. In turn, the experienced feelings of anxiety may not have exerted an influence on the anxious subjects' self-efficacy judgments for avoiding heavy drinking. Bandura's (1986) conceptualization of the situational specificity of efficacy judgments also supports this explanation as he states that simulated situations are perceived as easier to deal with than real world events and thus result in higher levels of perceived self-efficacy.

Taken together, these two explanations suggest that future research should attempt to induce higher levels of social anxiety in controlled conditions. In addition, attempts to increase the external validity of these types of studies should be made so that they more closely approximate real world conditions. For example, subjects in future studies could be told to anticipate that the social interactions will be similar to those that they encounter at parties, or they may be introduced to a confederate, or group of confederates, prior to assessment of their efficacy judgments in order to better create the impression of a social interaction. Additionally, the laboratory setting could be modified so as to better give the impression of a party or social gathering where actual drinking may occur (e.g., setting up a simulated bar). The findings from these types of studies would then likely be a better test of the effects of social anxiety on self-efficacy for avoiding heavy drinking.

A third and final explanation for the findings comes from Bandura's (1977, 1986) conceptualization of the relative strength of negative affect as a source of efficacy information. As previously stated, Bandura cites four sources of influence in the formation of efficacy judgments: Past performance attainments, vicarious observation,

verbal persuasion, and physiological arousal. Of these sources, Bandura (1977, 1986) considers past performance attainments, vicarious observation, and verbal persuasion to be the strongest sources of information regarding efficacy judgments, as these tend to develop over time and thus have a more trait-like or enduring quality. In comparison, Bandura sees physiological arousal as a more state-like or transitory quality and thus, considers it to be a comparatively weak source of efficacy information. In addition, Bandura (1986) also states that individuals may occasionally discount the influence of physiological arousal in forming efficacy judgments as they may have previously experienced success in executing a behavior despite considerable levels of anxiety. As a result, when asked about their efficacy for avoiding heavy drinking in various situations, they may have thought about their past experiences with drinking in these situations and thus their past performance may have primarily influenced their self-reported efficacy for avoiding heavy drinking in the study. In order to adequately test this possibility, future studies should attempt to concurrently assess all of the hypothesized components of efficacy judgments in order to determine the degree to which each component exerts an influence on the overall efficacy judgment.

A main effect of dispositional social anxiety was found for subjects' scores on the negative situations subscale of the SCQ, suggesting that subjects higher in dispositional social anxiousness experience lower self-efficacy for avoiding heavy drinking in negative situations (e.g., if I had an argument with a friend) than subjects who were lower in dispositional social anxiety. Similarly, a main effect of dispositional social anxiety approached significance on the social anxiety subscale of the SCQ, suggesting that subjects higher in dispositional social anxiousness may experience lower self-efficacy for avoiding heavy drinking, in socially anxious situations (e.g., if someone I was attracted to was drinking) than subjects who were lower in dispositional social anxiety. These findings lend support to Bandura's conceptualization that for individuals who are high in

dispositional social anxiety, entering into situations characterized by negative affect and/or social anxiety result in high levels of physiological arousal, perceptions of inadequacy in coping with the situation, and subsequently a lowered sense of self-efficacy for avoiding heavy drinking in these situations. Moreover, in terms of treatment interventions, these findings suggest that helping dispositionally anxious college students to reduce the feelings of anxiety they experience in socially anxious and negative situations (e.g., through social skills or relaxation training) may be effective in raising their sense of self-efficacy for avoiding heavy drinking and consequently lowering the amount of alcohol they consume in these situations. Caution must be applied in interpreting these findings however, as they require replication with different samples in different laboratories, in order to determine their reliability. The findings do suggest, however, that the role of dispositional social anxiety on self-efficacy for avoiding heavy drinking is an area worth further exploration.

In terms of the hypothesis that dispositionally socially anxious binge drinkers would report greater alcohol expectancies on the Positive Social, Fun, and Tension Reduction/Negative Reinforcement Subscales of the AOES, the results indicated a significant positive relationship between subjects' IAS score and their score on the Positive Social Effects subscale of the AOES. This finding is consistent with earlier research (e.g., Leonard & Blane, 1988; O'Hare, 1990b) and substantiates the existence of a positive relationship between dispositional social anxiety and the expectancy that drinking alcohol will result in an increased ability to interact with others in social situations. Although initially unexpected, the failure to identify a significant positive relationship between dispositional social anxiety and the alcohol expectancy of tension reduction is consistent with earlier studies (i.e., Brown & Munson, 1987; Leonard & Blane, 1988) which have also failed to find this relationship. A likely explanation for this lack of association comes from Leonard and Blane (1988) who state that unlike expectancies of social facilitation and enhancement (e.g., It is easier for me to socialize),

which focus exclusively on interactive situations, expectancies of tension reduction are more global in nature (e.g., I feel less stressed). For socially anxious individuals therefore, alcohol related expectancies of social facilitation are more likely to be related to their feelings of social anxiety than more generalized expectancies of tension reduction per se.

A similar explanation can also be provided to explain the failure to find a significant relationship between dispositional social anxiousness and the expectancy of fun effects following alcohol consumption. As with the expectancies for tension reduction, expectancies of fun effects tend to be of a global nature (e.g., it is fun). As a result, it is unlikely that expectancies of fun effects would be differentially related to dispositional social anxiety.

These explanations are consistent with the current findings and suggest that future research efforts aimed at modifying alcohol related expectancies should attempt to modify those expectancies which are likely to be related to the personality characteristics of the individual. For dispositionally socially anxious individuals, one possible research strategy would be to attempt to lower their alcohol expectancies of increased social facility by teaching them alternative means, besides drinking, of achieving these effects in social situations. Although the interpretation of these findings and their implications are limited by the correlational nature of the data, the consistency of the findings is encouraging and indicates that further research efforts are warranted.

Correlations run between alcohol expectancies and both quantity and frequency measures of self-reported alcohol use revealed significant positive and negative relationships between many of the AOES subscales and both the frequency of drinking occasions and actual quantity of alcohol consumed. Specifically, significant positive relationships were found between subjects' scores on the Positive Social, Fun, and Sexual Effects subscales of the AOES and both the frequency that subjects reported drinking alcohol as well as the actual amount of alcohol reportedly consumed. Conversely,

significant negative relationships were found between subjects' self reports of quantity and frequency of alcohol consumption, and their scores on the Negative Emotional, and Physical Impairment Effects subscales of the AOES. These findings suggest that a significant relationship exists between how frequently subjects' drink, how much they drink, and their expectancies that drinking alcohol will enhance social interactions, mood, and reduce feelings of negative affect. These findings are consistent with findings from similar studies and thus, substantiate the concurrent validity of the AOES as a measure of alcohol related expectancies in college students.

Taken together, these findings further substantiate the already large literature which has consistently found significant relationships between alcohol expectancies and patterns of alcohol use in college students. Although interpretations and implications are limited by the correlational mature of these findings, they do support the existence of a significant relationship between college students alcohol related expectancies and their actual drinking behaviors (i.e., quantity and frequency). The goal for future research should now be to explore ways to modify these expectancies so that college students may learn to expect similar effects with lower quantities of alcohol consumption. In turn, this would hopefully reduce the quantity of alcohol consumed by college students along with lowering the number of alcohol related problems they experience.

Exploratory analyses which examined the relationship between subjects alcohol expectancies and their self-efficacy for avoiding heavy drinking in positive, negative, and socially anxious situations revealed significant negative relationships between subjects self-efficacy for avoiding heavy drinking in socially anxious situations and their expectancy that drinking alcohol would produce both tension reducing and overall positive effects. Specifically, the higher their expectancies that drinking alcohol would produce effects of stress reduction and/or general positive effects, the lower their self-efficacy for avoiding heavy drinking in situations characterized by social anxiety. The finding that college

student alcohol expectancies and self-efficacy judgments are negatively related to each other extends both the self-efficacy and outcome expectancy literatures, and is consistent with Bandura's (1989) formulation of the relationship between self-efficacy and outcome expectancies. According to Bandura, when outcome expectancies are not fully dependent on the quality of performing the behavior, they will exert an influence, independent from self-efficacy, on the likelihood of performing a behavior. For college students, outcome expectancies regarding the effects of drinking alcohol are not fully controlled by the performance variations they exhibit when avoiding heavy drinking. Stated differently, college students' outcome expectancies regarding drinking, are not contingent on how well they perform behaviors related to avoiding heavy drinking (e.g., refusing an unwanted drink). Consequently, both self-efficacy for avoiding heavy drinking and outcome expectancies for drinking alcohol may make unique contributions to the variance observed in college student drinking behavior.

A goal for future research should be to attempt to better understand the nature of the relationship between college student self-efficacy judgments for avoiding heavy drinking and their alcohol related outcome expectancies. Following clarification of their independent and interactive effects, attempts at manipulating either or both of these components can occur in order to identify which factors are most effective in both raising college students' sense of self-efficacy for avoiding heavy drinking and lowering expectancies that drinking alcohol will result in tension reducing and general positive effects.

General Conclusions

This study was one of the first to examine the role of anxious affect on self-efficacy judgments for avoiding heavy drinking in college students. The results did not support the hypothesis that feelings of social anxiety, induced via an anticipatory heterosocial interaction would result in lower levels of self-efficacy for avoiding heavy

drinking as compared to non-anxious control subjects. The results did, however, find a significant relationship between dispositional social anxiety and self-efficacy for avoiding heavy drinking such that subjects high in dispositional social anxiety reported lower levels of efficacy for avoiding heavy drinking in situations characterized by negative affect as compared to subjects who were low in dispositional social anxiety. Similarly, a main effect of dispositional social anxiety approached significance for socially anxious situations such that subjects high in dispositional social anxiety reported somewhat lower levels of efficacy for avoiding heavy drinking in these situations as compared to subjects who were low in dispositional social anxiety.

Second, this study examined the relationship between dispositional social anxiety and alcohol expectancies of social facilitation tension reduction and fun. Results indicated a significant positive relationship between dispositional social anxiety and the alcohol related expectancy of social facilitation effects suggesting that the higher one's level of dispositional social anxiety, the more likely one is to have the expectancy that drinking alcohol will have social facilitative effects.

Lastly, this study is one of only a few studies which has simultaneously examined the roles of both self-efficacy and outcome expectancies in relation to college student alcohol consumption patterns. Results indicated that both positive and negative outcome expectancies were related to frequency of drinking episodes as well as quantity of alcohol consumed. In addition, self-efficacy for avoiding heavy drinking and alcohol related outcome expectancies were found related to each other, in that alcohol expectancies of tension reduction and general positive effects were significantly negatively related to self-efficacy for avoiding heavy drinking in situations characterized by positive affect negative affect and social anxiety. Specifically it was found that the lower one's self-efficacy for avoiding heavy drinking in positive, negative, and socially anxious situations

the higher one's expectancy that drinking alcohol would have tension reducing and social facilitative effects.

As this is the first study to examine the role of anxious affect in influencing efficacy judgments for avoiding heavy drinking in college students, as well as only one of a few studies examining the role of both self-efficacy and outcome expectancies, the reliability and validity of the results are unknown and require replication. These preliminary findings are encouraging however, and suggest that future research examining college student drinking should consider the roles of anxious affect and outcome expectancies in attempting to increase students' self-efficacy for avoiding heavy drinking. Ultimately, it is hoped that through continued research the roles of anxious affect and alcohol related outcome expectancies in effecting efficacy judgments will be better understood, and that this understanding can be directly applied to college students who are at risk of experiencing alcohol related problems due to excessive consumption.

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APPENDIX A

Virginia Polytechnic Institute and State University

Informed Consent for Participation

of Investigative Projects

ID#_____

Investigator: Randy S. Burke
Department of Psychology
Virginia Tech
(703) 231-7631

Faculty Sponsor: Robert S. Stephens, Ph.D.
Department of Psychology
Virginia Tech
(703) 231-6304

The relationship between personality and health behaviors in college students

We are interested in examining the relationships between personality variables and health behaviors. The information gained from this study will be useful in helping determine which aspects of personality are related to both positive and negative health behaviors

You will be asked to complete some self-report measures which assess personality variables and health behaviors. You may or may not be asked to participate in subsequent research based on your responses

You will receive one extra credit point for your participation in this study. This extra credit point will be applied to your introductory psychology grade. Your name will not be stored with any of the data from the experiment and will be linked to your signed consent form only through a code number. The consent form will be kept separately in a locked file cabinet and only members of the research team will have access. Personal data collected from the study will be kept strictly confidential.

Your rights are as follows: a) you may refrain from answering any question during the study; b) You are free to withdraw from the study, at any time without penalty; c) If you feel any discomfort as a result of your participation, appropriate referrals for assistance will be provided; d) Your responses will be confidential and will be linked to your name only by a number on this consent form, which will be stored separate from your questionnaires; e) You will be debriefed about the nature of the study following the experiment. If you decide not to participate let the experimenter know immediately. The experimenter will explain the experiment in full and discuss it with you.

So that we may contact you in the future about participating in subsequent research please write your local address and phone number on the lines below.

_____

Street address and city

_____

Phone number

This project has been approved by the Human Subjects Research Committee and the Institutional Review Board. Any question may be addressed to the investigator Randy Burke at 231-7631 or 552-5750, the faculty sponsor, Dr. Robert Stephens, at 231-6304, or Dr. Richard Eisler, chair of the human subjects committee at 231-7001. You may also contact Ernest Stout, chair of Virginia Tech's Institutional Review Board at 231-9359.

I hereby agree to voluntarily participate in the research project described above and under the conditions described above.

_____ _____

Name Date

_____

Student ID Number

APPENDIX B

Debriefing Statement

This is the first phase of a two part study which is investigating the relationship between personality variables and health behaviors in college students. The purpose of this phase of the experiment was to obtain information about personality characteristics of college students and health behaviors that they perform. Based on specific screening criteria a number of individuals will be asked to participate in the second phase of the study which will examine some of these variables in more depth.

APPENDIX C

Health Behaviors Questionnaire ID# _____

1. Please indicate your sex. ____ Female ____ Male
2. Please put your age in the blank. _____ years
3. What is your height? _____ feet _____ inches
4. What is your weight? _____ pounds
5. Please indicate which student status fits you the best.

   ____ Freshman

   ____ Sophomore

   ____ Junior

   ____ Senior

   ____ Special Student
6. Please indicate how many times per day you eat the following foods:

   ____ fruits

   ____ vegetables

   ____ breads and/or cereals

   ____ meat
7. Please indicate how may times per week you eat fast food such as Burger King or Pizza

   ____ number of times per week
8. Please indicate how many cigarettes you smoke per day:

   ____ 0-5

   ____ 6-10

   ____ 11-15

   ____ 16-20

   ____ 21 or more

9. Please indicate how many cups of coffee you drink per day:

____0-2

____3-4

____5 or more

10. Please indicate the number of times per week you do aerobic exercise such as running, lifting weights, or going to an aerobics class

____ 1-2

____ 3-4

____ 5-6

____ 7-8

____ 9 or more

11. Please indicate how many times in the **past month** you have drank alcohol

____ none

____ once

____ 2-3 times

____ once or twice a week

____ 3 or 4 times a week

____ 5 or 6 times a week

____ everyday

For questions 12-15, one drink is equal to 12 ounces of beer or 4 ounces of wine or one standard cocktail containing one ounce of 86 proof liquor (e.g., If you drank three 12 ounce cans of beer and also had two 1 ounce shots of whiskey during the course of the evening this would be equivalent to 5 drinks).

12. How many times in the past month did you have 3-4 drinks (but no more) on a single occasion? ____ times

13. How many times in the past month did you have 5-6 drinks (but no more) on a single occasion? ____ times

14. How many times in the past month did you have 7-8 drinks (but no more) on a single occasion? ____ times

15. How many times in the past month did you have 9 or more drinks on a single occasion? ____ times

16. How many times in the past month have you taken Vivarin or other caffeine tablets to stay awake?

    ____ none

    ____ once

    ____ 2-3 times

    ____ once or twice a week

    ____ 3 or 4 times a week

    ____ 5 or 6 times a week

    ____ everyday

17. Do you have regular physical examinations (once per year)?

    ____ Yes ____ No

18. Do you have regular dental exams (once or more per year)?

    ____ Yes ____ No

APPENDIX D

IAS

ID#_____

Read each item carefully and decide the degree to which the statement is characteristic or true of you. Circle the appropriate number according to the following scale.

1 = The statement is *not* at all characteristic of me.
2 = The statement is *slightly* characteristic of me.
3 = The statement is *moderately* characteristic of me.
4 = The statement is *very* characteristic of me.
5 = The statement is *extremely* characteristic of me.

1.	I often feel nervous even in casual get-togethers.	1 2 3 4 5
2.	I usually feel uncomfortable when I am in a group of people I don't know.	1 2 3 4 5
3.	I am usually at ease when speaking to a member of the opposite sex.	1 2 3 4 5
4.	I get nervous when I must talk to a teacher or boss.	1 2 3 4 5

5.	Parties often make me feel anxious and uncomfortable.	1	2	3	4	5
6.	I am probably less shy in social situations than most people.	1	2	3	4	5
7.	I sometimes feel tense when talking to people of my own sex if I don't know them well.	1	2	3	4	5
8.	I would be nervous if I was being interviewed for a job.	1	2	3	4	5
9.	I wish I had more confidence in social situations.	1	2	3	4	5
10.	I seldom feel anxious in social situations.	1	2	3	4	5
11.	In general, I am a shy person.	1	2	3	4	5
12.	I often feel nervous when talking to an attractive member of the opposite sex.	1	2	3	4	5

13. I often feel nervous when calling someone I don't know very well on the telephone.	1	2	3	4	5
14. I get nervous when I speak to someone in a position of authority.	1	2	3	4	5
15. I usually feel relaxed around other people, even people who are quite different from myself.	1	2	3	4	5

APPENDIX E

COPE Scale

ID#_____

Listed below are some ways that people cope with stress. Please indicate how frequently **you** use each of the following behaviors to deal with **FEELINGS OF ANXIETY** according to the following scale:

1 = I usually don't do this at all

2 = I usually do this a little bit

3 = I usually do this a medium amount

4 = I usually do this a lot

1.	I take additional action to try to get rid of the problem	1	2	3	4
2.	I concentrate my efforts on doing something about it	1	2	3	4
3.	I do what has to be done one step at a time	1	2	3	4
4.	I take direct action to get around the problem	1	2	3	4
5.	I try to come up with a strategy about what to do	1	2	3	4
6.	I use alcohol or drugs to make myself feel better	1	2	3	4
7.	I think hard about what steps to take	1	2	3	4
8.	I think about how I might best handle the problem	1	2	3	4
9.	I drink alcohol or take drugs, in order to think about it less	1	2	3	4
10.	I just give up the attempt to get what I want	1	2	3	4
11.	I make jokes about it	1	2	3	4
12.	I admit to myself that I can't deal with it, and quit trying	1	2	3	4

13.	I try to lose myself for a while by drinking alcohol or taking drugs	1	2	3	4
14.	I force myself to wait for the right time to do something	1	2	3	4
15.	I hold off doing anything about it until the situation permits	1	2	3	4
16.	I make sure not to make matters worse by acting too soon	1	2	3	4
17.	I restrain myself from doing anything too quickly	1	2	3	4
18.	I talk to someone about how I feel	1	2	3	4
19.	I try to get emotional support from friends or relatives	1	2	3	4
20.	I make fun of the situation	1	2	3	4
21.	I get sympathy and understanding from someone	1	2	3	4
22.	I ask people who have had similar experiences what they did	1	2	3	4
23.	I try to get advice from someone about what to do	1	2	3	4
24.	I talk to someone to find out more about the situation	1	2	3	4
25.	I talk to someone who could do something concrete about the problem	1	2	3	4
26.	I laugh about the situation	1	2	3	4
27.	I use alcohol or drugs to help me get through it	1	2	3	4
28.	I discuss my feelings with someone	1	2	3	4
29.	I reduce the amount of effort I'm putting into solving a problem	1	2	3	4
30.	I make a plan of action	1	2	3	4
31.	I kid around about it	1	2	3	4
32.	I just give up trying to reach my goal	1	2	3	4

APPENDIX F

SCS

ID#_____

Please read each item and rate it as it applies to you by circling the appropriate answer according to the following scale.

1 = extremely characteristic

2 = moderately characteristic

3 = neither characteristic nor uncharacteristic

4 = moderately uncharacteristic

5 = extremely uncharacteristic

1.	I'm always trying to figure myself out.	1	2	3	4	5
2.	Generally, I'm not very aware of myself.	1	2	3	4	5
3.	I reflect about myself a lot.	1	2	3	4	5
4.	I'm often the subject of my own fantasies.	1	2	3	4	5
5.	I never scrutinize myself.	1	2	3	4	5
6.	I'm generally attentive to my inner feelings.	1	2	3	4	5
7.	I'm constantly examining my motives.	1	2	3	4	5
8.	I sometimes have the feeling that I'm off somewhere watching myself.	1	2	3	4	5
9.	I'm alert to changes in my mood.	1	2	3	4	5
10.	I'm aware of the way my mind works when I work through a problem	1	2	3	4	5

APPENDIX G

AOES

ID#_____

Here is a list of some effects of consequences that some people experience after drinking alcohol. How likely is it that these things happen to **you** when you drink alcohol? Please circle the number that best describes how drinking alcohol would affect you. (If you do not drink at all, you can still fill this out: Just answer it according to what you think would happen to you if you **did** drink. Please use the following scale when circling your answers:

1 = No Chance **4 = Likely**

2 = Very Unlikely **5 = Very Likely**

3 = Unlikely **6 = Certain to Happen**

When I drink alcohol_____

1.	I am more accepted socially	1	2	3	4	5	6
2.	I am more outgoing	1	2	3	4	5	6
3.	It is easier for me to socialize	1	2	3	4	5	6
4.	I am able to talk more freely	1	2	3	4	5	6
5.	I am friendlier	1	2	3	4	5	6
6.	I feel more social	1	2	3	4	5	6
7.	I feel guilty	1	2	3	4	5	6
8.	I feel sad or depressed	1	2	3	4	5	6
9.	I feel ashamed of myself	1	2	3	4	5	6
10.	I feel happy	1	2	3	4	5	6

1 = No Chance **4 = Likely**

2 = Very Unlikely **5 = Very Likely**

3 = Unlikely **6 = Certain to Happen**

When I drink alcohol_____

11.	I have a good time	1	2	3	4	5	6
12.	It is fun	1	2	3	4	5	6
13.	I feel pleasant physical effects	1	2	3	4	5	6
14.	I feel good	1	2	3	4	5	6
15.	I enjoy the buzz	1	2	3	4	5	6
16.	I become aggressive	1	2	3	4	5	6
17.	I get into fights	1	2	3	4	5	6
18.	I get mean	1	2	3	4	5	6
19.	It takes away my moods and feelings	1	2	3	4	5	6
20.	I feel less stressed	1	2	3	4	5	6
21.	I am able to take my mind off my problems	1	2	3	4	5	6
22.	I am less alert	1	2	3	4	5	6
23.	I become clumsy or uncoordinated	1	2	3	4	5	6
24.	I have problems driving	1	2	3	4	5	6
25.	I can't concentrate	1	2	3	4	5	6
26.	I have problems with memory and concentration	1	2	3	4	5	6
27.	I have more desire for sex	1	2	3	4	5	6

1 = No Chance **4 = Likely**

2 = Very Unlikely **5 = Very Likely**

3 = Unlikely **6 = Certain to Happen**

When I drink alcohol_____

28.	I become more sexually active	1	2	3	4	5	6
29.	I am more sexually responsive	1	2	3	4	5	6
30.	I am more sexually assertive	1	2	3	4	5	6
31.	I feel sick	1	2	3	4	5	6
32.	I get a hangover	1	2	3	4	5	6
33.	I get a headache	1	2	3	4	5	6
34.	I experience unpleasant physical effects	1	2	3	4	5	6

APPENDIX H

BIDR

ID#_____

Please use the following scale to indicate how much you agree with each statement:

		Not True			Somewhat True			Very True
1.	I sometimes tell lies if I have to	1	2	3	4	5	6	7
2.	I never cover up my mistakes	1	2	3	4	5	6	7
3.	There have been occasions when I have taken advantage of someone	1	2	3	4	5	6	7
4.	I never swear	1	2	3	4	5	6	7
5.	I sometimes try to get even rather than forgive and forget	1	2	3	4	5	6	7
6.	I always obey laws, even if I'm unlikely to get caught	1	2	3	4	5	6	7
7.	I have said something bad about a friend behind his or her back	1	2	3	4	5	6	7
8.	When I hear people talking privately, I avoid listening	1	2	3	4	5	6	7
9.	I have received too much change from a salesperson without telling him or her	1	2	3	4	5	6	7
10.	I always declare everything at customs	1	2	3	4	5	6	7

11.	When I was young I sometimes stole things	1	2	3	4	5	6	7
12.	I have never dropped litter on the street	1	2	3	4	5	6	7
13.	I sometimes drive faster than the speed limit	1	2	3	4	5	6	7
14.	I never read sexy books or magazines	1	2	3	4	5	6	7
15.	I have done things that I don't tell other people about	1	2	3	4	5	6	7
16.	I never take things that don't belong to me	1	2	3	4	5	6	7
17.	I have taken sick-leave from work or school even though I wasn't really sick	1	2	3	4	5	6	7
18.	I have never damaged a library book or store merchandise without reporting it.	1	2	3	4	5	6	7
19.	I have some pretty awful habits	1	2	3	4	5	6	7
20.	I don't gossip about other people's business	1	2	3	4	5	6	7

APPENDIX I

Virginia Polytechnic Institute and State University

Informed Consent for Participation

of Investigative Projects

Investigator: Randy S. Burke
Department of Psychology
Virginia Tech
(703) 231-7631

Faculty Sponsor: Robert S. Stephens, Ph.D.
Department of Psychology
Virginia Tech
(703) 231-6304

The relationship between personality variables and interaction style in college students

We are interested in studying the relationship between personality variables and interaction styles in college students. The information gained from this study will be important in increasing our understanding of personality variables relevant to different interaction styles. Participation in this study will take approximately forty minutes. Two subjects will complete the study at once performing slightly different tasks.

You may be asked to complete any of the following procedures:

a. Completing measures of personality variables.

b. Participating in a social interaction with another subject.

c. Answering experiment evaluation questions and discussing the experiment with the experimenter to help improve the study.

You will receive one extra credit point for your participation in this study. This extra credit point will be applied to your introductory psychology grade. Your name will not be stored with any of the data from the experiment, and this signed consent form will be kept separately. Personal data collected from the study will be kept strictly confidential.

You will benefit from participation in this study by learning how research is conducted and by learning the questions of the study and how they are answered by the design and procedures.

Your rights are as follows: a) you may refrain from answering any question during the study; b) You are free to withdraw from the study, at any time without penalty; c) If you feel any discomfort as a result of your participation, appropriate referrals for assistance will be provided; d) Your responses will be confidential and will be linked to your name only by a number on this consent form, which will be stored separate from your questionnaires; e) The full rationale of the study will be explained to you following the experiment. If you decide not to participate let the experimenter know immediately. The experimenter will explain the experiment in full and discuss it with you.

This project has been approved by the Human Subjects Research Committee and the Institutional Review Board. Any question may be addressed to the investigator Randy Burke 231-7631 or 552-5750, the faculty sponsor, Dr. Robert Stephens, at 231-6304, or Dr. Richard Eisler, chair of the human subjects committee at 231-7001. You may also contact Ernest Stout, chair of Virginia Tech's Institutional Review Board at 231-9359.

I hereby agree to voluntarily participate in the research project described above and under the conditions described above.

Name Date

Student ID Number

APPENDIX J

STAI

ID#_____

Directions: A number of statements which people have used to describe themselves are given on the next page. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you ***feel right now***, that is, ***at this moment***. There are no right or wrong answers. Do not spend to much time on any one statement but give the answer which seems to describe your present feeling best.

	Not At All		Somewhat		Moderately So		Very Much So
1. I feel comfortable	1	2	3	4	5	6	7
2. I feel secure	1	2	3	4	5	6	7
3. I feel regretful	1	2	3	4	5	6	7
4. I am presently worrying over possible misfortunes	1	2	3	4	5	6	7
5. I feel pleasant	1	2	3	4	5	6	7
6. I feel anxious	1	2	3	4	5	6	7
7. I feel over-excited	1	2	3	4	5	6	7
8. I am relaxed	1	2	3	4	5	6	7
9. I am tense	1	2	3	4	5	6	7
10. I feel content	1	2	3	4	5	6	7

APPENDIX K

SCQ

ID#_____

Directions: Listed below are a number of situations or events in which some people experience difficulty in avoiding heavy drinking. Imagine yourself in each of these situations and indicate how confident you are that you would be able to resist the urge to drink heavily (5 or more drinks) according to the following scale.

not at all confident					**very confident**
0%	20%	40%	60%	80%	100%

I would be able to resist the urge to drink *heavily*

1.	if other people didn't seem to like me	0%	20%	40%	60%	80%	100%
2.	if I were at happy hour with a group of friends	0%	20%	40%	60%	80%	100%
3.	if I were enjoying myself at a party and wanted to feel even better	0%	20%	40%	60%	80%	100%
4.	if I were afraid that things in my life weren't going to work out	0%	20%	40%	60%	80%	100%
5.	if I were at a bar and the people around me were laughing and dancing	0%	20%	40%	60%	80%	100%
6.	if I were at a friend's place and they were playing drinking games	0%	20%	40%	60%	80%	100%

	not at all confident					**very confident**
	0%	20%	40%	60%	80%	100%

I would be able to resist the urge to drink *heavily*

7.	if there were problems with people at school or work	0%	20%	40%	60%	80%	100%
8.	if I felt uneasy in the presence of someone	0%	20%	40%	60%	80%	100%
9.	if I were at a party and other people were drinking	0%	20%	40%	60%	80%	100%
10.	if I wanted to celebrate with a friend	0%	20%	40%	60%	80%	100%
11.	if I were at a tailgate party for a football game	0%	20%	40%	60%	80%	100%
12.	if I were angry at the way something had turned out	0%	20%	40%	60%	80%	100%
13.	if I was at a casual get together	0%	20%	40%	60%	80%	100%
14.	if someone criticized me	0%	20%	40%	60%	80%	100%
15.	if I were at a fraternity party	0%	20%	40%	60%	80%	100%
16.	if I were in a restaurant and the people with me ordered pitchers of beer and mixed drinks	0%	20%	40%	60%	80%	100%
17.	if I were on a date and my date was drinking	0%	20%	40%	60%	80%	100%

not at all					**very**	
confident					**confident**	
0%	20%	40%	60%	80%	100%	

I would be able to resist the urge to drink *heavily*

18.	if I were at a bar with a friend and she or he was buying me drinks	0%	20%	40%	60%	80%	100%
19.	if other people made me tense	0%	20%	40%	60%	80%	100%
20.	if someone pressured me to be a "good sport" and have a drink	0%	20%	40%	60%	80%	100%
21.	if someone I was attracted to was drinking	0%	20%	40%	60%	80%	100%
22.	if I was talking to an attractive member of the opposite sex	0%	20%	40%	60%	80%	100%
23.	if pressure built up because of the demands of my professors	0%	20%	40%	60%	80%	100%
24.	if I had an argument with a friend	0%	20%	40%	60%	80%	100%
25.	if I was at a party where I didn't know many people	0%	20%	40%	60%	80%	100%
26.	if I was talking to someone I didn't know well	0%	20%	40%	60%	80%	100%

APPENDIX L

Experimental Condition Questions

ID#_____

1. What do you think the other subject will be evaluating you on?

2. How do you think the other subject was selected?

3. How do you think the questionnaires you just completed relate to the social interaction and evaluation?

4. Is there anything about the study that you think we may not have told you?

APPENDIX M

Debriefing statement

The purpose of this study was to investigate the relationship between affect and self-efficacy for drinking in moderation, in college students. The study was based on Albert Bandura's social learning theory a part of which states that an individual's confidence in being able to perform a certain behavior (e.g. drink in moderation) is in part based upon their affect or level of anxiety. According to the theory, as an individual's level of affect or anxiety increases, their confidence in their ability to perform a certain behavior decreases.

Deception was used in this study in order to manipulate people's level of anxiety in order to determine it's effects on their level of self-efficacy (confidence) for drinking in moderation. Although it is undesirable to use deception in experiments, there was no other way to test the experimental question in a satisfactory manner. The only misinformation that you received in the study was either concerning the interaction that you were going to engage in with the other subject, and their subsequent evaluation of you; or the videotaped interaction you were going to rate. In reality there is no other subject and you would have neither engaged in an interaction or rated a videotape. A considerable amount of planning and preparation went into creating the deception, and many other subjects have found it to be convincing.

There were two conditions in this study: a control group and an experimental group. Subjects in the experimental group were told that they would be participating in the interaction and subjects in the control group were told they would be rating a videotape. The reason for having each group receive a different form of deception was so that the experimental group would experience more anxiety than the control group. This is based on the assumption that actually participating in an interaction would be considered more stressful (anxiety producing) than watching and rating a videotaped interaction. To determine if the interaction is in fact more stressful, scores on the

Self-Evaluation Questionnaire (the questionnaire that asked you to rate statements such as I am tense; I feel secure, on a scale from 1 to 7) between the two groups are compared, and it is expected that the experimental group will have a higher score (have experienced more anxiety) than the control group.

These two groups are then compared on their confidence levels for avoiding heavy alcohol use to determine if there is a difference between the two groups. Thus, this second questionnaire was used to test whether Bandura's prediction about the effect of anxiety on self-efficacy (as anxiety increases, self-efficacy or confidence decreases) is correct.

Your selection for participation in this phase of the study, was based on the responses you gave when filling out the questionnaires in the first part of the study. Individuals selected for participation in the study, reported that they drank alcohol on a regular basis and on at least one occasion, drank at least 5 drinks in one sitting. In addition, these subjects reported experiencing a high or low level of anxiety when interacting in social settings. Your responses on these measures are confidential and your name will not be associated with the data in any way.

Your participation in the study is important in that the data gained from the study will help us to learn more about what factors influence how much college students drink in social settings. If you have any questions, concerns, or are interested in finding out about the final results of the study please call the experimenter Randy Burke at 552-5750 or the faculty sponsor Dr. Robert Stephens at 231-6304.

APPENDIX N

Control Condition Questions

ID#_____

1. What do you think you will be rating the subjects in the video on?

2. What personality variables do you think the questionnaires measured?

3. How do you think the questionnaires you just completed relate to the video that you are going to evaluate?

4. Is there anything about the study that you think we may not have told you?

APPENDIX O

Virginia Polytechnic Institute and State University

Informed Consent for Participation

of Investigative Projects

Investigator: Randy S. Burke
Department of Psychology
Virginia Tech
(703) 231-7631

Faculty Sponsor: Robert S. Stephens, Ph.D.
Department of Psychology
Virginia Tech
(703) 231-6304

The Effect of Social Anxiety on Drinking Self-Efficacy

The purpose of this study was to investigate the relationship between affect and self-efficacy for drinking in moderation, in college students. Your participation in the study was important in that the data gained from the study will help us to learn more about what factors influence how much college students drink in social settings. As we explained, it was necessary to use some deception in this study. We apologize again for any discomfort this may have caused and we want to ask your permission to use your data in our analyses. Your responses on the measures you completed are confidential and your name will not be associated with the data in any way. If you do not want the experimenter to use your data in the analyses, please check the NO statement at the bottom of this form. If you will allow the experimenter to use your data please check the YES statement at the bottom of the form.

____ No, I do not want my data used in the study.

____ Yes, I will allow my data to be used in the study.

Subject's signature _____

Date _____

Footnotes

[1]To determine if sex differences influenced the results, all analyses on the STAI and SCQ scores were performed including gender as a factor. These analyses found only one main effect of gender. Specifically, males generally reported lower self-efficacy for avoiding heavy drinking in socially anxious situations than females. Gender did not however, interact with anxiety, and therefore results are reported only for the 2 X 2 analyses.

Table 1.

Frequency of drinking episodes per month of subjects who participated in the experimental phase of the study.

	Frequency					
Quantity per episode	Men (n = 34)		Women (n = 39)		Total Sample (n = 73)	
	M	SD	M	SD	M	SD
3-4 drinks	3.07	2.38	2.72	2.35	2.93	2.36
5-6 drinks	2.98	2.05	2.41	2.38	2.75	2.19
7-8 drinks	2.36	2.92	1.88	1.29	2.18	2.40
9 or more drinks	4.38	5.28	1.52	3.12	2.66	4.32
Total drinks consumed	72.72	54.47	53.93	40.25	61.00	46.98

Table 2.

Distribution of male and female subjects, by cell, who participated in the experimental phase of the study.

		Anxiety Manipulation	
		Anxious	Not Anxious
Dispositional Social Anxiousness	Low	Males = 7 Females = 12	Males = 8 Females = 12
	High	Males = 8 Females = 7	Males = 7 Females = 12

Table 3.

Correlations between AOES subscales and quantity and frequency of alcohol consumed.

AOES Subscale	Frequency of Alcohol Consumption	Quantity of Alcohol Consumed
Positive Social Effects	.38***	.27***
Negative Emotional Effects	-.43***	-.31***
Fun Effects	.54***	.37***
Tension Reduction Effects	-.16**	.11*
Cognitive Impairment Effects	-.13**	-.04*
Sexual Effects	.15***	.12**
Physical Impairment Effects	-.19***	-.10*
Negative Social Effects	-.02	.09*
General Positive Effects	.44***	.33***
General Negative Effects	-.28***	-.12**

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

Table 4.

Experimental phase subjects' mean scores on the STAI.

		Anxiety Manipulation	
		Anxious	Not Anxious
Dispositional Social Anxiousness	Low	n = 19	n = 20
		M = 3.45	M = 2.09
		SD = 1.08	SD = .78
	High	n = 15	n = 19
		M = 4.10	M = 2.75
		SD = 1.02	SD = .72

Table 5.

Experimental phase subjects' mean scores on the negative situations subscale of the SCQ.

		Anxiety Manipulation	
		Anxious	Not Anxious
Dispositional Social Anxiousness	Low	n = 19	n = 20
		M = 4.28	M = 4.16
		SD = .73	SD = .90
	High	n = 15	n = 19
		M = 3.91	M = 3.54
		SD = .88	SD = .87

Table 6.

Correlations between AOES and SCQ subscales

	Situational Confidence			
AOES Subscale	Positive Situations	Negative Situations	Socially Anxious Situations	Total SCQ
Positive Social Effects	-.26*	-.17	-.18	-.25*
Negative Emotional Effects	-.04	-.32**	-.19	-.19
Fun Effects	-.11	-.13	-.20	-.16
Tension Reduction Effects	-.35**	-.30**	-.40***	-.40***
Cognitive Impairment Effects	-.08	.04	.00	-.02
Sexual Effects	-.19	-.27*	-.28*	-.28*
Physical Impairment Effects	-.05	-.11	.11	-.04
Negative Social Effects	-.13	-.25*	-.18	-.21
General Positive Effects	-.34**	-.34**	-.39***	-.41***
General Negative Effects	-.11	-.23	-.09	-.17

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

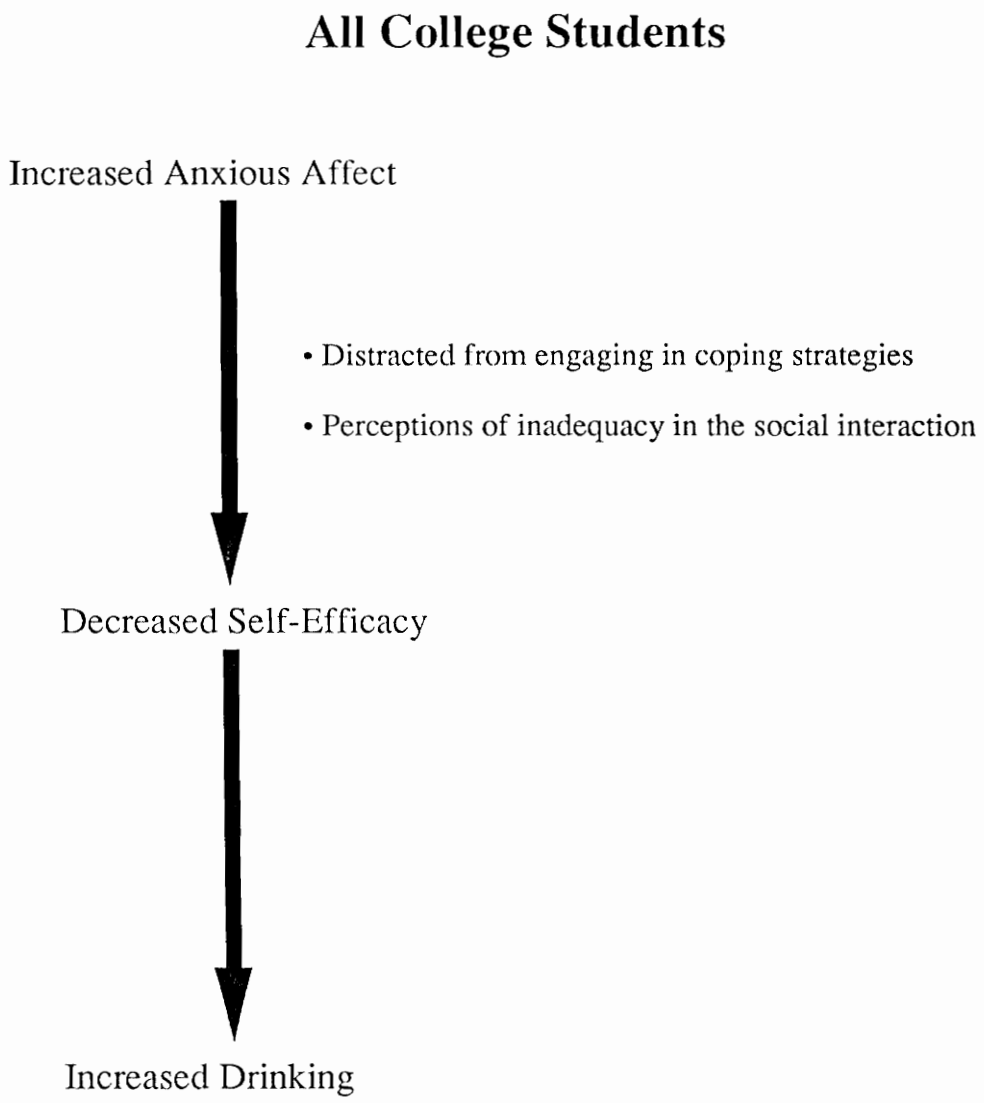

Figure 1.

Hypothesized relationship between anxious affect, self-efficacy, and alcohol consumption in college students

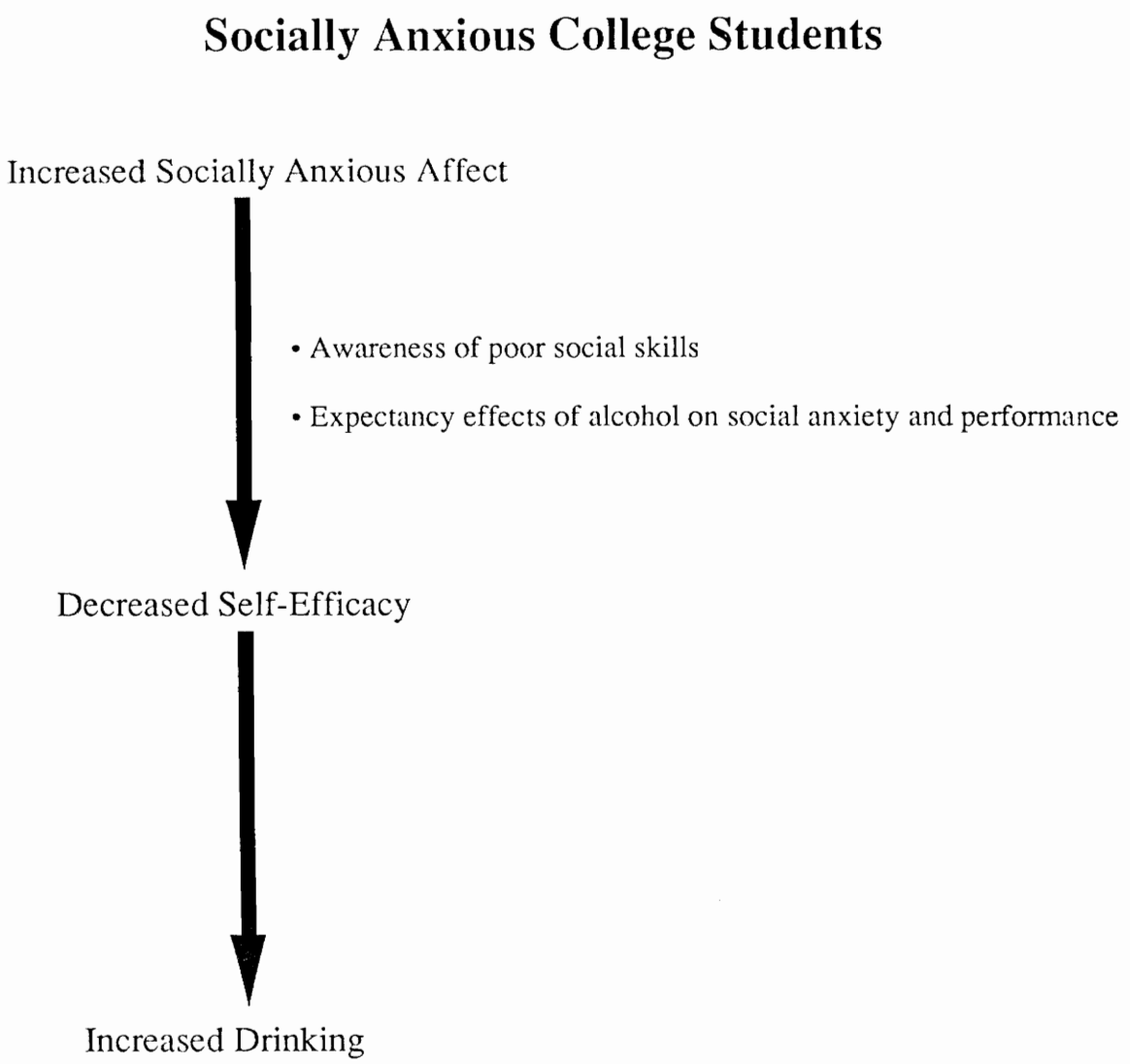

Figure 2.

Hypothesized relationship between anxious affect, self-efficacy, and alcohol consumption in socially anxious college students