

RELATIONSHIP BETWEEN ADOLESCENT ALCOHOL MISUSE,
TRAIT ANXIETY, EXPECTATION OF TENSION
REDUCTION, AND ATTITUDE
TOWARDS ALCOHOL

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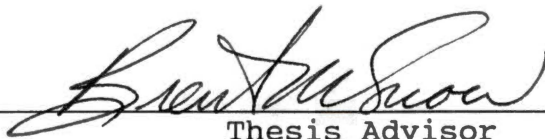
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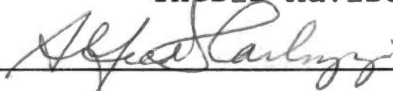
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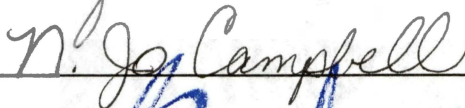
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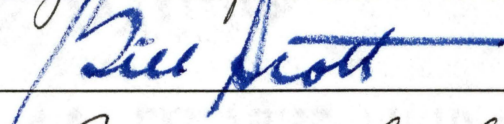
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CHAPTER I

INTRODUCTION

The use of alcohol continues to pose significant problems for individuals, couples, and families in our society (Johnston, O'Malley, & Bachman, 1985). The adolescent population is no exception. Alcohol is currently used by 106 million Americans (Research Triangle Institute [RTI], 1988). Additionally, estimates of the adolescents who use alcohol and other drugs continues at an alarming rate (RTI, 1988). Margulies, Kessler, and Kandel (1977) report that 50% of all students have taken their first drink by the time they are freshman in high school. They go on to report that 75% of all seniors have taken their first drink by the end of their final year in high school. The National Institute on Drug and Alcohol Abuse estimates that 90% of all seniors have taken their first drink. More importantly, of the 135 million people who drank alcohol in the past year, 33% or 47 million, drank once a week or more often (RTI, 1988).

The reasons for the transition from abstinence to the using of alcohol is a very important issue being researched (Margulies, Kessler, & Kandel, 1977). Additionally, of the

adolescent population who do begin using alcohol, between 5% and 28% will develop problems associated with their alcohol use (Helzer, 1987). There are many possible explanations for the amount of alcohol consumption, abuse, and dependency.

Variables associated with the development of problem drinking have been researched from many perspectives. These include personality variables (Graham & Strenger, 1988; Schwartz, Burkhart, & Green, 1978; Turner, Beidel, Dancu, & Keys, 1986; Wilkins, 1956), beliefs about alcohol (Brown, Christiansen, & Goldman, 1987), and physiological-biological determinants (Helzer, 1987; Polivy, Schueneman & Carlson, 1976; Schachter & Singer, 1962; Schuckit, 1987; Wilkins, 1956), and social variables (Margulies, Kessler, & Kandel, 1977; Lemert, 1956). Overwhelmingly, current research has demonstrated that drinking problems are very complex, encompassing biological, psychological and socio-cultural variables.

There has been much interest in using the Minnesota Multiphasic Personality Inventory (MMPI) to identify specific personality factors associated with alcoholism (Butcher & Owen, 1978; Conley, 1981; Donovan, 1986; Hewitt, 1943; MacAndrew, 1981; Mayo, 1985; McKenna, 1986; McKenna & Pickens, 1981; Miller, 1976; Morey & Blashfield, 1981; Penk, 1981; Sutker & Archer, 1979). In general, investigators hoped to identify a single MMPI Profile type that would

characterize all alcoholics. The general conclusion is that such a profile does not exist (Barnes, 1979; Clopton, 1978; Miller, 1976; Nerviano & Gross, 1983; Sutker & Archer, 1979). There appears to be several clusters of characteristics that have tended to be associated with many disorders including alcoholism. Some of these characteristics are impulsiveness, low frustration tolerance, and poorly controlled anger (Graham & Strenger, 1988).

Another area that has been investigated over the past 40 years is the relationship between trait anxiety and alcohol problems. The presence of anxiety and subsequent alcohol problems is commonly referred to as the tension-reduction theory (TRT) of alcohol abuse. This theory was first introduced by Conger (1956). Basically, this reinforcement theory contains two distinct hypotheses: (1) Alcohol reduces tension and (2) Organisms drink alcohol for its tension reducing effect. Therefore, an individual with preexisting tension would use alcohol to become less tense. Because of the need to continue reducing the pre-existing tension, the individual would continue using alcohol frequently and develop problems related to this increased use. There are many studies indicating this relationship exist (Bibb & Chambless, 1986; Brown, 1985a; Donham, Ludenia, Sands, & Holzer, 1984; Ludenia, Donham, Holzer &

Sands, 1984; Polivy, Schueneman, & Carlson, 1976; Turner, Beidel, Dancu, & Keys, 1986).

However, there are opponents who point to competing hypotheses (Cappell & Herman, 1972). The research concerning the TRT of alcohol abuse has received mixed reviews from Cappell and Herman. They point out methodological problems with many of the studies supporting the TRT hypothesis and take the position that there are several physiological reactions that occur when alcohol is ingested, including, relaxation, arousal, and no change. They concluded the TRT is inadequate when conceptualizing the alcohol problems solely from a physiological standpoint.

More recently, however, several cognitive theories have offered more sophisticated conceptualizations and empirically supported alternatives to the old conditioning formulation (Wilson, 1987). An example is Bandura's (1986) cognitive social learning theory. He conceptualizes the TRT in terms of mediating cognitive mechanisms rather than physiological drive states and provides a general, integrative conceptualization of the development, maintenance, and modification of alcohol use and abuse. Anxiety and avoidance behavior are seen as correlated coeffects of a person's level of perceived self-efficacy (Bandura).

The addition of cognitive mechanisms to explain alcohol's effects on anxiety states is an important step. A

cognitive factor gaining attention in the current literature is the importance of the expectation a person has prior to alcohol consumption (Brown, 1985a; Brown, 1985b; Brown, 1985c; Brown, Christiansen, & Goldman, 1987). MacAndrew and Edgerton's (1969) treatise argued that the effect of alcohol on behavior is culturally learned rather than directly resulting from the pharmacological action on the body. Others found that alcohol effects are found by people who only think they have become intoxicated (Wilson, 1987). This work supports the belief that the effects of alcohol on behavior is at least partly a function of our expectations about the role of alcohol in producing these effects. Further research has led to the finding that people have expectations about the general behavioral and emotional effects of alcohol (Brown, Goldman, Inn, & Anderson, 1980; Christiansen, Goldman, & Inn, 1982; Crawford, 1984; Lang, Kaas, & Barnes, 1983; Rohsenow, 1983; Roizen, 1983; Russell & Mehrabian, 1975; Southwick, Steele, Marlatt, & Lundell, 1981). Christiansen, Goldman, and Inn (1982) found that adolescents' expectations of alcohol were formed prior to actual use. They went on to report that expectations become more crystallized with increasing age and drinking experience.

The importance of these alcohol related expectancies independent of actual alcohol consumption as mediators of the behavioral consequences of drinking has been well

established in the literature (Marlatt & Roshenow, 1980). The importance of the interaction of expectations and social anxiety was illustrated by Wilson and Abrams (1977) when they found that men, irrespective of whether alcohol or a placebo had been consumed, believed alcohol reduced their social anxiety. If there is a placebo effect when using alcohol, a logical assumption would be that people who experience anxiety are more likely to expect alcohol to reduce tension and, therefore, more likely to develop problems associated with its continued use.

The literature consistently concludes several demographic variables help predict frequency of use and problems with alcohol. The most important of these is age and the adolescents' attitude towards alcohol (Brown, Christiansen & Goldman 1987). Additionally, gender, religious affiliation, parents' attitude towards alcohol (Brown, Goldman, Inn, & Anderson, 1980), extent of parents' alcohol use (Brown, Creamer & Stetson, 1987; Christiansen & Goldman, 1983; McLaughlin Mann, Chassin & Sher, 1987), and the ethnicity of the adolescent (Lex, 1987) are background factors that have shown some relationship to alcohol misuse in adolescence.

Studies have highlighted the relationship between problem drinking and the expectation of tension reduction (Brown, 1985b; Brown, Creamer, & Stetson, 1987; Brown, Goldman, & Christiansen, 1985; Brown, Goldman, Inn, &

Anderson, 1980; Christiansen, Goldman & Inn, 1982; Christiansen, Smith, Roehling, & Goldman, 1989; McLaughlin Mann, Chassin, & Sher, 1987). A logical assumption is that a relationship exists between preexisting anxiety and the expectation of tension reduction when using alcohol. Furthermore, one would expect the adolescent's ages and attitudes towards alcohol to impact their use of alcohol. This expected relationship would incorporate the biological, psychological, and sociocultural aspects of alcohol misuse.

Statement of the Problem

The problem this study addressed was the possible influence that various factors might have on adolescents' use of alcohol. The relationship between alcohol misuse and several important factors were investigated in this study including trait anxiety, expectations of tension reduction and attitude towards alcohol. The problem of the study can be further clarified by asking three specific questions.

1. If adolescents report being consistently anxious (trait anxiety), will they be more likely to report misusing alcohol?
2. If adolescents report having the expectation that alcohol will reduce tension and promote relaxation, will they be more likely to report problem drinking?
3. If adolescents approve of drinking alcohol, will they be more likely to report problem drinking?

This study was important for several reasons. A better understanding of these factors will facilitate alcohol abuse prevention efforts with the population of adolescents. This same understanding of the factors contributing to the abuse of alcohol will also facilitate the development of treatment approaches with alcoholics.

Purpose and Objectives

The purpose of the study was to examine the relationships among the variables of misuse of alcohol in adolescence, the presence of trait anxiety, belief that alcohol will reduce tension and promote relaxation, and the adolescent's attitude towards alcohol. The specific objective of the study was to determine if adolescents' attitude towards alcohol, level of trait anxiety, and belief that alcohol will reduce tension and promote relaxation are related to the adolescents' self-reported level of alcohol misuse.

Rationale

The estimates of alcohol use and abuse continue to include significant numbers of adolescents (RTI, 1988). Cox (1987) summarized the conceptualization of alcoholism as having gone through several changes before arriving at a multi-determined theory incorporating biological, psychological, and socio-cultural factors. Prior theories concentrated on single-factor theories including biological determinants (Blane & Leonard, 1987; Hewitt, 1943),

psychological determinants (Hewitt, 1943; Machover & Puzzo, 1959), and social-cultural determinants (Jessor & Jessor, 1975).

One theory based on the biological connection is the Tension Reduction Theory (TRT). Several studies have found a significant relationship between anxiety and alcohol abuse, relapse, and follow-up (Beck 1988; Bibb & Chambless 1986; Brennan, Walfish, & AuBuchon, 1986; Liebowitz, Gorman, Fyer, & Klein 1985; Ludenia, Donham, Holzer, & Sands, 1984; Strange & Schmidt, 1979). However, in their critical review of the TRT, Cappell and Herman (1972) reported many of the studies trying to substantiate this theory of tension reduction fell short. The theory nearly died on the vine until theorist began incorporating the cognitive elements into the TRT (Bandura, 1986). This led to additional research incorporating the psychological aspects of alcohol misuse.

Research based on the psychological/cognitive perspective focused on the expectations that people hold about alcohol and how these expectations affect one's misuse of alcohol (Brown, Goldman, Inn, & Anderson, 1980; Claridge, 1970; Goldman, Brown, & Christiansen, 1987; Lang, Goeckner, Adesso, & Marlatt 1975; Marlatt & Roshenow, 1980; Pliner & Cappell, 1974; Polivy & Herman, 1976; Schachter & Singer, 1962; Wilson, 1987). Christiansen and Goldman (1983) found the adolescent's attitude towards alcohol are the most

important determinants of alcohol abuse. Other background factors contributed only minimally to the prediction of subsequent alcohol misuse.

The socio-cultural factors have been researched from a number of perspectives. Studies have indicated certain psychological crisis or stressors in early life to be catalyst for beginning problem drinking (Benson & Wilsnack, 1983). This disruption was often cited as parental absence or unavailability, emotional deprivation in the childhood home environment, and familial rejection (McCord & McCord, 1962).

This study sought to build upon existing research through studying the inter-relationships among adolescents' level of trait anxiety (biological state), expectations about alcohol and attitude towards alcohol (psychological/cognitive state), and alcohol misuse.

Assumptions and Limitations

There were several important limitations in the present study. First, the subject pool only contained 17 through 18 year old adolescents. Therefore, caution should be used in generalizing to other adolescents either younger or older since there may be important differences between this age group and younger or older adolescents. Second, the geographic region in which the adolescent live was restricted to the midwest, and this limits the generalizability to adolescents living in this region.

There may be important differences between adolescents living in different regions of the United States. Third, the subjects were sampled from one school in a suburb of a large metropolitan city. Therefore, caution should be used in generalizing to other populations. Finally, only data related to age, attitude towards alcohol, race, gender, trait anxiety, expectations of alcohol, and degree of alcohol misuse was gathered.

Additional limitations in this study include the voluntary nature of this study. Students who were not willing to participate may be significantly different than the sample in this study. It may be that a random sample of all adolescents, rather than those students taking World History, would report different results. Additionally, there were other variables which were beyond the scope of the current study which could account for alcohol related problems with adolescents. These include such factors as brain physiology, blood chemistry, intelligence, and socioeconomic differences.

There were several important assumptions in the present study. First, the assumption that alcohol problems can be measured consistently in the adolescent age range was made. A second assumption was that alcohol related problems can be translated into behavioral consequences which can then be measured. A third assumption was that adolescent's develop expectations of alcohol and that these expectations affect

their drinking behavior and can be measured. Finally, the construct of trait anxiety is used, and it is assumed that adolescents experience some degree of anxiety which can be consistently measured.

Definitions

1. Alcohol Misuse/abuse - conceptualized as the point where an adolescent is using alcohol to an extent that they are having social, emotional, and/or psychological difficulties. The Adolescent Alcohol Involvement Scale was used in this study to define the extent of alcohol misuse with a score of 42 or more indicating misuse.
2. Attitude towards alcohol - conceptualized as describing the adolescent's current attitude towards the drinking of alcohol. In other words, do they believe it is wrong to drink versus right to drink? This variable was measured using a five-point Likert type scale on the Demographics form.
3. Expectation of tension reduction and relaxation - conceptualized as the belief that alcohol will produce tension reduction and promote relaxation. The subjects expectations of tension reduction was measured by Scale 7 on the Adolescent Alcohol Expectations Inventory (Goldman, Brown, & Christiansen, in press).
4. Tension Reduction Theory (TRT) - a reinforcement theory which contains two distinct hypotheses: (1) Alcohol reduces

tension, and (2) Organisms drink alcohol for its tension reducing effect.

5. Trait Anxiety - conceptualized as a relatively stable individual difference in anxiety proneness. In other words, trait anxiety refers to the tendency to respond to situations perceived as threatening with elevations in anxiety. The State-Trait Anxiety Inventory (Form X) (Spielberger, Gorsuch, & Lushene, 1970) was used to measure the level of trait anxiety.

6. Adolescent - refers to subjects ranging in age from 17 through 18 years of age. The subject's age was determined by self-report on the Demographics form.

CHAPTER II

REVIEW OF RELATED LITERATURE

In this literature review, a number of theoretical ideas and concepts will be presented. First, theory and research concerning personality factors of alcohol misuse will be reviewed. Second, adolescent alcohol misuse will be reviewed including important background factors. Third, the research regarding the relationship of trait anxiety and alcohol misuse will be reviewed. Fourth, theory related to cognitive processes or expectations of alcohol use held by adults and adolescents will be reviewed. Finally, a summary of the literature will close the chapter.

Alcohol Misuse/Abuse

Adolescence is a very important period of time of initiation into the world of substance use, and into alcohol use in particular (Jessor & Jessor, 1975; Johnston, O'Malley, & Bachman, 1981). While studies indicate that the use of alcohol has decreased over the past four years, alcohol continues to be used by 106 million Americans (RTI, 1988). Additionally, estimates of the adolescents who use alcohol and other drugs continues to include a significant proportion of high school students (RTI, 1988). Donovan,

Jessor, and Jessor (1983) reported as many as 27% of the adolescents sampled were considered "problem drinkers" as defined by a high frequency of drunkenness of negative life consequences associated with alcohol use. In addition, Rubington (1972) has estimated that 70% of adult alcoholics are hidden; that is, they go undetected and thus untreated.

The theories and research designs of early studies on alcoholism were based primarily on psychological frameworks (Cox, 1987) with the concept of the alcoholic personality dominating the research field in the 1940's (Hewitt, 1943). The theories conceptualized the alcoholic as having distinctive personality characteristics which could be identified by psychological tests (Hewitt, 1943; Machover & Puzzo, 1959), but subsequent studies failed to identify particular alcoholic personality profiles (Syme, 1957). The principle areas studied for these personality factors focused on self-concept, dependency needs, locus of control and characteristics measured by personality inventories, including anxiety (Blane & Leonard, 1987; Blum, 1966; Jones, 1968; Sanford, 1968). Recent reviews and studies designed to test these associations have failed to support these variables as predisposing traits to alcoholism (Tarter, Jacob, Hill, Hegedus, & Carra, 1986; Weissbach, Volger, & Compton, 1976).

Cox (1983, 1985, 1987) believes the conceptualization of alcoholism has gone through three major changes. Within

these changes, the concept of a unique, definable alcoholic personality has been discredited. The personality factors found to be present in alcoholism have been identified as associated with other addictive behaviors, and alcohol problems have been redefined as the result of multiple influences, not one single cause. From this perspective, alcoholism is conceptualized as resulting from the interaction of biological, psychological, and socio-cultural factors (Jacob, Favorini, Meisel, & Anderson, 1978; Jessor & Jessor, 1975; Zucker, 1987).

Adolescent Alcohol Misuse/Abuse

The social influences contributing to the development of alcohol problems are numerous and complex. Many of these are considered to be risk factors in adolescents social development (Jessor & Jessor, 1975). Studies have indicated certain psychological crisis or stressors in early life to be catalyst for beginning problem drinking (Benson & Wilsnack, 1983). This disruption was often cited as parental absence or unavailability. Emotional deprivation in the alcoholic population's childhood home environments was reported more often than in nonalcoholic populations. This finding may account for the high correlation found between alcoholism and dependency or evidence of familial rejection (McCord & McCord, 1962).

In a study of family backgrounds by Adams (1982), alcoholics were found to have a higher incidence of parental

loss or absence during childhood and excessive drinking in the family of origin. Adams found other relevant factors to be poor parental modeling of personality adjustment, gender orientation, achievement motivation, and role interdependence. In addition, restrictive, controlling, and protective child-rearing practices were found to encourage dependence and passivity.

Longitudinal studies have been conducted in an attempt to define personality predecessors to alcohol abuse (Zucker & Gomberg, 1986). Certain personality characteristics have been identified in adolescents who later develop alcohol problems. These qualities are antisocial behavior, rejection of societal values, nonconformity, impulsivity, aggressiveness, independence, and hyperactivity (Jessor, 1983; Jessor & Jessor, 1977; Zucker, 1976; Zucker & Gomberg, 1986; Zucker & Noll, 1982).

A longitudinal study by Jones (1968) examined the personality characteristics evident prior to the establishment of drinking behavior in participants of the Oakland Growth Study. The data indicated "...pervasive personality tendencies" (p. 11) present in many individuals before drinking patterns were established. The problem drinkers were rated as having been "...undercontrolled, assertive, rebellious, pushing the limits, and overtly hostile" (p. 10) during adolescence. While a single personality profile has not emerged, a number of

characteristics tend to be associated with alcohol problems later in life. However, these same characteristics tend to be associated with many other disorders in adult life.

In an effort to understand how family environment of the child influences later drinking behavior, Zucker (1976) and Zucker and Noll (1982) designed longitudinal, developmental models to study the relationships among parental influences, personal, and social factors. The conceptualization underlying these studies was a belief in the continuity of developmental processes in the etiology of alcoholism, continuing from early childhood to adulthood (Zucker, 1987).

Results were derived about the influence of the family environment and the characteristics or behaviors of the parents from data collected from both the adolescents and their parents (Zucker & Barron, 1973). Family environments of adolescent problem drinkers were found to be harsher and more negative in affect. The interactions between adolescent problem drinkers and their parents were described as tense and the home environments were characterized by parental detachment (Zucker & Barron, 1973; Zucker & Devoe, 1975). These findings were consistent with findings reported by Donovan, Jessor, and Jessor (1983) and those of Kellam, Brown, Rubin, and Emsminger (1983).

By combining the concepts of person and environment into an integrated theoretical framework, Jessor, Graves,

Hansen, and Jessor (1968) examined alcoholic behavior differences in rates of alcoholism among ethnic groups. The groups were studied in terms of the socialization process of the individual within the family system. The influence of parental behavior on the adolescent personality was assessed in terms of affection and rewarding good behavior during the socialization process. Linkages between these concepts and problem drinking were established.

A problem behavior theory for predicting future difficulties with problem drinking was formed by Jessor and Jessor (1977). Data from two parallel studies of junior high students followed by a longitudinal study into young adulthood were used to test the idea of an underlying variable of unconventionality in problem behavior. This syndrome included problem behaviors such as problem drinking, marijuana use, delinquent behavior, and sexual intercourse.

In the Jessor and Jessor (1977) study, a variety of analyses were used to explore the theoretical link between adolescent personality development, social environment, and behavior as antecedent factors for adult problem drinking. Multiple regression coefficients ranging from .57 on individuals to .77 overall were obtained using data collected from high school students tested on 14 person, environment, and behavior variables. The results indicated problem behavior reflecting unconventionality in personality

and social environment was positively associated with adult problem drinking. Jessor and Jessor suggested that a tendency toward problem behavior was a function of normal psychosocial development and that coming to terms with the use of alcohol was a part of the developmental task of adolescence. This has been substantiated in data collected 10 years after adolescence with a movement away from problem behavior towards conventionality (Donovan & Jessor, 1985; Donovan, Jessor, & Jessor, 1983).

Christiansen and Goldman (1983) conducted research to clarify the relationship between demographic/background factors and the prediction of alcohol misuse. The study involved 1,580 subjects between 12 and 19 years of age. Subjects were asked questions about the age they first used alcohol, problems related to their drinking, amount and frequency of alcohol use and from these responses, three categories were established; frequent users, problem drinkers, and family drinkers.

Results indicated that for frequent drinkers, the age at which they first used alcohol accounted for 18% of the variance. The adolescents attitude towards alcohol (a 5-point scale from strongly disapprove to strongly approve) accounted for 30% of the variance. The remaining background factors; gender, religiosity, religious affiliation, paternal drinking, socioeconomic status accounted for an additional 2% of the variance. For the frequent drinkers,

the combined background factors accounted for 5% of the variance with age at which alcohol was first used and sex accounting for only 3% of the variance.

Results for the problem drinkers indicated that gender was the best predictor and accounted for only 2% of the variance. Age at which alcohol was first used was the second and the two combined accounted for only 3% of the variance. All background variables (including attitude towards alcohol) combined accounted for only 5% of the variance.

Finally, for family drinkers (high scorers drink only with family and low scores drink with friends at parties) the combination of age at which alcohol was first used and adolescent's attitude towards alcohol accounted for 4% of the variance, with all background factors accounting for 5% of the variance.

Thus, for adolescent problem and family drinkers, background variables are less powerful in predicting problems with alcohol. For frequent drinkers, background factors account for much more of the variance, with age at which alcohol was first used and the adolescent's attitude towards alcohol being the most powerful.

Alcohol Misuse/Abuse and Trait Anxiety

The relationship between anxiety and use of alcohol has long been a topic of interest. Most of the research has been directed towards tension reduction as a primary motive

for drinking. For instance, reduction of tension was the reason for drinking as reported by 68% of the sample in Hill and Bugen's study (1979) followed by increased sociability (46%).

Basically, the tension reduction theory proposes that the relief of tension reinforces the drinking of alcohol, providing a basis for the chronic alcohol abuse. The evidence for the tension reduction hypothesis was reviewed by Cappell and Herman (1972), who pointed out that there are two hypotheses implicit in the tension reduction hypothesis. First, alcohol is assumed to reduce tension, and second, organisms learn to drink alcohol for its tension-reducing effects (i.e., reinforcement).

Several studies have found support for the relationship between anxiety and alcohol abuse in many client populations. In Strange and Schmidt's (1979) study, greater proportions of the worry (high anxiety) group reported the occasional or frequent use of alcohol to relieve fatigue or tension, to aid in forgetting disappointment, to get to sleep, for a sense of wellbeing and to get high.

Beck (1988), in his study of 272 college students, found that alcohol abuse is intentional and tends to be used as a means of coping with a variety of problems such as getting to sleep, stress control, and being sociable. Brennan, Walfish, and AuBuchon, (1986) reported that studies examining drinking motives have concluded that drinking to

escape or to get relief from problems were consistently associated with increase alcohol use. Liebowitz, Gorman, Fyer, and Klein (1985) found that socially phobic subjects reported considerable use of alcohol and other drugs to manage their anxiety.

Ludenia, Donham, Holzer, & Sands, (1984) explored the presence of state and trait anxiety in relation to alcohol abuse. They found a significant ($p < .001$) reduction in state and trait anxiety between pre-test and post-test scores on the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) for 219 alcoholics admitted to a hospital for treatment.

Bibb and Chambless (1986) studied 254 diagnosed agoraphobics. Based on a Michigan Alcohol Screening Test score of 5 or greater, 21% of the agoraphobics were diagnosed as alcoholic. This compares to roughly 10% in the general population. Results indicated ($p < .05$) that the alcoholic agoraphobics were more likely than their nonalcoholic counterparts to have used alcohol for a variety of instrumental purposes: to control anxiety, cope with panic or its anticipation, reduce disturbing cognitions, deal with public ventures, to help perform necessary activities, and to remain employed or in school. Bibb and Chambless (1986) conclude that agoraphobics with a history of alcohol abuse may be more vulnerable to relapse since they believe alcohol helps them cope with anxiety and panic.

Additionally, in researching the etiological differences between alcoholic and nonalcoholic agoraphobics, Bibb and Chambless found a family history of alcoholism, depression, suicidal attempts, disordered childhood, abuse, early parental separation, or DSM III diagnosis of Separation Anxiety Disorder to be nonsignificant. While these studies offer firm support for the relationship between anxiety and alcohol use, there are studies raising questions concerning the TRT. Basically, these studies express a need to integrate the cognitive component of alcohol use/misuse.

Cappell and Herman (1972) raised concern for the validity of the TRT. They believed the tension reduction hypothesis had not been convincingly supported. Recently, Steffen, Nathan, and Taylor (1974) have suggested that the previous findings (McNamee, Mello, & Mendelson, 1968; Mendelson, LaDou, & Solomon, 1964; Nathan & O'Brien, 1971) that consumption of alcohol by alcoholics was associated with increased mood disturbances (contradicting the tension reduction hypothesis) may have been due to the unreliability of self-reported mood measures. Accordingly, they examined in alcoholic subjects the relations among blood alcohol levels, objective tension (measured by electromyograph measurements of muscle tone), subjective tension (self-report of subjective disturbance) over a period of 12 days with free access to alcohol. The results showed a significant negative correlation between blood alcohol level

and electromyograph activity and a significant positive relation between blood alcohol level and subjective distress, but no relation between electromyograph activity and subjective distress. Thus, although subjects were becoming physiologically relaxed (a pharmacological effect of the drug), subjectively they were becoming less comfortable. Steffan, Nathan, and Taylor (1974) concluded that the results support the tension reduction hypothesis since muscle tension fell with increasing blood alcohol level. What these results directly indicate, however, is that the physiological and pharmacological effects of alcohol may well be different from its subjective or cognitive effects, at least for alcoholics.

In a study using college student subjects, Pliner and Cappell (1974) predicted that affective response to alcohol would result from an interaction between physiological and cognitive (social) factors. Their data confirmed this prediction, leading to their conclusion that the social circumstances of drinking may be important in determining the affective response to intoxication. In other words, cognitions mediate the subjects' subjective (affective) and behavioral responses to alcohol. This finding is consistent with the literature on expectations of alcohol presented later in this chapter.

Polivy and Herman (1976) found indirect support for this notion. In an experiment investigating the effects of

alcohol on eating behavior, they found that alcohol, when administered so that subjects did not recognize it as alcohol, did not disinhibit the restrained eating of dieters. They concluded that the disinhibitory effects of alcohol may well depend on a subject's awareness that it is alcohol he is consuming. The behavioral effects of alcohol, then, appear to be critically dependent on cognitive mediation through the knowledge that alcohol is being ingested.

Finally, Lang, Goeckner, Adesso, and Marlatt (1975) report on the importance of expectancy in mediating the effects of alcohol. They found that subjects became more aggressive if they thought they had received alcohol regardless of whether they had actually ingested a drug. The effects of alcohol were apparently masked by the overwhelming expectancy effects.

These data then raise the question of why people drink alcohol and become alcoholics at all. The effects of any drug are influenced by the setting in which the drug is ingested (Schachter & Singer, 1962). Pliner and Cappell (1974) demonstrated that the social context in which alcohol is consumed influences subjects' affective response to the drug. They concluded that the reinforcing value of the intoxicated state may be determined at least in part by the social circumstances of drinking.

It has been previously demonstrated with other drugs (Claridge, 1970; Schachter & Singer, 1962) that while the drug may have known, reliable, physiological effects, cognitive and personality factors may alter both the subjective and behavioral effects dramatically. Lang, Goeckner, Adesso, and Marlatt (1975) found that expectancy effects outweighed actual pharmacological effects of alcohol in producing aggression. Thus such environmental and informational factors, which apparently exerted a strong influence upon the subject's response to alcohol, have been shown to be important determinants of drug response in general. The influence of setting and cognitions must be accounted for in alcohol research by systematically varying the procedures and situations in which alcohol is studied. It appears that drinking to reduce anxiety or tension reduction is, indeed, a frequent motive for drinking alcohol.

Thus, attention is beginning to be directed toward cognitive effects of alcohol. It seems, from the current literature, that a possible reason for Cappell and Herman's (1972) failure to find support for the first part of the tension reduction hypothesis may be the normal confounding of physiological and subjective (cognitive) effects of alcohol.

Expectations of Alcohol

Goldman, Brown, and Christiansen (1987, p. 183) defined expectancy as "the anticipation of a systematic relationship between events or objects in some upcoming situation. The relationship is understood to be of an if-then variety: If a certain event or object is registered then a certain event is expected".

According to social learning theory, an individual's expectation or belief about an outcome is often a better guide for his/her behavior than the actual consequence of that behavior (Bandura, 1986). This theory has particular relevance to current thinking in the field of alcohol research. Wilson (1987) cites studies on the effects of outcome expectations about intoxication as examples of the application of the theory to alcohol. Indeed, there are several studies using the balanced-placebo design that demonstrate that alcohol related expectancies, irrespective of actual consumption, produce alcohol related outcomes (Marlatt & Roshenow, 1980).

The first of these studies was conducted by Brown, Goldman, Inn, and Anderson (1980). Based on Marlatt's contention that only if the effects of drinking are anticipated as desirable will expectations be likely to override the influence of alcohol itself, the study focused on positive reinforcement effects of moderate drinking ("a couple or few drinks"). To investigate the domain of

alcohol reinforcement expectancies, defined as the anticipated consequences of alcohol use, they designed an Alcohol Expectancy Questionnaire (AEQ) from interviews with 125 males and females of diverse drinking backgrounds. The questionnaire was statistically refined using responses from an additional 400 subjects, administered to 440 nonalcoholic subjects and then factor analyzed.

The factor analysis identified six independent expectancies: one global factor indicating that alcohol transforms experiences in a positive way, and five lesser factors reflecting that alcohol enhances social and physical pleasure, alcohol enhances sexual performance and experience, alcohol increases power and aggression, alcohol increases social assertiveness, and alcohol reduces tension. Findings indicated that expectancies vary with drinking patterns. For example, less experienced drinkers in the study tended to hold more global expectations. Conversely, heavier drinkers were inclined to limit their expectancies to a few key factors such as sexual enhancement and aggressive arousal. Pharmacological effects of alcohol, however, may have been influencing the differences in drinking patterns.

In order to examine the influence of pharmacological experience on the development of expectancies in comparison to the influence of social learning factors, Christiansen, Goldman, and Inn (1982) studied adolescents in transition

from nondrinking to adult drinking practices. They developed an Alcohol Expectancy Questionnaire for Adolescents (AEQ-A) and surveyed 1580 subjects, ages 12-18 years of age. Separate factor analysis were conducted for 12 to 14 year olds, 15 to 16 year olds, 17 to 18 year olds, and very low versus very high experience drinkers. Results identified six expectancy factors which were repeated across all age groups including the youngest. The factors were physical tension reduction, diversion from worry, increased interpersonal power, magical transformation of experiences, enhanced pleasure, and modification of social emotional behavior. Five of these factors were present in adolescents with infrequent or no drinking experience. Content of expectancy factors, however, did change with increasing drinking experience and age to become more homogeneous. It appeared, therefore, that fairly well established expectancies exist prior to actual alcohol use and that pharmacological experience reinforces these expectancies.

In a later examination of the same pool of adolescents, Christiansen and Goldman (1983) found that those who drank in a frequent, social manner expected alcohol to enhance their social behavior. Adolescents who admitted to alcohol-related problems expected an improvement in their cognitive and motor functioning. Furthermore, alcohol-related expectancies were found to add to the predictive power of

demographic variables in estimating adolescent drinking patterns.

Southwick, Steele, Marlatt, and Lundell (1981) developed an 37 item questionnaire on alcohol expectancies from a pilot study of 20 undergraduate students, and administered the questionnaire along with two measures of drinking habits to 253 students at a university in Washington. The questionnaire consisted of three scales: stimulation/perceived dominance, pleasurable disinhibition, and behavioral impairment. Results indicated that heavier drinkers expected greater stimulation/perceived dominance (ie. aggressiveness, alertness) and pleasurable disinhibition (ie. relaxation, security) during moderate intoxication. No relationship was found between habits and expectancies of behavioral impairment. The pattern of results suggested that heavier drinkers expect the same negative effects that lighter drinkers expect, but heavier drinkers expect greater positive effects.

In another study (Rohsenow, 1983) administered the Drinking Practices Questionnaire and two modified versions of the AEQ (Brown, Goldman, Inn, & Anderson, 1980) to 150 college students. Interestingly, subjects consistently expected other people to be more affected by alcohol than themselves for both positive and negative effects, albeit moderate and heavy drinkers expected as much social/physical pleasure from alcohol as they expected others to receive.

Moderate and heavy drinkers expected an enhancement of social and sexual pleasure, aggressiveness, and a reduction in tension more than did light drinkers. There was not, however, a difference between heavy and light drinkers in expectation of aversive consequences to others. Whaley (1986) remarked that the findings that positive, but not negative, expectancies mediate alcohol use suggest a positivity bias in the cognitive processing of information related to alcohol use. Accordingly, he suggested that prevention work focus on positive cognition rather than negative outcomes.

Brown (1985a) designed a study to examine whether alcohol reinforcement varied between the social and physical context of drinking. The sample consisted of 324 male and female alcoholics, with a minimum of 3 weeks abstinence. Subjects completed the Alcohol Expectancy Questionnaire, a demographics sheet, and the Customary Drinking Record. The social context of drinking were (a) solitary drinking, (b) drinking with family, (c) drinking with casual or intimate friends, and (d) drinking with strangers or new acquaintances. The physical context categories were (a) home/my place, (b) home of a friend, (c) social event, ie. party, and (d) bar or lounge. Results indicate that not all alcoholics think alike when it comes to drinking. Several expectancy-topographies emerge from the data. The more impersonal the social context of drinking, the more likely

it is that alcoholics will attribute strong reinforcement characteristics to alcohol, whereas alcoholics who habitually drink in the context of family members view alcohol in less positive terms. The exception to this reinforcement pattern is tension reduction, which among alcoholics is more firmly maintained when one drinks in the company of family members. Secondly, alcoholics with the most abusive drinking patterns maintain the strongest beliefs regarding alcohol's power to produce global transformations of experience and improve assertiveness. Thus, it appears that attributional differences may exist within the alcoholic population regarding the type and strength of reinforcement anticipated from alcohol.

Brown (1985b) using a similar procedure employed by Christiansen and Goldman (1983), examined expectancies versus background in the prediction of college drinking patterns. Subjects were 321 undergraduate psychology students at a large midwestern university, the vast majority of whom were Caucasian. The students were administered the AEQ, the Customary Drinking Record (CDR), a self-report drinking form in two parts, and the demographic sheet (DDS). A factor analysis of the CDR identified three drinking style factors: heavy drinking accompanied by some physical distress, heavy drinking with alcohol-related problems, and contextually (situational) determined alcohol consumption.

Multiple regression analyses enabled the comparison between optimal alcohol expectancies (of the six previously described), and demographic predictors of each drinking style. Results indicated that, although a composite of the demographic set (ie., ethnic background, gender, religiosity, socioeconomic status) were more efficient in predicting drinking patterns, the single best predictor of each of the three drinking styles was a specific alcohol expectancy. Further, expectations of enhanced social and physical pleasure were the primary anticipated effects of alcohol by frequent but nonproblematic drinkers. Conversely, the strongest predictor of problem drinking was the tension reduction expectancy.

To test the generalizability of these findings, Brown (1985b) replicated this study with a group of 176 undergraduate psychology students at a University in California. Of the sample, 88% were Caucasians, and 7.6% were Mexican-American.

Cross validation results of the two studies confirmed that expectancies and demographic variables provide independent information on drinking patterns. In both studies, background variables were better predictors of contextually determined drinking. Expectancies, however, were better predictors of problem drinking than either demographic variables or the demographic/expectancy composite. Based on these findings, Brown hypothesized that

individuals experiencing the reinforcing effects of greater degrees of tension reduction may be at risk for early problematic drinking. Further, as alcohol use continues, anticipated tension reduction may be a factor in the transition to abusive drinking patterns.

To investigate the relationship between reinforcement expectancies and outcome following treatment for alcoholism, Brown (1985c) collected data from 42 male veterans who had undergone inpatient treatment. Subjects completed a demographics form, pretreatment drinking habits and drinking history, and the Alcohol Expectancies Questionnaire (AEQ). Follow-up interviews assessed drinking behavior over the preceding year and experiences on several different dimensions (job, family, social, legal, medical, and financial). The latter served as posttreatment experiences (predictors) that might have an impact on drinking status at one year after treatment.

Brown's (1985c) results indicated a significant negative correlation of year-long abstinence with the total reinforcement expectancy score ($p < .01$) and with five of the specific alcohol reinforcement expectancies ($p < .05$). Results also indicated a significant negative correlation of nonproblem drinking with the total expectancy score ($p < .05$) and for scale 7, tension reduction ($p < .01$). Expectancy scores were not significantly correlated with participation in outpatient aftercare or Alcoholics Anonymous. Thus,

reinforcement expectancy had a stronger relationship with measures of treatment outcome that were more closely related to alcohol consumption. In particular, with regard to the measures of both abstinence and abstinence or non-problem drinking, the expectancy of relaxation or tension reduction yielded the strongest correlation ($p < .001$) and ($p < .01$) respectively. The exact correlation coefficients were not reported.

The possible utility of alcohol expectancy as a predictor of treatment outcome was next examined in a series of multiple-regression analyses. Brown's (1985c) results indicated that alcohol expectancy, stress, and social support were sequentially selected as predictors of year-long abstinence ($p < .001$). This accounted for 57% of the criterion variance. Secondly, for prediction of nondrinking or nonproblem drinking, social support, living environment, and stress were selected ($p < .001$). With these predictors, 48% of the criterion variance was accounted for by the prediction equation. Thus, the combined effects of stressful or nonsupportive environments and stronger alcohol reinforcement expectancies place alcoholics at particular risks for relapse. This finding is consistent with recent reviews of studies on alcoholism treatment outcome (Finney, Moos, & Mewborn, 1980) and high-risk relapse situations (Marlatt & Gordon, 1980). In particular, posttreatment stressors and limited coping responses have been identified

(Finney, Moos, & Mewborn, 1980) as having a strong impact on outcome. Other research (Marlatt & Gordon, 1980) indicates that approximately three-quarters of initial relapse episodes involve negative affect, social pressure or interpersonal conflict. The results of the Brown (1985c) study question whether such situational factors, when coupled with higher expectations of alcohol reinforcement, heighten the relapse risk for recovering alcoholics. These results need to be replicated using a larger and more heterogenous population sample.

Further research on the use of alcohol expectancies to predict adolescent drinking after one year was conducted by Christiansen, Smith, Roehling, and Goldman (1989). They collected demographic information, including age, school grade, sex, parental ethnic background, religious affiliation, religiosity, parental occupations, parental drinking behavior, parental drinking attitude, and the presence or absence of an alcoholic in the family. The subjects also filled out the Drinking Styles Questionnaire (Christiansen, Goldman, & Inn, 1982) and the Alcohol Expectancy Questionnaire-Adolescent Form (AEQ-A). The sample consisted of 871 seventh and eighth graders in year one and 637 at year two (77% of the year one sample). Results indicated that the strength of expectancies held at year one predicted approximately 25% of the variance in drinking behavior at year two. Scale 2 (Alcohol Can Enhance

or Impede Social Behavior) and Scale 3 (Alcohol Improves Cognitive and Motor Functioning) were the best predictors, with Scale 2 accounting for the 36% of the variance. On five of the AEQ-A scales, the year two expectancy scores for nonproblem drinkers, problem drinkers, or serious problem drinkers were significantly different between these three groups ($p < .05$). These results add to the utility of expectancy in identifying adolescents at risk for early problem drinking onset.

Although the major focus of this section has been on personal expectancies about drinking alcohol, it may be that beliefs about the effects of alcohol may be culturally shared (Wilson, 1987). For example, as Wilson points out, MacAndrew and Edgerton (1969) observed that what might seem to be disinhibition or impulsive alcohol-induced behavior remained upon closer inspection, within "culturally, sanctioned albeit interculturally variable limits" (p. 85). Since the subjects of the studies on personal outcome expectancies have been predominately from the white culture, further study is needed that examines individuals from different cultures and subcultures.

In summarizing the literature on personal outcome expectancies of alcohol consumption, it appears that individuals drink with specific outcomes in mind which may be as important or more influential than pharmacological effects. Many of these outcomes are desired for escapist

reasons thus suggesting a lack of alternative skills for coping with tensions and problems (Berkowitz & Perkins, 1986). Given these findings and suggestions, clinical implications for both preventive and treatment efforts become clear. Examining the cognitive aspects of drinking behavior and providing alternative means of coping with problems may reduce and even prevent problematic drinking.

Summary of Literature

Based on the studies of adolescent alcoholism, there appear to be two background factors which have been consistently linked to frequent alcohol use. The two factors most predictive of the frequency of adolescent alcohol use are age at which alcohol was first used and the adolescent's attitude towards alcohol. Other background factors include gender, parental attitudes towards alcohol, parental alcohol abuse, ethnicity, religiosity, and socioeconomic status. However, the additional background factors tend to add very little to the prediction of alcohol misuse. Research is being conducted to expand upon these background factors as predictors of problems with the use of alcohol.

One such area of expansion is the relationship between trait anxiety and subsequent alcohol misuse. Studies have indicated that the use of alcohol can lead to decreased anxiety or relaxation. Research suggest however, that there are mediating influences on this relationship. One

such mediator is the cognitive expectations of the adolescent. The cognitive expectations of the adolescent alcohol user would appear to be an important variable in determining whether the alcohol was experienced as relaxing.

The cognitive expectations adolescents possess towards alcohol has been an important addition to the research on alcohol misuse. Thus far the research has found a consistent relationship between alcohol expectancies and the misuse of alcohol. The research indicates that the prediction of alcohol misuse can be improved when using the adolescent's expectations from alcohol. Additionally, there is evidence supporting the combining of alcohol expectancies with existing demographic variables. Several studies have found support for the relationship between tension reduction expectancies and alcohol misuse. However, research investigating the inter-relationship between the background variables associated with alcohol abuse, the level of trait anxiety, the expectations the adolescent has about alcohol, and the attitude towards the use of alcohol in predicting subsequent alcohol misuse has not been researched.

CHAPTER III

METHODS

Chapter 3 presents the methods and procedures of the study. For the purposes of presentation the chapter has been divided into five sections. This includes the statement of the research hypothesis, subjects, research instrumentation, procedures, and the data analysis.

Statement of the Research Hypothesis

Based upon the existing research reviewed thus far, this study sought to add knowledge concerning adolescents' use of alcohol. The research hypothesis investigated in this study was: There is a significant relationship among the independent variables of adolescents' attitude towards the use of alcohol, level of trait anxiety as measured by the STAI (FORM X), expectation that alcohol will reduce their tension level as measured by the AEQ-A (Scale 7), and the dependent variable of amount of alcohol use\misuse as measured by the AAIS.

Subjects

The sample consisted of 206 high school students enrolled in World History classes at a large midwestern high school. The students between the ages of 17 and 18 years of

age were asked to participate voluntarily in the experiment. The majority of students (182) indicated they were Caucasian. There were 4 Asian American, 5 Black, 1 Hispanic, 12 Native American, and 2 students indicated other races. These subjects included a total of 104 and 102 male and female subjects, respectively.

Research Instrumentation

The present study utilized four questionnaires, a demographics inventory (see Appendix B), the Alcohol Involvement Scale (see Appendix C), Alcohol Expectancy Questionnaire-Adolescent (Goldman, Brown, & Christiansen, in press), and the State-Trait Anxiety Scale (FORM X) (Spielberger, Gorsuch, & Lushene, 1970). The following paragraphs describe these instruments in detail.

Demographics Inventory

A demographics inventory was used to gather important demographic information about the subjects including the subjects' attitudes towards the use of alcohol, age, gender, and race. Christiansen and Goldman (1983) found that asking adolescents whether they approved of drinking alcohol significantly ($p < .001$) contributed to the prediction of alcohol abuse.

Adolescent Alcohol Involvement Scale (AAIS)

The AAIS was developed by Mayer and Filstead (1979) to provide a consistent, quantifiable, and structured self-report instrument to detect an adolescent's misuse of

alcohol. The instrument consist of 14 questions structured in a multiple choice format.

The instrument is designed to measure the extent of alcohol misuse by tapping the social and psychological consequences of the subject's alcohol use. The AAIS conceptualizes adolescent alcohol misuse as drinking to the extent that it interferes with any one or any combination of three areas: psychological functioning, social relations, and family living. Subject responses are scored on a continuum ranging from 0-19 (abstainer to infrequent user), 20-41 (drinkers with no alcohol problems), 42-57 (misuser), to 58-79 ("alcoholic like" drinkers).

Reliability. The AAIS instrument was found to have two-week test-retest reliability of .91 for an experimental group of hospitalized adolescents and .89 for a control group of "normal" adolescents (Mayer & Filstead, 1979). The internal consistency reliability of the AAIS was measured by Moberg (1983) through a telephone adapted version of the AAIS with 1004 adolescents. The raw score alpha coefficient was found to be .962. Moberg also investigated the contribution of each item to the total score. From the sample of 1004, the correlation coefficients calculated between the item responses and total score ranged from .42 to .82. Item 13 and 14, which Mayer and Filstead (1979) found had the weakest item/total score correlations, had coefficients of .42 and .49, respectively. In summary,

Moberg (1983) found each item to be significantly ($p < .001$) correlated with the overall score on the AAIS.

Validity. The validity of the AAIS has been established through several methods. Mayer and Filstead (1979) utilized the AAIS to compare adolescent alcoholics ($N=52$) who were in inpatient care for alcohol rehabilitation and "normal adolescents" ($N=126$) non-randomly sampled by highschool counselors who determined through school records and self-report that the adolescent had no school problems and had not drunk alcohol more than once in the past three months. The two groups differed significantly ($p < .01$) in their total score on the AAIS. The mean scores for the control and treatment groups were 19 and 58, respectively.

Finally, Mayer and Filstead administered the AAIS to 3662 Chicago highschool students and found that three factors, the first three questions, accounted for 48% of the variance and that each successive question added to the overall variance and loaded significantly on one of these three main factors or questions.

Scores on the AAIS were correlated by Downs and Robertson (1982) with a standard Q-F measure of alcohol problems. The correlation between the AAIS and the standard Q-F, which indicates the number of times an adolescent has been in trouble over their drinking, was $r = .51$ ($p < .001$). Downs and Robertson went on to develop another typology for

adolescent alcohol use/abuse. The correlation between responses to the AAIS and their measure was $r = .69$ ($p < .001$).

Responses to the AAIS has been correlated with the use of other drugs, including marihuana. Out of the 1014 youth Moberg (1983) sampled via telephone, for all common drugs, excluding heroin and methadone, there was a significant ($p < .001$) relationship between past and present use and AAIS classification and raw score. This indicates that there is a relationship between past drug use and current scores on the AAIS. Fifty-six percent of the alcohol misusers and 90% of the alcoholic-like drinkers reported use of at least one other drug.

Finally, one study reported by Moberg (1983) sought to compare two registered nurses' and one clinical social worker's independent assessment of adolescent alcohol misuse ($N = 113$) and subsequent AAIS scores. The results indicated that 86% of those classified as alcoholic-like drinkers by the AAIS were classified as dependent on alcohol by clinicians. The raw-score data indicate that all patients assessed as dependent on alcohol scored at least 42 (the cut-off for alcohol misuser) on the AAIS, and 75 % scored above 50.

Alcohol Expectancies Questionnaire-Adolescents-(Scale 7)

The Alcohol Expectancies Questionnaire for Adolescents (AEQ-A) (Goldman, Brown, & Christiansen, in press) was

developed to identify cognitive mediating mechanisms that have the capacity for determining behavioral effects of alcohol. The research instrument has an adult version and an adolescent version. The present study utilized Scale 7 of the Alcohol Expectancy Questionnaire-Adolescent Form. Scale 7 measures the expectation of the adolescent that alcohol will reduce tension and promote relaxation.

The results of a factor analysis indicate there are two global factors contained in this instrument (Christiansen, Goldman, & Inn, 1982). Factor 1 represents the expectation that alcohol is a positive transforming or enhancing agent while factor 2 represents the expectation that alcohol is a negative transforming agent. The dichotomous results indicate adolescents possess superordinate expectancies of global positive versus negative effects. There are seven consistent subordinate factors under these two superordinate factors of positive versus negative transformations on the AEQ-A for adolescent populations ages 12 to 19.

The seven factors found to be consistent across all adolescent age ranges were; (a) Alcohol is a powerful agent which makes global, positive transformations of experience (Scale 1); (b) Alcohol can enhance or impede social behavior (this factor was not found on Adult form) (Scale 2); (c) Alcohol improves cognitive and motor functioning (Scale 3); (d) Alcohol enhances sexuality (Scale 4); (e) Alcohol leads to deteriorated cognitive and behavioral functioning (Scale

5); (f) Alcohol increases arousal (Scale 6); (g) Alcohol promotes relaxation or tension reduction (Scale 7).

Reliability. The AEQ-A (Goldman, Brown, & Christiansen, in press) is a 100 item questionnaire designed in a true-false format. The first form of reliability to be investigated was test-retest. Christiansen, Goldman, and Inn's (1982) results indicated that 17 through 18 year old adolescent expectancies are similar to college student expectancies. Based on these findings, Brown, Christiansen and Goldman, (1987) administered the AEQ-A to 465 college students and test-retest reliability measures were calculated. The mean eight-week test-retest reliability coefficient for scale 7 was .54.

Christiansen and Goldman (1983) administered the AEQ-A to 1,580 12 through 19 year old students from four suburban Detroit schools. Results indicated the estimate of internal consistency of the AEQ-A scales using coefficient alpha ranged from .42 to .82, with a mean internal coefficient alpha of .72. Christiansen, Smith, Roehling, and Goldman, (1989) reported internal consistency coefficients on a sample of 871 Detroit seventh and eight graders. Results indicated the internal consistency coefficients calculated using coefficient alpha ranged from .77 to .86 for the adolescent scales; however, the specific estimate of reliability for Scale 7 was not reported. McLaughlin Mann, Chassin, and Sher, (1987) found the internal consistency

coefficients using coefficient alpha was .93 for Scale 7 based on a study using 979 students from a predominately white, middle class, suburban high school. Thus, Scale 7 does appear to be a reliable measure of adolescents' expectations of tension reduction from alcohol.

Validity. Criterion validity for the AEQ-A was developed subsequent to findings that cognitive factors were related to actual behavior while drinking. Although this cognitive-behavioral link has been demonstrated in a number of experimental studies (e.g., Goldman, Brown, & Christiansen, 1987), independent demonstration was critical to the clinical utility of the AEQ-A (Goldman, Brown, & Christiansen, in press). AEQ studies with adolescents (Christiansen, Goldman, & Inn, 1982; Christiansen & Goldman, 1983; Brown, Christiansen, & Goldman, 1987), adults (Brown, 1985b; Brown, Goldman, Inn, & Anderson, 1980; Rohsenow, 1983), and abusing population (Brown, 1985a; Brown, Goldman, & Christiansen, 1985) consistently demonstrate a relationship between alcohol expectancies and current alcohol consumption.

To assess the predictive validity of the AEQ's, including Scale 7, Brown (1985c) conducted follow-up interviews with 42 adult male alcoholics one year after completion of an inpatient alcoholism treatment program. Analysis of success following alcoholism treatment indicated

that more limited expectancies of tension reduction (Scale 7) were significantly associated with total abstinence ($p < .001$) and non-problem drinking ($p < .05$).

Discriminant validity dictates that the AEQ-A (Goldman, Brown, & Christiansen, in press) not measure constructs other than expected drinking consequences. Two potential competing constructs are social desirability and delinquency. To examine the relationship between social desirability and alcohol expectancy scores Brown, Christiansen, and Goldman, (1987) administered to 324 male and female college students both the Adolescent and Adult AEQs and the short form of the Marlow-Crowne Social Desirability Scale (Strahan and Gerbasi, 1972). Correlations between the social desirability measure and the individual AEQ scores ranged from .01 to -.16 with an average correlation of -.09 for the adolescent scales. These correlations suggest, that among college student responses to the AEQ-A, the relationship between social desirability measures and alcohol expectancies are independent.

To investigate the relationship of the AEQ-A scores to adolescent delinquency, Brown, Christiansen and Goldman (1987) measured drinking behavior and expectancies of 85 nondrinkers, 123 light drinkers, 103 heavy drinkers drawn from regular high school classrooms and 43 delinquent adolescents. If the AEQ-A (Goldman, Brown, & Christiansen,

in press) primarily measures delinquency, delinquents should score the highest scale scores. If it is specifically sensitive to drinking, the heavy drinking adolescent group should score the highest scale scores. The heavy drinking group scored highest on six of the seven scales, including Scale 7. Second, the delinquent group received a higher mean score on only the behavioral impairment factor, and they scored similarly to the lighter drinking group on other AEQ-A scales, including Scale 7, tension reduction. Thus, the AEQ-A is not merely a measure of delinquency.

State-Trait Anxiety Inventory (Form X)

The State-Trait Anxiety Inventory (STAI) was developed by Spielberger, Gorsuch, and Lushene (1970) to provide a consistent empirical measure of a person's level of current anxiety (State Anxiety) and predisposition to anxiety under stress (Trait Anxiety). The A-Trait Scale consist of 20 statements that ask people to describe how they generally feel. Total time of completion is under 10 minutes for this scale.

The most recent research on state and trait anxiety led to the development of the STAI (Form X). The new version was normed on 3,300 highschool and college students, 600 neuropsychiatric patients and medical patients, and 200 young prisoners. The data from the neuropsychiatric and general medical patients was obtained from the following Veteran's Administration Hospitals: Augusta, Georgia; Bay

Pines and Miami Florida; Biloxi and Gulfport, Mississippi; Charleston, South Carolina; Clarksburg, West Virginia; and Tuscaloosa, Alabama. The data from the prisoners were obtained through the Federal Corrections Institution, Tallahassee, Florida.

State anxiety (A-State) is conceptualized as a transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension, heightened autonomic nervous system activity. A-State anxiety levels may vary in intensity and fluctuate over time, while trait anxiety (A-Trait) is conceptualized as a relatively stable individual differences in anxiety proneness. In other words, differences between people in the tendency to respond to situations perceived as threatening with elevations in A-State intensity. In general, it is expected that people who are higher in A-Trait anxiety will exhibit A-State elevations more frequently than low A-Trait individuals because they tend to react to a wider range of situations as dangerous or threatening. High A-Trait persons are more likely to respond with increased A-State intensity in situations that involve interpersonal relationships which pose some threat to self-esteem.

Reliability. Test-retest reliability coefficients are relatively high for the A-Trait scale, ranging from .73 to .86, while the reliability coefficients for the A-State

scale are relatively low, ranging from .16 to .54 (Spielberger, Gorsuch, & Lushene, 1970). This would be expected for the A-State measure as one would expect situational factors to play a prominent role in the A-State score.

Internal consistency estimates for scores on the STAI (Form X) (Spielberger, Gorsuch, & Lushene, 1970) have also been shown to be equally as high. Alpha coefficients for the STAI scales were computed by formula K-R 20, as modified by Cronbach's (1951) formula, to analyze data collected from 190 male and 187 female high school students (Spielberger, Gorsuch, & Lushene, 1970). The reliability coefficients ranged from .86 to .92 for A-Trait anxiety scores indicating adequate reliability. Further evidence of the internal consistency of the STAI scales is provided by item-remainder correlations computed for the samples of high school and college students. The median A-Trait item-remainder correlation was .54 for the high school students. For over half the items on each scale, the item-remainder correlations were .50 or higher; all but one A-Trait item had item-remainder correlations of .30 or above.

Validity. Correlations between scores on the STAI (Form X) (Spielberger, Gorsuch, & Lushene, 1970) and scores on the IPAT Anxiety Scale (Cattell & Sheier, 1963), the Taylor (1953) Manifest Anxiety Scale (TMAS), and the Zuckerman (1960) Affect Adjective Checklist (AACL), General

Form, are .75, .80, and .52, respectively. It appears reasonable to assume that the three scales can be considered as alternate measures of A-Trait. In contrast, the AACL, General Form, is only moderately correlated with the other A-Trait measures (.57 to .53).

Correlations between the A-State and A-Trait Scales range from .44 to .55 when the STAI was given with standard instructions to four different samples of female undergraduate students (N=126). The correlations between the scales for males (N=80) in these samples varied between .51 and .67. The consistent finding that correlations between the scales are typically higher for males than females suggest that high A-Trait males are generally more prone to experience anxiety states than are high A-trait women. Changes in A-State evoked by threats of physical danger are apparently unrelated to level of A-Trait (Hodges, 1967; Hodges & Spielberger, 1966; Lamb, 1969). The mean A-Trait and A-State scores of clients (162 undergraduate clients at Florida State University Counseling Service) with emotional problems were significantly ($p < .05$) higher than those of clients with educational-vocational problems. For both groups of clients, significant positive correlations were obtained between the A-Trait scale and Jackson's (1967) Personality Research Form (PRF), Aggression and Impulsivity scales. In addition, there was a significant negative correlation with the PRF Endurance scale.

Significant negative correlations were found between scores on the STAI A-Trait scale and the PRF Affiliation, Dominance, Nurturance, and Order scales for the clients with emotional problems, but no relationships were found between scores on these scales and A-Trait for clients with educational-vocational problems. There was, however, a significant positive correlation between the PRF Social Recognition scale and A-Trait for clients with educational-vocational problems. The alpha coefficients were not reported.

Correlations of the STAI scales with subscales of the Edwards (1954) Personal Preference Schedule (EPPS) for 43 undergraduate students found only the EPPS Abasement scale correlated .40 with the A-Trait scale. The Hostility scale of the Multiple Adjective Checklist (MAACL) (Zuckerman, 1960) correlated .42 with the A-Trait scales. Thus the A-TRAIT scale was independent of all of the personality dimensions measured by the EPPS except for Abasement, and the positive correlation between the A-Trait scale and the EPPS Abasement scale was consistent with the finding that both of these scales were positively correlated with hostility as measured by the MAACL.

The relationship between the STAI and measures of academic aptitude and achievement was determined for a sample of over 1200 entering freshmen at Florida State University. The correlation of the A-Trait scale with each

measure were close to zero, indicating the STAI (Form X) (Spielberger, Gorsuch, & Lushene, 1970) scores and achievement of college students are not related.

Correlations between scores on the STAI scales and on the Minnesota Multiphasic Personality Inventory for hospitalized male neuropsychiatric patients from two veteran's hospitals ($N = 129$, $N = 79$) were examined by Spielberger, Gorsuch, and Lushene, (1970). The mean A-Trait scores for the two population samples were significantly ($p < .05$) different. These findings also indicated that a higher number of medical problems are associated with higher trait anxiety scores.

Gaudry, Vagg, and Spielberger (1975) gave 345 high school females, whose mean age was 15 years, the STAI (Spielberger, Gorsuch, & Lushene, 1970), Test Anxiety Scale (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960), and the Otis (Form C) Intelligence Scale. There were three levels of stress under which subjects completed the questionnaires. Results were factor analyzed, using a principle axis solution with squared multiple correlations as estimates of communalities. Results indicated support for the state-trait distinction in adolescent anxiety research. The correlations between scores on the A-State factors and the A-Trait factors ranged from .31 to .38, which are similar to what Spielberger, Gorsuch, and Lushene (1970) reported for adults.

Description of the Procedures

Prior to the study the assistant principal of the high school distributed to all potential subjects in each World History classroom a general description of the study and an Informed Consent Form (see Appendix A). The general description included information about the adolescents' rights regarding participation as human subjects, information indicating that participation was voluntary, that it could be discontinued at any time without penalty, and that all responses were anonymous. At no time were subjects asked to put names on any of the materials nor were names kept on any record for coding purposes. The adolescents were asked to take the form home and obtain their parents' signatures if they wished to participate. If the parents gave approval for their child to participate, the adolescent then indicated their willingness to participate by signing the Informed Consent Form below their parents signature. The parents' and adolescents' signatures indicated they were informed of the voluntary nature of the study, their right to withdraw, and the strict anonymity of all answers. The adolescents and/or parents could indicate their interest in obtaining more information about the study by providing their names and addresses at the bottom of the Informed Consent Form. A written summary of the final results was mailed to them after completion of the study.

A graduate student assistant asked for volunteers from only those students whose parents signed the consent form. The graduate student read verbatim the instructions for the research study (see Appendix D). Data was then collected during the first 40 to 50 minutes of each class period and classes were monitored by the graduate student to insure there was no talking between subjects.

After the graduate student read the instructions, the subjects filled out the demographics inventory (see Appendix B), the AAIS (see Appendix C), the AEQ-A (Goldman, Brown, & Christiansen, in press), and the STAI (Form X) (Spielberger, Gorsuch, & Lushene, 1970) in randomized order. The subjects took an average of 25 minutes to complete the questionnaires. The researcher then debriefed the subjects regarding the purpose of the study and what could be learned from this information. This phase of data collection satisfied a policy of the high school requiring that all research activities involving students help educate the students regarding the importance of research.

Analysis of the Data

This study included the three independent variables of adolescents' attitude towards alcohol, amount of trait anxiety (STAI-Form X) (Spielberger, Gorsuch, & Lushene, 1970), and expectation of tension reduction (AEQ-A-Scale 7) (Goldman, Brown, & Christiansen, in press). The level of alcohol involvement was the dependent variable. The data

were analyzed using a standard multiple regression analysis. An alpha level of .05 was established for the study.

There are several important assumptions required for a multiple regression analysis to be used. First, the characteristics being measured must be assumed to be normally distributed. Secondly, the relationship between the independent and dependent variables must be assumed to be linear. The final required assumption is homoscedasticity, or equal variability of error of predicted dependent variable scores throughout the range of the scores.

To insure these assumptions were met the study consisted of a large sample of subjects ($N=206$). This large sample helped to insure the characteristics being measured, primarily, trait anxiety, expectation of tension reduction, attitude towards alcohol and use of alcohol were normally distributed. Second, a large sample helped insure a power of .80, assuming a medium effect size, the use of an alpha level of .05, and a two-tailed research hypothesis (Cohen & Cohen, 1983). Third, several statistics were run on the data to check for linearity and homoscedasticity. This helped insure that the error of predicted dependent variable scores was equal throughout the range of scores.

Summary

In summary, subjects for this study were 206 high school students. Procedures for the administration of the instruments and collection of the data were discussed. The

instruments used in this study and subsequently discussed in this chapter include: Adolescent Alcohol Involvement Scale, State-Trait Anxiety Inventory-Form X (Spielberger, Gorsuch, & Lushene, 1970), and Alcohol Expectations Questionnaire-Adolescent Form (Goldman, Brown, & Christiansen, in press). In addition, a demographics inventory was used to measure adolescents' attitude towards alcohol. A description of the statistical procedures used to analyze the data was provided and the hypothesis for the study was stated.

CHAPTER IV

RESULTS

This chapter of the dissertation will deal with the results of the study. The chapter is divided into three sections consisting of a brief explanation of the statistical procedures, a review of the research question, and the results. Several tables are presented to facilitate a thorough conceptualization of the results.

A standard multiple regression procedure was used to analyze the data. Subsequent to the analysis, the assumptions underlying a standard multiple regression were tested using the residual statistics. An inspection of the standardized scatterplot of the residuals indicated the assumption of homoscedasticity was satisfied for this data. Second, inspection of the standardized residuals indicated the assumption of normality was also satisfied. Finally, inspection of the histogram revealed a normal distribution of scores, therefore, the data was not severely skewed. Since no aberrations were found, it was not necessary to transform the data.

This study included three independent variables and the data were analyzed using a standard multiple regression

analysis. An alpha level of .05 was established for the study. The independent variable of attitude towards alcohol was operationalized as a one item question on the demographics inventory. The amount of trait anxiety was operationalized as the score on the STAI and expectation of tension reduction was operationalized as the score on Scale 7 of the AEQ-A. The dependent variable was operationalized as the score on the AAIS. The age range was restricted to 17 through 18 year old adolescents to control for the potential confounding influence of age with the independent variables.

Research Hypothesis

The research hypothesis investigated in this study was: There is a significant relationship among the independent variables of adolescents' attitude towards the use of alcohol, level of trait anxiety as measured by the STAI (FORM X), expectation that alcohol will reduce their tension level as measured by the AEQ-A (Scale 7), and the dependent variable of amount of alcohol use\misuse as measured by the AAIS.

In order to test this hypothesis, a standard multiple regression was performed on the 206 completed protocols. The means and standard deviations of the three independent variables are reported in Table 1. The dependent variable, level of alcohol misuse, had a mean of 34.636 and a standard deviation of 13.275.

Table 1

Means and Standard Deviations of Independent Variables

N = 206

VARIABLE	MEAN	STANDARD DEVIATION
Attitude	2.90	1.031
Tension Reduction	8.30	3.552
Trait Anxiety	47.19	5.116

The breakdown of subjects according to AAIS categories are reported in Table 2. The distribution of subjects across the AAIS categories indicates 63% of the sample had no problems with alcohol. However, 29% scored in the misuser category and 2% scored in the alcoholic-like category. Finally, 6% indicated they did not drink.

Table 2

Frequency Distribution of Subjects on AAIS Categories

	Nondrinker (AAIS=0)	Nonproblem Drinker (1-41)	Misuser (42-57)	Alcoholic-like drinker (58-79)
N =	13	130	59	4

The Pearson r correlation coefficients calculated between the three independent variables of attitude towards

alcohol, expectation of tension reduction, and level of trait anxiety and the dependent variable of level of alcohol misuse are reported in Table 3.

Table 3

Correlation Matrix

N = 206

	I	II	III	IV
I. Attitude	1.000			
II. Level of alcohol misuse	-.601***	1.000		
III. Tension Reduction	-.196*	.271**	1.000	
IV. Trait Anxiety	.052	.115*	.088	1.000

* $p < .05$.

** $p < .01$.

*** $p < .001$.

The results indicate the independent variables are not significantly intercorrelated with the exception of tension reduction and attitude. However, attitude, trait anxiety, and expectation of tension reduction are each significantly ($p < .05$) correlated with the level of alcohol misuse.

An examination of the multiple regression analysis results indicates that the independent variables of attitude towards alcohol, level of trait anxiety, and expectation of tension reduction are significantly related to alcohol misuse ($F = 45.43$, $df = 3/202$, $p < .001$). The regression analysis further reveals that a linear additive combination

of the independent variables account for 40% of the variance in level of alcohol misuse ($R = .63$).

The summary results of the multiple regression analysis are reported in Table 4. In terms of each independent variable, when the variance accounted for by expectation of tension reduction and trait anxiety are controlled, the adolescents' attitudes towards alcohol accounts for 34% of the variance in alcohol misuse and is statistically significant ($t = -10.42$, $df=204$, $p<.001$). When the variance accounted for by attitude towards alcohol and trait anxiety are controlled, expectation of tension reduction accounts for an additional 3% of the variance in alcohol misuse and is statistically significant ($t = 2.63$, $df=204$, $p<.009$). When the variance accounted for by attitude towards alcohol and expectation of tension reduction are controlled, the level of trait anxiety accounts for an additional 3% of the variance and is also statistically significant ($t = 2.42$, $df=204$, $p<.02$). These results indicate that of the three independent variables investigated in this study, adolescents' attitudes are the most strongly related to their level of alcohol misuse. The level of trait anxiety and expectation of tension reduction also enter the regression in that order as significant predictors of adolescents' reported alcohol misuse.

Table 4

Summary of the Multiple Regression Analysis Results of Level of Alcohol Misuse

Independent Variables			
	Attitude	Tension Reduction	Trait Anxiety
B	-7.45	.55	.34
Standard Error of B	.71	.21	.14
BETA	-.58	.15	.13
Standard Error of Beta	.06	.06	.05
Partial Correlation	-.59	.18	.17
t	-10.42***	2.63**	2.42*
* $p < .05$ ** $p < .01$ *** $p < .001$			

Summary

The hypothesis investigated in this study was whether adolescents' attitude towards alcohol, level of trait anxiety, and expectations of tension reduction are significantly related to level of alcohol misuse. Results of the analyses indicate that adolescents who approve of drinking alcohol are significantly ($p < .001$) more likely to report higher levels of alcohol misuse, and, adolescents who expect alcohol to reduce tension and promote relaxation are significantly ($p < .01$) more likely to report higher levels of alcohol misuse. Furthermore, adolescents with higher levels

of trait anxiety are significantly ($p < .05$) more likely to report higher levels of alcohol misuse use. Finally, the regression analysis reveals that a linear additive combination of attitude towards alcohol, level of trait anxiety, and expectations for tension reduction account for 40% of the variance in level of alcohol misuse ($R = .63$).

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study was designed to clarify the relationship between several important factors relating to adolescent alcohol problems. The hypothesis of this study was: an adolescent's attitude towards alcohol, level of trait anxiety, and the belief that alcohol will reduce tension are significantly related to the adolescent's level of self-reported alcohol misuse.

The literature review of the studies of adolescent alcoholism suggest that the age at which alcohol was first used and the adolescent's attitudes towards alcohol appear to be the two background factors most predictive of adolescent alcohol misuse. Furthermore, prior research suggested that people who misuse alcohol were more likely to report increased levels of anxiety. However, prior research has also found that there are mediating influences on this relationship. The cognitive expectations of the adolescent alcohol user appear to be important mediating variables in determining whether the alcohol was experienced as relaxing.

The research further suggested a consistent relationship between alcohol expectancies and the misuse of alcohol. One such expectancy was the expectation that alcohol will reduce tension and promote relaxation. Lastly, research supported combining alcohol expectancies with existing demographic variables to improve the prediction of adolescent problem drinking.

This study involved 206, 17 through 18 year old student volunteers, obtained from a large midwestern highschool. The sample was primarily Caucasian with equal numbers of males and females. The instruments used to collect data were the Adolescent Alcohol Involvement Scale, the State-Trait Anxiety Inventory-Form X (Spielberger, Gorsuch, & Lushene, (1970), and the Alcohol Expectations Questionnaire-Adolescent Form (Goldman, Brown, & Christiansen, in press). In addition, a demographics inventory was created to obtain data relative to gender, age, race and attitude towards alcohol. The statistical analysis of the data was calculated using a standard multiple regression procedure and an alpha level of .05. The independent variables were attitude towards alcohol, level of trait anxiety, and expectation of tension reduction. The dependent variable was level of alcohol misuse.

In summary, a significant relationship was calculated between adolescents' attitudes towards alcohol, levels of trait anxiety, and expectations of tension reduction. When

the attitudes towards alcohol, levels of trait anxiety, and expectations for tension reduction are combined, they account for 40% of the variance in level of alcohol misuse.

Conclusions

The statistical analysis indicated that when adolescents approved of drinking alcohol, reported high levels of anxiety, and expected alcohol to reduce this anxiety, they were much more likely to misuse alcohol. The adolescent's attitude towards alcohol was by far the single most important variable of the three independent variables accounting for 34% of the unique variance in level of alcohol misuse. The level of trait anxiety accounted for 3% of the unique variance associated with alcohol misuse. While this was statistically significant, in practical terms this information was not as helpful as asking the simple question: do you approve of drinking alcohol? In addition, the adolescent expectation for alcohol to reduce level of tension and promote relaxation was also significantly related to alcohol misuse, accounting for 3% of the variance. Clearly, the results indicated that asking an adolescent whether they approve of drinking alcohol can significantly aid in determining the likelihood of problem drinking. To a lesser degree, if adolescents report high levels of trait anxiety, they are more likely to report misuse of alcohol. Finally, if adolescents expect alcohol

to relax them, they are more likely to report misuse of alcohol.

The adolescent's attitude towards alcohol was assessed through one question asking the adolescent how strongly he/she approved of drinking. Caution should be used when interpreting these results. Results could be quite different if a more reliable measure of attitude were used. Second, the question of attitude and alcohol use is circular. Whether attitude affects alcohol use or alcohol use affects attitude needs to be explored through research. This study indicates only that the two are related.

This study was relatively unique in that it investigated the inter-relationship of biological factors (trait anxiety) and cognitive factors (expectation of tension reduction and attitude). This follows current logic developed through research findings indicating that the development of alcohol related problems is a multi-dimensional problem.

The findings of this study are consistent with Christiansen and Goldman's (1983) study which indicated that for frequent drinkers, the adolescents' attitude towards alcohol accounted for 30% of the variance. The present study demonstrated that when adolescents approve of drinking they are significantly more likely to report alcohol misuse.

This study is also consistent with several findings relating alcohol problems to anxiety in adults. Ludenia, Donham, Holzer, & Sands, (1984) found a significant ($p < .001$) reduction in state and trait anxiety for 219 alcoholics admitted to a hospital for treatment. Bibb and Chambless (1986) found that the alcoholic agoraphobics were more likely than their nonalcoholic counterparts to have used alcohol for a variety of instrumental purposes, including to control anxiety.

Finally, this study is consistent with current research indicating that expectancies are significantly related to the development of alcohol problems. Christiansen and Goldman (1983) found alcohol-related expectancies add to the predictive power of demographic variables in estimating adolescent drinking patterns. Southwick, Steele, Marlatt, and Lundell's (1981) results indicated that heavier drinkers expected greater stimulation/perceived dominance (ie. aggressiveness, alertness) and pleasurable disinhibition (ie. relaxation, security) during moderate intoxication.

Furthermore, Rohsenow's (1983) study of adults reports that moderate and heavy drinkers expected a reduction in tension more than did light drinkers. In addition, the expectation of tension reduction was a factor in the development of alcohol problems reported by Brown (1985b), indicating the strongest predictor of problem drinking for adults was the tension reduction expectancy.

Recommendations for Clinicians

This study has important implications for clinicians and others when working with adolescents. When working with adolescents, it is important to ascertain their attitude towards drinking alcohol. Second, it is important to ascertain the levels of anxiety that adolescents experience and to determine if they expect alcohol to help them relax. The reinforcing effects of tension reduction may result in an adolescent being at risk for early problematic drinking. Further, as alcohol use continues, the anticipation of tension reduction could be an important contributing factor in the development of abusive drinking patterns.

Since these results indicate adolescents' attitudes towards the use of alcohol correlate with the misuse of alcohol, an area of prevention would include addressing these attitudes before they become crystallized. These attitudes may be based upon false information and providing adolescents with the facts regarding misuse of alcohol might help them develop more appropriate attitudes towards the use of alcohol. Finally, prevention efforts need to be focused on helping adolescents gain coping skills to deal with anxiety and offering alternatives to alcohol for tension reduction. Many of these prevention efforts could be designed through the education process. Adolescents could be given accurate information, offered courses in alcohol

awareness, and parents given information through PTA and other school related organizations.

Recommendations for Future Research

The age range was restricted in this study to adolescents between the ages of 17 and 18 years of age. There may be significant differences between adolescents who are younger or older. The level of anxiety may be significantly different and play a different role in terms of expectations towards alcohol. The younger adolescents may have different attitudes towards the use of alcohol. Future research could replicate this study with adolescents of different age ranges.

The expectation of tension reduction was the only expectation considered in this study. There are six other expectations which could be analyzed in future research. These include expectations that alcohol is a powerful agent that makes global positive transformations, alcohol can enhance or impede social behavior, alcohol improves cognition and motor abilities, alcohol enhances sexuality, alcohol leads to deteriorated cognitive and behavioral function, and alcohol increases arousal. These expectations may play an important role in the prediction of alcohol misuse.

Further research needs to be conducted about the development of attitudes towards alcohol. These attitudes are potent predictors of alcohol problems and the factors

which contribute to these attitudes developing would surely be worthwhile to understand.

Finally, research needs to be conducted regarding the impact of education on the attitudes, expectations, and reduction of anxiety and alcohol use. This study indicates that adolescents who approve of alcohol are more likely to report problem drinking. The impact of education on this attitude and on problem drinking needs to be examined. Future studies could also compare the impact of several intervention programs using a control group to investigate the relative effectiveness of the programs.

In future replications of this study it is also recommended that a sample representing a wider diversity of cultures be used. In addition, objective measures of anxiety could be measured in conjunction with self-report of anxiety in the adolescent.

In summary, this study has helped clarify factors relating to adolescent alcohol abuse. The abuse of alcohol continues to be an important societal concern and further research should build upon this study by considering the role of attitudes, expectations, and anxiety in prevention and intervention programs for adolescents.

REFERENCES

- Adams, J. K. (1982). Familial antecedents of alcoholism and gender perception among alcoholics (Doctoral dissertation, University of Nebraska-Lincoln, 1982). Dissertation Abstracts International, 43, 860b-861b.
- Bandura, A. (1986). Social foundations of thought and action. Englewood Cliffs, NJ: Prentice-Hall.
- Barnes, G. E. (1979). The alcoholic personality: A reanalysis of the literature. Journal of Studies on Alcohol, 40, 571-634.
- Barnes, G. E. (1979). The alcoholic personality: A reanalysis of the literature. Journal of Studies on Alcohol, 40, 571-634.
- Beck, K. H. (1988). Psychosocial patterns of alcohol abuse in a college population. Journal of Alcohol and Drug Education, 28, 64-72.
- Benson, C. S., & Wilsnack, S. C. (1983). Gender differences in alcoholic personality characteristics and life experiences. In W. M. Cox (Ed.), Identifying and measuring alcoholic personality characteristics (pp. 53-68). San Francisco: Jossey-Bass.
- Berkowitz, A. D., & Perkins, H. W. (1986). Problem drinking among college students: A review of recent research. Journal of American College Health, 35, 21-28.
- Bibb, J. L., & Chambless, D. L. (1986). Alcohol use and abuse among diagnosed agoraphobic. Behavioral Research Therapy, 24(2), 49-58.
- Blane, H. T., & Leonard, K. E. (1987). Psychological theories of drinking and alcoholism. New York: Guilford.
- Blum, E. M. (1966). Psychoanalytic reviews of alcoholism. Quarterly Journal of Studies on Alcoholism, 27, 259-299.

- Brennan, A. F., Walfish, S., & AuBuchon, P. (1986). Alcohol use and abuse in college students. I. A review of individual and personality correlates, The International Journal of the Addictions, 21, (4 & 5), 449-474.
- Brown, S. A. (1985a). Context of drinking and reinforcement from alcohol: Alcoholic patterns. Addictive Behaviors, 10, 191-195.
- Brown, S. A. (1985b). Expectancies versus background in the prediction of college drinking patterns. Journal of Consulting and Clinical Psychology, 53(1), 123-130.
- Brown, S. A. (1985c). Reinforcement expectancies and alcoholism treatment outcome after a one-year follow-up. Journal on the Studies of Alcohol, 46(4), 304-308.
- Brown, S. A., Christiansen, B. A., & Goldman, M. S. (1987). The Alcohol Expectancy Questionnaire: An instrument for the assessment of adolescent and adult alcohol expectancies. Journal of Studies on Alcohol, 48(5), 483-491.
- Brown, S. A., Creamer, V. A. & Stetson, B. A. (1987). Adolescent alcohol expectancies as a function of personal and parental drinking patterns. Journal of Abnormal Psychology, 96, 121-177.
- Brown, S. A., Goldman, M. S., & Christiansen, B. A. (1985). Do alcohol expectancies mediate drinking patterns of adults? Journal of Consulting and Clinical Psychology, 53(4), 512-519.
- Brown, S. A., Goldman, M. S., Inn, A., & Anderson, L. R. (1980). Expectations of reinforcement from alcohol: Their domain and relation to drinking patterns. Journal of Consulting and Clinical Psychology, 48(4), 419-426.
- Butcher, J. N., & Owen, P. L. (1978). Objective personality inventories: Recent research and some contemporary issues. In B.B. Wolman (Ed.), Clinical Diagnosis of Mental Disorders: A Handbook, 475-545, New York: Plenum Press.
- Cappell, H., & Herman, P. C. (1972). Alcohol and tension reduction. Quarterly Journal of Studies on alcohol, 33, 33-64.
- Cattel, R. B., & Sheier, I. H. (1963). Handbook for the IPAT Anxiety Scale (2nd Edition). Champaign, Illinois: Institute for Personality and Ability Testing.

- Christiansen, B. A., & Goldman, M. S. (1983). Alcohol related-expectancies versus demographic/background variables in the prediction of adolescent drinking. Journal of Consulting and Clinical Psychology, 51(2), 249-257.
- Christiansen, B. A., Goldman, M. S., & Inn, A. (1982). Development of alcohol-related expectancies in adolescents: Separating pharmacological from social-learning influences. Journal of Consulting and Clinical Psychology, 50(3), 336-344.
- Christiansen, B. A., Smith, G. T., Roehling, P. V. & Goldman, M. S. (1989). Using alcohol expectancies to predict adolescent drinking behavior after one year. Journal of Consulting and Clinical Psychology, 57, 93-97.
- Claridge, G. (1970). Drugs and human behavior. Baltimore, Md.: Penguin Books.
- Clopton, J. R. (1978). Alcoholism and the MMPI: A review. Journal on Studies of Alcohol, 39, 1540-1558.
- Conger, J. J. (1956). Alcoholism: Theory, problem and challenge II. Reinforcement theory and the dynamics of alcoholism. Quarterly Journal of Studies on Alcohol, 17, 296-305.
- Conley, J. J. (1981). An MMPI typology of male alcoholics: Admission, discharge, and outcome comparisons. Journal of Personality Assessment, 45, 33-39.
- Cox, W. M. (1983). Identifying and measuring alcoholic personality characteristics. San Francisco: Jossey-Bass.
- Cox, W. M. (1985). Personality correlates of substance abuse: In M. Galizio & S. A. Maisto (Eds.), Determinants of substance abuse: Biological, psychological, and environmental factors (pp. 209-246).
- Cox, W. M. (1987). Personality theory and research. In H. T. Blane & K. E. Leonard (Eds.), Psychological theories of drinking and alcoholism (pp. 55-89). New York: Guilford.
- Crawford, A. (1984). Alcohol and expectancy. I. Perceived sex differences in the effects of drinking. Alcohol and Alcoholism, 19, 63-69.

- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of test. Psychometrika, 16, 297-335.
- Donham, G. W., Ludenia, K., Sands, M. M. & Holzer, P. D. (1984). Cross-validation of the State-Trait Anxiety Inventory with an alcoholic population. Journal of Clinical Psychology, 40(2), 629-631.
- Donovan J. E. & Jessor, R. (1985). Structure of problem behavior in adolescence and young adulthood. Journal of Consulting and Clinical Psychology, 53, 890-904.
- Donovan, J. E., Jessor, R., & Jessor, S. L. (1983). Problem drinking in adolescence and young adulthood. A follow-up study. Journal of Studies on Alcohol, 44, 109-137.
- Donovan, J. M. (1986). An etiological model of alcoholism. American Journal of Psychiatry, 143, 1-11.
- Downs, W. D. & Robertson, J. F. (1982). Adolescent alcohol consumption by age and sex of respondent. Journal of Studies on Alcohol, 43, 1027-1032.
- Edwards, A. L. (1954). Manual: Edwards Personal Preference Schedule. New York: Psychological Corp.
- Finney, J. W., Moos, R. H., & Mewborn, C. R. (1980). Posttreatment experiences and treatment outcome of alcoholic patients six months and two years after hospitalization. Journal of Consulting and Clinical Psychology, 48, 17-29.
- Gaudry, E., Vagg, P., & Spielberger (1975). Validation of the State-Trait Distinction in Anxiety Research. Multivariate Behavioral Research, July, 331-341.
- Goldman, M. S., Brown, S. A., & Christiansen, B. A. (in press). Manual for the Alcohol Expectancy Questionnaire. Odessa, Fl.: Psychological Assessment Resources.
- Goldman, M. S., Brown, S. A., & Christiansen, B. A. (1987). Expectancy theory: Thinking about drinking. In Blaine, H.T. and Leonard, K.E. (Eds) Psychological theories of drinking and alcoholism, New York: The Guilford Press, 181-220.
- Graham, J. R. & Strenger, V. E. (1988). MMPI characteristics of alcoholics: A review. Journal of Consulting and Clinical Psychology, 56(2), 197-203.

- Helzer, J. E. (1987). Epidemiology of alcoholism. Journal of Consulting and Clinical Psychology, 55(3), 284-292.
- Hewitt, C. C. (1943). A personality study of addiction. Quarterly Journal of Studies on Alcohol, 4, 368-386.
- Hewitt, C. C. (1943). A personality study of addiction. Quarterly Journal of Studies on Alcohol, 4, 368-386.
- Hill, F. E., & Bugen, L. A. (1979). A survey of drinking behavior among college students. Journal of College Student Personnel, 20, 236-243.
- Hodges, W. F. (1967). The effects of success, threat of shock and failure on anxiety. (Unpublished doctoral dissertation, Vanderbilt University), Ann Arbor, Michigan: University Microfilms, No. 68-5388.
- Hodges, W. F. & Spielberger, C. D. (1966). The effects of threat of shock on heart rate for subjects who differ in manifest anxiety and fear of shock. Psychophysiology, 2, 287-294.
- Jackson, D. N. (1967). Personality Research Form Manual. Goshen, New York: Research Psychologist Press, Inc.
- Jacob, T., Favorini, A., Meisel, S., & Anderson, C. (1978). The spouse, children, and family interactions of the alcoholic: Substantive findings and methodological issues. Journal of Studies on Alcohol, 39, 1231-1251.
- Jessor, R. (1983). The stability of change: Psychosocial development from adolescence to young adulthood. In D. Magnusson & V. Allen (Eds.), Human development: An interactional perspective (pp. 321-241). New York: Academic.
- Jessor, R., Graves, R., Hansen, R., & Jessor, S. L. (1968). Society, personality, and deviant behavior. New York: Holt.
- Jessor, R. & Jessor, S. L. (1975). Adolescent development and the onset of drinking: A longitudinal study. Journal of Studies on Alcohol, 36, 27-51.
- Jessor, R. & Jessor, S. L. (1977). Problem behavior and psychosocial development: A longitudinal study of youth. New York: Academic.

- Johnston, L. D., O'Malley, P. M. & Bachman, J. G. (1985). Drug use among american high school students, college students, and other young adults: National trends through 1985. National Institute on Drug Abuse, U.S. Department of Health and Human Services, Public Health Services, Alcohol, Drug Abuse, and, Mental Health Administration
- Jones, M. C. (1968). Personality correlates and antecedents of drinking patters in adult males. Journal of Consulting and Clinical Psychology, 32, 2-12.
- Kellam, S. G., Brown, C. H., Rubin, B. R., & Emsminger, M. E. (1983). Paths leading to teenage psychiatric symptoms and substance use: Developmental epidemiological studies in Woodlawn. In S. B. Guze, F. J. Earls, & J. E. Barrett (Eds.). (1980). Childhood psychopathology and development (pp. 17-51). New York: Raven.
- Lamb, D. H. (1969). The effects of public speaking on self-report, physiological, and behavioral measures of anxiety. Unpublished doctoral dissertation, Florida State University.
- Lang, A. R., Goeckner, D. J., Adesso, V. J., & Marlatt, G. A. (1975). The effects of alcohol on aggression in male social drinkers. Journal of Abnormal Psychology, 84, 508-519.
- Lang, A. R., Kaas, L., & Barnes, P. (1983). The beverage type stereotype: An unexplored determinant of the effects of alcohol consumption. (Bulletin), Social Psychology of Addictive Behavior, 2, 46-49.
- Lemert, E. M. (1956). Alcoholism: Theory, problem, and challenge III. Alcoholism and the sociocultural situation. Quarterly Journal of Studies on Alcohol, 17, 306-317.
- Lex, B. W. (1987). Review of Alcohol problems in ethnic minority groups. Journal of Consulting and Clinical Psychology, 55(3), 293-300.
- Liebowitz, M. R., Gorman, J. M., Fyer, A. J., & Klein, D. F. (1985). Social phobia: Review of a neglected anxiety disorder. Archives of General Psychiatry, 42, 729-736.
- Ludenia, K., Donham, G. W., Holzer, P. D., & Sands, M. M. (1984). Anxiety in an alcoholic population: A normative study. Journal of Clinical Psychology, 40(1), 356-358.

- MacAndrew, C. (1981). What the MAC scale tells us about alcoholics: An interpretive view. Journal of Studies on Alcohol, 42, 604-625.
- MacAndrew, C., & Edgerton, R. B. (1969). Drunken comportment. Chicago: Aldine.
- Machover, S., & Puzzo, F. S. (1959). Clinical and objective studies of personality variables in alcoholism: I. Clinical investigation of the "alcoholic personality." Quarterly Journal of Studies on Alcohol, 20, 505-527.
- Margulies, R. Z., Kessler, R. C. & Kandel, D. B. (1977). A longitudinal study of onset of drinking among highschool students. Journal of Studies on Alcohol, 38(5), 897-912.
- Marlatt, G. A. & Gordon, J. R. (1980). Determinants of relapse: Implications for the maintenance of behavior change. In: Davidson, P. O. & Davidson, J. (Eds.) Behavioral Medicine: Changing Health Lifestyles (pp. 410- 452), New York: Brunner-Mazel, Inc.
- Marlatt, G. A. & Rohsenow, D. J. (1980). Cognitive processes in alcohol use: Expectancy and the use of the balanced placebo design. In N. K. Mello (Eds.), Advances in substance abuse: Behavioral and biological research (pp. 159-199). Greenwich, CT: IAI Press.
- Mayer, J. & Filstead, W. I. (1979). The Adolescent Alcohol Involvement Scale: An instrument for measuring adolescents' use and misuse of alcohol. Journal of Studies on Alcohol, 40, 291-300.
- Mayo, M. A. (1985). A comparison of MMPI diagnostic strategies to identify black and white male alcoholics. (Doctoral Dissertation, Kent State University, 1984). Dissertation Abstracts International, 45, 3340B.
- McCord, W., & McCord, J. (1962). A longitudinal study of the personality of alcoholics. In D. J. Pittman & C. R. Snyder (Eds.), Society, culture and drinking patterns, (pp. 413-430). New York: John Wiley.
- McKenna, T. (1986). MMPI assessment of personality factors in alcoholism: 10 year stability of the original vs. the revised version of the MMPI. Unpublished doctoral dissertation, University of Minnesota, Minneapolis.
- McKenna, T., & Pickens, R. (1981). Alcoholic children of alcoholics. Journal of Studies on Alcoholism, 42, 1021-1029.

- McLaughlin Mann, L., Chassin, L. & Sher, K. L. (1987). Alcohol expectancies and the risk for alcoholism. Journal of Consulting and Clinical Psychology, 55(3), 411-417.
- McNamee, H. B., Mello, N. K., & Mendelson, J. H. (1968). Experimental analysis of drinking patterns of alcoholics: Concurrent psychiatric observations. American Journal of Psychiatry, 124, 1063-1069.
- Mendelson, J. H., LaDou, J., & Solomon, P. (1964). Experimentally induced chronic intoxication and withdrawal in alcoholics: III. Psychiatric findings. Quarterly Journal of Studies on Alcohol, 2, 40-52.
- Miller, W. (1976). Alcoholism scales and objective assessment methods. A review. Psychological Bulletin, 83(4), 649-674.
- Moberg, P. D. (1983). Identifying adolescents with alcohol problems. Journal of the Studies on Alcohol, 44(4), 701- 721.
- Morey, L. C., & Blashfield, R. K. (1981). Empirical classification of alcoholism: A review. Journal of Studies on Alcoholism, 42, 925-937.
- Nathan, P. E., & O'Brien, J. S. (1971). An experimental analysis of the behavior of alcoholics and nonalcoholics during prolonged experimental drinking: A necessary precursor of behavior therapy? Behavior Therapy, 2, 455-476.
- Nerviano, V. J. & Gross, H. W. (1983). Personality types on objective inventories: A review. Journal of Studies on Alcohol, 44, 837-862.
- Penk, W. E. (1981). Assessing substance abuse with the MMPI. In Butcher, G. Dahlstrom, M. Gynther, & W. Schofield (Eds.), Clinical notes on the MMPI, 7, Minneapolis: National Computer Systems.
- Pliner, P. & Cappell, H. (1974). Modification of affective consequences of alcohol: A comparison of social and solitary drinking. Journal of Abnormal Psychology, 83, 418-425.
- Polivy, P., & Herman, C. P. (1976). The effects of alcohol on eating behavior: Disinhibition or sedation? Addictive Behaviors, 1, 121-125.

- Polivy, J. Schueneman, A. L. & Carlson, K. (1976). Alcohol and tension reduction: Cognitive and physiological effects. Journal of Abnormal Psychology, 85(6), 595-600. Research Triangle Institute (1988). The National Household Survey on Drug Abuse. The National Institute on Drug Abuse: Washington, D.C.
- Rohsenow, D. J. (1983). Drinking habits and expectancies about alcoholic effects for self versus others. Journal of Consulting and Clinical Psychology, 51(5), 752-756.
- Roizen, R. (1983). Loosening up: General population views of the effects of alcohol. In: Room, R. & Collins, G. (Eds.), Alcohol and disinhibition: Nature and meaning of the link. NIAAA Research Monograph, 12, DHHS Publication No. (ADM) 83-1246, Washington: Government Printing Office (pp. 236-257).
- Rubington, E. (1972). The hidden alcoholic. Quarterly Journal of Studies on Alcohol, 33, 667-683.
- Russell, J. A. & Mehrabian, A. (1975). The mediating role of emotions in alcohol use. Journal of Studies on Alcohol, 36, 1508-1536.
- Sanford, N. (1968). Personality patterns of alcohol consumption. Journal of Consulting and Clinical Psychology, 32, 13-17.
- Sarason, S. B., Davidson, K. S., Lightfall, F. F., Waite, R. R., & Ruebush, B. K. (1960). Anxiety in elementary school children. New York: Willey.
- Schachter, S. & Singer, J. E. (1962). Cognitive, social and physiological determinants of emotional state. Psychological Review, 69, 379-399.
- Schuckit, M. A. (1987). Biological vulnerability to alcoholism. Journal of Consulting and Clinical Psychology, 55(3), 301-309.
- Schwartz, R. M., Burkhart, B. R. & Green, S. B. (1978). Turning on and turning off: Sensation seeking or tension reduction as motivational determinants of alcohol use. Journal of Consulting and Clinical Psychology, 46(5), 1144-1145.
- Southwick, L., Steele, C., Marlatt, A. & Lundell, M. (1981). Alcohol-related expectancies: Defined by phase of intoxication and drinking experience. Journal of Consulting and Clinical Psychology, 49(5), 713-721.

- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). STAI manual for the State-Trait Anxiety Inventory: "Self-Evaluation Questionnaire". Consulting Psychological Press: Palo Alto CA.
- Steffen, J. J., Nathan, P. E., & Taylor, H. A. (1974). Tension-reducing effects of alcohol: Further evidence and some methodological considerations. Journal of Abnormal Psychology, 83, 542-547.
- Strahan, R., & Gerbasi, K. C. (1972). Short, homogeneous versions of the Marlow-Crowne Social Desirability Scale. Journal of Clinical Psychology, 28, 191-193.
- Strange, C. C., & Schmidt, M. R. (1979). College students perceptions of alcohol use and differential drinking behavior. Journal of College Student Personnel, 20, 73-79.
- Sutker, P. B., & Archer, R. P. (1979). MMPI characteristics of opiate addicts, alcoholics, and other drug abusers. In C.E. Newmark (Ed.), MMPI clinical and research trends, 105-148, New York: Praeger.
- Syme, L. (1957). Personality characteristics of the alcoholic: A critique of current studies. Quarterly Journal of Studies on Alcohol, 18, 288-301.
- Tarter, R. E., Jacob, T., Hill, S., Hegedus, A. M., & Carra, J. (1986). Perceptual field dependency: Predisposing trait or consequence of alcoholism? Journal of Studies on Alcohol, 47, 498-499.
- Taylor, J. A. (1953). A personality scale of manifest anxiety. Journal of Abnormal and Social Psychology, 48, 285-290.
- Turner, S. M., Beidel, D. C., Dancu, C. V., & Keys, D. J. (1986). Psychopathology of social phobia and comparison to avoidant personality disorder. Journal of Abnormal Psychology, 95(4), 389-394.
- Weissbach, T. A., Vogler, R. E., & Compton, J. V. (1976). Comments on the relationship between locus of control and alcohol abuse. Journal of Clinical Psychology, 32, 484-486.
- Whaley, A.L. (1986). Cognitive processes in adolescent drug use: The role of positivity bias and implications for prevention policy. The International Journal of the Addictions, 21(3), 393-398.

- Wilkins, W. L. (1956). Alcoholism: Theory, problem, and challenge I. The idea of proneness in relation to alcoholism. Quarterly Journal of Studies on Alcoholism, 17, 291-295.
- Wilson, G. T. (1987). Cognitive studies in alcoholism. Journal of Consulting and Clinical Psychology, 55(3), 325-331.
- Wilson, G. T. & Abrams, D. (1977). Effects of alcohol on social anxiety and physiological arousal: Cognitive versus pharmacological processes. Cognitive Therapy and Research, 1, 195-210.
- Zucker, R. A. (1976). Parental influences on drinking patterns of their children. In M. Greenblatt & M. A. Schuckit (Eds.), Alcoholism problems in women and children (pp. 211-238). New York: Grune & Stratton.
- Zucker, R. A. (1987). The four alcoholisms: A developmental account of the etiologic process. In P. C. Rivers (Ed.), Nebraska Symposium on Motivation, 1986: 34. Alcohol and Addictive Behavior (pp. 27-83). Lincoln, NE: University of Nebraska Press.
- Zucker, R. A., & Barron (1973). Parental behavior associated with problem drinking and antisocial behavior among adolescent males. In Chafetz, M. E. (Ed.), Research on alcoholism I. Clinical problems and special populations (pp. 276-296). Washington, D. C.: Government Printing Office.
- Zucker, R. A., & DeVoe, C. I. (1975). Life history characteristics associated with problem drinking and antisocial behavior in adolescent girls: A comparison with male findings. In R. D. Wirt, G. Winokur, & M. Roff (Eds.), Life history research in psychopathology, (pp. 109-134). Minneapolis: University of Minnesota Press.
- Zucker, R. A., & Fillmore, K. M. (1968). Motivational factors and problem drinking among adolescents. Paper presented at the 28th International Congress on Alcohol and Alcoholism, Washington, D. C.
- Zucker, R. A., & Gomberg, E. S. L. (1986). Etiology of alcoholism reconsidered: The case for a biopsychosocial process. American Psychologist, 41, 783-793.

- Zucker, R. A., & Noll, R. B. (1982). Precursors and developmental influences on drinking and alcoholism: Etiology from a longitudinal perspective. In National Institute on Alcohol Abuse and Alcoholism (Ed.). Alcohol and health monograph no. 1: Alcohol consumption and related problems (DHHS publication No. (ADM) 82-1190, pp. 289-327). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- Zuckerman, M. (1960). The development of an affect adjective check list for the measurement of anxiety. Journal of Consulting Psychology, 24, 457-462.

APPENDIXES

APPENDIX A

INFORMED CONSENT FROM

Dear Parent,

Your child is invited to take part in a research study designed to clarify the reasons adolescent's use alcohol. In allowing your child to participate in this study, he/she will be asked to complete three short questionnaires.

1. Adolescent Alcohol Involvement Scale
2. Alcohol Expectancy Questionnaire
3. State-Trait Anxiety Inventory

Your child's participation is strictly voluntary and he/she may withdraw at any time. However, his/her decision to take the 40-50 minutes to complete the questionnaires will provide valuable information.

All information will be gathered in conformance with American Psychological Association guidelines for human subjects participation. His/her responses will be completely anonymous. No attempt will be made to attach his/her name to responses nor will responses be shared with anyone. The results of this study will only be reported as group data, not individual responses. It is important to understand that no information can be reported to parents since the names are not attached. If you should have any questions about this study or would like to view the questionnaires, please contact Mark Masters at 405-624-8302 or Dr. Brent Snow 744-6036 at Oklahoma State University. You may also contact Terry Maciula, Office of University Research Services, 001 Life Sciences East, Oklahoma State University, Stillwater, Oklahoma, 74078; 744-5700. We appreciate your cooperation and effort.

I have read these instructions and understand my rights. I further understand this sheet will not be attached to any answers.

I agree to allow _____ to participate in this study. (Adolescent's Name)

Signed (Parent)

Date

I _____ would like to participate in study.
(Adolescent's Name)

Signed (Adolescent)

Date

If you want feedback regarding the results of the study when they are available include your mailing address below.

APPENDIX B

DEMOGRAPHICS FORM

DEMOGRAPHICS FORM

WHAT IS YOUR AGE? _____

PLACE A CIRCLE AROUND THE APPROPRIATE RESPONSE TO INDICATE YOUR

SEX AND RACE:

(A) FEMALE

(B) MALE

(A) ASIAN AMERICAN (B) BLACK (C) CAUCASIAN (NOT HISPANIC)

(D) HISPANIC (E) NATIVE AMERICAN (F) OTHER (PLEASE SPECIFY) _____

PLACE A CIRCLE AROUND THE NUMBER THAT BEST DESCRIBES HOW YOU BELIEVE:

HOW STRONGLY DO YOU APPROVE OR DISAPPROVE OF DRINKING ALCOHOL?

(STRONGLY APPROVE)
1 2

3

(STRONGLY DISAPPROVE)
4 5

APPENDIX C

ADOLESCENT ALCOHOL INVOLVEMENT SCALE

ADOLESCENT ALCOHOL INVOLVEMENT SCALE

DIRECTIONS: A number of statements people have given to describe their alcohol use are given below. Read each question carefully and then circle the letter which best describes your use of alcohol. There are no right or wrong answers.

1. How often do you drink?
 - a. never
 - b. once or twice a year
 - c. once or twice a month
 - d. every weekend
 - e. several times a week
 - f. every day
2. When did you have your last drink?
 - a. never drank
 - b. not for over a year
 - c. between 6 months and 1 year ago
 - d. several weeks ago
 - e. last week
 - f. yesterday
 - g. today
3. I usually start to drink because:
 - a. I like the taste
 - b. to be like my friends
 - c. to feel like an adult
 - d. I feel nervous, tense, full of worries or problems
 - e. I feel sad, lonely, or sorry for myself
4. What do you drink?
 - a. wine
 - b. beer
 - c. mixed drinks
 - d. hard liquor
 - e. a substitute for alcohol paint thinner, sterno, cough medicine, mouthwash, hair tonic, etc.
5. How do you get your drinks?
 - a. supervised by parents or
 - b. from brothers or sisters
 - c. from home without parents' knowledge
 - d. from friends
 - e. buy it with false identification relatives
6. When did you take your first drink?
 - a. never
 - b. recently
 - c. after age 15
 - d. at ages 14-15
 - e. between the ages of 10-13
 - f. before age 10
7. What time of day do you usually drink?
 - a. with meals
 - b. at night
 - c. afternoons
 - d. mostly in the morning or when I first awake
 - e. I often get up during my sleep and drink

8. Why did you take your first drink?
 - a. curiosity
 - b. parents or relatives offered
 - c. friends encouraged me
 - d. to feel more like an adult
 - e. to get drunk or high
9. How much do you drink, when you drink?
 - a. 1 drink
 - b. 2 drinks
 - c. 3-6 drinks
 - d. 6 or more drinks
 - e. until "high" or drunk
10. Whom do you drink with?
 - a. parents or relatives only
 - b. with brothers or sisters only
 - c. with friends own age
 - d. with older friends
 - e. alone
11. What is the greatest effect you have had from alcohol?
 - a. loose, easy feeling
 - b. moderately "high"
 - c. drunk
 - d. became ill
 - e. passed out
 - f. was drinking heavily and the next day didn't remember what happened
12. What is the greatest effect drinking has had on your life?
 - a. none-no effect
 - b. has interfered with talking to someone
 - c. has prevented me from having a good time
 - d. has interfered with my school work
 - e. have lost friends because of drinking
 - f. has gotten me into trouble at home
 - g. was in a fight or destroyed property
 - h. has resulted in an accident or injury, arrest, or being punished at school
13. How do you feel about your drinking?
 - a. no problem at all
 - b. I can control it and set limits on myself
 - c. I can control myself, but my friends easily influence me
 - d. I often feel bad about my drinking
 - e. I need help to control myself
 - f. I have had professional help to control my drinking
14. How do others see you?
 - a. can't say, or a normal drinker for my age
 - b. when I drink I tend to neglect my family or
 - c. My family or friends advise me to control or cut down on my drinking
 - d. my family or friends tell me to get help for my drinking
 - e. my family or friends have already gone for help for my drinking

APPENDIX D

INSTRUCTIONS FOR PARTICIPATION

Your participation in this study is greatly appreciated. You will find enclosed several questionnaires asking you about several areas of interest. Your answers will be completely anonymous and will be reported as group data. Your names will not be identified with any of your answers. We want to stress to you that No information will be shared with your parents or teachers. Please answer all questions honestly. Take your time and return the questionnaires to the research assistant when you are done. Again, thanks for your participation.

2
VITA

Mark Alan Masters

Candidate for the Degree of
Doctor of Philosophy

Thesis: RELATIONSHIP BETWEEN ADOLESCENT ALCOHOL MISUSE,
TRAIT ANXIETY, EXPECTATION OF TENSION REDUCTION,
AND ATTITUDE TOWARDS ALCOHOL

Major Field: Applied Behavioral Studies

Biographical:

Personal Data: Born in Oklahoma City, Oklahoma,
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Education: Graduated from Putnam City West High
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