ALCOHOL EXPECTANCIES AND HEAVY DRINKING IN FEMALE COLLEGE STUDENTS:

A COMPARISON BETWEEN FRESHMEN AND SENIORS

THESIS

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

ABSTRACT

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The purpose of this study was to examine the alcohol outcome expectancies (positive and negative) and their respective subjective evaluations in a sample of freshman (N = 52) and senior (N = 34) college women who were identified as heavy drinkers. Participants' drinking status was assessed by the Alcohol Use Disorders Identification Test (AUDIT), and alcohol attitudes (i.e., expectancies and subjective evaluations) were assessed by the Comprehensive Effects of Alcohol (CEOA). Our results show a partial support for the hypotheses. No significant difference was found between the groups in positive alcohol outcome expectancies, negative alcohol outcome

expectancies, or the evaluations of positive alcohol outcome expectancies. However, results revealed significant differences in the evaluations of negative alcohol expected effects: freshmen heavy drinking female students perceived negative consequences of alcohol more positively than senior heavy drinking female students. It was also found by the study that the heavy drinking senior group when recalling their freshman experience differed significantly from the current heavy drinking freshmen on the evaluations of positive alcohol outcome expectancies, and in the negative outcome expectancies. Supplemental analyses were performed and discussed on attitudes of female students identified as light/nondrinkers in our study. Based on the results of this study, several recommendations for further treatment and preventive programs for heavy drinker female college students are suggested. The strengths and limitations of the study are discussed and further research is recommended.

CHAPTER I

INTRODUCTION

Heavy drinking in college population has become a major public concern. Different studies have confirmed that young adults between 18 and 24 years of age present the highest alcohol consumption levels, with the peak for males at ages 19-20 and for females at ages 18-19 (Ham & Hope, 2003; Kandel & Logan, 1984). In fact, for this same age-range (18-24), alcohol-related accidents appear to be the main cause of death.

A study developed nationwide (Faden & Baskin, 2002) have revealed that approximately 40% of the students from college and university could be classified as heavy, or binge drinkers (heavy drinking has been defined as having, at least once in the last two weeks, five or more drinks in a row for men, and four for women). In addition, many of those students were found to be under the legal age for drinking. This same study found also that 77.4% of students were under the legal age drink alcohol (Faden & Baskin, 2002). The adverse consequences related to drinking affect practically all college communities and students, even those students who do not drink at all.

Several factors associated with this phenomenon have been identified through different studies. One of those factors that has been found to be more reliably associated with heavy drinking, and drinking behavior is the beliefs of the reinforcing effects of drinking alcohol in both adolescent and adult populations, better known as alcohol outcome expectancies (Fromme and D'Amico, 2000; Fromme, Stroot & Kaplan, 1993;

Ham & Hope, 2003; Hesselbrock, O'Brien, Weinstein & Carter-Menendez, 1987; McCauley & Ohannessian, 1994; Smith & Goldman, 1995; Webb, Baer, Francis & Caid, 1993; Wood, Nagoshi & Dennis, 1992). Those beliefs have shown to influence frequency and quantity of alcohol consumption, differentiating between lighter and heavy drinkers (Fromme et al., 1993). Consequently, researchers have come to the conclusion that the more positive a person's alcohol outcome expectations, the more heavily that person drinks (Fromme et al., 1993).

Even though the assessment of alcohol expectancies has provided a way to get valuable information to predict, prevent, and probably change drinking behavior, current tools such as the Alcohol Expectancy Questionnaire (AEQ) have shown some limitations: the exclusion of negative alcohol expectancies, and the subjective evaluations of both the positive and negative expected effects of alcohol. It has been found that heavy drinkers might perceive some of the negative effects of alcohol as positive (Ham & Hope, 2003). For instance, while getting dizzy could be seen by the majority of people as a negative outcome, there might be those for whom this is an expected positive effect of alcohol. The few studies that have included the subjective evaluation as a variable found that it increases the prediction of alcohol use (Fromme et al., 1993). Therefore, Fromme and D'Amico (2000) developed a new questionnaire called the Comprehensive Effects of Alcohol (CEOA) questionnaire designed to assess all two groups of variables: the alcohol expected outcome effects (positive and negative), and subjective evaluations of the expected effects (positive and negative) (Fromme & D'Amico, 2000).

The CEOA has shown high levels of reliability and validity in adult populations (Fromme et al., 1993; Fromme & D'Amico, 2000). The questionnaire was only few times

applied to adolescent populations but the obtained results were encouraging; the addition of subjective evaluations to the assessment increased the predictive power of alcohol outcome expectations in explaining drinking behavior of the youth (Fromme & D'Amico, 2000).

Another trend that has recently attracted attention of researchers is the increase of alcohol consumption in population of college women. According to Ham & Hope (2003), it seems that heavy drinking has increased in women's colleges more than in men's colleges. The understanding of drinking behavior among female students is still very limited because of lack of relevant data, though, research suggest that college women engage in heavy drinking for different reasons than women in general population, and their motives appear to change over time. Thus, the purpose of this study is to investigate the role of alcohol outcome expectancies (positive and negative), and their corresponding subjective evaluations in population of college women who engage in heavy drinking. Additionally, we would like to explore developmental changes in outcome expectancies, subjective evaluations, and alcohol consumption through a comparison between freshman and senior female students. The results of this study will contribute to better understanding of alcohol consumption in this population and therefore, might be helpful in creating effective intervention programs on campuses in order to prevent alcohol abuse by female college students.

Literature review

Alcoholism in Women

Alcoholism is a serious problem in our society that occurs in all social groups, regardless of age, education, or socioeconomic level. It is considered a degenerative disease that has the following basic characteristics: "craving (a constant need to drink), loss of control (inability to stop drinking once a person has begun), physical dependence (withdrawal symptoms such as nausea, sweating, and anxiety if drinking is stopped after a period of heavy drinking), and tolerance (the need for increasing amounts of alcohol to feel the same "good" symptoms)" (Stoenescu, Stuparu, Ciorchica, Ciorchica, Ciorchica & Ciorchica, 2002, p. 3).

Statistics show that almost 14 million Americans abuse alcohol, or exhibit alcoholic tendencies (Narconon Southern California, 2003; National Institute on Alcohol Abuse and Alcoholism, 2003). Half of traffic and accidental deaths, one third of suicides (especially in teens), and a considerable amount of birth defects and divorces in the US have been related to alcohol abuse (Gearhart, Beebe, Milhorn & Meeks, 1991, p. 908). According to the article "Alcoholism Statistics" (Narconon Southern California, 2003), alcohol has been found to be the third leading cause of preventable mortality in the United States. The extent of the problem is increased by the fact that about 43% of U.S. adults have been exposed to alcoholism in the family: either they grew up with, or married an alcoholic or a problem drinker, or had a blood relative who was an alcoholic or problem drinker (Narconon Southern California, 2003). Almost three times as many men (9.8 million) than women (3.9 million) are problem drinkers (Narconon Southern California, 2003); however, problem drinking among women has been increasing in

western countries. Alcoholism is identified as the third leading cause of death in the U.S. women population attributing to increases in suicides, alcohol-related accidents, and liver diseases. These three categories of negative consequences are more common in female than male alcoholics (Gearhart, Beebe, Milhorn & Meeks, 1991). Because of its harmful effects, alcohol decreases women's life expectancy by 15 years. Moreover, because of biological gender differences in total body water and body fat distribution in which women have a higher percentage of body fat, a small percentage of body water and a smaller volume of distribution (Gearhart et al., 1991), women have higher alcohol levels than men after consuming the same amount of alcohol. Consequently, toxic effects (physical consequences) occur in women after consuming smaller amounts of alcohol than men.

It is clear, then, that there are significant differences between men and women in both causes and effects of alcoholism. Research suggests that the negative consequences of drinking in women are more serious than in males (Greenfield, 2002); therefore, alcoholism in women is a serious social and health problem that requires special and immediate attention (Gearhart et al., 1991, p. 910; Narconon Southern California, 2003).

Physical Consequences

Although the effects of alcoholism vary from person to person, it is a fact that women differ from men in both drinking patterns and physical consequences of alcohol use. Although women are less likely to drink daily, women progress more quickly through the disease than men (Wake, 1994). This process is called "telescoping", which consists of the faster development of liver diseases, cardiovascular diseases, and other diseases related to alcohol consumption (Wake, 1994). Also, because of the differences in

body fat and water percentages in the body between men and women, women absorb and metabolize alcohol differently. Thus, because alcohol is "less diluted in women than in men and therefore is transported to all of the target organs at a higher concentration" (Greenfield, 2002, p. 78), the same amount of alcohol causes higher concentrations of alcohol and stronger toxic effects in women than men (Gearhart et al., 1991). Some areas where women develop more negative effects than others due to alcohol are the following:

- More liver damage after the same period of time and with less alcohol consumed than men.
- More vulnerability than men to brain damage.
- Higher risk to develop breast cancer than non alcoholic women.
- Higher risk of traffic accidents than men.
- Higher suppression of the immune system than in males (Buddy, 2003; Chudler, 2003; Geahart et al., 1991; Greenfield, 2002).

Psychosocial Factors

Whereas men tend to externalize their feelings through aggressive behaviors, women tend to internalize their own feelings and problems, which could lead to several problems such as high levels of anxiety, depression, low self-esteem, self hatred, and even more severe disorders (Van Der Walde, Urgenson, Weltz and Hanna, 2002). Different studies have shown that for women, alcohol is used as a way to cope with, or solve these personal issues, which in consequence, lead to alcohol dependence (Blume, 1998). This is supported by other studies showing that alcoholic women in treatment viewed their drinking as a coping response to a crisis, or problematic situation (Beckman, 1994; Finkelstein, 1993; Saunders, Baily, Phillips and Allsop, 1993; Van Der Walde et

al., 2002).

Those results suggest that women who feel powerless, or with no control over their circumstances may drink as a coping mechanism (Beckman, 1994). Other studies have also found an important relationship between women's coping styles and stress-related alcohol consumption. For example, a study done by Gomberg (1994) found that the youngest drinking women were single, childless, and not employed, whereas the others (35 years of age and up) were unmarried, divorced, unemployed, or had children living outside the home. Such women suffer more adverse consequences than other women who drink and their drinking is related to a sense of disconnectedness. They often drink to re-gain a sense of connection, but due to the social stigma of alcoholism, drinking only increases the women's feeling of isolation, loneliness, and disconnection (Saunders et al., 1993; Van Der Walde et al., 2002; Blume, 1998; Brady & Sonne, 1999).

Hence, the sense of powerlessness, passivity, and the experience of oppression found in alcohol-abusing women have shown important implications for treatment and the likelihood of relapse (Saunders et al., 1993; Karno, Beutler &Harwood, 2002). Also, as we will see later, these psychosocial factors are correlated with psychological and physiological factors such as depression, stress, anxiety, and other psychiatric disorders.

Social stigma. Another social factor that must be taken into consideration is the fact that the social stigma about alcoholism in women is still stronger than in men. In consequence, because of gender-biased attitudes in society, alcoholic women experience a much higher discrimination than alcoholic men (Van Der Walde et al., 2002). For instance, due to the fact that alcoholism in women is seen as deviant from the traditional women's social expected roles (such as mother, caretaker, and wife), alcoholic women

are seen as individuals with "absence of femininity, sexually promiscuous, and neglectful of their children" (Van Der Walde et al., 2002, p. 146). This stigmatization of women who abuse alcohol has serious consequences. One of such consequences is an increased risk for sexual victimization among alcoholic women.

As mentioned before, alcoholic women are seen as "more sexually disinhibited, and available for both men and women" (Norris, 1994, p. 197). Thus, in a case of a rape situation, women under the effects of alcohol are much less able to resist the attack, or be clear about their non-consent (Norris, 1997). Furthermore, their perceptive and judgmental abilities are affected. According to that same study, after the sexual attack of a woman under the effects of alcohol, the male was "not held responsible for his behavior and the blame were placed solely on the female victim" (Norris, 1994, p. 199). Additionally, the victim described the attacker as less violent and with more acceptable behavior, taking so the role of a "willing victim (Norris, 1994, p. 199). The author suggests that social stigma attached to women drinking explains reasons why drinking women are often reluctant to look for help. The study revealed the urgency of addressing this problem and need for increased educational efforts in order to prevent its further development.

Mental Health. Numerous studies have found that alcoholic women are more likely than women in normal population to suffer from depression, anxiety, and other psychiatric illness, such as mania, somatization, major depression, panic disorder, and phobic disorder (Beckman, 1994; Van Der Walde et al., 2002). These mental health problems in combination with factors such as high stress level, low self-esteem, low self-efficacy, and low control over external situations are considered one of the major

contributors to the initiation, continuation, and relapse of alcoholism (Brady & Sonne, 1999; Van Der Walde et al., 2002). Some of the factors that have been strongly linked to alcoholism in women will be briefly described.

Stress. According to several studies, stress has been found to be an important factor in drug addictions, especially women's alcohol addiction (Gomberg, 1994; Van Der Walde et al., 2002; Brady & Sonne, 1999; Langeland & Hartgers, 1998; Blume, 1998). According to Van Der Wale et al. (2002), there is a strong link between stress and childhood sexual abuse. Research has shown that sexual, emotional, and physical abuse triples the risk of alcohol abuse in women. This may be due to the tendency for women to use alcohol to cope with the resulting problems of low self-esteem, depression, sexual problems, and especially, posttraumatic stress syndrome (Blume, 1998; Van Der Walde et al., 2002). This has been supported by other studies, which have shown that childhood abuse, physical, emotional or sexual in nature, lead women to self-destructive behavior, anxiety, depression, poor self-esteem, difficulty in trusting others, internalized anger, and hostility (Langeland & Hartgers, 1998; Blume, 1998; Van Der Walde et al., 2002). According to these results such problems might be more likely to appear before the alcohol abuse rather than afterwards (Blume, 1998).

A biological explanation for these findings states that stress modifies the motivational and reinforcing effects of alcohol by increasing the dopaminergic systems involved in such effects to counteract the negative emotional state linked to stress (Brady & Sonne, 1999).

Stress and Coping. As mentioned before, it has been found that women who looked for treatment often feel powerless and/or are using alcohol as a coping response to

a crisis situation. Women who used problem-focused coping strategies consumed less alcohol during stressful periods in their lives than did women that focused just on emotions (Brady & Sonne, 1999; Beckman, 1994). This result suggests that treatment focused on teaching problem-focused coping skills might be an important component of effective therapy for alcoholic women (Brady & Sonne, 1999). The development of effective coping skills appears to be an important issue taking into account that both discrete, stressful life events and chronic stressors play a role not only in the initiation of alcoholism, but also in the relapse stage (Gearhart et al., 1991). For instance, in the study done with a group of people who had received psychosocial and medication treatment, those who relapsed had experienced twice as much severe stress before entering treatment compared with patients who remained abstinent (Brady & Sonne, 1999). This finding reaffirms the connection between stress and relapse, suggesting that "resilience to stress-induced relapse could be improved during treatment" (Brady & Sonne, 1999, p. 370).

Depression. Being one of the issues directly linked to stress, depression is another important factor related to women's alcoholism. Although many studies have shown that women suffer more from major depression than men, a genetic basis for gender differences in depression has not yet been found (Rosenzweigh, Breedlove & Leiman, 2001). Some studies suggest that such differences seem to be related to "sex-differences in help-seeking patterns, the stigmas and social differences between males and females" (Rosenzweig et al., 2001, p. 520). For instance, psychosocial explanations suggest that "social discrimination against women leads to dependency, low-self esteem, and self-control, and in consequence, depression" (Rosenzweig et al., 2001, p. 520).

Other studies have highlighted sex differences in depression based on endocrine functions, for example, on the hormones linked to the female reproductive cycles, such as estrogen. Nonetheless, little relation between these hormones and depression has been found (Rosenzweig et al., 2001). Moreover, studies in populations where drinking is not allowed (such as some religious groups) did not find differences in major depression, which would suggest that heavy use of alcohol could disguise depression in men (Rosenzweig et al., 2001).

Research focused on a biological mechanism of depression has found a link between depression and stress through the hypothalamic-pituitary-adrenal system (Rosenzweig et al., 2001; Brady & Sonne, 1999; Von Zerssen, Doerr, Emrich, Lund and Pirke, 1987). Studies have found an excessive production of cortisol due to the over-activation of the hypothalamic-pituitary-adrenal (HPA) axis by stress. This over-activation due to stress "acts directly in the initial onset and progression of depression" (Von Zerssen et al., 1987, p. 39)

One of the effects of stress contributing to the development of alcoholism is its response-dampening effects on emotional responses (e.g., depression, anxiety, and nervousness). Several studies have found that, unlike women with no family history of alcoholism, effects such as the mentioned before are more acute in female who present family history of alcoholism, or also anxiety disorders (Beckman, 1994; Brady & Sonne, 1999; Saunders et al., 1993; Van Der Walde et al., 2002). This suggests that family history might directly affect the effectiveness of the treatments in women, and in consequence, the likelihood of relapse.

Binge Drinking in College Students

Excessive drinking among college and university students has become a significant social problem. A recent national survey conducted on a sample of 119 colleges by the Harvard School of Public Health found that binge drinkers accounted for 35% of the college population (Wechsler & Kuo, 2000). Similar statistics are reported by other studies. For example, Faden & Baskin (2002) reported that nearly 40% of college students can be classified as heavy drinkers (also called binge drinkers). It is worth noting that many of the students abusing alcohol are under the legal age for drinking.

Heavy drinking is defined as "consuming five or more drinks in a row for men, and four or more in a row for women at least once in the past two weeks" (Faden & Baskin, 2002, p. 102). One drink is measured as a 12-oz beer, 4-oz glass of wine, or a 12.5-oz of mixed or straight liquor (Wechsler et al., 1999).

According to a study done by the National Institute on Alcohol Abuse and Alcoholism (2003), the following are some general statistics related to the immediate harmful consequences of excessive drinking in college (in students between 18 and 24 years old):

> An average of 1700 college students die per year due to alcohol-related unintentional injuries; 599.000 students are unintentionally injured under alcohol influence and more that 696.000 are assaulted by a student that has been drinking; more than 97.000 students are victims of alcohol-related rape, or sexual assault in general; approximately 400.000 students have unprotected sex, and even worse, approximately 400.000 have been too intoxicated to distinguish if they give their consent to have sex; about 25% of college students have reported negative

> academic consequences of their drinking; in 2002, 2.1 million students reported they had driven under alcohol influence during the 2001, and finally, according to the results of this same study, in 2002 31% of college students met the criteria for a diagnosis of alcohol abuse, and 6% for a diagnosis of alcohol dependence. (p. 3).

Predictor Variables of Excessive Alcohol Consumption among College Students

Generally, factors predicting heavy drinking in college students seem to be different from those found in studies about alcoholism in general population. Apparently, college drinking seems to be a transitory behavior for most of the students: the heaviest drinking occurs during the first years of college and gradually declines in later years, and only a small proportion of students' population will continue heavy drinking throughout adulthood (Ham & Hope, 2003). This decrease in consumption appears to be due to new responsibilities that students face after graduation (Ham & Hope, 2003).

According to Hartzler and Fromme (2003), "college environment per se appears to encourage binge, or heavy drinking" (p. 259). This study compared frequency of alcohol drinking and social affiliation between high school students and college freshmen. The variables measured were weekly drinking habit, perceived peer drinking by same-gender peers (Daily Drinking Questionnaire), social affiliation (Interpersonal Orientation Scale), and gender. The following are the main finding of the study.

Perception of drinking norms. Students overestimate peer drinking by thinking that their own consumption is less than peer consumption and college norms. In consequence, students seem to engage in heavy drinking while believing they are in less

risk than others. Indeed, this study found that perceptions of peer drinking are highly correlated with student drinking in both college men and women.

Social affiliation. This was defined as "the need for social rewards such as attention, interpersonal closeness, social comparison, and reduced negative affect" (Hartzler and Fromme, 2003, p. 261). Social affiliation was found to have a crucial role in predicting heavy drinking in college students. Thus, along with the overestimation biases previously explained, the need of acceptance, attention, approval, or belonging in the new college life may lead students to spend more time drinking with new friends in order to fulfill such needs.

Gender. Both men and women entering college showed a significant and similar increase in the four indices of drinking (drinking frequency, quantity, weekend drinking, and frequency of heavy drinking episodes). However, women's drinking showed a greater level of increase from high school to college. Consistent with results of previous studies, the perception of drinking norms was markedly overestimated by both genders, with women being more prone to such an overestimation than men. Needs of social affiliation appeared to play an important role in the development of drinking practices at the beginning of college life for men, but not for women: for female students, social affiliation needs become stronger predictors of drinking in later years of college (Hartzler & Fromme, 2003, p. 261).

The findings of this study were consistent with previous research on college drinking that identified the overestimation of drinking by other peers (i.e., drinking norms), and needs of social affiliation as strong predictors of binge drinking (O'hare, 1997). Interestingly, unlike in the general alcoholic population, heavy and problem

drinking in college seemed to be unrelated to unpleasant emotions. In fact, the researchers did not find enough evidence to conclude that students engage in heavy drinking as a way to cope with negative emotions such as loneliness, low self-esteem, depression, interpersonal conflict, or anger found in previous research on heavy alcohol drinking in the general population. Rather, the results suggest that these difficulties are "more likely to be a result of heavy drinking than a precipitant of it" (O'Hare, 1997, p. 475), and that heavy drinking in college is "associated with positive social interactions" (O'hare, 1997, p. 470).

Satre & Knight (2001) showed that for both genders the quantity of alcohol consumed was positively correlated with pleasant emotions such as social expectancies, assertiveness, and physical pleasure. Authors analyzed age and gender differences in positive and negative expectancies of alcohol consumption by comparing older adults to younger adults attending college. Their main findings are summarized bellow:

- Older adults showed significantly lower levels of both negative and positive alcohol expectancies than the group of college students.
- For older men, there was a positive correlation of positive alcohol expectancies and alcohol consumption and a negative correlation between negative alcohol expectancies and alcohol consumption.
- Only for younger women (college students), there was a positive correlation between positive alcohol expectancies, and alcohol consumption.
- Only for older women, there was a negative correlation between the negative alcohol outcome expectancies, and drinking behavior.

These results suggest that for older women alcohol consumption might be reduced by the increase of negative beliefs about alcohol effects, whereas in the case of college women, drinking behavior might be decreased either by the reduction of their positive beliefs about alcohol outcomes, or if such positive effects expected from alcohol are obtained by any other means (Satre & Knight, 2001).

Based on this review, it appears to be clear that alcohol outcome expectancies play a very important role in alcoholism in college.

Alcohol Outcome Expectancies

Alcohol outcome expectancies refer to people's beliefs about the immediate consequences of drinking alcohol (Fromme et al., 1993). Over the last two decades research has shown significant evidence that the amount and frequency of alcohol consumption is associated with peoples' beliefs about the outcome effects of drinking. These beliefs are known as *alcohol outcome expectancies*, which have been shown to be strong predictors of alcohol behavior. In the case of heavy drinking, alcohol expectancies have shown to be better predictors than other variables such as family history of alcohol, gender, level, class, or socioeconomic status (Fromme & D'Amico, 2000; Ham & Hope, 2003).

Alcohol outcome expectancies reliably differ not only between light drinkers and heavy drinkers, but also between problem and non-problem drinkers (Fromme et al., 1993). It was suggested that by detecting the people's alcohol outcome expectancies, especially those involved in heavy drinking, it might be possible to design treatment and preventive programs focused on changing such expectancies, thereby leading to change

in drinking behavior (Fromme et al., 1993). In the case of adolescents, alcohol outcome expectancies have also been found to predict excessive drinking (Fromme & D'Amico, 2000).

According to Ham & Hope (2003), there are two main types of alcohol outcome expectancies: the positive effects expected from drinking alcohol (e.g., being more sociable, disinhibited, or sexy), and the expected negative consequences of alcohol consumption (e.g., general cognitive and physical impairment such as feelingdizzy).

One of the main tools developed to assess the alcohol outcome expectancies in adult population is the Alcohol Expectancy Questionnaire (AEQ). Several studies that used this questionnaire have concluded that the higher the positive outcome alcohol expectancies a person has, the more heavily this person drinks and the more prone to drinking problems the person is (Fromme & D'Amico, 2000; Lewis & O'Neil, 2000). The AEQ measures six alcohol outcome expectancies: positive global change, social and physical pleasure enhancement, sexual enhancement, increased power and aggression, increased social assertiveness, and tension reduction (Lundahl, Davis, Adesso & Lukas, 1997).

The AEQ-Adolescent (AEQ-A) form was developed to study younger populations. In contrast with the AEQ, the AEQ-A measures also some general beliefs about negative outcome expectancies of drinking. The AEQ-A has been found to be an appropriate and adequate measure of alcohol-related beliefs in college settings (Fromme & D'Amico, 2000; Lewis & O'Neil, 2000; Lundahl et al., 1997). Moreover, Fromme and colleagues (1997) indicated that the AEQ-A has shown to predict transition from non-problem to problem drinking status among adolescents.

According to the literature review by Ham and Hope (2003), alcohol expectancies were found to be better and stronger predictors of heavy and frequent drinking than any other variable alone (e.g., ethnicity, gender, family history of alcoholism, or socioeconomic status). Additionally, Lundahl et al. (1997) found that female students under 20 years of age have stronger expectancies of global positive alcohol effects, sexual enhancement, increased power and aggression, and social assertion than those over 20 years of age. Due to the limitations of the study, further research was suggested by authors.

The following is a summary of the alcohol expectancies that have been found to be correlated with heavy drinking in college in several studies that used the Alcohol Expectancy Questionnaire (AEQ). This description is focused on findings related to female students.

Alcohol Outcome Expectancies - Summary of Findings

1. *Global positive change.* Global positive change refers to a general good feeling expected from consuming alcohol. Global positive expectancies have been consistently linked to problem drinking (Ham & Hope, 2003). Lundahl et al. (1997) showed that the global positive change expectancies decrease with age; however, there is no direct evidence of the relationship between the global positive change expectancies and binge drinking. There are no relevant data pertaining specifically to female students, and the only available data has linked global positive change expectancies with beer consumption for male, but not female students (Lundahl et al., 1997).

2. *Arousal.* Arousal has been found to be related to problem drinking in the case of female college students (Ham & Hope, 2003). Further research has been suggested due to limitations of previous studies.
3. *Increased power and aggression.* This is another expectancy directly related to alcohol consumption and problem drinking. Lundalh et al. (1997) revealed that younger adults under the age of 20 had higher expectancies of power and aggression than those over the age of 20. Furthermore, this same study found that women reported overall higher expectancies of power and aggression than men, which corroborated results from previous research done by this same author in 1992. However, these results are limited, and more research is needed especially for female college population to validate this trend.

   It is also worth noting that although some outcomes are assumed to be negative (e.g., hostility and aggression) in some groups they could be seen as positive and/or desirable expected effects of alcohol. For instance, women might desire to become more aggressive and therefore they consume alcohol looking for this result as a positive state. As suggested by Fromme et al. (1993), further studies should be conducted in order to systematically examine if the subjective evaluations modify the influence of alcohol outcome expectancies on drinking behavior in different groups of students (e.g., female college students).
4. *Social assertion.* Social assertion refers to the belief that through drinking, the assertiveness and sociability can be increased (i.e. feeling disinhibited, outgoing, and more talkative; Ham & Hope, 2003). O'Hare (1990) found that social assertion, along with tension reduction, were significantly predicted by social

anxiety in male and female undergraduates. Lundahl et al. (1997) pointed out that younger students (below 20 years old) displayed higher social assertion expectancies than older groups. Some research found that problem drinkers reported higher social assertion expectancies than non-problem drinkers (Fromme & D'Amico, 2000; Ham & Hope, 2003; Lewis & O'Neill, 2000); however, other studies have found that higher social assertion expectancies predicted amount of consumed alcohol but not problem drinking in general (Ham & Hope, 2003; O'Hare, 1990). In short, findings regarding social assertion expectancies have been inconsistent, and it is not clear whether this factor is more predictive of problem drinking or heavy drinking. Future research is, consequently, required.

5. *Sexual enhancement.* Results on how expectancies of sexual pleasure enhancement relate to problem drinking seem inconclusive, and sometimes contradictory. In general, greater expectancies of increased sexual pleasure appeared to be more related to problem drinking than heavy drinking (Ham & Hope, 2003; Lewis & O'Neill, 2000). It was also shown that sexual enhancement expectancies were positively correlated with alcohol consumption in women that have suffered sexual victimization (Ham & Hope, 2003). Further research is required to clarify whether sexual enhancement is a general predictor of heavy and problem drinking among female college students.
6. *Cognitive/motor functioning.* This expectancy refers to changes in cognitive and motor functioning that are expected from alcohol consumption (e.g., getting dizzy, hangover effects, blackouts, etc.). Despite having been generally assumed to be negative, cognitive/motor functioning expectancies have been found to be

positively correlated with elevated alcohol use (Ham & Hope, 2003). Other researchers reported a negative correlation between cognitive/motor expectancies and frequency of alcohol drinking (Fromme and D'Amico, 2000). It seems possible that the cognitive/motor impairment is considered as a positive state by some binge drinkers; therefore, further research including the subjective valuations of this expectancy as a moderating variable might help to clarify these results.

7. *Tension reduction.* According to Ham & Hope (2003), relaxation and tension reduction expectancies appear to be "the strongest predictor of problematic drinking" (p. 735). This expectancy has been rated higher in problem drinkers than in non-problem drinkers (Lewis et al., 2000). Tension reduction was shown to interact with social anxiety in predicting alcohol consumption among undergraduate students (O'Hare, 1990). One of the few results related to the expectancies and alcohol drinking in female population, the anticipation of sexual and tension reduction effects of alcohol tended to covary (Fromme et al., 1003). More research is needed to clarify gender differences in this area.
8. *Social/physical pleasure enhancement.* Expectancies of enhanced social and/or physical pleasure seem to be consistently related to social drinking. Studies attempting to link social/physical pleasure expectancies with problem drinking have shown that non-problem male drinkers tend to score higher on this expectancy than problem drinkers (Ham & Hope, 2003). It appears that the impact of this expectancy is far more important in predicting social, non-problematic drinking than any other type of drinking. Social/physical pleasure is also believed

to be an expectancy held by non-experienced drinkers (Ham & Hope, 2003), which might be a strong predictor of undergraduate, under-age drinking in college settings. If this is true, this expectancy will play an important role in initiation to college drinking and therefore should be addressed by treatments of early stages of alcohol problems among students.

Valuations of Alcohol Expectancies

In spite of the fact that the Alcohol expectancy questionnaire (AEQ) has been found to be very useful in predicting drinking behavior (Fromme et al., 1993), some limitations have been detected. The main limitation has been the exclusion of two variables that have appeared to enhance the prediction of alcohol use: the negative outcome expectancies of alcohol use, and the subjective evaluations of alcohol outcome expectancies (Fromme and D'Amico, 2000; Fromme et al., 1993; Ham & Hope, 2003).

For instance, whereas the AEQ consists of positive alcohol expectancies, research has found that negative alcohol expectancies that are valued as highly desirable by drinkers have appeared to be important in the prediction of alcoholism. It seems that some of the negative effects of alcohol are perceived as positive and highly valued by people who engage in heavy drinking (Fromme et al., 1993; Ham & Hope, 2003). For example, whereas aggressiveness would be classified as negative outcome expectancy, some studies found this expectancy as very desirable for a sample of college women who engage in heavy drinking (Lundahl et al., 1997; Satre & Knight, 2001). Thus, it was suggested that in order to predict drinking behavior, both positive and negative outcome expectancies must be addressed, along with the subjective evaluations of such expectancies. It appears that the subjective evaluation of both positive and negative

alcohol outcome expectancies significantly enhances the prediction of alcohol behavior in both quantity and frequency (Fromme et al., 1993).

In response to these suggestions a new alcohol expectancy measurement tool was developed (Fromme et al., 1993; Fromme & D'Amico, 2000). The main advantage of the Comprehensive Effects of Alcohol (CEOA) questionnaire is the fact that it allows the assessment of both positive and negative alcohol outcome expectancies, and also the subjective evaluations of such expectancies. Another advantage is the response format (e.g., continuous instead of dichotomous as in the AEQ), which allows to measure a degree of each outcome expectancy. Finally, the CEOA is shorter than other instruments such as the AEQ (Fromme et al., 1993).

The viability of applying the CEOA in adolescent populations was supported through a recent study done by Fromme and D'Amico (2000). Authors suggested that among adolescents, some of the apparent negative effects of alcohol are seen as positive (probably due to lack of experience with alcohol). It appeared that the outcome expectancies combined with subjective alcohol outcome evaluations were stronger predictors of heavy drinking than the outcome expectancies per se for this population (Fromme & D'amico, 2000).

Purpose of the Study

The main purpose of this study is to better understand the role of alcohol outcome expectancies (positive and negative), and their corresponding subjective evaluations in alcohol consumption in college women who engage in heavy drinking. For this purpose, changes in alcohol outcome expectancies, subjective evaluations, and alcohol consumption will be explored through a comparison between freshman and senior female students identified as heavy drinkers. The results of this study will be useful to better understand alcohol consumption in this population, and might help identify variables for effective alcohol prevention programs targeting female college students.

Hypotheses

The following are the hypotheses that were tested in this study:

Comparison between the freshman and senior group identified as binge drinkers by the Alcohol Use Disorders Identification Test - AUDIT:

1. Freshmen identified as heavy drinkers differ from seniors identified as heavy drinkers in that freshmen expect more positive effects from drinking (positive alcohol outcome expectancies) than seniors identified as heavy drinkers.
2. Freshmen identified as heavy drinkers differ from seniors identified as heavy drinkers in that freshmen evaluate the apparent "positive effects" of alcohol (positive alcohol outcome expectancies) as more desirable than seniors identified as heavy drinkers.
3. Freshmen identified as heavy drinkers differ from seniors identified as heavy drinkers in that freshmen expect less negative effects from drinking (negative alcohol outcome expectancies) than seniors identified as heavy drinkers.

4. Freshmen identified as heavy drinkers differ from seniors identified as heavy drinkers in that freshmen evaluate the apparent "negative alcohol outcome expectancies" as less negative than the seniors identified as heavy drinkers.

Analysis of senior's recall of the freshmen experience related to alcohol drinking:

5. It will be explored whether the ratings of positive and negative alcohol outcome expectancies and the respective evaluations for senior women identified as heavy drinkers recalling their freshman experience are similar to those from the freshmen female group identified as heavy drinkers.

Finally, an exploratory analysis will be performed upon the AUDIT results of female college students identified as nondrinker/light drinkers. It is expected that college women students identified as nondrinker/lighter drinkers expect less of the apparent positive effects from drinking (positive outcome expectancies), and evaluate such expectancies more negative (lower scores) in both the freshmen and senior groups.

CHAPTER II

METHOD

Participants

The participants of the study were recruited from large freshmen and senior psychology classes in the Psychology department at Texas State University – San Marcos wherein previous permission from the respective instructors was given. Despite the fact that the study is focused on female college students, the questionnaires were administered to both women and men in order to give all the students in selected classes the same opportunity to receive extra credit points for participation.

The survey was administered to a total of 268 students (all students signed an informed consent before participating in the study). The participation was voluntary. Out of the 268 students only 219 answered the survey completely and correctly (165 female and 54 male students). The data analyses were performed only on the results obtained from the female college students; therefore the final sample was comprised of 165 female college students, in which 94 were freshmen (57%) and 71 were seniors (43%). Table 1 shows the age and ethnicity breakdown of the sample.

Table 1

Age and Ethnic Distribution of the Study Sample - (165 Female College Students)

Age distribution	Ethnicity distribution
16 or less: .6%	Caucasian: 74.5%
17 - 18 years old: 13.1%	Hispanic: 13.9%
19 - 20 years old: 46.3%	Asian-American: 3%
21 - 22 years old: 28.8%	African-American: 4.2%
23 years old and up: 11.3%	Other: 4.2%

Materials

Two self-report questionnaires were used in the study. The first one was the Alcohol Use Disorders Identification Test (AUDIT; World Health Organization, 1992), and the second was the Comprehensive Effects of Alcohol (CEOA; Fromme, Stroot & Kaplan, 1993).

Alcohol Use Disorders Identification Test, ***AUDIT.*** The AUDIT is a ten-item self-report questionnaire designed to screen for excessive drinking and alcohol dependence. The questionnaire identifies people with harmful or hazardous patterns of alcohol consumption. Some of the main advantages of the AUDIT over similar questionnaires are the following: it identifies problem drinkers in their initial, or less severe stages; it addresses not only alcohol behavior and consequences but also frequency of intoxication, and it addresses alcohol experiences during lifetime with more emphasis on the last year and current drinking status (Babor, Higgins-Biddle, Saunders & Monteiro, 2001). According to one of the reviews found in the Mental Measurements

Yearbook database records, the AUDIT more effectively differentiates hazardous drinkers from non-hazardous drinkers than the Michigan Alcohol Screening Test, MAST (Ash, 1996).

The questions of the AUDIT focus on the following: the amount of alcohol consumption and frequency of drinking (three questions), type of drinking behavior and alcohol dependency (three questions), adverse reactions to alcohol (two questions), problems caused by alcohol (two questions). The items of the AUDIT have a Likert scale form; the response scale consists of four points for items one to eight, and three points for items nine and ten (see Appendix A). The total score could range from 0 to 40, and the cutoff point of hazardous drinking is eight.

The test shows high intrascale reliabilities (i.e. 0.93 and 0.81), and a significant concurrent validity with similar questionnaire, the Michigan Alcoholism Screening Test, MAST (0.31 to 0.887). Moreover, the test successfully differentiated between nondrinkers and harmful drinkers (Ash, 1996).

The Comprehensive Effects of Alcohol, ***CEOA.*** The CEOA is composed of 76 items divided into two parts: the first one addresses positive and negative alcohol outcome expectancies (38 items), and the second addresses the subjective evaluation of such expectancies (38 items; see Appendix B). In each of the two parts the items are subdivided into seven subscales: four that measure positive effects of drinking alcohol (positive outcome expectancies: sociability, tension reduction, liquid courage, and sexuality), and three that measure the negative effects (negative outcome expectancies: cognitive and behavioral impairment, risk and aggression, and self-perception). A summary of this questionnaire (how the items address the positive and negative factors)

is shown at the end of Appendix B (B-2). Like the AUDIT, the CEOA is composed of Likert-scale questions. In the alcohol expectancies part of the instrument, each test item is accompanied by a 4-points scale: disagree (1), slightly disagree (2), slightly agree (3), and agree (4). The lower the score the less a test-taker expects the alcohol drinking outcome addressed in the corresponding question. In the alcohol expectancy evaluations, each question is accompanied by a 5-point scale: bad (1), slightly bad (2), neutral (3), slightly good (4), and good (5). The lower the score of expectancy evaluations, the more negative subjective evaluation of the alcohol drinking effects (see Appendix B).

This questionnaire has been shown to be adequate for both adolescent and adult populations (Fromme & D'Amico, 2000; Fromme et al., 1993). The results of the exploratory and factor analysis performed on all 76 items revealed "adequate internal consistency, temporal stability, and construct validity" (Fromme et al., 1993, p. 24). The temporal stability of expectancy and evaluation ratings (test-retest analyses were conducted within two months) varied for specific subscales (i.e., positive expectancies r=.66 to .72; positive value r = .59 to .78; negative expectancies r = .75 to .81; negative value r = .53 to .65).

Procedure

The surveys were administered by the researcher at the end of the classes in which previous permission by the instructors was given. Both the freshman and senior groups received a survey packet which consisted of an informed consent (see Appendix C), two questionnaires – The AUDIT and the CEOA, and three demographic questions regarding age, ethnicity, and gender. At the beginning of the test, the researcher explained the purpose of the study to the students and collected signed informed consent forms. After

that, students were asked to read instructions and respond to the surveys included in the packets. All participants (freshmen and seniors) responded to the questions addressing their current behavior, expectancies, and beliefs regarding alcohol consumption. Additionally, the senior students received an extra copy of the CEOA and were asked to answer the questionnaire again but this time from the perspective of their freshman year (i.e. by recalling expectancies and beliefs from their first year of college).

For the freshmen group, the average time to answer both the AUDIT and the CEOA was 25 minutes; for the seniors, due to two versions of the CEOA (current and recall of freshmen experience), the average time was 35 minutes. The surveys were anonymous. To assure anonymity, each participant was assigned a research number. Data were gathered over a two-week period. Responses from the surveys that were not answered completely were excluded from the study.

Scoring

All responses to AUDIT items were added in order to obtain a total score that could range from 0 to 40. According to the manual, the cutoff point established for the test for hazardous drinking is 8 (Babor et al., 2001). Thus, the AUDIT results were divided into heavy drinkers – those with harmful, or hazardous drinking behavior (total scores of eight and more), and light drinkers or nondrinkers – those with no hazardous or no harmful alcohol use –(total scores below eight).

In the case of the CEOA, for each of the two parts of the questionnaire (expectancies and evaluations) two scores were calculated: the average for the positive factors, and the average for the negative factors producing the total of four indexes (i.e., average positive outcome expectancies, average negative outcome expectancies, average

subjective evaluation of positive outcome expectancies, and average subjective evaluation of negative outcome expectancies).

There is another scoring option for the CEOA. It consists of calculating the average for each of the seven subscales in both parts of the questionnaire (expectancies and evaluations) by summing all the respective score values of the questions for each of the seven factors and then dividing that number by the total of questions for each factor. This option was not used for this study due to the size of the sample (i.e., not enough responses to represent each subscale of the test separately).

CHAPTER III

RESULTS

Based on the results of the first questionnaire – AUDIT - the study sample (165 female college students) was divided into heavy drinkers and nondrinkers/light drinkers. Consistent with the instruction of the test (see *Materials* section), participants with the total AUDIT score of eight or more were classified as heavy drinkers; those with the total score below eight were classified as light drinkers/nondrinkers. Table 2 shows the sample breakdown on heavy drinkers and nondrinkers/light drinkers according to the AUDIT.

Table 2

Drinking Level among Female Students Sample According to the AUDIT

Study sample (165 total)	Nondrinkers/light drinkers	Heavy drinkers	Total
Female freshmen	42 (45%)	52 (55%)	94
Female seniors	37 (52%)	34 (48%)	71

Reliability of Instruments Used in This Study

In order to evaluate the reliability of both the AUDIT and the CEOA, Cronbach's alpha coefficient was computed for both tests on the study sample (i.e, female college

students, N = 165). In the case of the AUDIT, Cronbach's alpha coefficient was calculated on the entire scale separately for freshmen and seniors (see Table 3).

Table 3

AUDIT Reliability: Cronbach's Alpha Coefficients (Female Freshmen and Seniors)

Study population Female college students	AUDIT Cronbach's Alpha Coefficient
Freshmen	.810
Seniors	.815

For the CEOA, for both freshmen and seniors, Cronbach's alpha coefficient was first computed on each of the four separate subscales: positive expectancies, negative expectancies, positive evaluations, and negative evaluations (see Table 4).

Table 4

CEOA Reliability of the Four Subscales: Cronbach's Alpha Coefficients (Female Freshmen and Seniors)

Study population Female college students	Alcohol Outcome Expectancies		Alcohol Outcome Evaluations	
	Positive	Negative	Positive	Negative
Freshmen	.88	.80	.90	.91
Seniors	.85	.82	.92	.90

In addition, Cronbach's alpha coefficients were computed on the overall expectancies and evaluations for freshmen and seniors respectively (see Table 5).

Table 5

CEOA Reliability of the Overall Expectancies and Evaluations: Cronbach's Alpha Coefficients (Female Freshmen and Seniors)

Study population Female college students	Overall Alcohol Outcome Expectancies	Overall Alcohol Outcome Evaluations
Freshmen	.88	.91
Seniors	.87	.88

Female College Freshmen and Seniors: Heavy Drinkers

In order to test whether there was a difference between freshman heavy drinkers and senior heavy drinkers in their present alcohol outcome expectancies (positive and negative) and their respective evaluations (positive and negative), independent samples t-test were conducted. The results of this analysis are included in Table 6. The t-test for independent samples showed no difference between the freshman heavy drinkers and senior heavy drinkers in positive expectancies, negative expectancies, and positive expectancies evaluations. However, there was a significant difference in the negative expectancies evaluations between the groups: freshman heavy drinkers evaluated the negative outcome expectancies more positively (less negative) than seniors classified as heavy drinkers.

Table 6

Comparison between Female Freshmen and Seniors in their Present Alcohol Outcome Expectancies and Respective Evaluations: Heavy Drinkers

Alcohol outcome expectancies and evaluations	Freshmen		Seniors' current scores		Mean Diff.	df	t
	Mean	SD	Mean	SD			
Positive expectancies	3.06	.54	2.97	.39	.09	84	.83
Positive expectancies evaluations	3.56	.64	3.49	.58	.07	84	.50
Negative expectancies	2.75	.53	2.61	.55	.14	84	1.18
Negative expectancies evaluations	***2.12***	**.72**	***1.64***	**.50**	***.48***	**84**	***3.41****

* P < .05

Female College Freshmen and Seniors Recalling their Freshman Experience: Heavy Drinkers

In order to explore if the recall of freshmen alcohol related expectancies and evaluations of the current senior group differs from the current freshman group, the two groups of were compared by independent samples t-tests.

The results of these comparisons revealed no differences in either positive outcome expectancies or negative expectancies evaluations between the freshmen classified as heavy drinkers and the recollection of freshman years by seniors classified as heavy drinkers.

However, the t-test for independent samples found a significant difference in both negative outcome expectancies and positive expectancies evaluations: senior heavy drinkers recalled having more positive alcohol outcome expectancies in their freshman year than the current freshman heavy drinker group. At the same time, it appears that the senior group recalled having less of the negative alcohol outcome expectancies when in their freshman year than the current freshmen group (see Table 7).

Table 7

Comparison between Freshmen and Seniors Recalling Freshman Experience in their Alcohol Outcome Expectancies and Respective Evaluations: Heavy Drinkers

Alcohol outcome expectancies and evaluations	Freshmen		Seniors recalling freshman year		Mean Diff.	df	t
	Mean	SD	Mean	SD			
Positive expectancies	3.06	0.54	3.12	0.60	-.06	84	-.50
Positive expectancies evaluations	***2.75***	**0.53**	***3.75***	**0.83**	***-.99***	**83**	***-6.71****
Negative expectancies	***3.56***	**0.65**	***2.70***	**0.51**	***-.87***	**84**	***6.57****
Negative expectancies evaluations	2.12	0.72	2.02	0.64	.10	83	.69

* $P < .05$

Supplemental findings

Female college freshmen and seniors: nondrinkers/light drinkers. Even though the main focus of this study was on female college students classified as heavy drinkers, the obtained data set contained valuable information on alcohol outcome expectancies and their respective subjective evaluations of female freshmen and seniors classified as nondrinkers/light drinkers. In order to take advantage of these available data, additional independent t-tests were conducted on the AUDIT results collected from female nondrinkers/light drinkers.

The results of the t-tests for independent samples showed no differences in positive outcome expectancies, positive expectancies evaluations, or negative expectancies evaluations of alcohol outcomes between the freshman female nondrinkers and the senior female nondrinkers. However, the analysis revealed a significant difference in the negative alcohol outcome expectancies between these two groups; the female nondrinker/light drinkers freshmen expected less of the negative alcohol outcomes than the female nondrinker/light drinker seniors (see Table 8).

Table 8

Comparison between Freshmen and Seniors in their Present Alcohol Outcome Expectancies and Respective Evaluations: Nondrinkers/light drinkers.

Alcohol outcome expectancies and evaluations	Freshmen		Seniors' current scores		Mean Diff.	df	t
	Mean	SD	Mean	SD			
Positive expectancies	2.71	.46	2.70	.48	.01	77	.09
Positive expectancies evaluations	3.21	.59	3.33	.70	-.12	77	-.83
Negative expectancies	***2.50***	**.43**	***2.73***	**.44**	***-.24***	**77**	***-2.5****
Negative expectancies evaluations	1.78	.51	1.74	.57	.04	77	.36

* P < .05

Female college freshmen and seniors: heavy vs. light drinkers/nondrinkers. Finally, comparisons between heavy drinker and nondrinker/light drinker female students for both freshman and senior groups were conducted using a t-test for independent samples (see Appendix D1).

Analysis performed only on the freshman female students revealed significant differences between the nondrinkers/light drinkers and the heavy drinkers on all the four measures of alcohol outcome expectancies and subjective evaluations.

- *Positive outcome expectancies*. The heavy drinker freshman group appeared to hold more positive outcome expectancies than the nondrinker/light drinker freshman group (M =3.06 vs. M = 2.7).

- *Positive expectancies evaluations*. The drinker freshman group evaluated as more positive the positive outcome expectancies than the nondrinker/light drinker freshman group (M=3.56 vs. M=3.20)
- *Negative outcome expectancies*. The freshman group identified as heavy drinkers expected more negative alcohol effects than the freshman group identified as nondrinkers/light drinkers (M=2.75 vs. M=2.49)
- *Negative expectancies evaluations.* It was found that the drinker freshman group evaluated less severely the negative alcohol effects than did the nondrinker freshman group (M = 2.12 vs. M = 1.78) (remember that for this factor a smaller score means a more negative evaluation of the negative effects of alcohol)

For the senior sample, however, the t-test for independent samples revealed significant differences only in one of the four measures: the positive outcome expectancies (see Appendix D2). According to the results, the seniors identified as heavy drinkers appeared to expect more of the positive effects of alcohol than the light/nondrinkers seniors (M = 2.97 vs. M = 2.70 respectively).

Interactions among groups. In order to explore the possibility of interaction between college class (freshmen, or seniors) and drinking status (heavy, or light/nondrinkers), the two-way Analysis of Variance (ANOVA) was performed on all four dependent measures (i.e., positive outcome expectancies, positive outcome expectancies evaluations, negative outcome expectancies, and negative outcome expectancies evaluations). The results revealed a significant interaction between college class (i.e., freshmen vs. seniors) and drinking status (i.e., heavy vs. light/nondrinkers) only on the negative alcohol outcome expectancies ($F(1, 161) = 6.14$, $p < 0.01$) and the

negative alcohol expectancies evaluations ($F(1, 161) = 5.5$, $p < 0.02$). Heavy drinker freshmen expected more of the negative effects of alcohol than nondrinker/light drinker freshmen did ($M = 2.75$ vs. $M = 2.49$, $p < 0.05$). However, for seniors the difference between heavy and nondrinker/light drinkers in negative outcome expectancies was not significant ($M = 2.61$ vs. $M = 2.73$, n.s.; see Figure 1, Appendix E). Additionally, freshmen classified as heavy drinkers evaluated negative alcohol outcomes more positively than freshmen classified as light/nondrinkers ($M=2.12$ vs. $M=1.78$ vs. $p < 0.05$) but there was no significant difference in negative outcome evaluations among seniors with different drinking status (see Figure 2, Appendix E).

CHAPTER IV

DISCUSSION

Reliability of Instruments

The main focus of this study was to compare the alcohol outcome expectancies and their subjective evaluations between a sample of heavy drinker female freshmen students and a sample of heavy drinker female senior students. The Alcohol Use Disorders Identification Test (AUDIT) was used to discriminate between heavy drinkers and light/nondrinkers. Our results obtained from this test showed good reliability as indicated by the Cronbach's Alpha Coefficient of 0.81 for freshmen, and 0.82 for seniors. Likewise, the Comprehensive Effects of Alcohol (CEOA) questionnaire demonstrated high reliability in all the four subscales for both freshmen and seniors (i.e., positive and negative alcohol outcome expectancies and their respective subjective evaluations); the Cronbach's Alpha Coefficients ranged from 0.80 to 0.92 with the lowest reliability obtained on the negative outcome expectancies subscales.

Differences between Female College Freshmen and Seniors in Alcohol Outcome Expectancies and Evaluations: Heavy Drinkers

The first hypothesis predicting that freshmen identified as heavy drinkers would differ from seniors identified as heavy drinkers in that freshmen expect more positive effects from drinking (positive expectancies) than their senior counterparts was not

confirmed by our data. According to the results of this study, freshmen and seniors classified as heavy drinkers did not significantly differ in their positive alcohol outcome expectancies: in both groups the average response represented moderate endorsement of positive expectancies regarding effects of alcohol (i.e., answer 3 – "slightly agree" on the 4-points scale; freshman M = 3.06, seniors M = 2.97). This outcome is inconsistent with previous findings that female students under age 20 tend to demonstrate higher expectancies of general positive alcohol effects than those over age of 20 (Lundahl et al., 1997) .

The second hypothesis was not supported by the results of our study. The data analysis did not reveal difference between freshmen and seniors classified as heavy drinkers in how they evaluate the positive effects of alcohol (i.e., positive outcome expectancies evaluations). The results show that on average, both freshmen and seniors classified as heavy drinkers evaluate the positive outcome expectancies between "neutral"(3) and "slightly good" (4) (freshmen M = 3.56; seniors M = 3.49).

Similarly, our data did not reveal significant difference between freshmen and seniors classified as heavy drinkers in negative alcohol outcome expectancies. On average, both groups expected a neutral level of those negative outcome consequences, which was located between "slightly disagree" (2) and "slightly agree" (3) (Freshmen M = 2.75; Seniors M = 2.61).

However, the fourth hypothesis predicting that freshmen identified as heavy drinkers differ from seniors identified as heavy drinkers in that freshmen evaluate the apparent negative alcohol outcome expectancies as less negative than the seniors was supported by our data. The group of female freshmen identified as heavy drinkers saw the

negative outcome expectancies less negatively (M = 2.12, 2= "slightly bad" on the scale) than the group of female seniors classified as heavy drinkers (M = 1.64, 1= "bad" on the scale).

Overall, it appears that the groups of female freshmen and seniors identified as heavy drinkers hold relatively similar positive and negative alcohol outcome expectancies. Both groups seem more likely to expect and value more the positive effects of alcohol consumption than the negative effects. The only significant difference in alcohol attitudes between freshmen and seniors identified as heavy drinkers was revealed on the subjective evaluation of negative effects of alcohol (negative expectancies evaluations) , with seniors evaluating it more negatively than freshmen. One might expect that heavy drinkers in both groups must consume more alcohol to experience the negative outcomes than to experience the positive outcomes. This is consistent with previous reports in which the participants disclosed the need for higher amounts of alcohol consumption to reach the negative outcome effects than the positive ones (Fromme et al., 1993). Freshmen might have relatively less first hand experience with negative consequences of alcohol drinking and therefore evaluate these negative outcomes less negatively than seniors. At the same time, due to still limited experience with alcohol, the freshman group may be more likely to idealize the drinking experience, overlooking the negative consequences it carries with. Another possible explanation is the effect of the group pressure: the drinking culture of younger students might be more approving of negative effects of alcohol than the culture of older students.

Differences between Female College Freshmen and Seniors Recalling their Freshman Year in Alcohol Outcome Expectancies and Evaluations: Heavy Drinkers

When comparing freshmen who were identified as heavy drinkers to heavy drinker seniors recalling their freshman experience, it was found that both groups were similar in positive alcohol outcome expectancies and negative evaluations of alcohol expectancies. Both groups tended to evaluate the positive alcohol outcome expectancies as moderately positive (freshmen M= 3.06, seniors M = 3.12; 3= "slightly agree" on the scale) and the negative alcohol outcome expectancies as moderately negative (freshmen M =2.12, seniors M = 2.02; 2="slightly bad" on the scale). These results reveal that the heavy drinker senior group recalling their freshman experience did not differ from the current heavy drinker freshmen group in the positive expectancies of drinking behavior and the way they evaluated the negative consequences of alcohol.

When the heavy drinker seniors were recalling their freshman experience they evaluated the positive alcohol expectancies as significantly more positive than the current freshmen group (freshmen M = 2.75, seniors M = 3.75), and perceived significantly less negative drinking consequences than the current freshmen group (freshmen M = 3.56 Seniors M = 2.7). This pattern of results might reflect a positive, idealizing bias affecting seniors' recall of freshmen drinking experience. It seems that the seniors, with regard to their freshman year, remembered having more rewarding experiences (i.e., higher evaluation of positive outcomes of drinking), and remembered expecting less negative consequences of alcohol consumption than the current freshman group. Therefore, these results might partially confirm what Hartzler and Fromme (2003) found in their study: it is possible that heavy drinking is more widely encouraged in students' first year of

college than in subsequent years. Further research is needed to corroborate this information.

Strengths and Limitations of the Study

A strength of this study is that the students that participated did so voluntarily and knowing that the information gathered was completely anonymous. These conditions increased our confidence in validity of participants' responses. However, all of our data relied on questionnaires; the self-report measures always bring concerns related to the impact of social desirability on participants' responses. In addition, the length of the questionnaires might have been a factor increasing measurement error (e.g., decline in motivation, attention, etc.), especially for those students who volunteered to participate in the study with the only purpose of getting an extra credit point in their class.

This study attempted to assess a broad range of perceived consequences related to alcohol consumption including positive and negative expectancies of the effects of alcohol, and subjective evaluations of these expectancies. We were able to collect comprehensive data on alcohol related attitudes in a population of female college students, heavy drinkers. This population was underrepresented in previous research on college drinking.

As it had strengths, the study also had several limitations. First of all, our sample was relatively small. This prevented us from performing separate analyses on each subscale related to concrete alcohol outcome expectancies and evaluations. Previous research showed that for women "sexual activities are associated with feelings of relaxation" (Fromme et al., 1993, p. 9); women were found to have higher expectancies of power and aggression than males (Lundahl et al., 1997). Drinkers below age 20 (i.e.,

population corresponding to our freshmen group) were reported to have higher expectancies of social assertiveness, sexual enhancement, power, and aggression, and social assertion than drinkers over age 20. Therefore, the analysis that compares female freshmen and seniors heavy drinkers on specific aspects of their attitudes toward alcohol might have been able to reveal more significant differences between these two groups. In order to better understand changes in attitudes to alcohol during college years in female students, the in-depth, comparative analysis should be performed by future research.

Adding to a small sample, participants in our study were recruited exclusively from psychology students. Freshmen and senior students from other departments might hold different alcohol expectancies, or evaluate such expectancies in a different way than the psychology students. Therefore, caution is encouraged when generalizing from the results of this study. Further research should make an effort to obtain more representative samples of female college students to increase the external validity of empirical findings related to this population.

Despite the limitations of the study, some recommendations for further treatment and preventive programs for heavy drinker female college students might be suggested based upon our results. Since freshmen and seniors did not differ in the positive and negative alcohol outcome expectancies, and the way they evaluate the positive expected effects, the same prevention recommendations may apply to freshmen and seniors. It appears that alcohol intervention programs should concentrate on reducing positive expectancies about drinking among female students. Sartre and Knight (2001) suggested the approach that stresses alternative ways of gaining similar positive effects that are expected by students from alcohol (e.g., specific-activity groups such as a sport-related

clubs or art classes). In the case of negative outcome expectancies, demonstrating both the short and long-term potential negative consequences of drinking behavior in real cases of students who have been severely affected by alcohol consumption may help increase recognition of alcohol-related problems in this population. Media and advertisement should be used to increase exposure to alcohol prevention messages. At the same time, effort should be made to reduce alcohol advertising and marketing that contributes to the youth drinking culture (Flemming et al., 2004). Finally, keeping in mind that heavy drinkers tend to drink more in order to reach the desired effects, a program such as the one suggested by Fromme et al. (1993) might help people "challenge people's beliefs about the amount of alcohol required to achieve such effects"(p. 25). The message of moderation in drinking might succeed because those who enjoy drinking could continue doing so without necessarily engaging in heavy drinking, therefore being at risk of getting the negative consequences related to alcohol abuse.

Supplemental Findings

Differences between female college freshmen and seniors in alcohol outcome expectancies and evaluations: non-drinkers /light drinkers. The light/nondrinkers female freshmen and seniors showed similar results: a moderate level of positive alcohol outcome expectancies. Moreover, both groups tended to evaluate such positive expectancies in a similar way, as neutral. Both groups are also similar in the way they evaluated the negative outcome expectancies. In both cases, they evaluated such expectancies as slightly negative. Groups, however, differed in the negative outcome expectancies; it seems that the freshmen expected the negative outcomes to be less likely than the senior group.

In summary, both freshmen and seniors identified by the AUDIT as nondrinkers or light drinkers did not differ in the expectancies of positive expectancies of alcohol consumption, nor in the way they evaluate both the positive and the negative alcohol outcome expectancies. Both groups only differed in the negative expectancies of alcohol effects: nondrinker seniors expected more of the negative effects of alcohol consumption than nondrinker freshmen.

Differences between drinking status (heavy drinkers and non-drinkers /light drinkers) and college class (seniors and freshmen) in alcohol outcome expectancies and evaluations. The heavy drinker freshman group appeared to have not only more of the positive outcome expectancies of alcohol consumption than the nondrinker/light drinker group (M =3.6 vs. M = 2.7), but also their positive outcome evaluations were higher (see appendix D1). Additionally, freshmen identified as heavy drinkers appeared to have higher negative outcome expectancies, and they evaluated these negative alcohol effects more positively than freshmen identified as nondrinkers/light drinkers. Possibly the heavy drinker freshmen consider some of the negative expectancies as positive, as some studies suggested, which might be another reason to engage in heavy drinking (Fromme et al., 1993).

These results are partially consistent with what previous research had found regarding alcohol outcome expectancies. As previously mentioned, some studies had found that only both positive and negative alcohol expectancies appeared to be predictors of alcohol consumption (Fromme et al., 1993; Ham and Hope, 2003), whereas other (Fromme and D'Amico, 2000) stated that only negative outcome expectancies evaluations is a predictor of alcohol consumption. In our study, light/nondrinkers and

heavy drinkers significantly differ in all four aspects of attitudes to alcohol in the freshman group. The heavy drinker female freshmen group revealed higher positive and negative alcohol outcome expectancies than the nondrinker/light drinker freshman group. However, they also evaluated both the expected positive and negative effects of alcohol more positively than the nondrinker/light drinker freshman group. Perhaps the fact that the nondrinker/light drinker group expected less of the positive effects of alcohol is the main reason why this group keeps withdrawing from alcohol (i.e., lower motivation to drink). It might be that the heavy drinker freshman group expects more of the negative alcohol outcomes due to previous experiences, or that the nondrinkers/light drinkers underestimate such effects due to lack of experience. However, it appears that the nondrinker/light drinker group saw these negative effects as less desirable (i.e., more negative) than the other group. In summary, it can be concluded that for female freshmen (Appendix D1), high positive and negative outcome expectancies along with high positive outcome expectancies evaluations and lower negative outcome expectancies evaluations significantly discriminate between heavy and light drinking. These results suggest a consistent pattern of motivational factors contributing to female drinking behavior. Heavy drinkers seem to expect alcohol to be more rewarding (i.e., more highly valued positive consequences, and less undesirable negative consequences) than light/nondrinkers.

Seniors drinkers and nondrinkers, unlike the freshmen sample that significantly differed in all four measures of alcohol attitudes, showed only significant difference on the positive alcohol outcome expectancies. Senior heavy drinkers appeared to hold more positive outcome expectancies than the nondrinker/light drinker seniors (Appendix D2).

It seems that in the case of the senior group, subjective evaluations were not predictors of heavy drinking. This finding contradicts results obtained by Fromme & D'Amico (2000). Overall, our results suggest that the subjective evaluations of alcohol expected effects play a different role in predicting heavy drinking for freshmen and seniors.

Further analysis revealed the interaction between drinking status (heavy drinkers vs. non-drinkers /light drinkers) and college class (seniors and freshmen) on negative outcome expectancies and evaluation of these expected negative effects (Appendix E).

By looking at the effect of interaction on the negative outcome expectancies, one might speculate that those who engage in heavy drinking in their freshman year hold high negative outcome expectancies; by the time they reach their senior year those who still engage in heavy drinking hold considerable less of these beliefs. This change in expectancies might be due to the fact that seniors had learned how to avoid negative effects of alcohol, or that they grew accustomed to some of these negative consequences of drinking and therefore see them as "normal", or less negative when they reach their senior year. Conversely, even though those who are nondrinkers/light drinkers have relatively few negative expectancies of drinking in their freshman year, it could be that by the time they reach their senior year without drinking, they will have more of the negative outcome expectancies. Perhaps, the relatively low expectancies about the negative effects of alcohol among freshmen nondrinker/light drinkers reflects limited knowledge and experience with alcohol in this population. Nevertheless, by the time light/nondrinkers reach their senior year, they might hold a lot more of negative outcome expectancies due to negative experiences with peer drinking and increased alcohol awareness.

Interestingly, the nondrinker freshmen held almost the same level of evaluations of negative outcome effects that the nondrinker/light drinker senior subgroup. Perhaps there is almost no change in how those who do not drink in their freshman year and reach their senior year without drinking evaluate the negative outcome expectancies throughout that time period. These results may suggest a very important outcome: what significantly determines whether or not a female freshman student engages in heavy drinking is not the amount of negative beliefs they hold, but the way they evaluate such beliefs. It would be interesting to conduct a longitudinal study to systematically investigate how alcohol outcome expectancies and evaluations change through out the college years.

A longitudinal study is also recommended in order to explore whether those female students identified as heavy drinkers in their freshman and/or senior year indeed continue to engage in binge drinking after college. It might be interesting to see if they later use alcohol as a coping mechanism (as it appears to be for alcoholism in women, based on the literature review), if they tend to stop drinking, or keep drinking heavily after college. In this last case, it would confirm that alcoholism in female college students is different than alcoholism in the rest of female population, and may help identify those women at risk for alcoholism in the future.

APPENDIX

APPENDIX A
ALCOHOL USE DISORDERS IDENTIFICATION TEST - AUDIT

APPENDIX B
COMPREHENSIVE EFFECTS OF ALCOHOL - CEOA

APPENDIX C
INFORMED CONSENT

APPENDIX D
COMPARISON BETWEEN HEAVY DRINKERS AND NONDRINKERS/LIGHT DRINKERS PER CLASS – INDEPENDENT SAMPLES T-TESTS

APPENDIX E
INTERACTION BETWEEN CLASS (FRESHMEN AND SENIORS) AND DRINKING LEVEL (HEAVY DRINKERS AND NONDRINKERS/LIGHT DRINKERS)

APPENDIX A

ALCOHOL USE DISORDERS IDENTIFICATION TEST - AUDIT

AUDIT

Please fill in the circle in the scantron that best corresponds to YOUR answer to each question (please make sure that the answer number on the scantron corresponds to the question number on the survey)
PLEASE DO NOT ANSWER on the SURVEY – ANSWER all QUESTIONS on the SCANTRON

1 How often do you have a drink containing alcohol?

A Never	**B** Monthly or less	**C** Two to four times a month	**D** Two to three times per week	**E** Four or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

1 or 2 (A)	3 or 4 (B)	5 or 6 (C)	7 to 9 (D)	10 or more (E)

3 How often do you have six or more drinks on one occasion?

Never (A)	Less than monthly(B)	Monthly (C)	Two to three times per week (D)	Four or more times a week (E)

4 How often during the last year have you found that you were not able to stop drinking once you had started?

Never (A)	Less than monthly(B)	Monthly (C)	Two to three times per week (D)	Four or more times a week (E)

5 How often during the last year have you failed to do what was normally expected from you because of drinking?

Never (A)	Less than monthly(B)	Monthly (C)	Two to three times per week (D)	Four or more times a week (E)

6 How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Never (A)	Less than monthly(B)	Monthly (C)	Two to three times per week (D)	Four or more times a week (E)

7 How often during the last year have you had a feeling of guilt or remorse after drinking?

Never (A)	Less than monthly(B)	Monthly (C)	Two to three times per week (D)	Four or more times a week (E)

8 How often during the last year have you been unable to remember what happened the night before because you had been drinking?

Never (A)	Less than monthly(B)	Monthly (C)	Two to three times per week (D)	Four or more times a week (E)

9 Have you or someone else been injured as a result of your drinking?

No (A)	Yes, but not in the last year (C)	Yes, during the last year (E)

10 Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?

No (A)	Yes, but not in the last year (C)	Yes, during the last year (E)

APPENDIX B

COMPREHENSIVE EFFECTS OF ALCOHOL - CEOA

B1.

CEOA: 1. EXPECTED EFFECTS

This questionnaire assesses what you would expect to happen if you were under the influence of alcohol. Mark the corresponding response in the answer sheet from (A) disagree to (D) agree, depending on whether or not you would expect the effect to happen to you if you were ***under the influence of alcohol***. These effects will vary, depending upon the amount of alcohol you typically consume.

This is not a personality test. We want to know what you would expect to happen if you were to drink alcohol, not how you are when you are sober. Example: if you are always emotional, you would not mark agree as your answer for the statement " I would be emotional" ***unless you expect to become more emotional if you drank.***

If I were under the influence of alcohol:

1.	I would be outgoing	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
2.	My senses would be dulled	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
3.	I would be humorous	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
4.	My problems would seem worse	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
5.	It would be easier to express my feelings	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
6.	My writing would be impaired	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
7.	I would feel sexy	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
8.	I would have difficulty thinking	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
9.	I would neglect my obligations	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
10.	I would be dominant	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
11.	My head would feel fuzzy	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
12.	I would enjoy sex more	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
13.	I would feel dizzy	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
14.	I would be friendly	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
15.	I would be clumsy	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
16.	It would be easier to act out my fantasies	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)

17.	I would be loud, boisterous, or noisy	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
18.	I would be peaceful	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
19.	I would be brave and daring	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
20.	I would be unafraid	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
21.	I would feel creative	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
22.	I would feel courageous	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
23.	I would feel shaky or jittery the next day	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
24.	I would feel energetic	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
25.	I would act aggressively	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
26.	My responses would be slow	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
27.	My body would be relaxed	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
28.	I would feel guilty	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
29.	I would feel calm	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
30.	I would feel moody	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
31.	It would be easier to talk to people	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
32.	I would be a better love	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
33.	I would feel self-critical	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
34.	I would be talkative	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
35.	I would act tough	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
36.	I would take risks	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
37.	I would feel powerful	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)
38.	I would act sociable	Disagree (A)	Slightly disagree (B)	Slightly agree (C)	Agree (D)

CEOA: 2. SUBJECTIVE EVALUATIONS OF EXPECTED EFFECTS

This questionnaire assesses whether you think each effect, which may result from drinking alcohol, is bad or good.
Mark the corresponding response in the answer sheet from A for bad, to E, for good – depending on whether you think this particular effect is bad, neutral, or good, etc.
We want to know if you think a particular effect is bad or good, REGARDLESS of whether you expect it to happen to YOU personally when you drink alcohol.

This effect of alcohol is:		Bad	Slightly Bad	Neutral	Slightly good	Good
1.	Being outgoing	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
2.	Dulled senses	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
3.	Being humorous	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
4.	Problems seeming worse	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
5.	Expressing feelings more easily	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
6.	Impaired writing	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
7.	Feeling sexy	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
8.	Having difficulty thinking	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
9.	Neglecting obligations	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
10.	Being dominant	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
11.	Head feeling fuzzy	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
12.	Enjoying sex more	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
13.	Feeling dizzy	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
14.	Being friendly	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
15.	Being clumsy	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
16.	Easier to act out fantasies	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
17.	Being loud, boisterous, or noisy	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)

18.	Feeling peaceful	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
19.	Being brave and daring	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
20.	Feeling unafraid	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
21.	Feeling creative	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
22.	Being courageous	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
23.	Feeling shaky or jittery the next day	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
24.	Feeling energetic	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
25.	Acting aggressively	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
26.	Having slow responses	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
27.	Having a relaxed body	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
28.	Feeling guilty	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
29.	Feeling calm	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
30.	Feeling moody	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
31.	Being easier to talk to people	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
32.	Being a better love	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
33.	Feeling self-critical	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
34.	Being talkative	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
35.	Acting tough	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
36.	Taking risks	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
37.	Feeling powerful	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)
38.	Acting sociable	Bad (A)	Slightly bad (B)	Neutral (C)	Slightly good (D)	Good (E)

Additional Questions

Your age is	16 or less (A)	17-18 (B)	19-20 (C)	21-22 (D)	23-24 (E)
Your ethnicity is	Caucasian (A)	Hispanic (B)	Asian-american (C)	African-american (D)	Other (E)
Your gender is	Female (A)	Male (B)			

B2.

CEOA – Summary Table Question Distribution - Items that address each positive and negative factors (expectancies and evaluations, respectively)

Factors	Subscales	Item #	Total Questions per subscale
Positive factors	Sociability	1, 3, 5, 14, 24, 31, 38	7
	Tension Reduction	18, 27, 29	3
	Liquid Courage	19, 20, 21, 22, 37	5
	Sexuality	7, 12, 16, 32	
Negative factors	Cognitive and Behavioral impairment	2, 6, 8, 9, 11, 13, 15, 23, 26	9
	Risk and aggression	10, 17, 25, 35, 36	5
	Self-perception	4, 28, 30, 33	4
		Total per part (2)	38

APPENDIX C

INFORMED CONSENT

Informed Consent

This research examines the roles of alcohol outcome expectancies and the subjective evaluations of those expectancies in predicting drinking behavior in female college students. The results of this study will help us better understand alcohol consumption in this population and also suggest variables to address while creating prevention and intervention programs.

The participation requires between 10 and 15 minutes of your time and it is voluntary (i.e., you are not obligated to participate in this and you have the right to withdraw from the research at any time without penalty or loss of benefits.)

If you agree to participate, you will be asked to provide some basic demographic information (age and ethnicity) and to complete a survey about alcohol use, outcome expectancies, and your valuations of those expectancies.

All your answers will be anonymous (i.e., you will not be asked to provide your name or any other id information). To assure anonymity of your answers, you will be randomly assigned a research number. No individual scores will be identified by other ways than the research number. Your answers will be used only for statistical analysis conducted on the group data.

The final results of the study will be available for your review at the Psychology Main Office in the beginning of Summer II, 2005.

If you feel that you cannot complete the survey honestly, please do not complete it. We need your honest response to each question.

If you agree to participate in this survey please sign and date in the space provided at the bottom of the page.

I have read and understood this informed consent statement. I voluntarily agree to participate in the research.

_____ _____

Your signature Date

If you have any further questions about this research project, please email the main investigator, Martha Pasiminio

APPENDIX D

COMPARISON BETWEEN HEAVY DRINKERS AND NONDRINKERS/LIGHT DRINKERS PER CLASS – INDEPENDENT SAMPLES T-TESTS

D1. Comparison between Heavy Drinkers and Light/Nondrinkers on Alcohol Outcome Expectancies and Evaluations in Freshman Female College Students

D2. Comparison between Heavy Drinkers and Light/Nondrinkers on Alcohol Outcome Expectancies and Evaluations in Senior Female College Students

D1.

Comparison between Heavy Drinkers and Light/Nondrinkers on Alcohol Outcome Expectancies and Evaluations in Freshman Female College Students

Alcohol outcome expectancies and evaluations	Freshmen				Mean Diff.	t (df=92)
	Nondrinkers/ light drinkers (N=42)		Heavy drinkers (N=52)			
	Mean	SD	Mean	SD		
Positive expectancies	***2.70***	**.46**	***3.06***	**.54**	**-.36**	***-3.37****
Positive expectancies evaluations	***3.20***	**.59**	***3.56***	**.64**	**-.35**	***-2.74****
Negative expectancies	***2.49***	**.43**	***2.75***	**.53**	**-.26**	***-2.55****
Negative expectancies evaluations	***1.78***	**.51**	***2.12***	**.72**	**-.34**	***-2.61****

* $P < .05$

D2.

Comparison between Heavy Drinkers and Light/Nondrinkers on Alcohol Outcome Expectancies and Evaluations in Senior Female College Students

Alcohol outcome expectancies and evaluations	Seniors				Mean Diff.	t (df=69)
	Nondrinkers/ light drinkers (N=37)		Heavy drinkers (N=34)			
	Mean	SD	Mean	SD		
Positive expectancies	***2.70***	**.48**	***2.97***	**.39**	**-.28**	***-2.63****
Positive evaluations	3.33	.70	3.50	.58	-.17	-1.10
Negative expectancies	2.73	.44	2.60	.55	.12	1.06
Negative evaluations	1.74	.57	1.64	.50	.10	.75

* $P < .05$

APPENDIX E

INTERACTION BETWEEN CLASS (FRESHMEN AND SENIORS) AND DRINKING LEVEL (HEAVY DRINKERS AND NONDRINKERS/LIGHT DRINKERS)

Figure 1. Negative Alcohol Outcome Expectancies

Figure 2. Negative Alcohol Outcome Expectancies Evaluations

Figure 1.

Negative Alcohol Outcome Expectancies

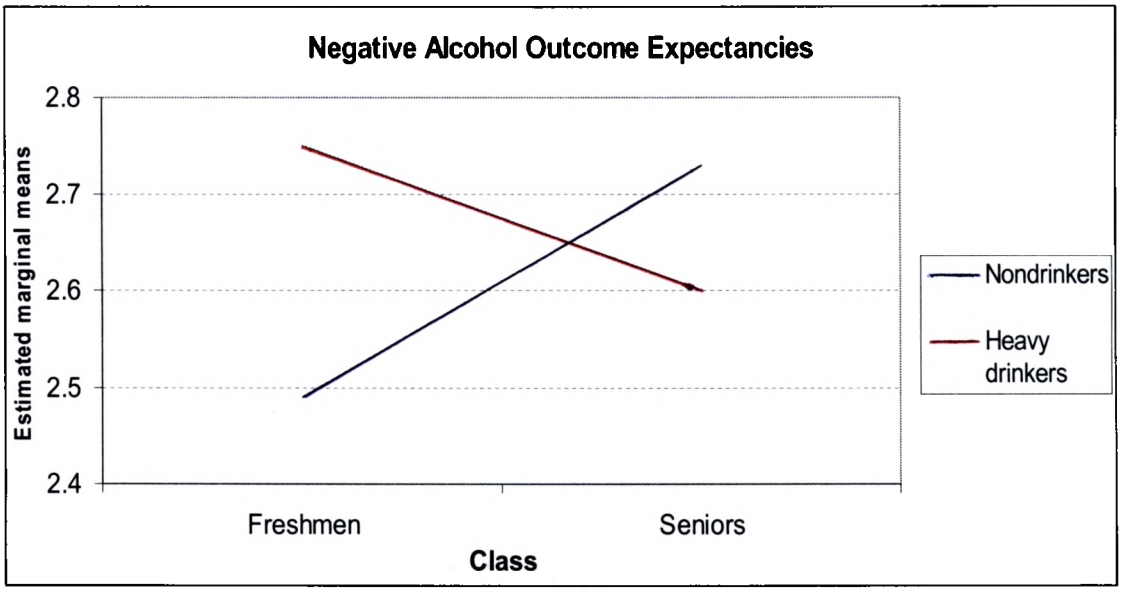
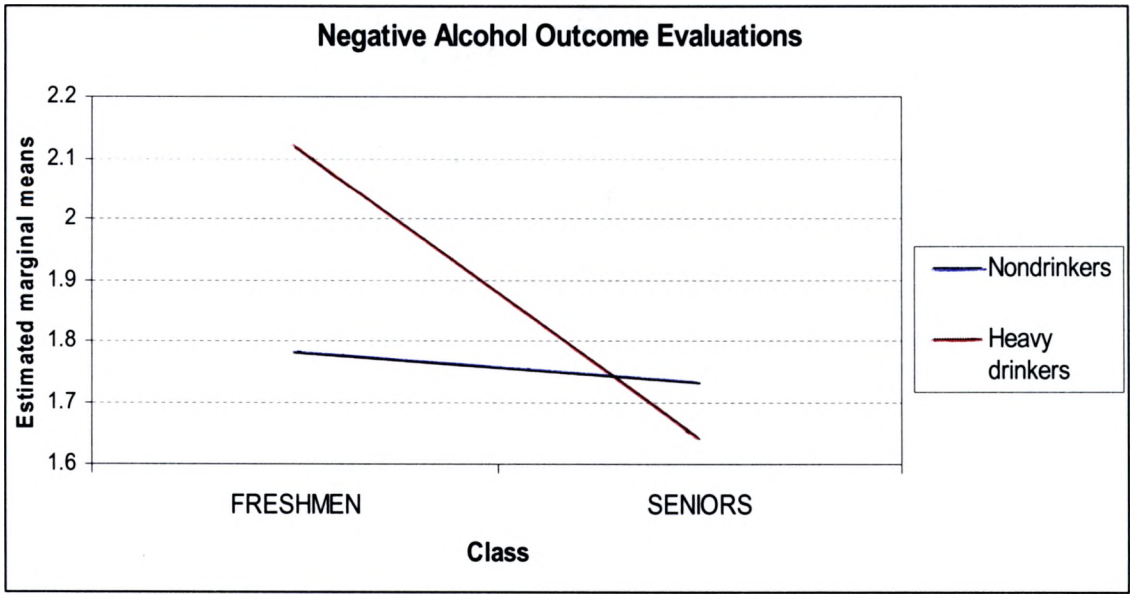


Figure 2.

Negative Alcohol Outcome Expectancies Evaluations



Note: recall that for this scale, the lower the score, the worse the evaluation

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