

An Examination of the Cognitive Social Learning
Model of Alcohol Use in Adolescence

by

Mary S. Borys

A thesis
presented to the University of Manitoba
in fulfillment of the
thesis requirement for the degree of
Master of Arts
in
Psychology

Winnipeg, Manitoba

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LEARNING MODEL OF ALCOHOL USE IN ADOLESCENCE

BY

MARY S. BORYS

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF ARTS

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Abstract

It is generally agreed that teenage drinking is not a solitary behaviour but a social behaviour that occurs within the context of various social, psychological, and environmental influences. A theory that acknowledges several factors including socialization influences, personality attributes and cognitive factors is the cognitive social learning theory of alcohol use (Abrams & Niaura, 1987; Bandura, 1969). The present study was designed to examine the interaction of factors proposed in the cognitive social learning model of alcohol use. Two hundred twenty six high school students responded to the following measures: a) Adolescent Problems Inventory, b) a self-efficacy questionnaire, c) Adolescent Life Change Event Scale, d) Alcohol Expectancy Questionnaire, e) a measure of parental approval of adolescent drinking, f) a quantity-frequency index of parental and peer alcohol use, and g) a quantity-frequency index of adolescent alcohol use. Causal modelling was used to analyze the data (Bentler, 1985). The major findings indicated that peer drinking and stress positively predicted adolescents' alcohol expectancies while social skills negatively predicted adolescents' positive alcohol expectancies. Peer drinking and social skills were also the best predictors of adolescent alcohol use. Sociodemographic variables indirectly affected adolescent alcohol use via peer drinking, social skills, and alcohol expectancies.

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Introduction

During the past two decades, alcohol use among teenagers has increasingly been recognized as a topic of widespread public concern. Recent literature describing drinking patterns in adolescence has demonstrated that the majority of adolescents drink at least occasionally, and that up to 25 percent of youths drink heavily and may suffer alcohol-related problems (Bachman, Johnston, & O'Malley, 1981; Heatherington, Dickinson, Cypywnyk, & Hay, 1978; Johnston, O'Malley, & Bachman, 1984; Pandina & White, 1981; Rachal, Hubbard, Williams, & Tuchfeld, 1976; "Results Group", 1985; Zucker & Harford, 1983). Studies investigating trends in underage drinking practices indicate that drinking patterns have remained relatively stable since the late seventies (Bachman et al., 1981; Johnston et al., 1984; Zucker & Harford, 1983). To explain the high prevalence of adolescent drinking, several researchers suggest that because ours is a drinking society where the majority of adults are drinkers, consumption of alcohol during adolescence is simply an emulation of adult drinking behaviour (Milgram, 1982; Sorosiak, Thomas, & Balet, 1976). Indeed, evidence suggests that of those teenagers who consume alcohol, most do so in a responsible manner, drinking in moderation at home, or in other appropriate settings such as restaurants or social events (G. M. Barnes,

1977; Blane & Hewitt, 1977; Finn, 1979). However, a significant percentage of youths continue to display excessive drinking behaviours, and experience alcohol-related problems.

Alcohol-related problems that have been identified affect many areas of teenagers' lives. For example, family conflict, difficulties at school, and job-related problems have been shown to be associated with high levels of teenage drinking (G. M. Barnes, 1977; Hundleby, Carpenter, Ross, & Mercer, 1982). As well, use of alcohol may increase short-term health risks of adolescents by affecting their health, or by increasing their risk of alcohol-related traffic accidents (Chassin, 1984; Ghadirian, 1979). Furthermore, several researchers have suggested that early onset of excessive alcohol consumption may be associated with continued abusive drinking later in life (Wilcox, 1985). Increased social awareness of the problems associated with excessive adolescent alcohol consumption has led to an increased concern over adolescent drinking patterns (Baizerman, 1982; Blane & Hewitt, 1977; Zucker & Harford, 1983).

Several important issues that have been raised in response to the increasing awareness of the problems associated with excessive adolescent drinking include: How do patterns of drinking develop? What factors lead to various drinking behaviours? Who are the adolescents at

risk for developing alcohol-related problems? What factors are related to problem drinking among teenagers? And how can problem drinking in adolescence be prevented? (G. M. Barnes, 1977). Attempts to answer these questions about causal factors related to excessive adolescent drinking have prompted widespread research to identify the various sociodemographic, socialization, and personality variables which may be related to adolescent alcohol use. As well, several theoretical rationales have been proposed in attempts to explain the development and maintenance of problem drinking, and to provide insight into possible preventative measures. According to these theoretical approaches, adolescent drinking is viewed as a social behaviour that occurs within the context of various social and psychological influences. However, these theories do not adequately consider the contribution of cognitive factors in predicting adolescent alcohol use. Recent research indicates that cognitive processes may be important determinants of drinking behaviours, and that alcohol-related cognitive factors should be included in theoretical studies of adolescent alcohol use (Wilson, 1987). One theory that acknowledges the contribution of various variables, including cognitive processes, is the cognitive social learning theory of alcohol use (Abrams & Niaura, 1987; Bandura, 1969), thus, the present study was designed to examine the cognitive social learning model of adolescent alcohol use.

Review of Adolescent Drinking Literature

In the following review of the literature, the various sociodemographic, socialization, and personality variables that have been studied in relation to adolescent drinking behaviours will be reviewed. Subsequently, the basic assumptions and concepts of Bandura's (1969, 1977, 1985) cognitive social learning theory will be summarized, followed by an in-depth discussion of the cognitive social learning theory of alcohol use as it applies to adolescent drinking.

Sociodemographic Variables

Social models of adolescent alcohol use emphasize that adolescents are part of a system which encompasses a variety of sociodemographic and socialization variables that may be related to adolescent drinking behaviours. Several variables within the sociodemographic category have been studied in relation to adolescent alcohol consumption. They include socioeconomic status, religious affiliation, race, and gender (Blane & Hewitt, 1977; Rachal, Williams, Brehm, Cavanaugh, Moore, & Eckerman, 1975).

Socioeconomic status. Socioeconomic status is a factor which has been studied in relation to many areas of behaviour. The area of adolescent alcohol use is no

exception. Many studies have considered the influence of socioeconomic status on teenage drinking patterns, utilizing measures such as parental education, occupation, and income.

In their review of the literature, Blane and Hewitt (1977) compared studies relating socioeconomic status to levels of adolescent alcohol use. They found a positive relation between alcohol use and socioeconomic status in the majority of the studies reviewed. In general, a greater prevalence of alcohol use was found among adolescents reporting higher socioeconomic status. However, depending on the measures used, results were somewhat mixed. Consistent results were obtained in studies which used parental education level or family income as an index of socioeconomic status: Adolescents whose parents were of higher status tended to display greater frequency and higher prevalence of alcohol use. Studies which used parental occupational level, or a composite social class index as assessments of socioeconomic status, were less consistent. In these latter studies, both positive and negative relationships between adolescent drinking behaviour and socioeconomic status were found.

The inconsistent relationship between adolescent alcohol use and socioeconomic status is evidenced in several recent studies: findings indicate little or no relation between the two variables. Bachman et al. (1981), for example, studied correlates and trends of teenage drug and

alcohol use. Father's and mother's educational attainment was measured and compared to adolescent drinking and drug use levels. Although the authors found a slight positive relationship between teenage alcohol use and parental education, the researchers concluded that the associations were too small to be significant. Similarly, Heatherington et al. (1978) examined the relationship between adolescent drinking and father's occupation in a sample of Canadian high school students. Results revealed no relationship between the two variables.

While studies employing comparisons of adolescent alcohol use to socioeconomic status have not demonstrated consistent results, many researchers continue to include socioeconomic status to control for the effects of this variable on the drinking behaviours of adolescents.

Religious affiliation. Another important sociodemographic variable that has been studied in relation to teenage drinking practices is the religious background of the individual (Blane & Hewitt, 1977; Braucht, Brakarsh, Follingstad, & Berry, 1973; Rachal et al., 1975; Zucker & Harford, 1983). Research has consistently demonstrated that religious groups differ in both prevalence and pattern of use (Blane & Hewitt, 1977; Braucht et al., 1973).

When prevalence of adolescent alcohol use is considered, Jewish adolescents are more likely to be

drinkers than are Catholic and Protestant youths. In virtually all of the studies reviewed by Blane and Hewitt (1977), Jewish youth had a higher prevalence of alcohol consumption than Catholic and Protestant adolescents. Similarly, Braucht et al. (1973) summarized the findings of several studies which examined the relationship between religion and alcohol use in adolescence. In general, they found that Jewish adolescents were more likely to be drinkers than were Catholics, Protestants, and Mormons. Rachal et al. (1975) included religious affiliation and alcohol use in their study of adolescent drinking correlates. They also observed that Jewish adolescents had the lowest rate of abstinence.

When the pattern of alcohol consumption for various religious groups is examined, a different picture emerges. In general, Catholic and Protestant teenagers demonstrate higher rates of use and greater frequency of heavy drinking than their Jewish peers. Thus, Braucht et al. (1973) observed that Protestant adolescents were most likely to be problem drinkers; Blane and Hewitt (1977) reported that Protestant and Catholic youths tended to have higher rates of use and were more likely to engage in heavy drinking than Jewish youths; Rachal et al. (1975) found that their samples of Catholic and Protestant teenagers consisted of higher numbers of moderate/heavy and heavy drinkers than their sample of Jewish adolescents; and, more recently, Zucker and

Harford (1983) found that their group of Catholic adolescents displayed the highest levels of heavy drinking.

It is apparent that while Jewish adolescents are more likely to consume alcohol, they tend to do so in a moderate, responsible manner. Catholic and Protestant youths, on the other hand, are more likely to remain abstinent, but those who do drink alcohol, tend to consume greater quantities more frequently.

Ethnicity. Ethnic variations in drinking behaviours and practices have been noted by several researchers (Blane & Hewitt, 1977; Rachal et al., 1975; Welte & Barnes, 1987). Drinking patterns of White, Black, Oriental, and American Indian students have been assessed and compared. In general, the patterns indicate that Blacks drink less than Whites and that American Indians have the highest rate of heavy and problem drinking (Blane & Hewitt, 1977).

Rachal et al. (1975) examined adolescent drinking levels in relation to ethnic self-classification. They found the largest percentage of drinkers among White students while Black adolescents had the smallest proportion of drinkers. In addition, the largest proportion of heavy drinkers were found among the American Indian adolescents.

Similar results were found in a recent study conducted by Welte and G. M. Barnes (1987). They reported that American Indian youths were highest for alcohol consumption

on several variables; per capita alcohol consumption, the percentage of heavy drinkers, frequency of getting drunk, and number of alcohol-related problems. They also found that White teenagers had the highest percentage of drinkers while Black students had the lowest percentage of drinkers

Gender. Differences between boys and girls have been assessed for many personality characteristics and behaviours (Hyde, 1985). It is not surprising then, that gender differences have often been included in studies of adolescent alcohol use.

Traditionally, alcohol use was viewed as a male dominated behaviour. Indeed, the literature examining sex differences in the prevalence of teenage drinking from 1941 to 1965 shows that significantly more males than females used alcohol (Blane & Hewitt, 1977). However, recent trends in youthful alcohol consumption indicate that the gender gap is narrowing: The drinking behaviours of male and female adolescents are becoming more similar (Blane & Hewitt, 1977; Braucht, 1980; Rachal et al., 1975). According to Blane and Hewitt (1977), the gender difference is approximately eight percent with more males than females identifying themselves as users.

In their study of adolescent drinking behaviours, Rachal et al. (1975) compared drinking patterns of the male and female students in their sample. Overall, 76.8 percent

of the males reported drinking alcohol compared to 68.8 percent of the females--a difference of only 8 percent. However, the study did reveal that heavier drinking was much more prevalent among adolescent males than females. Braucht's (1980) literature review corroborates these findings. He observed that alcohol use was only slightly more prevalent among male adolescents, while heavy, problem drinking behaviours were significantly higher among adolescent males than females.

Several recent surveys have produced similar results. Pandina and White (1981) examined patterns of alcohol use in a group of teenage students. Results showed few significant differences between the proportions of male and female teenagers who had ever tried alcohol. However, significantly more males than females reported weekly use of alcohol. Similar results were observed in the Johnston et al. (1984) report. They noted that alcohol use during the prior 30 days was only slightly more prevalent among adolescent males than females while episodes of heavy use and daily drinking were up to three times more common among males.

Finally, a Canadian survey conducted by "Results Group" (1985) also examined the gender differences in alcohol use among teenagers. When asked if they had had more than two or three drinks of alcohol in their lives, adolescent males indicated a slightly more positive response than did females

(76 percent versus 71 percent). As with previous surveys, males had a much greater tendency to drink more frequently than females.

Socialization Variables

Socialization refers to the process through which "the human being evolves into a social being who learns to play socially acceptable roles and who shares the values, expectations, and behavioural patterns defined by the culture" (G. M. Barnes, 1977, pp. 572). Through interaction with significant others, primarily parents and peers, appropriate modes of behaviour and social standards are acquired. Parents and peers are considered to be socializing agents who transmit social norms and behavioural standards. The individual, in turn, may accept and internalize these standards, and thus alter his or her behaviour to correspond to acquired values and norms (G. M. Barnes, 1984b). The transmission of cultural values and standards can be accomplished directly via behaviours, or indirectly via attitudes of the socializing agents (Kandel, Kessler, & Margulies, 1978). Researchers who have examined the relationship between socialization factors and adolescent alcohol consumption have primarily measured adolescent perceptions of parenting styles, their perceptions of parental attitudes towards alcohol use,

parental drinking behaviours, and peer influences (Blane & Hewitt, 1977).

Parenting styles. Studies of adolescent alcohol use have demonstrated that adolescents' perceptions of parental child-rearing practices can influence adolescent drinking practices. Reviews of the literature reveal that adolescent perceptions of negative parental characteristics such as hostility, and lack of love, support, or nurturance have been shown to be associated with youthful problem drinking behaviours (Blane & Hewitt, 1977; Braucht, 1980; Capuzzi & Lecoq, 1983; Glynn, 1984).

To exemplify this point, Mercer, Hundleby, and Carpenter (1978) obtained measures of adolescent perceptions of the family unit on several dimensions. Results indicated that the most influential dimension was Warmth, Support, and Interest. This factor was significantly negatively related to teenage alcohol use for both males and females.

Similarly, Pandina and Scheule (1983) elicited adolescents' perceptions of parental behaviours on several dimensions. They found that adolescents in the group who viewed their parental environments as lacking in love and high in hostility had higher levels of alcohol and drug use.

As well, Rees and Wilborn (1983) included an assessment of parental behaviour from the viewpoint of the adolescent in their study of the correlates of alcohol and drug abuse

in adolescents. They reported that non-abusing youths rated both parents as significantly higher on measures of acceptance and psychological autonomy than abusing youths. Furthermore, alcohol and drug abusing adolescents were more likely to perceive their parents as irritable, neglectful, intrusive, possessive, overprotective, and controlling by guilt. Contrastingly, parents of non-abusing adolescents were characterized as child centered, emotionally supportive, affectionate, equalitarian, and encouragers of sociability and independent thinking.

G. M. Barnes (1984a) examined the influence of parental socialization practices such as support and nurturance on youthful alcohol abuse. She observed that adolescents who rated either their mothers' or their fathers' as low on support/nurturance were more likely to be classified as problem drinkers than adolescents who rated their parents high on measures of nurturance/support.

Norem-Hebeisen et al. (1984) studied the nature of parent-child relationships among adolescents who displayed various patterns of alcohol and drug use. Adolescents were required to rate their parents on measures of love/caring and rejection/hostility. The perceived parental pattern that was associated with alcohol and drug use was high control in limit setting. Specifically, adolescents who used alcohol and drugs reported that strong disapproval was expressed when they misbehaved, with little expression of

caring by both parents, and increased expression of anger by the father. Quite oppositely, the nonusers reported increased expressions of caring by their parents, and little expression of hostility when they misbehaved.

Recently, G. M. Barnes et al. (1986) examined the impact of parental socialization factors on adolescent drinking behaviour. In their study, they included measures of parental support, and measures of parental control. Adolescents who rated their parents as high on support and medium on control had the lowest level of alcohol abuse. In contrast, adolescents demonstrating high levels of alcohol abuse tended to rate their parents as low on support, and either high or low on control.

Parental attitudes. Youths' perceptions of parental attitudes related to drinking may also influence adolescent drinking behaviours. Research has shown that prevalence and incidence of alcohol use correlates with adolescents' perceptions of positive parental attitudes towards alcohol consumption (G. M. Barnes, 1977; Blane & Hewitt, 1977).

Rachal et al. (1975) reported that among a nationwide American sample of high school students, perceived parental disapproval of teenage drinking was most evident among adolescent abstainers. As teenage alcohol consumption increased, perceived parental disapproval decreased. Similarly, Biddle et al. (1980) included a measure of

parental drinking attitudes toward teenage drinking in their study of the social determinants of alcohol use. Analyses of the data revealed that teenagers' drinking was significantly influenced by parental norms.

More recently, McDermott (1984) studied the effects of adolescents' perceptions of permissive and nonpermissive parental attitudes on adolescent alcohol and drug use. Results showed that significantly fewer adolescents who considered their parents to be nonpermissive used alcohol and drugs. However, adolescents who viewed their parents as permissive were more likely to engage in alcohol and drug use.

R. B. Kline, Canter, and Robin (1987) obtained results consistent with previous studies. They measured adolescent subjects' perceptions of parental approval of their drinking. Results showed that direct effects of parental approval were significant: adolescents reporting positive parental approval were more likely to consume alcohol than adolescents reporting parental disapproval of teenage drinking.

Parental drinking. Although adolescents' perceptions of parental attitudes may exert an important influence on adolescent drinking behaviours, many researchers suggest that adolescents may also learn certain drinking behaviours via direct observation of parental drinking practices (G. M. Barnes et al., 1986; Blane & Hewitt, 1977; McDermott, 1984).

Indeed, the bulk of the literature on the influence of parents on teenage drinking, examines the relationship between parental alcohol consumption and adolescent drinking behaviour (Blane & Hewitt, 1977). The majority of these studies have demonstrated a positive relationship between parental and adolescent drinking behaviours (Blane & Hewitt, 1977; Braucht, 1980; Braucht et al., 1973; Capuzzi & Lecoq, 1983). For example, Annis (1974) studied adolescent drug use in relation to patterns of drug use within the family. A significant relationship between parental alcohol use and adolescent alcohol use was found: When mother and/or father consumed alcohol, their teenage son or daughter was more likely to use alcohol.

Rachal et al. (1975) surveyed adolescent perceptions of parental drinking practices. Results revealed that adolescents who identified their parents as drinkers were almost twice as likely to be moderate/heavy drinkers and heavy drinkers as adolescents with non-drinking parents. As well, abstaining adolescents were least likely to have parents who drank regularly, and most likely to have abstaining parents.

In a similar study, Smart, Gray, and Bennett (1978) investigated factors associated with alcohol use in a sample of high school students. Included in their survey were questions pertaining to mothers' and fathers' drinking habits. Results revealed that parental drinking

characteristics were associated with teenage alcohol use. Specifically, more drinkers were identified among those adolescents whose fathers drank often, and whose mothers got drunk.

Results obtained in the Kandel et al. (1978) study are consistent with previous studies. In this study, parental influences were assessed in relation to adolescent use of hard liquor. Results showed that as role models, parents influenced adolescent use of hard liquor. Use of hard liquor either by mother or father was a moderately good predictor of teenage alcohol use.

Several recent studies have replicated these results. McLaughlin et al. (1984) studied the relationship between self-reported alcohol use and parental alcohol use in samples of seventh- and tenth-grade adolescents. The data indicated that parental alcohol use was a primary predictor of adolescent alcohol use at both grade levels.

Similarly, McDermott (1984) compared parental alcohol and drug use and nonuse with adolescent alcohol and drug use and nonuse. The results of her study confirm the findings of previous research: parental use of substances such as alcohol were significantly related to alcohol and drug use in their teenagers.

G. M. Barnes et al. (1986) tested the hypothesis that adolescent drinking could partially be explained by parental modelling of drinking behaviour. Significant relationships

were found between mothers' drinking behaviour and adolescent alcohol use: abstaining mothers were more likely to have children who abstained than were infrequent-to-moderate drinking and heavier drinking mothers.

Finally, parental use of alcohol was also found to be significantly related to adolescent alcohol consumption in a survey conducted by Kandel and Andrews (1987). Students and one of their parents (either mother or father) were asked to complete questionnaires. The data obtained demonstrated that parental modelling of alcohol use was significantly and positively related to adolescent alcohol use.

Peer drinking. Another socialization factor related to adolescent alcohol consumption is the perception of peer drinking behaviours (Biddle, Bank, & Marlin, 1980; Brook, Whiteman, & Gordon, 1982; Norem-Hebeisen, Johnson, Anderson, & Johnson, 1984; Rachal et al., 1975). Studies of adolescent drinking on the relationship between perceptions of peer behaviours and adolescent drinking practices have demonstrated that adolescent drinking increases in frequency and quantity as drinking among friends increases (Blane & Hewitt, 1977; Capuzzi & Lecoq, 1983). Sorosiak et al. (1976) conducted a survey of the influencing factors of adolescent substance use. They reported that by the eleventh-grade, a majority of the students believed that

their friends used drugs and alcohol. The authors suggested that whether or not their friends actually used alcohol and drugs, their perception of peer use constituted indirect pressures to use drugs and alcohol.

In a study conducted by Kandel et al. (1978), perceptions of peer drinking behaviours were elicited. Results indicated that adolescents' perceptions of the number of friends using alcohol were significant predictors of adolescents' use of hard liquor. Similarly, Smart et al. (1978) surveyed teenagers' perceptions of whether or not their friends drank alcoholic beverages. They found higher levels of alcohol use among those adolescents who reported that they thought that their friends got drunk. Furthermore, J. E. Donovan and Jessor (1978) noted that adolescents classified as problem drinkers perceived more peer models for drinking than did nonproblem drinkers.

Similar results have been obtained in a number of more recent studies. For example, Stumphauzer and Perez (1982) conducted a study in which trained adolescents surveyed peers regarding peer drinking behaviours. Most respondents indicated that they had friends who had been drinkers before they began to drink, and that they had actually seen these peer models consume alcohol.

In a longitudinal study conducted by Norem-Hebeisen et al. (1984), adolescents were asked to indicate how many of their friends used alcohol and other drugs. Teenagers

classified as nonusers, and those indicating that they no longer used alcohol or drugs, reported significantly fewer friends who used alcohol and other drugs than did adolescents displaying higher levels of alcohol consumption. As well, McLaughlin et al. (1984) examined correlates of alcohol use at two ages during adolescence. Seventh- and tenth-grade subjects were asked how frequently their friends used alcohol. Results indicated that perceived peer alcohol use was a primary predictor of reported alcohol consumption at both grade levels.

In a cross cultural study conducted by Bank et al. (1985), social determinants of adolescent drinking in four countries (Australia, France, Norway, and the United States) were compared. Results showed that peer alcohol consumption had significant positive effects on adolescents' self-reported drinking levels. These results were consistent with their previous findings, which indicated that peers were most likely to influence adolescent drinking through behaviour (Biddle, et al., 1980).

Finally, a Canadian study conducted by R. B. Kline et al. (1987) measured the perceived degree of peer alcohol use and approval. They found that adolescents' perceptions of peer alcohol use and approval had significant direct effects on teenage drinking.

Personality Attributes

Researchers studying factors associated with alcohol use have generally acknowledged the potential contribution of personality characteristics as predisposing factors of problem drinking (G. E. Barnes, 1983). Personality attributes have also been implicated as contributing to adolescent initiation of alcohol and drug use (Bry, McKeon, & Pandina, 1982; Jessor & Jessor, 1977; Stein, Newcomb, & Bentler, 1987). Bry et al. (1982) found adolescent alcohol and drug use to be a function of various risk factors including several personality attributes. Similarly, Stein et al. (1987) observed that personality traits were more likely to be antecedents rather than consequences of alcohol and drug use. In light of this apparent causal relationship, many researchers have attempted to identify specific personality traits that may be related to alcohol consumption during adolescence. Personality attributes that have been studied include self-esteem, and various measures of psychological adjustment.

Self-esteem. Many researchers who have endeavoured to associate alcohol use with specific personality variables and risk factors have often included self-esteem as an important predictor (Blane & Hewitt, 1977; Mitic, 1980; Pandina & Scheule, 1983; Rees & Wilborn, 1983; Svobodny, 1982; Yanish & Battle, 1985). Previous research has shown

that self-esteem is related to adolescent alcohol use. Mitic (1980), for example, conducted an alcohol behaviour survey of a general high school population. He discovered that a significantly higher proportion of students considered to be potential problem drinkers had lower levels of self-esteem than adolescents who used alcohol regularly.

Pandina and Scheule (1983) examined various correlates of alcohol use in subjects whom they defined as adolescent students and adolescents receiving treatment for alcohol-related problems. They found that in the sample of adolescent students, respondents classified as high and very high users displayed significantly lower overall scores on measures of self-esteem than students classified as moderate users, low users, abstainers, or stoppers. Similar trends were observed in the adolescent treatment population. As well, a comparison of adolescents receiving treatment and adolescents in the student population indicated that, in general, adolescents in the treatment group displayed lower self-esteem scores than adolescent students. Similarly, Svobodny (1982) obtained self-concept scores for a group of adolescents placed in a residential chemical dependency programme and a control group of high school students. She observed that self-concept scores for the adolescents receiving treatment were lower than the norms for the general high school population.

Rees and Wilborn (1983) attempted to identify correlates of drug abuse in drug abusing and non-abusing adolescents. As hypothesized, adolescents who did not abuse alcohol or other drugs scored significantly higher than drug abusing adolescents on measures of self-esteem. Recently, Yanish and Battle (1985) examined the relationship between self-esteem and alcohol consumption in teenagers. Results indicated that alcohol consumption correlated negatively with academic and parental aspects of self-esteem: adolescents who reported positive views regarding their ability to perform school-related tasks, and those reporting positive parental relationships tended to drink less.

Psychological adjustment. Several global measures of psychological well-being have been employed in studies of adolescent drinking (Bry et al., 1982; Pandina & Scheule, 1983; Vicary & Lerner, 1983). For example, Bry et al. (1982) included a measure of psychological distress in their study of adolescent drug and alcohol use. They found that the extent of alcohol and drug use was a function of a number of risk factors. One important risk factor they identified was the degree of psychological distress reported by the subjects: Adolescents reporting higher levels of distress were also more likely to report higher levels of alcohol and drug use.

Pandina and Scheule (1983) assessed the degree of distress experienced by student adolescents and adolescents in treatment using a self-report inventory. In the student group a relationship between psychological distress and alcohol use was observed: scores increased as a function of alcohol involvement. In general, student abstainers showed lower levels of distress while students classified as very high users demonstrated significantly higher levels of distress. In the treatment group, adolescents considered to be very high users also scored significantly higher on all measures of psychological distress as compared to adolescents reporting lower levels of alcohol use.

Similarly, Vicary and Lerner (1983) studied the relationship between various early childhood and adolescent adjustment characteristics and adolescent alcohol and drug use. It was found that both poor adjustment at age 5 and poor Teenage Adjustment were related to high levels of alcohol use in late adolescence.

Stress. The hypothesis that increased amounts of stress during adolescence are associated with increased use of alcohol or other drugs has been examined. It is generally assumed that adolescents experiencing greater amounts of stress will tend to consume larger amounts of alcohol.

In their survey of high school students, Bruns and Geist (1984) found that abstainers were lowest in life stress, and that alcohol users demonstrated consistently higher levels of stress. Newcomb and Harlow (1986) also studied stress in their study of adolescent substance use. They found a positive relationship between adolescent substance use and uncontrollable stressful events. A study conducted by Labouvie (1986) yielded similar results. He observed that adolescents who experienced higher levels of social stress and life stress tended to rely more heavily on the use of alcohol and other substances.

Depression. Depression as a measure of psychological well-being has also been investigated in studies of adolescent alcohol use. These studies have produced fairly consistent results indicating a positive relationship between depressive symptoms and alcohol consumption (Kaplan, Landa, Weinhold, and Shenker, 1984; Kashani et al. 1985). Kaplan et al. (1984) assessed the relationship between various health behaviours and depressive symptomatology in junior and senior high school students. They found that adverse health behaviours such as alcohol consumption and drug use were highly related to overall scores on measures of depression: students with more depressive symptomatology tended to abuse alcohol and drugs more frequently.

Kashani et al. (1985) interviewed adolescent substance abusers to determine to what extent they experienced depressive symptoms. They found that, when compared to the general population, the group of substance abusers consisted of significantly more depressed individuals. Moreover, their depression tended to be a chronic, non-transitory type, indicating that they had been experiencing depressed feelings for prolonged periods of time.

Theoretical Approach to Adolescent Alcohol Use

From the foregoing discussion, it is clear that many variables related to patterns of alcohol consumption in adolescents have been investigated. Blane and Hewitt (1977) observed that these variables have generally been studied either individually, or in various combinations with each other, without following any theoretical rationale. While this type of research expands the store of empirical knowledge, it does not necessarily add to the understanding of adolescent drinking behaviour as a whole. Jessor and Jessor (1977) explain that to derive meaning from this type of research, a theoretical network of related concepts should be employed.

Several theoretical approaches that have been proposed show that adolescent drinking is not a solitary behaviour but a social behaviour that occurs within the context of various social, psychological, and environmental influences (Hundleby, Carpenter, Ross, & Mercer, 1982; Jessor & Jessor, 1977, 1978). For example, Jessor and Jessor (1977) have offered a theory of problem behaviour which suggests that drug use and other problem behaviours are determined by the simultaneous operation of personality and sociocultural variables. Similarly, Kandel and Faust (1975) suggested a theory which focused on the social environment of the adolescent. In this model, parents and peers influence the progression of increasing drug involvement.

Although these theoretical orientations account for several significant factors related to adolescent alcohol use, they do not adequately consider the contribution of cognitive factors in explaining and predicting adolescent drinking behaviours (Gaines, 1982). Recent trends towards studying the impact of cognition on alcohol consumption indicate that cognitive processes may mediate between the pharmacological effects and behavioural outcomes of alcohol use (Wilson, 1978, 1987). Therefore, several researchers suggest that alcohol-related cognitive factors should be included in theoretical studies of adolescent alcohol use (D. M. Donovan & Marlatt, 1980; Stumphauzer & Perez, 1982; Whaley, 1986; Wilson, 1987). A theory that acknowledges the contribution of several factors, including background variables, sociocultural and socialization influences, individual differences, environment, and cognitive factors, is the cognitive social learning theory of the development and maintenance of various patterns of alcohol use (Abrams & Niaura, 1987; Bandura, 1969).

Cognitive Social Learning Theory

Basic assumptions. Social learning theory, as described by Bandura (1969, 1977, 1985), rejects the view that people are driven exclusively by inner motivational forces such as needs, drives, and impulses. Underlying

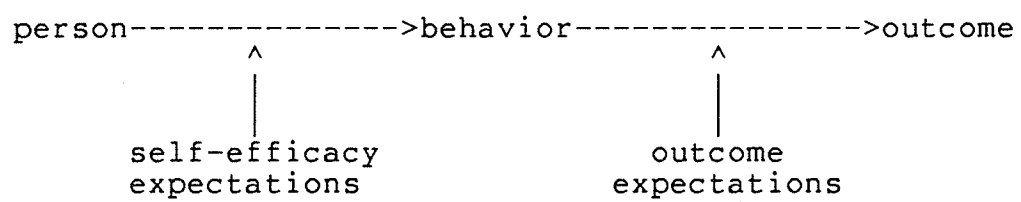
motivational forces are considered to be inadequate explanations for behaviour because they are usually inferred from overt behaviours and thus cannot be empirically studied directly. Social learning theory also rejects the opposing notion that human behaviour is automatically controlled by external stimuli through classical conditioning, operant conditioning, and response contingencies. Basing behaviour only on external events cannot account for the variations in behaviours in similar situations. Instead, Bandura proposed that human functioning can be explained in terms of behaviours, cognitive factors, and environmental events which function as interacting determinants of each other. Bandura termed this interdependence among variables triadic reciprocity which indicates a multidirectional causality among the variables. Therefore, the appropriate method of studying and explaining human behaviour is by concurrently measuring variations among behaviour patterns, cognitive factors, and environment.

Self-efficacy. Cognitive social learning theory attempts to explain and predict behaviour using several key concepts including efficacy expectations and outcome expectations (Strecher, DeVellis, Becker, & Rosenstock, 1986). An efficacy expectation is defined as "the conviction that one can successfully execute the behaviours required to produce outcomes" whereas an outcome expectancy

is referred to as "a person's estimate that a given behaviour will lead to certain outcomes" (Bandura, 1976, p.193). Bandura's conception of efficacy and outcome expectancies is illustrated in Figure 1. Bandura (1976) further explains that social learning theory is based on the assumption that psychological procedures function to create and strengthen expectations of personal efficacy. Therefore, self-efficacy is assigned a central role in the theoretical framework of social learning theory.

Bandura's cognitive social learning theory proposes that behaviour patterns are learned and modified through self-corrective adjustments based on feedback following performance (Bandura, 1977). Assessment of personal competencies initially originates from actions and observational learning of environmental events. Infants are sensitive to their environments. Through repeated observation of relationships between their actions and environmental consequences they develop a sense of personal mastery as they realize that they can make events occur (Bandura, 1981, 1985). As children get older and develop verbal and other more complex cognitive skills, they learn to attend to their own behaviour and begin to make judgements about their ability to interact with the environment. Children obtain information about their behaviours from three primary sources; family, peers, and school. A stable sense of self-efficacy during childhood is

Figure 1. Bandura's conception of efficacy and outcome expectations.



a prominent contributor to the attainment of competency and success in adolescence and young adulthood. Without a firm sense of self-efficacy, the transition to adulthood may be stressful and possibly maladaptive.

Efficacy judgements vary along three important dimensions; magnitude, strength, and generality. Magnitude refers to the specified level of difficulty which individuals believe they can successfully accomplish. The confidence with which a person believes they can perform a certain task refers to the strength of the expectation. In addition, judgements of self-efficacy differ in generality ; the extent to which a certain expectation is given across different situations. In measuring efficacy expectations, Bandura (1977, 1981, 1982, 1986) suggests the use of a microanalytic methodology. Microanalysis refers to a situationally-specific approach where expectations on individual tasks are rated.

Cognitive Social Learning Theory of Alcohol Use

Basic assumptions. Bandura (1969) sees alcoholic individuals as "people who have acquired, through differential reinforcement and modelling experiences, alcohol consumption as a widely generalized dominant response to aversive stimulation" (p.536). Viewed from this perspective, drinking patterns are believed to be influenced

by the following social learning variables: 1) prescribed cultural norms and rules concerning alcohol consumption, and 2) learning theory concepts from both operant and classical conditioning paradigms.

Within cultural norms are socializing agents such as parents and peers who function as models of behaviour. Drinking patterns and behaviours in various situations are modelled by family members and by peers. Therefore, children learn through observation how alcohol is used, in what situations alcohol is consumed, and what behaviours are allowed when one is intoxicated.

Bandura (1969) also suggests that alcohol consumption is maintained by its positively reinforcing tension-reducing properties. After repeated experience, individuals who are constantly subjected to environmental stresses are more likely to consume alcohol for its positively reinforcing stress-reducing effects. As well, because alcohol consumption frequently occurs in a variety of social situations, an individual may drink in order to obtain rewards arising from social interactions. After prolonged, excessive use, physical dependency develops, and the fear of pain of withdrawal maintains alcohol consumption regardless of the original reasons for drinking.

According to Abrams and Niaura (1987), Bandura's social learning theory of alcohol use differs from other theories in several important ways. First, social learning theory

rejects the notion of a progression through various stages of alcoholism. As well, fixed variables such as personality traits and internal dynamics are not considered important factors in the development of alcoholism. Instead, social learning theory proposes that drinking is a social behaviour, and that all ranges of drinking behaviour are controlled by similar principles of learning, cognition, and reinforcement. Therefore, social learning theory can explain differences in drinking patterns both across various individuals and different cultures, and within individuals and cultures.

The voluminous research based on Bandura's original model of alcoholism has resulted in a more comprehensive set of cognitive social learning principles. These principles are summarized in the following postulates: 1) Adolescent drinking behaviours, attitudes, beliefs, and expectancies regarding alcohol are developed primarily through the socializing influences of culture, parents, and peers. 2) Predisposing individual differences such as skill deficits or social incompetence may affect initial patterns of alcohol use. 3) Alcohol consumption is maintained by alcohol's reinforcing tension-reducing and euphoric properties. 4) Predisposing individual differences interacting with situational demands can overwhelm an individual's ability to cope and may lead to poor perceptions of efficacy, which, in combination with positive

expectations of alcohol's reinforcing properties will lead to alcohol abuse. 5) Sustained use of alcohol can lead to physical tolerance to alcohol. 6) Prolonged alcohol consumption may lead to physical and psychological dependency. 7) Abusive drinking can cause problems in various areas of an individual's life, which in turn may cause the individual to consume more alcohol. 8) There is no required combination of factors that is necessary for problem drinking to develop, however, the various pathways that lead to alcohol use or abuse follow the same social learning principles. Finally, 9) recovery from alcohol abuse depends on the individual's ability to select and perform alternative ways of coping.

Development of alcohol-related expectancies. Learning to drink is an important part of adolescent psychosocial development and part of the socialization process of our society. Most teenagers under the legal drinking age have experimented with alcohol, many use alcohol regularly, and 15 to 40 percent of adolescents drink heavily and may suffer alcohol related problems (Blane & Hewitt, 1977; Heatherington et al., 1978; Rachal et al., 1976). Social learning theory suggests that early direct and vicarious experience with socialization agents influences the onset and maintenance of drinking behaviours in adolescents (Abrams & Niaura, 1987). Family and peers, for example, can

influence teenage drinking by affecting attitudes, standards, values, and by modelling social drinking behaviour.

To recapitulate briefly, prior research has shown that adolescents who perceive permissive parental attitudes towards alcohol consumption are more likely to engage in higher levels of alcohol use (Blane & Hewitt, 1977). Modelling has also been found to relate to teenage drinking patterns. Adolescent drinking generally increases in frequency and quantity as drinking among friends increases (e.g., McLaughlin et al., 1984; Stumphauzer & Perez, 1982). Similarly, significant relationships have been found between perceived parental drinking behaviour and youthful alcohol consumption. Parents perceived as heavier drinkers are more likely to have children who consume alcohol than are parents considered to be abstainers (e.g., G. M. Barnes et al., 1986; McDermott, 1984).

In their study of the effects of parental and peer norms and modelling behaviour on adolescents' norms and alcohol use, Biddle et al. (1980) found that parental norms and peer drinking behaviour were related to the development of adolescents' internalized beliefs. The researchers suggested that the modelled behaviours of the socializing agents were translated into internalized expectancies about alcohol. Furthermore, these internalized beliefs about alcohol more significantly affected adolescent drinking than did parental and peer influences.

Christiansen, Goldman, and Inn (1982) examined the development of alcohol-related expectancies in a general population of adolescents to determine whether alcohol expectancies develop as a function of pharmacological experience with alcohol or as a result of social-learning influences. The Alcohol Expectancy Questionnaire for Adolescents was administered and data were analyzed for three age groups of adolescents (12-14-year-olds, 15-16-year-olds, and 17-19-year-olds). It was found that six similar themes were endorsed in each of the three age groups. This similarity in endorsed factors indicated that adolescents held similar gross alcohol-related expectations across age groups. As well, it was observed that these alcohol expectancies existed prior to personal drinking experience, but that age and pharmacological experience with alcohol strengthened existing expectancies. This result suggests that alcohol expectancies develop primarily from social-learning experiences. Indeed, Spiegler (1983) discovered that by six years of age, children have well developed perceptions of social drinking norms for men and women. Taken together these studies indicate that alcohol-related expectancies are developed prior to pharmacological experience with alcohol. Therefore, it can be inferred that these expectancies develop as a result of social learning experiences.

To examine further the influence of social learning factors on the development of alcohol-related expectancies, Brown, Creamer, and Stetson (1987) studied adolescent alcohol-related expectancies in relation to parental drinking practices. They found that adolescent alcohol expectancies varied significantly as a function of parental alcohol abuse. Adolescents with an alcohol abusing parent expected more enhanced cognitive and motor functioning during alcohol consumption than adolescents without an alcohol abusing parent. These results clearly support the notion that socializing agents influence the development of alcohol-related expectancies.

It is evident that well developed alcohol expectancies exist prior to pharmacological experience with alcohol, and that these expectancies are primarily transmitted through socializing agents. However, the question still arises as to the relation of teenage alcohol-related expectancies to actual drinking patterns. To examine this relationship, Christiansen, Goldman, and Brown (1985) investigated specific changes in alcohol-related expectancies as a function of increasing age and increasing drinking experience. Questionnaires were administered to a general population of adolescents which was divided into three age groups: 12- to 14-year-olds, 15- to 16-year-olds, and 17- to 19-year-olds. It was shown that expectations for relaxation, enhanced social functioning, and arousal

increased with age. In contrast, the belief that alcohol improved cognitive functioning increased in the 15-16 year olds then decreased in the 17-19 year old adolescents without alcohol related problems, but remained high across all ages in problem drinking adolescents. In support of this finding, Brown et al. (1987) compared alcohol-related expectancies in adolescent abusers receiving treatment for alcohol-related problems and adolescents in a general high school population. Overall, adolescent abusers obtained significantly higher scores on scales indicating positive expectancies.

The contribution of expectancies in the prediction of alcohol use in adolescents was examined by Christiansen and Goldman (1983). They compared the relative contributions of background and demographic variables known to be related to adolescent alcohol consumption and alcohol-related expectancies in the prediction of adolescent drinking. Results indicated that the background and demographic variables were related to adolescent alcohol consumption. In addition, expectations of altered social behaviour and enhanced cognitive and motor functioning were better determinants of frequent and problem drinking behaviours in adolescence. The alcohol expectancy factors were at least equal to or greater than the predictive powers of background and demographic variables in identifying frequent and problem teenage drinkers.

Corroborative findings have been cited by those conducting pharmacological research on the effects of alcohol. Recent research shows that there is no simple, direct relationship between the pharmacological effects of alcohol and its behavioural consequences (Wilson, 1978). Instead, cognitive processes may mediate between the chemical effects and the behavioural outcomes to produce varying behavioural experiences. An individual's expectations of the effects of alcohol can significantly influence the behavioural consequences they experience (Whaley, 1986).

Development of efficacy expectations. Abrams and Niaura (1987) also propose that individual differences may determine initial patterns of alcohol use. While there are many possible predisposing individual differences, one that seems intuitively relevant to social learning theory involves socialization deficits. According to Botvin (1983), previous research indicated that the acquisition of sufficient social skills may play an important role in the development of drinking behaviours.

Social skills involve the ability to deal effectively with environmental demands and interpersonal relations (Pentz, 1983). Adequate social skills are thought to be maintained, in part, by their ability to reduce anxiety experienced in social situations (O'Leary, O'Leary, &

Donovan, 1976). Deficits in these skills may restrict alternative coping behaviours. The individual may therefore seek to reduce anxiety by consuming alcohol. To exemplify this hypothesis, Miller, Hersen, Eisler, and Hilsman (1974) examined the effects of social stress on the drinking behaviours of alcoholics and social drinkers. They found that exposure to interpersonal encounters requiring assertive responses increased alcohol consumption in chronic alcoholic subjects. In contrast, social drinkers did not show increased consumption under stressful conditions. These results suggest that when faced with a stressful situation, alcoholics, who were deficient in social skills (assertiveness) consumed more alcohol in order to decrease stressful feelings.

Various deficits in social skills during adolescence have been shown to be associated with problem drinking in teenagers. O'Leary et al. (1976) identify the ability to disagree and to refuse as an important social skill required in adolescence. For example, initiation of alcohol use has been related to peer pressure to use alcohol (Blane & Hewitt, 1977) which suggests an inability to exert social skills such as assertiveness or refusal. Pentz (1983) measured various adolescent social skills in relation to teachers, parents, and fellow students. The data indicated a strong negative causal relationship between social skills and adolescent drug use: adolescents with poor social skills

were more likely to use drugs. Recently, a study conducted by R. B. Kline et al. (1987) examined the relationship between social skills and adolescent drinking. Results showed that adolescent social skills had a direct effect on drinking behaviour. In general, adolescents with poorer social skills tended to report higher levels of alcohol consumption.

According to social learning theory, adolescents with poorly developed social skills lack appropriate coping strategies to deal with stressful social situations (Abrams & Niaura, 1987). As a result, their perceptions of their ability to cope (self-efficacy) will be undermined and alcohol abuse may occur. In the only study investigating this phenomenon, Pentz (1982, 1983, 1985) examined the relationships among social skills, perceptions of self-efficacy, and alcohol use in adolescents. A strong relationship was found between social skills and self-efficacy. As well, results indicated that lower self-efficacy was related to increased alcohol consumption. Thus, preliminary investigations support the notion that adolescents with poor social skills will also have poor perceptions of self-efficacy, and that self-efficacy is related to teenage drinking practices.

Determinants of drinking behaviour. Of central importance to social learning theory are the cognitive

factors that modulate behaviour. Therefore, several proponents of the cognitive social learning theory of alcohol use have identified the following cognitive characteristics as the ultimate determinants of drinking and abstaining: 1) high expectations that alcohol will produce the desired positive outcome, along with minimal perceptions of long-term negative outcomes, and 2) lowered self-efficacy resulting from perception of a potentially stressful situation which exceeds coping responses and a lack of appropriate alternative coping behaviours (Abrams & Niaura, 1987; D. M. Donovan & Marlatt, 1980). These two cognitive factors interact to determine whether a person abstains, drinks moderately, or abuses alcohol in a given situation.

Although several researchers have studied separate characteristics of the cognitive social learning model of alcohol use, no evidence can be found for a comprehensive study of the interaction of factors proposed by the model. Therefore, the present study is designed to examine the proposed cognitive social learning model of adolescent alcohol use.

Hypotheses

The research described above allowed for the following predictions about the relationships between variables proposed by the Cognitive Social Learning model of adolescent alcohol use:

1. Results of R. B. Kline's et al. (1987) study indicating that parental alcohol approval was positively predictive of adolescents' beliefs about the beneficial effects of alcohol lead to the hypothesis that parental alcohol approval would positively predict adolescent alcohol expectancies.
2. Brown's et al. (1987) study showing that adolescent alcohol expectancies varied as a function of parental drinking lead to the hypothesis that parental alcohol consumption would be positively predictive of adolescent alcohol expectancies.
3. Based on research conducted by Biddle et al. (1980) which showed that peer drinking influenced adolescents' internalized beliefs about alcohol, it was hypothesized that peer drinking would positively predict adolescent alcohol expectancies.
4. Studies conducted by Pentz (1982, 1983, 1985) showing a strong relationship between social skills and self-efficacy lead to the hypothesis that social skills would be positively predictive of adolescents' perceptions of self-efficacy.

5. According to Abrams and Niaura (1987), adolescents with poorly developed social skills lack appropriate strategies to deal with stressful situations which leads to poor perceptions of self-efficacy. It was therefore hypothesized that stress would be negatively predictive of self-efficacy.

6. Results obtained by R. B. Kline et al. (1987) showed that adolescents reporting positive parental alcohol approval were more likely to consume alcohol. This led to the hypothesis that parental attitudes towards alcohol would be positively predictive of adolescent alcohol use.

7. Annis' (1974) work showing a significant relationship between parental alcohol use and adolescent alcohol use allowed for the hypothesis that parental alcohol use would positively predict adolescent alcohol consumption.

8. Based on research conducted by R. B. Kline et al. (1987) showing that adolescents' perceptions of peer alcohol use had significant direct effects on teenage drinking, it was hypothesized that peer drinking would positively predict adolescent alcohol use.

9. The R. B. Kline et al. (1987) study showing that adolescent social skills had direct effects on adolescent drinking behaviour led to the hypothesis that social skills would negatively predict adolescent drinking.

10. Newcomb and Harlow's (1986) work demonstrating a positive relationship between adolescent alcohol use and reported stressful events allowed for the hypothesis that stress would be positively predictive of adolescent alcohol consumption.

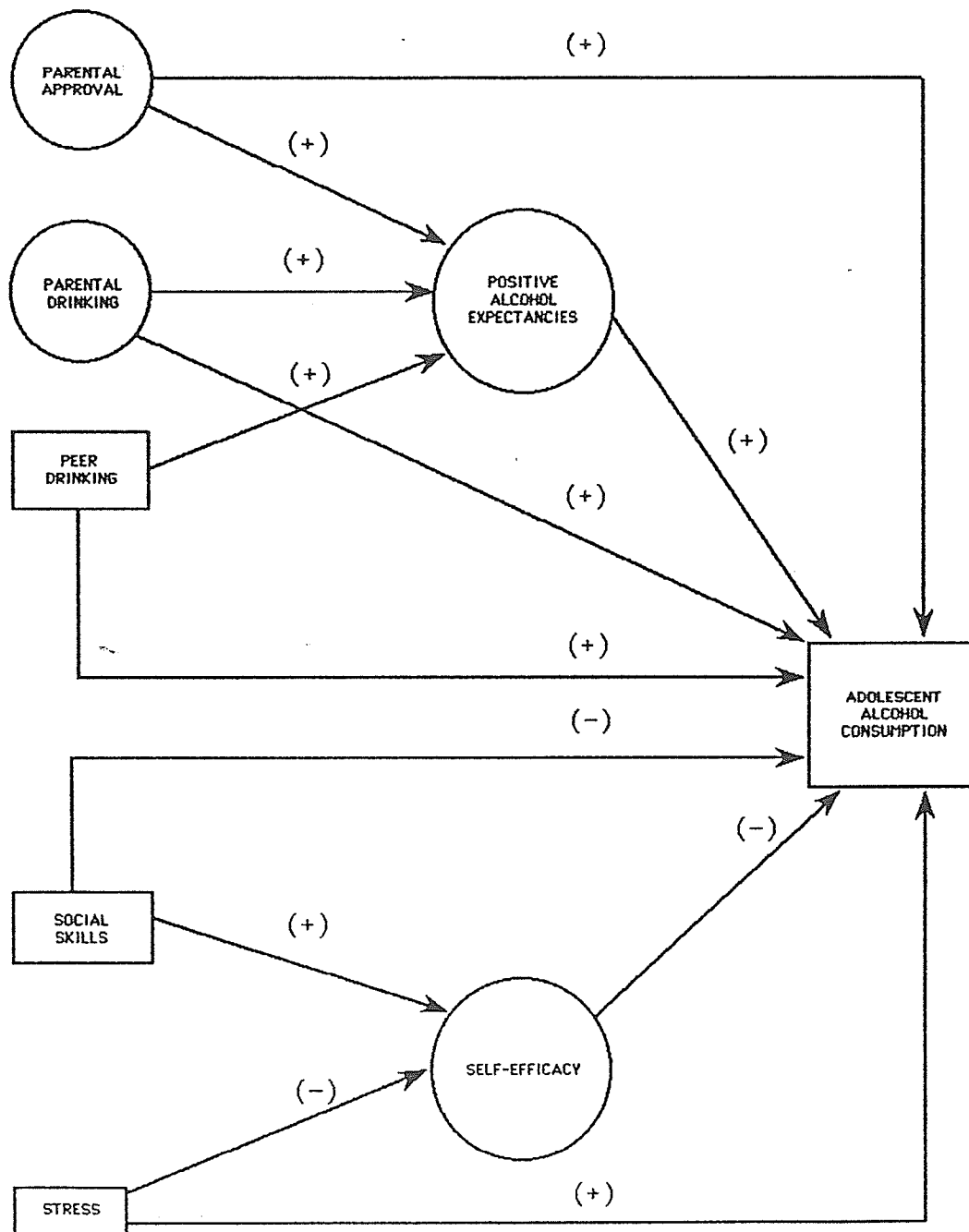
11. Christiansen and Goldman's (1983) study showing that alcohol expectancies were significant predictors of adolescent alcohol use lead to the hypothesis that positive alcohol expectancies would be positively predictive of adolescent alcohol use.

12. Studies conducted by Pentz (1982, 1983, 1985) showing that lower perceptions of self-efficacy were related to increased adolescent alcohol use lead to the hypothesis that self-efficacy would positively predict adolescent alcohol consumption.

13. According to the cognitive Social Learning theory of alcohol use (Abrams & Niaura, 1987; D. M. Donovan & Marlatt, 1980) the ultimate determinants of drinking or abstaining were the cognitive factors of high positive alcohol expectations and lowered self-efficacy. It was therefore hypothesized that positive adolescent alcohol expectancies and poor perceptions of self-efficacy would be the strongest predictors of adolescent alcohol use.

These hypotheses were tested using latent variable structural equations modelling procedures (Asher, 1976; Bentler, 1985). Four latent variables were included in the present study: 1) alcohol expectancies, 2) self-efficacy, 3) parental attitudes towards adolescent drinking, and 4) parental drinking . As well, four variables were measured: 1) peer drinking, 2) social skills, 3) stress, and 4) adolescent alcohol consumption. The proposed cognitive social learning model of adolescent alcohol use is schematically represented in Figure 2. Latent variables are represented by circles, while measured variables are represented by squares. Unidirectional arrows indicate expected causal relationships.

Figure 2. Cognitive social learning model of adolescent alcohol use and hypothesized relationships between variables.



+ = hypothesized positive relationships between variables
 - = hypothesized negative relationships between variables

Method

Subjects

Subjects were drawn from three high schools in the Winnipeg School Division No.1. School administrators selected the classes which participated in the study, and all students in the chosen classes were asked to participate. Letters of permission were distributed to parents of children under the legal age of 18 years (Appendix A). As a result of a poor response, a second letter was distributed to parents informing them that the study was being conducted and if they did not want their child to participate they were to contact the school. Otherwise they were to assume that their child would participate in the study (Appendix A). A total of 236 students participated in the study. Subjects whose questionnaires were either spoiled or incomplete were deleted. The final sample consisted of 226 students.

Of the final sample, 93 students were in Grade 10, 74 were in Grade 11, and 59 were in Grade 12. One hundred twenty nine females and 97 males participated, comprising 57% and 43% of the sample, respectively. A summary of the ethnicity of the sample is reported in Table 1. Subjects were asked to choose one alternative that best described their ethnic origin. A summary of students' religious

Table 1.

Ethnic Origins of Subjects

Ethnicity	Frequency	%
British	49	22
French	15	6
German	22	10
Ukrainian/Polish	19	8
Filipino	23	10
Oriental	8	4
Other Asian	2	1
Native Indian	9	4
Black	6	3
Other	73	32
Total	226	100

backgrounds is presented in Table 2. Again, subjects were asked to choose one option that best described their religion.

For descriptive purposes, student drinking levels were classified according to criteria used by Rachal et al. (1976) and A. G. Kline et al. (1987). See Appendix B for classification criteria. Twenty three percent of all subjects were abstainers (23% of the males, 23% of the females); 15% were infrequent drinkers (11% of the males, 18% of the females); 8% were light drinkers (8% of the males, 7% of the females); 13% were moderate drinkers (11% of the males, 14% of the females); 19% were moderate/heavy drinkers (19% of the males, 19% of the females); and 22% were heavy drinkers (27% of the males, 19% of the females). Students who reported being drunk 4 or more times in the last year, or if they had experienced two or more negative consequences as a result of drinking were classified as problem drinkers (A. G. Kline et al., 1987). Forty four percent of all subjects in the present sample (51% of the males, 40% of the females) were problem drinkers, and 56% (49% of the males, 60% of the females) were nonproblem drinkers. The drinking patterns of adolescents in the present study are similar to those observed by R. B. Kline et al. (1987).

Table 2.

Religious Background of Subjects

Religion	Frequency	%
Protestant	37	16
Baptist	8	4
Lutheran	13	6
Presbyterian	8	4
Roman Catholic	66	29
Jewish	5	2
Eastern Religion	3	1
Other Religion	36	16
No Religion	50	22
Total	226	100

Measures

Subjects were required to fill out a composite questionnaire of standard rating scales (see Appendix C) which included the following measures:

Social skills. In order to test social skills, a portion of the Adolescent Problems Inventory (API; Freedman, Rosenthal, Donahoe, Schlundt, & McFall, 1978) was used. The overall API consists of 44 multiple-choice items. Each item represents a brief scenario of a problematic social interaction with parents, peers, teachers, or others. Subjects are required to select one of five behavioral alternatives which range from physical aggression to more appropriate responses. Each alternative corresponds to points on a five-point rating scale: 8 = very competent, 6 = competent, 4 = neither competent nor incompetent, 2 = incompetent, 0 = very incompetent. The point values received for each question are summed to produce one overall score. A high score reflects a high level of social skills.

Freedman et al. (1978) reported an internal consistency coefficient of .97 for the API. Validation of the API indicated that it significantly discriminated groups of institutionalized delinquents, nondelinquent peers, and nondelinquent adolescent 'leaders'. In addition, the scale significantly discriminated among institutionalized adolescents who differed in the number of acting-out

behaviors they exhibited on the ward. Furthermore, R. B. Kline et al. (1987) used the API in their study of teenage alcohol use. They found that social skills, as measured by the API, had significant direct effects on the amount of alcohol adolescents consumed. These reliability and validity measures indicate that the API is an adequate measure of social skills and therefore was considered appropriate for inclusion in the present study.

Freedman et al. (1978) constructed two item groups (A and B) with 22 items in each group from the original 44 API items. The 44 items were classified according to the type of interaction involved and items from each category were divided equally between item groups A and B. The equivalency of the groups was examined by comparing scores previously earned on group A items with those earned on group B items. The two forms were found to be satisfactorily equivalent: delinquents: $t(42) = .408$; good citizens; $t(42) = .973$; and leaders; $t(42) = .198$. To meet the constraint of limited time for testing, only one group of items (group B items) were in the present study (see Appendix C; Part A).

Self-efficacy. Self-efficacy was measured by a 12-item questionnaire developed by Pentz (1983, 1985) (see Appendix C; Part B). Six items measure self-efficacy in familiar interpersonal situations requiring assertiveness,

requests, or refusal with parents (n=2), peers (n=2), or teachers (n=2). The remaining six items measure the same skills, but in nonfamiliar interpersonal situations with persons other than parents, peers, or teachers. Each item assesses the level of self-efficacy (0 = no, could not; 1 = yes, could perform the skill) and strength of self-efficacy (certainty that the skill could be performed; 1 = not sure at all to 5 = very sure). Item ratings are summed to yield one score for level and one score for strength of self-efficacy in both familiar and unfamiliar situations. High scores indicate high levels of self-efficacy.

Pentz (1983) reported a two-week test-retest reliability correlation coefficient of .75. As well, Pentz (1982) reported that high levels of self-efficacy were predictive of low levels of alcohol use. Thus, this self-efficacy measure was deemed to be appropriate for use in the present study.

Stress. In order to measure stress, the Adolescent Life Change Event Scale (ALCES; Yeaworth, York, Hussey, Ingle, & Goodwin, 1980), which lists 31 personal, social, and family changes believed to be stressful to adolescents was used (see Appendix C; Part C). Items are listed from more stressful to less stressful according to their assigned weightings. Subjects are required to indicate the events they had actually experienced. The weightings for these events are summed to produce an overall score.

Yeaworth et al. (1980) developed the scale based on survey data obtained from a group of adolescents. In their study, subjects were asked to rate 31 events on a 5-point scale indicating how upsetting they believed the event would be (not at all upset to extremely upset). Mean rating scores were computed for each item and then multiplied by 20 to produce weightings for each item. Items were ranked from most stressful to least stressful. This ranked list of items comprises the ALCES.

Forman, Eidson, and Hagan (1983) administered a modified version of the ALCES to a group of students. Subjects were asked to rank-order the first 24 statements from the original 31 ALCES items from "most upsetting" to "least upsetting". Ranks for the total sample and ranks for males and females obtained in the Forman et al. study were compared to those reported by Yeaworth et al. (1980). For each comparison, rank-order coefficients exceeded .90 (total sample = .907; males = .902; females = .902) suggesting that the ALCES is a valid instrument and is therefore an adequate measure of stress for the present study.

Alcohol expectancies. the Alcohol Expectancy Questionnaire - Adolescent Form (AEQ-A; Christiansen et al., 1982) measures the degree of cognitive expectancy of drinking alcohol (see Appendix C; Part D). The AEQ-A has 90 true/false items which comprise seven scales. The AEQ-A

scales and number of items include: (1) Global Changes, 15; (2) Altered Social Behavior, 17; (3) Enhanced Cognitive/Motor Functioning, 10; (4) Sexual Enhancement, 7; (5) Cognitive and Motor Impairment, 24; (6) Increased Arousal, 4; (7) Relaxation and Tension Reduction, 13. A subject's score on a particular scale is the number of statements to which he/she responded "true". Scale 2, however, is an exception. On this scale, each "true" response to the positive items earns one point, while replying "false" to the negative items earns a point. High scores on scales 1 - 4 and 6 - 7 indicate expectations of positive effects, while high scores on Scale 5 reflect negative expectancy.

Internal consistency coefficients were, respectively, .75, .76, .66, .77, .82, .47, and .74 (Christiansen & Goldman, 1983). A. G. Kline, McLaren, and Kline (1987) reported test retest reliabilities of the AEQ-A scales at two weeks and at three months. Two-week test-retest reliability coefficients ranged from .18 to .74 with an average of .40 whereas three-month test-retest reliability coefficients ranged from .23 to .61 with an average of .46. Validation of the AEQ-A indicated that the expectancy scales were predictive of level of alcohol consumption among adolescents (Christiansen et al., 1982). More recently, A. G. Kline et al. (1987) reported that scales 1, 2, 3, 5, and 7 were significantly related to level of self-reported

drinking of adolescents. As well, R. B. Kline et al. (1987) found that positive alcohol expectancies had significant direct effects on adolescent alcohol consumption. Thus, the reliability and validity indicated that the AEQ-A was an adequate measure of alcohol expectancies.

In order to create a positive alcohol expectancy latent variable, only the positive alcohol expectancy scales were used (scales 1, 2, 3, 5, and 6). Scale 4 which measures an expected negative effect of alcohol was not used (R. B. Kline et al., 1987).

Parental attitudes. Four items from Cahalan (1970) that reflect subjects' perceptions of parental approval of their drinking were employed (see Appendix C; Part E). Separate items for each parent are presented including adolescents' perceptions of parental attitudes towards their drinking (1 = strongly disapprove, 2 = indifferent, 3 = strongly approve) as well as ratings of parental influences on their drinking (1 = drink less, 2 = none, 3 = drink more). Responses to the two items about perceived father approval are summed as are those for mother, yielding a separate overall rating for each parent. Higher scores suggest greater perceived parental approval.

Parental and peer alcohol use. The perceived degree of parental and peer alcohol use were assessed using a quantity-frequency index (see Appendix C; Part F). The

average amount of alcohol consumed and the frequency of drinking episodes was measured. Separate items were presented for each parent. As well, subjects were required to provide an index of drinking behaviours of their closest friends.

Adolescent alcohol consumption. Teenage drinking was measured by two scales (see Appendix C; Part G): a quantity-frequency index of the number drinks (bottles of beer, glasses of wine, and shots of liquor) consumed each month (Heatherington, et al., 1978; Rachal et al., 1975); and an index of the number of problems experienced in the past year as a result of drinking (Heatherington et al., 1978).

Demographics. Background information regarding age, gender, race, socioeconomic status, and religion were collected in Part H of the questionnaire (see Appendix C; Part H). Items for this section were selected from a questionnaire developed by Jessor and Jessor (1977).

Procedure

Group administration of the questionnaires was conducted. Students selected to participate in the study were tested during regular class hours at the school they attended. Teachers and other school staff were not involved

in the data collection. Students were not required to identify themselves. A cover statement on the questionnaire assured subjects that all information provided by them would remain anonymous (Appendix C).

The questionnaire took approximately 60 minutes to complete. Each subject received a questionnaire booklet. Two IBM computer sheets were also given to the subjects; they were marked 1 and 2, respectively, in the top right hand corner. A three digit code was applied to each subjects' IBM sheets for the purpose of identifying a particular subject's data set.

At the beginning of the testing period, the experimenter explained that she was collecting information about adolescent attitudes and behaviors. The questionnaire was divided into eight sections. The instructions for the completion of the first section were read aloud. Subjects were then instructed to work through each section at their own pace. At the end of each section, they were asked to stop and wait until everyone had finished. The experimenter then explained the instructions for the following section, and the subjects were allowed to continue. All students were asked to remain seated until the end of the testing period at which time subjects were asked if they would be interested in participating in a follow-up study. Those that were interested were then asked to provide some personal information that would help locate them if a

follow-up study was conducted (see Appendix C). Finally, IBM sheets were collected and the purpose of the experiment was explained and questions were answered.

Structural Equations Modelling

Structural equations modelling was used to test the hypotheses. Briefly, structural equations modelling is a technique which allows one to examine causal models. A causal model is one in which certain variables (causes) are potential determinants of other variables (effects). In general, the selection of variables which serve as causes or as effects is based on a theoretical rationale. Those variables, within a certain theoretical framework, which are expected to predict other variables and are expected to precede them in time are called causes. In structural equations modelling, the contribution made by each cause to the effects is calculated, and the appropriateness of the model is assessed.

Variables included in structural equations modelling may be observed or latent. Latent variables are unobserved constructs comprised of two or more variables (Bentler, 1988). Models which include latent variables or a combination of observed variables and latent variables are called latent variable models.

It is generally agreed that correlation is not a proof of causation, and that no index exists as ultimate proof of causation (Younger, 1985). However, many relationships, including correlations and covariations among variables, may be suggestive of causal linkages. Similarly, structural equations modelling does not allow one to determine the direction of causality nor does it allow one to conclude that a causal relationship exists. Rather, structural equations modelling can be used to infer the existence of causal relationships (Leclair, 1981).

The proposed causal model was tested using the structural equations program (EQS) developed by Bentler (1985). EQS executes a mathematical and statistical analysis of a variety of linear structural equations including multiple regression, path analysis, simultaneous equations, and confirmatory factor analysis. The statistical theory permits the estimation of parameters and testing of models using traditional multivariate normal theory, and also allows the use of more general elliptical and arbitrary distribution theories.

The primary method for determining the contribution made by each cause in the model involves estimating the magnitudes of linkages between variables (path coefficients) using simple regression techniques (Asher, 1976; Duncan, 1975; Leclair, 1981). To obtain estimates of main path coefficients, each endogenous variable is regressed on those

variables that directly impinge upon it. The path coefficient is obtained by multiplying the original estimate by the standard deviation of the regressor variable divided by the sample standard deviation of the dependent variable. Thus a path coefficient is simply a standardized regression coefficient which measures the estimated number of standard deviations the dependent variable will change for each standard deviation increase in the predictor variable (Wright, 1934; Freund & Littell, 1986).

EQS also provides several fit indices which allow one to evaluate the adequacy of the overall model (Bentler, 1985; Newcomb & Bentler, 1988). Generally, two such indices are used. The first is the p-value associated with the chi-square statistic, based on its degrees of freedom (Newcomb & Bentler, 1988). The chi-square statistic is a measure of the deviation between the covariance matrix obtained from the model being tested and the observed data. It assesses the null hypothesis that the model being evaluated is correct for the population. However, the chi-square value is not a completely satisfactory measure of fit as it is a linear function of the number of subjects in the sample (Bentler, 1988). Thus in large samples, as in the present study, it is often difficult to obtain non-significant p-values. As a result, the normed fit index (NFI) is also used. The NFI is a statistic which indicates the proportion of the sample covariations that is accounted

for by the hypothesized model (Newcomb & Bentler, 1988). The value of the NFI ranges between zero and one. This index is considered to be a better measure of fit.

Newcomb and Bentler (1988) suggest that non-normally distributed data are best analyzed using procedures that do not rely on the assumption of multivariate normality. However, they also note that it is not feasible to run large models, such as the one in the present study, with these models. In this case, Newcomb and Bentler suggest that normal theory maximum likelihood estimation procedures be used, with the understanding that the non-normal data violate this assumption. Comparisons between methods using data with varying degrees of normality indicate that the maximum likelihood procedure is quite robust (Newcomb & Bentler, 1988; Windle, Barnes & Welte, 1989). For example, Windle et al. (1989) used Bentler's (1985) EQS program to estimate drug and alcohol use models using both the normal maximum likelihood procedure and an arbitrary distribution theory of estimation that does not assume normality. Results indicated a high degree of similarity across estimation procedures for within-sample comparisons. It can be seen that maximum likelihood estimates are, perhaps, at least as good as the distribution-free estimates, and thus are technically perfectly acceptable (Bentler, 1988).

Results

In the present study, initial analyses to screen the data were carried out using Statistical Analysis Systems (SAS, 1987).

Initial Data Analyses

i) Missing Data: Accuracy of input of data was checked via SAS PROC FREQ and PROC PRINT. Of the initial 236 subjects who participated in the study, ten were deleted; one subject answered Yes to all questions on the ALCES, and True to all questions on the AEQ-A; nine subjects failed to complete large portions of the questionnaire.

Additionally, 15 subjects who reported having no father had missing data on the Father Approval and Father Drinking variables. In order to retain these subjects in the analyses, estimates of the missing data were used (Tabachnick & Fidell, 1989). Means from the available data were computed for variables Father Approval and Father Drinking and were used to replace the missing values for those 15 subjects.

ii) Ratio of Cases to Variables: With 226 observations and 17 independent variables, the cases to variable ratio was approximately 13:1, within the suggested minimum of 5:1 (Tabachnick & Fidell, 1989).

iii) Normality, Linearity, and Homoscedasticity: Distributions of variables were examined via SAS PROC UNIVARIATE (Appendix D). Mother Approval, Father Drinking, Mother Drinking, and Peer Drinking were positively skewed. All other variables were negatively skewed.

Drinking Measures

Three different measures of drinking behaviours were obtained; volume consumed per month, number of problems experienced as a result of drinking, and maximum number of drinks consumed. Correlations between predictor variables and the three drinking measures were obtained using SAS PROC CORR. A summary of the correlations is presented in Table 3. Of the three alcohol measures, volume of alcohol consumed per month had the highest correlations with the largest number of predictor variables and was therefore selected to be used as the dependent measure of alcohol consumption.

Demographic Variables

Gender, religion, and ethnic background were dummy coded, then examined to determine if there were any differences in drinking levels due to these demographic variables. SAS PROC ANOVA was run and a Duncan's

Table 3.

Correlations Between Predictor Variables and
Drinking Measures

Predictors	Drinking Measures		
	Volume	Problems	Maximum
Parent Approval ¹	-.138*	-.136*	.095
Father	-.123*	-.126*	.071
Mother	-.116*	-.109*	.093
Parent Drinking ¹	-.055	-.023	.054
Father	-.059	-.035	-.022
Mother	.314***	.331***	.012
Peer Drinking	.662***	.419***	-.026
Social Skills	-.436***	-.322***	-.009
Stress	.152*	.110*	.093
Alcohol Expectancies ¹	.395***	.284***	-.013
Global	.303***	.192**	-.033
Social	.442***	.301***	.008
Cognitive	.449***	.350***	.052
Sexual	.301***	.183**	-.074
Arousal	.158*	.194**	-.065
Relaxation	.087	.097	.035

Table 3 continued.

Predictors	Drinking Measures		
	Volume	Problems	Maximum
Self-efficacy ¹	.069	-.043	-.046
Level-familiar	-.115*	-.169**	-.012
Strength-familiar	-.060	-.124*	-.032
Level-unfamiliar	.127*	.035	.070
Strength-unfamiliar	.169**	.044	-.044

1 = latent variable

* = .1

** = .01

*** = .001

all others are nonsignificant

multiple range test was performed (see Table 4).

No differences in drinking levels were found for males and females. Among the various ethnic groups, significant differences were found. German and British adolescents consumed significantly more alcohol than Oriental adolescents. As well, German adolescents consumed more than adolescents belonging to Other ethnic origins. No significant differences were found between German and British adolescents. One significant difference was found for adolescents affiliated with various religions. Overall, Catholic adolescents drank significantly less than adolescents of any other religious orientation.

Structural Equations Analyses

The primary method of analysis in the present study was latent-variable structural equations modelling using the maximum likelihood estimation procedure. A correlation matrix provided the necessary data for the programme (see Appendix D). Initial analyses indicated a problem in the condition number of the input matrix. According to Bentler (1985), the condition number is strongly affected by differences in the scales of the input variables. He suggests that input variables should be scaled to have similar variances. Several variables used in the present study were scaled down to produce similar variances among variables. Mother Approval, Father Drinking, Mother

Table 4.

Comparison of Drinking Level by Demographic Variables

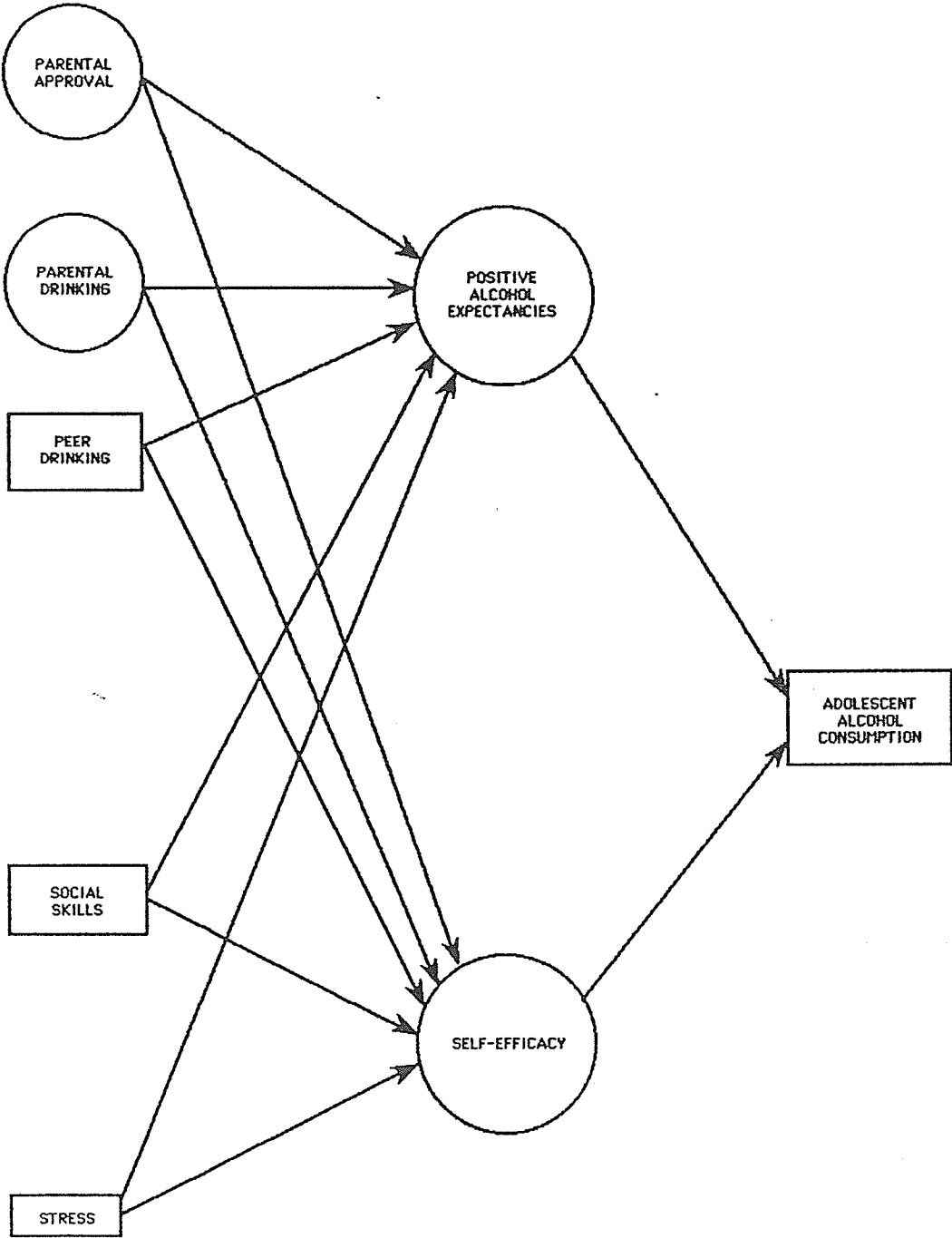
Demographic Variable	N	\bar{X}	Test Statistics
Gender			$F(1, 224) = .86, p < .35$
Male	97	35.53	
Female	129	28.91	
Ethnicity			$F(3, 222) = 6.95, p < .001$
German	22	58.11	
British	50	49.38	
Oriental	31	6.50	
Other	123	26.22	
Religion			$F(3, 222) = 3.37, p < .05$
No religion	50	39.11	
Other Religion	73	40.28	
Protestant	37	35.27	
Roman Catholic	66	14.75	

Drinking, Peer Drinking, Social Skills, and Adolescent Alcohol Consumption were each divided by ten to produce smaller standard deviations similar to the other variables. The variable Stress was divided by 100 to produce a standard deviation similar to the other variables.

In the first stage of the analysis, the proposed model was examined (see Figure 2). Variables at each level were regressed on all variables at the previous levels. Due to computational difficulties and possible linear dependencies among variables, the initial model was slightly modified (see Figure 3). Paths emanating from the variables at the first level predicting alcohol use were dropped. A subsequent analysis indicated that the computational difficulties were corrected. However, the modified model did not adequately reflect the data, $\chi^2 (116, N = 226) = 778.18, p < .001, NFI = .606$. This model was then modified by deleting nonsignificant parameters based on the Wald test, and then adding regression paths based on the Lagrange Multiplier modification indices (Bentler, 1985). The resulting model produced an improved fit index $\chi^2 (44, N = 226) = 10.75, p < .001, NFI = .896$.

The next step was to determine covariations between error terms based on the Lagrange multiplier test (Bentler, 1985). At this stage, the self-efficacy latent variable was removed as it did not predict alcohol use, and thus did not contribute to the prediction of teenage drinking. The

Figure 3. Modified analysis of the cognitive social learning model of adolescent alcohol use.



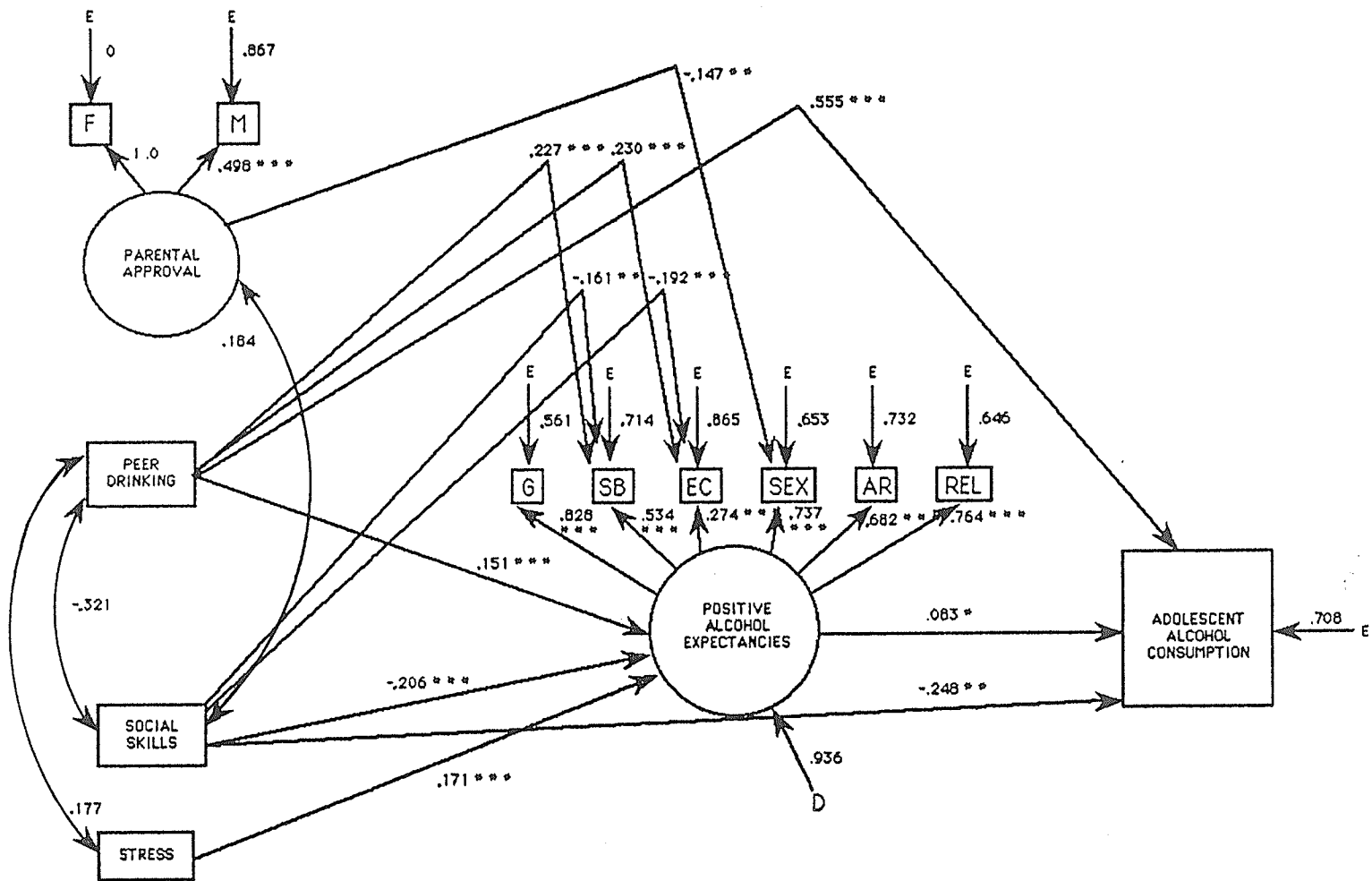
parental drinking latent variable was also deleted as it no longer predicted any of the remaining variables. The ensuing analysis indicated that two covariances among error terms should be included. These covariances were added and the final model was obtained (see Figure 4). Although the final model produced a poor chi-square statistic, $X^2 (42, = 226) = 74.84$, $p < .001$, the NFI was sufficiently large (.923). Since the NFI is considered to be a better index of fit (Newcomb & Bentler, 1988), the final model achieved in the present study was deemed to be acceptable.

Alcohol Expectancies. It was hypothesized that parental approval would positively predict adolescent alcohol expectancies (Hypothesis 1). Parental approval was not a significant predictor of the adolescent alcohol expectancy latent variable. However, parental approval was negatively predictive of the alcohol expectancy that alcohol improves sexual functioning.

Hypothesis 2 stated that parental drinking would be positively predictive of alcohol expectancies. Results did not support this hypothesis. Parental drinking was not related to adolescent alcohol expectancies.

Hypothesis 3 predicted that adolescents' perceptions of peer drinking would positively predict alcohol expectancies. This hypothesis was supported. Adolescents who reported higher levels of peer drinking tended to have higher

Figure 4. Final structural equations model of the cognitive social learning model of adolescent alcohol use.



* = .1
 ** = .01
 *** = .001 (one tailed)

positive alcohol expectancies (.151). In addition, peer drinking positively predicted the adolescent expectancies that alcohol improved social situations (.227) and enhanced cognitive functioning (.230).

Self-efficacy. It was hypothesized that social skills would positively predict adolescents' perceptions of self-efficacy (Hypothesis 4), and that stress would negatively predict self-efficacy (Hypothesis 5). Self-efficacy was not included in the final model, and thus these hypotheses were not testable. However, correlations between social skills and self-efficacy (-.02) and between stress and self-efficacy (-.03) were not significant, indicating a weak relationships between the predictor variables and self-efficacy.

Adolescent Alcohol Consumption. Parental approval of adolescent alcohol use was hypothesized to positively predict adolescent alcohol use (Hypothesis 6). However, the final model indicated that parental approval did not significantly predict adolescent alcohol consumption.

Hypothesis 7 predicted that parental alcohol use would positively predict adolescent alcohol consumption. This hypothesis was not supported in the present study as parental alcohol use was not included in the final model.

Peer drinking was expected to positively predict adolescent alcohol use (Hypothesis 8). This hypothesis was

supported by the final model which showed that perceptions of high peer alcohol use predicted higher levels of adolescent drinking (.555).

It was hypothesized that social skills would negatively predict adolescent drinking (Hypothesis 9). Results indicated that social skills were a significant negative predictor of alcohol consumption (-.248). Adolescents with poorer social skills tended to drink more.

It was proposed in Hypothesis 10 that stress would positively predict adolescent alcohol use. However, in the final model obtained in the present study, stress was not a significant predictor of adolescent alcohol consumption.

According to Hypothesis 11, positive alcohol expectancies were expected to positively predict adolescent drinking. Although this hypothesis was supported by the results which showed that alcohol expectancies positively predicted adolescent drinking (.083), this relationship was weak.

In Hypothesis 12, it was predicted that self-efficacy would negatively predict adolescent alcohol use. However, self-efficacy was dropped from the final model and thus did not predict teenage drinking.

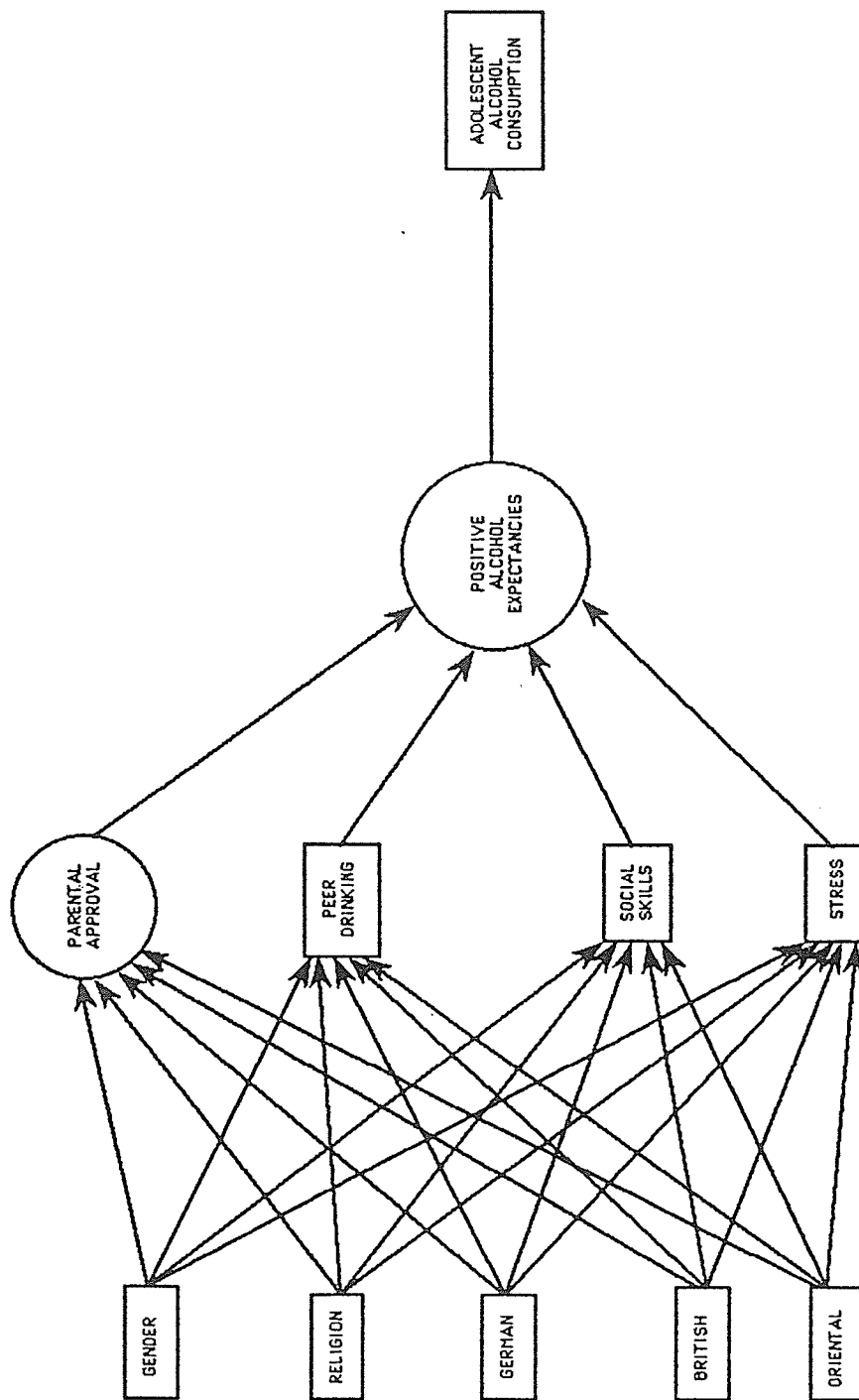
Positive alcohol expectancies and perceptions of self-efficacy were hypothesized to be the best predictors of adolescent alcohol use. In the present study, peer drinking (.555) and social skills (-.248) were the strongest

predictors of teenage drinking behaviours. thus, it is obvious that Hypothesis 13 was not supported.

Demographics. Social models of adolescent alcohol use emphasize that adolescents are a part of a system which encompasses a wide variety of sociodemographic variables that may be related to adolescent alcohol use (G. M. Barnes et al., 1980). The cognitive social learning model of alcohol use is no exception; it also recognizes the importance of various social and cultural influences (Abrams & Niaura, 1987). Although hypotheses about these sociodemographic influences were not proposed in the present study, it was noted that differences in drinking patterns among various ethnic and religious groups existed (see Table 4). Therefore, EQS was used to determine if these sociodemographic variables significantly affected the cognitive social learning model obtained in the present study.

In the initial phase of analysis, variables at each level were regressed on all variables at the previous level (see Figure 5). EQS was used to obtain the standardized regression coefficients and to test the model. The first analysis indicated that the model did not adequately reflect the data $\chi^2 (98, N = 226) = 270.17, p < .001, NFI = .786$.

Figure 5. Structural equations modelling of the cognitive social learning model of adolescent alcohol use with demographic variables included.



Subsequently, this model was modified by deleting nonsignificant parameters based on the Wald test, and then adding regression paths based on the Lagrange Multiplier test (Bentler, 1985). The resulting model produced an improved fit index $\chi^2 (99, = 226) = 191.39, p < .001, NFI = .835$.

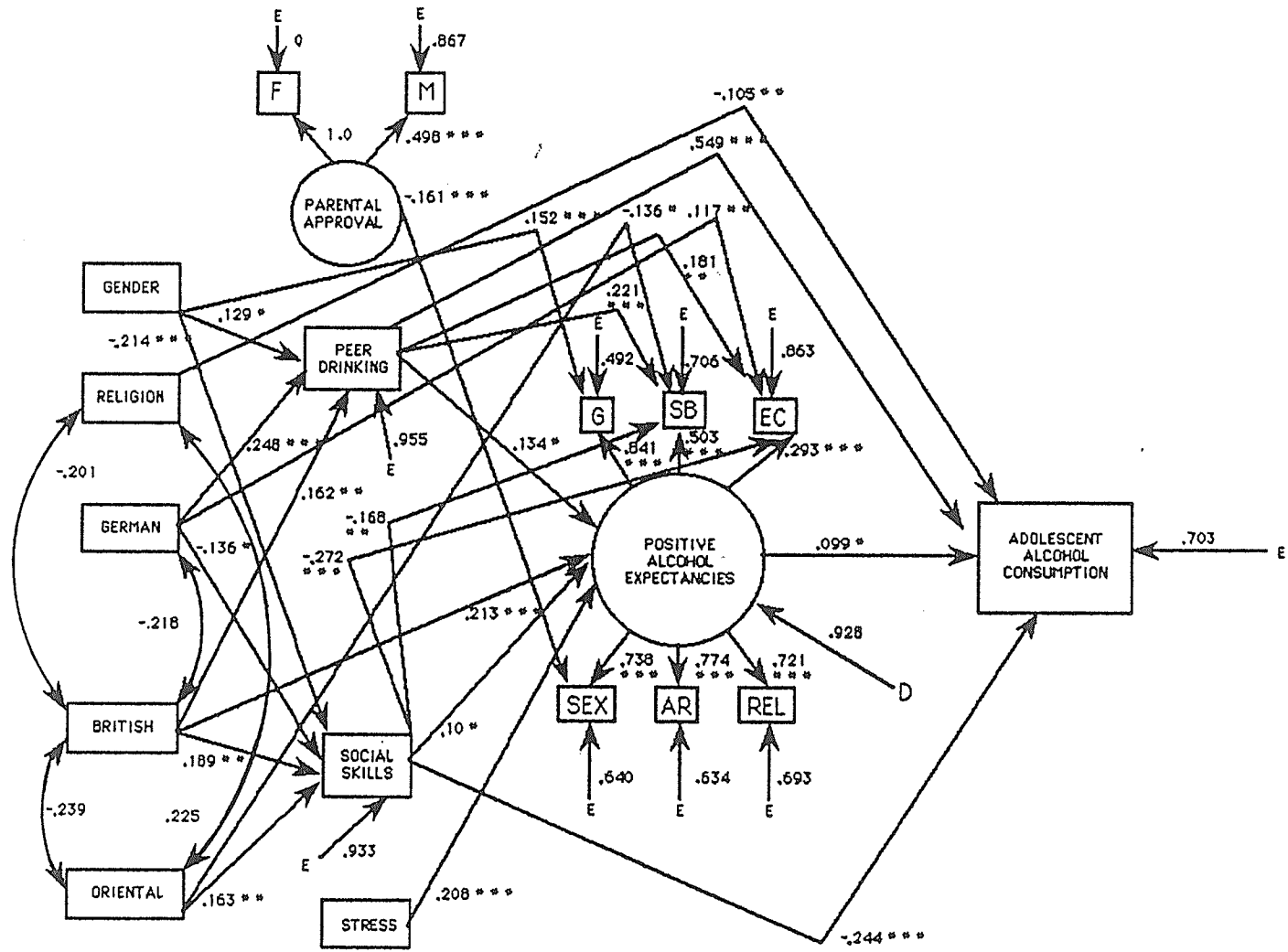
In the following step, covariations among error terms were identified based on the Lagrange Multiplier indices and added in. The final model produced an acceptable fit index $\chi^2 (94, = 226) = 127.99, p < .01, NFI = .89$, and ,thus, was considered to be an adequate reflection of the data (see Figure 6).

Gender was found to be positively predictive of peer drinking (.129) and negatively predictive of social skills (-.214). These results show that the male teenagers tended to have peers who drank more. Males also tended to have lower social skills than females. In addition, gender was predictive of expectations that alcohol was globally positive (.152). Thus, males were more likely to see alcohol as globally positive.

Results indicated that religion was negatively predictive of adolescent alcohol consumption (-.105). Catholic adolescents tended to drink less than adolescents belonging to other religions.

Differences among ethnic groups were also found in the present study. Both German and British adolescents reported

Figure 6. Final cognitive social learning model of adolescent alcohol use with demographic variables included.



* = .1
 ** = .01
 *** = .001 (one tailed)

having more peers who drank (.248 and .162, respectfully) and indicated poorer social skills (-.136 and -.189, respectfully). In addition, British adolescents had higher alcohol expectancies (.213) than adolescents of other ethnic origins. German adolescents also had higher alcohol expectations of enhanced cognitive functioning (.117). Oriental students, on the other hand, reported higher social skills (.163) and lower alcohol expectations of enhanced social behaviour (-.189).

A comparison of the final cognitive social learning model of adolescent alcohol use with the final cognitive social learning model which included sociodemographic variables indicates that the sociodemographic variables do not significantly contribute to the prediction of adolescent alcohol use. In the first model, approximately 50 percent of the variance is accounted for, and in the model with sociodemographic variables, approximately 51 percent of the variance is accounted for - a difference of only one percent.

Discussion

Development of Alcohol Expectancies

Previous research has shown that adolescent alcohol expectancies develop as a result of socialization influences (Biddle et al., 1980). Adolescents' perceptions of parental and peer attitudes towards alcohol and adolescents' exposure to parental and peer drinking behaviours have been shown to affect adolescents' own beliefs about alcohol. In the present study, it was expected that these socialization influences would be causally related to teenagers' positive alcohol expectancies.

More specifically, it was hypothesized that parental attitudes towards drinking (Hypothesis 1), parental drinking behaviours (Hypothesis 2), and peer drinking behaviours (Hypothesis 3) would be positively predictive of adolescent alcohol expectancies. Results indicated that neither parental attitudes nor parental drinking behaviours were significant predictors of alcohol expectancies. Peer drinking, however, was found to be a significant positive predictor. Thus, Hypothesis 3 was supported while Hypotheses 1 and 2 were not.

This finding was not surprising. In general, studies examining various adolescent behaviours have demonstrated that these behaviours are more strongly affected by peer

influences rather than parental influences (Santrock, 1981). With respect to the development of alcohol-related expectancies, similar observations have been noted (Biddle et al., 1980; Harford, 1982). Biddle et al., for example, studied the internalization of parental and peer norms in relation to adolescent alcohol consumption. They found that younger and older adolescents tended to internalize parental socialization influences while middle-adolescents internalized peer drinking behaviours and norms. Thus, it appears that although parents may affect initial expectations about alcohol, parental socializing influences are not internalized until young adulthood (Abrams & Niaura, 1987). Because middle adolescents participated in this study, it is possible that they have not yet internalized parental influences and as a result, parental influences did not predict alcohol expectancies.

Results also indicated that social skills and stress were significant predictors of adolescent alcohol expectancies. According to cognitive social learning theory, alcohol use is a method of coping with demands of everyday life. When an individual has poor coping skills (ie., poor social skills) and experiences increased levels of stress, they are more likely to rely on another form of coping (ie., alcohol use). Because the pharmacological effects of alcohol include tension reduction, these individuals would expect positive effects from alcohol.

Furthermore, the final model indicated that several variables which comprise the alcohol expectancy latent variable were also predicted. Both expectations of improved social functioning and enhanced cognitive functioning were positively predicted by peer drinking and negatively predicted by social skills. It appears that adolescents whose peers drink more and adolescents with poorer social skills expect alcohol to improve social and cognitive functioning. A possible explanation for this is, that because alcohol is considered a coping response, adolescents with poorer social skills who observe their friends' alcohol use, may, through vicarious experiences learn to expect positive things from alcohol. For example, adolescents who feel inadequate in social situations due to poorly developed social skills may see that their peers enjoy drinking and become more relaxed and talkative after drinking. Thus, those adolescents with no other way to cope with their feelings are more likely to develop the expectation that alcohol improves social and cognitive functioning.

As well, expectations of enhanced sexual functioning were negatively predicted by parental attitudes towards adolescent alcohol use. In general, restrictive parental attitudes have been shown to be related to increased sexual interest in adolescents (Santrock, 1981), possibly due to the rebellious nature of adolescence. Parental restrictiveness towards alcohol may be indicative of overall

parental restrictiveness. Adolescents with restrictive parents are more likely to have a higher sexual interest, and thus, may have higher expectations for sexual arousal from alcohol.

Development of Efficacy Expectations

According to the cognitive social learning theory of alcohol use, efficacy expectations develop primarily as a function of an individual's level of social skills and their ability to use these social skills to decrease stressful feelings (D. M. Donovan & Marlatt, 1980). Therefore adolescents' with poorly developed social skills and high levels of stress would be expected to have developed poor perceptions of personal efficacy.

Following this rationale, it was hypothesized that adolescent social skills would be positively predictive of self-efficacy (Hypothesis 4) and that stress would be negatively predictive of adolescents' perceptions of efficacy (Hypothesis 5). However, self-efficacy was not included in the final model. Correlations between social skills and self-efficacy and between stress and self-efficacy were not significant. These low correlations indicate that the relationships between the predictor variables and self-efficacy were weak. Thus, neither social

skills nor stress would be expected to be a significant predictor of self-efficacy.

According to cognitive social learning theory, the development of efficacy expectations is an ongoing process (Bandura, 1981). To recapitulate briefly, efficacy judgements are based on, and altered by, several sources of information: previous experience, modelling influences, social persuasion, and physiological responses. The situations presented in the self-efficacy questionnaire used in the present study (Pentz, 1983; 1985) involved many social interactions which would only be emerging in adolescence. Thus, adolescents have not had a lot of direct or vicarious experience with those situations, and as a result, their efficacy expectations would not be fully developed.

Adolescent Alcohol Consumption

Socialization variables. Many socialization, personality, and cognitive variables have been shown to be related to adolescent alcohol use (Blane & Hewitt, 1977; R. B. Kline et al., 1987). In the present study, the socialization variables (ie., parental approval, parental drinking, and peer drinking) were expected to be positively predictive of adolescent alcohol use (Hypotheses 6, 7, and 8).

Adolescents' perceptions of parental attitudes and parental drinking behaviours did not predict adolescent drinking behaviours. However, adolescents' perceptions of peer drinking was a strong positive predictor of adolescent alcohol consumption. It is evident from these results that peers exert a stronger influence over adolescent drinking than do parents. This finding is consistent with previous research. Harford (1982) suggested that as age increased, peer influences on teenage drinking gradually assume greater importance. Younger adolescents tend to drink at home and generally consume smaller amounts. However, frequency of drinking at home decreases with age, as drinking in non-adult supervised situations increases. Thus, older adolescents are more likely to consume alcohol in the presence of peers. Results obtained by Biddle et al. (1980) corroborate Harford's conclusions. They found that young adolescents responded to parental norms, while middle-adolescents were most influenced by peer behaviours.

Individual differences. Cognitive social learning theory proposes that individual differences may determine initial patterns of alcohol use (Abrams & Niaura, 1987). Socialization deficits in adolescents may restrict their ability to deal effectively with stressful feelings and may lead to increased alcohol consumption. Therefore, social skills were hypothesized to be negatively predictive of

adolescent alcohol use (Hypothesis 9), while stress was expected to be positively related to adolescent alcohol consumption (Hypothesis 10).

As expected, social skills were significantly negatively predictive of adolescent alcohol consumption. Adolescents with poor social skills tended to consume more alcohol. Thus, the theory that adolescents with poor social skills may lack appropriate coping strategies, and therefore use alcohol as a maladaptive coping technique is supported.

Stress, however, was not found to be a significant predictor of adolescent alcohol use. Rather, stress appears to affect adolescent alcohol consumption indirectly via positive alcohol expectancies.

Cognitive variables. It is evident that many researchers have examined a variety of variables in their attempts to identify predictors of adolescent alcohol use. However, few researchers have included cognitive measures in their studies of teenage drinking. Recently, the contribution of cognitive factors, in the prediction of alcohol use, has received increased attention. Two cognitive factors which have been proposed to be related to adolescent drinking are expectations that alcohol will produce a desired positive effect and perceptions of self-efficacy.

Brown et al. (1987) compared alcohol related expectancies in alcohol abusing adolescents and adolescents in a general high school population. Overall, adolescent abusers received significantly higher scores on AEQ-A scales indicating positive expectancies. It was therefore hypothesized that positive alcohol expectancies would be positively predictive of adolescent alcohol consumption (Hypothesis 11).

Although the relationship was weak, adolescents' beliefs about the positive effects of alcohol were positively predictive of adolescent alcohol use. Thus, the notion that positive alcohol expectancies are causally related to adolescent alcohol use was supported. As noted, the relationship to adolescent alcohol use was weak. This is not surprising considering previous research which indicates that internalized expectancies about alcohol are only developing in middle adolescents and thus, only become more important in young adulthood (Biddle et al., 1980).

Self-efficacy was expected to be negatively predictive of adolescent alcohol consumption. In the present study, self-efficacy was not included in the final model as it did not significantly predict adolescent drinking. As was discussed previously, efficacy expectations are developed over time by a continual process of vicarious and direct experience. Therefore, it is possible that self-efficacy, as measured in the present study, was not yet fully

developed in the sample of adolescents who participated in the study, and therefore was not related to adolescent alcohol use.

Of central importance to the cognitive social learning theory of alcohol use are the cognitive factors that modulate behaviour. Proponents of the theory have identified positive alcohol expectancies and a poor perception of self-efficacy as the ultimate determinants of drinking behaviours (Abrams & Niaura, 1987; D. M. Donovan & Marlatt, 1980). Therefore, it was hypothesized that high positive alcohol expectancies and poor perceptions of self-efficacy would be the strongest predictors of adolescent alcohol use. The two strongest predictors were peer drinking and social skills.

These results are not surprising in light of what has been found by previous researchers. Many researchers have examined adolescent drinking in relation to peer drinking and have found peer drinking to be a significant predictor (Blane & Hewitt, 1977). Furthermore, R. B. Kline et al. (1987) found that peer drinking was causally related to adolescent drinking. The present results corroborate past findings. It appears that peer pressure is one of the most influential causes of teenage drinking.

The finding that social skills were a strong predictor of adolescent alcohol use was also not surprising. Drinking is a social behaviour, and as such, involves certain social

skills such as refusal. These social skills serve to reduce anxiety experienced in social situations. Deficits in these skills may restrict alternative coping behaviours and as a result, individuals may seek to reduce anxiety by consuming alcohol.

Unfortunately, positive alcohol expectancies and perceptions of self-efficacy were not the best predictors of adolescent alcohol use. The development of alcohol and efficacy expectations is an ongoing process. It appears that middle-adolescents have not yet fully developed these cognitions due to a limited amount of experience.

Demographic Variables

Social models of adolescent alcohol use suggest that teenagers are a part of a system which encompasses a variety of variables, including sociodemographics (G. M. Barnes et al., 1980). Therefore, in addition to the proposed model, an analysis of the influence of demographics on the cognitive social learning model of adolescent alcohol use was conducted. The resulting model (see Figure 6) showed that several of the sociodemographic variables were included in the model.

Gender. Although no significant differences in drinking levels were found between males and females, the final model obtained showed that gender predicted peer

drinking, social skills, and expectancies that alcohol was globally positive. Males tended to report higher peer drinking, lower social skills, and higher expectations that alcohol was globally positive. These differences between males and females may simply be a result of general developmental differences, and thus do not necessarily contribute to the prediction of adolescent alcohol use.

Ethnicity. Differences among ethnic groups were observed in the present study. Specifically, British and German adolescents reported higher peer drinking and lower social skills. As well, German adolescents had higher expectations of enhanced cognitive functioning, and British adolescents had high positive alcohol expectancies. In contrast, Oriental students reported higher social skills and lower expectations of enhanced social functioning. Although significant differences in drinking levels among these ethnic classifications existed, (i.e., high drinking among German and British youth, and low drinking among Oriental adolescents), ethnicity did not predict adolescent alcohol use. Rather, it seems that ethnicity affects adolescent drinking indirectly via peer drinking, social skills, and alcohol expectancies.

Religion. In the present study, religion was found to negatively predict adolescent alcohol use. That is, Catholic adolescents reported significantly lower levels of

alcohol use than adolescents affiliated with other religions. This finding corroborates results obtained by previous researchers (Blane & Hewitt, 1977). In general, Catholic adolescents are less likely to drink than other adolescents, although those who do drink, tend to drink more. In the present study, alcohol consumption was measured by the number of drinks consumed each month. Because Catholic adolescents are more likely to be abstainers (Rachal et al., 1975), the level of reported use would be low.

A comparison of the final cognitive social learning model obtained (see Figure 4) and the final model with sociodemographic variables included (see Figure 6) was made. It is evident that, although the sociodemographic variables were included in the cognitive social learning model of adolescent alcohol use, they did not significantly alter the model obtained in the present study. At best, these variables indirectly affected adolescent drinking behaviours via peer drinking, social skills, and alcohol expectancies. Furthermore, the sociodemographic variables did not significantly improve the prediction of adolescent drinking. Thus, it appears that although it is interesting to see how sociodemographic variables fit into the cognitive social learning model of adolescent alcohol use, it is not necessary to include them in the prediction of adolescent alcohol consumption.

Conclusions and Implications

In summary, the findings of the present study indicate that peer pressure to drink and lack of well developed social skills are the best predictors of adolescent drinking. Furthermore, these variables are considered to be direct determinants of teenage alcohol use. In addition, although demographic variables can be included in the cognitive social learning model of adolescent alcohol use, they do not significantly improve the prediction of teenage drinking behaviours.

As with most research, there are limitations which must be taken into consideration before making any hard-fast conclusions. An important factor which must be taken into consideration involves the generalizeability of the results. The present study used a sample of high school students. Although they were selected from three different schools, these schools were not randomly selected. Similarly, due to constraints imposed by school administrators, students at each school were not randomly selected to participate. Furthermore, the high school sample represents a somewhat limited sample in that adolescents with severe drinking problems most likely do not attend school and were therefore not included. In order to obtain a sample which is more representative of the extremes of drinking behaviour, a clinical sample of teenagers who are receiving treatment should be included.

However, results obtained in the present study provide information that may be useful in the development of future alcohol prevention and intervention programmes for adolescents. For example, the strong influence of peer pressure and lack of social skills observed in the present study indicates that such programmes should focus on teaching strategies of how to deal with peer pressure to drink.

Future directions for research concerning the cognitive social learning model of adolescent drinking should include further examination of the development of alcohol expectations and self-efficacy. Because the development of these cognitions is an ongoing process, it is best to study their influence on drinking behaviours over time. Therefore, it is suggested that a follow-up study be conducted with subjects in the present study to determine, if, indeed, these cognitions become more important in predicting alcohol use in young adulthood and later in life as has been proposed (Abrams & Niaura, 1987).

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Appendix A
Letters to Parents

Dear Parents,

This letter is to inform you about a study we are planning to conduct at (name of school), and to ask your permission to allow your son or daughter to participate.

As you are no doubt aware, problem teenage drinking is a matter of serious public concern. In order to learn more about the development of problem drinking behaviors of adolescents it is necessary to investigate various factors that may be associated with adolescent alcohol use. The present study is designed to examine thought processes that may influence teenage drinking practices. The study will be conducted by Mary Borys for her masters thesis in Developmental Psychology at the University of Manitoba under the supervision of Dr. Gordon Barnes (Head, Family Studies).

Students who participate in the study will be asked to complete several questionnaires which will take approximately 60 minutes of their time. Your son or daughter is not being singled out in any way for inclusion in this study. They are simply part of a random sampling of some 400 students who will be included in this project. Since your son or daughter is not currently 18 years of age they will not be included in the study without your signed permission. Your consent does not oblige your son or daughter to participate in this project. They will still have complete freedom to participate or not to participate as they see fit. Results will be reported in group rather than individual form to preserve anonymity of responses. If your son or daughter does participate, they may also be asked to participate in a follow-up study which will be conducted in 2 or 3 years.

The types of questions that will be included in this survey will be as follows:

- 1) Background information will be gathered; age, gender, grade, parents' education, religious background, etc.
- 2) Teenage alcohol use will be assessed using standard items such as;
 21. Let's take BEER first. How often do you usually have beer?
(Choose ONE answer.)

A) Do not drink beer at all	E) Three or four days a month
B) Every day	F) About once a month
C) Three or four days a week	G) Less than once a month but at least once a year
D) One or two days a week	H) Less than once a year

- 3) Questions concerning parental alcohol use will be included, for example;
14. On the average, how much do you think your father usually has at any one time when he drinks alcohol? (Beer, wine or liquor)
- | | |
|--------------------------|------------------------|
| A) Does not drink at all | F) Four drinks |
| B) Twelve or more drinks | G) Three drinks |
| C) About nine drinks | H) Two drinks |
| D) Six drinks | I) One drink |
| E) Five drinks | J) Less than one drink |
- 4) Student social skills, cognitive expectancies, and stress will be assessed via standard Psychological tests.

Although some of the questions your son or daughter will be asked to answer in this survey will be fairly personal in nature, please remember that their responses will remain confidential and there is absolutely no way answers can be traced back to you personally.

This study has been approved by the Superintendent's Department and the Research Ethics Committee, Winnipeg School Division No. 1.

If you have any further questions regarding this project please phone Mary Borys at 474-9338 or at 452-8077, or phone Dr. Gordon Barnes at 474-9794.

Please indicate whether or not you wish your son or daughter to participate by completing the permission slip attached and returning it to the school as soon as possible.

Sincerely,

Mary S. Borys, BA(Hons)

Gordon E. Barnes, Ph.D.

PARENTAL PERMISSION FORM

Please write your child's name and indicate whether or not you wish your child to participate in the study entitled "Cognitive Social Learning and Adolescent Alcohol Use".

Name of student _____

I do consent _____

I do not consent _____

Dear Parents,

This letter is to notify you that your son or daughter has been selected to participate in a study we are planning to conduct at (name of school).

As you are no doubt aware, problem teenage drinking is a matter of serious public concern. In order to learn more about the development of problem drinking behaviors of adolescents it is necessary to investigate various factors that may be associated with adolescent alcohol use. The present study is designed to examine thought processes that may influence teenage drinking practices. The study will be conducted by Mary Borys for her masters thesis in Developmental Psychology at the University of Manitoba under the supervision of Dr. Gordon Barnes (Head, Family Studies).

Students who participate in the study will be asked to complete several questionnaires which will take approximately 60 minutes of their time. Your son or daughter is not being singled out in any way for inclusion in this study. They are simply part of a random sampling of some 400 students who will be included in this project and they will have complete freedom to participate or not to participate as they see fit. Results will be reported in group rather than individual form to preserve anonymity of responses. Your son or daughter may also be asked to participate in a follow-up study which will be conducted in 2 or 3 years.

This study has been approved by the Superintendent's Department and the Research Ethics Committee, Winnipeg School Division No. 1.

If you have any further questions regarding this project please phone Mary Borys at 474-9338 or at 452-8077, or phone Dr. Gordon Barnes at 474-9794.

If you do not wish your son or daughter to participate in the study, please complete the attached form and return it to the school as soon as possible. Otherwise, you may assume that your child will take part in the study.

Sincerely,

Mary S. Borys, BA(Hons)

PARENTAL PERMISSION FORM

Please write your child's name if you do not want your child to participate in the study entitled "Cognitive Social Learning and Adolescent Alcohol Use".

Name of student _____

I do not consent _____

Appendix B
Drinking Level Classification Criteria

Drinking Level Classifications

<u>Drinking Level</u>	<u>Criteria</u>
Abstainer	No drinking; or < once a year
Infrequent	< 1 drink consumed a maximum of once a month
Light	2-4 drinks consumed no more than once a month; or 1 drink consumed 2-3 times per month
Moderate	1 drink at least once per week; or 2-4 drinks consumed 3-4 times per month; or 5 or more drinks consumed no more than once per month
Moderate/Heavy	2-4 drinks at least once per week; or 5 or more drinks consumed 3-4 times per month
Heavy	5 or more drinks consumed at least once per week

Appendix C
Questionnaire

DIRECTIONS

This questionnaire is divided into sections of questions. The questions, however, are numbered in order.

This is not a test and you are not timed on any section or group of questions. However, you should not skip around, but instead start with the first question in each section and go through all of the questions in that section.

When you have completed a section, STOP, and wait for further instructions before going on.

Please read carefully ALL directions for each question. It is important that you follow these directions.

For each question I ask you to choose ONE letter or number and to fill in the corresponding space on the appropriate computer sheet. Use the pencil provided for you. Completely erase any answer you wish to change.

When you have completed the questionnaire, place the question booklet and the computer sheets face down in front of you. Please remain seated until everyone has finished.

Try to be as honest as possible. No one at the school will see or read your answers. You may skip any question you or your parents would consider objectionable.

I think you will enjoy completing the questionnaire. If you have any questions about how to answer an item, raise your hand and the supervisor will help you.

PART A

=====
Carefully read each of the following paragraphs. Imagine that you are actually in the situation. After each paragraph is a list of possible responses to the preceding situation. Choose the letter which corresponds to what you would most likely say or do if you were faced with the same problem.

Begin with computer sheet #1, question #1.
=====

1. Your gym teacher is a nasty guy, and you think he must have it in for you, because he's always picking on you. Today he's been on your back all period, and you've already had to do 50 extra pushups. Now he says to you, "OK sissy, let's see 40 more, and get some energy into them!" You're so tired and you don't think you can do another one, but the rest of the class is standing around, watching what will happen. What do you say or do now?
 - A) I'd walk out of class
 - B) I'd take a swing at him
 - C) I wouldn't do the pushups and would go to see the principal
 - D) "Why are you picking on me?"
 - E) I'd try to do them now but say: "I'd like to talk with you after class about this, Mr. Jones."

2. It's 7:30 on a Saturday night, and you ask your father if you can go out with your friends. He asks what you'll be doing. You say, "Oh, just driving around." He is angry, and he yells, "Nothing doing! You know what happens when you go driving with those kids! You can stay home tonight with the family and watch television!" What do you say or do now?
 - A) "You give me the same argument every night. You never let me go out."
 - B) "Why can't I go out?"
 - C) "We'll just be driving around the neighborhood and I'll be home by midnight."
 - D) "We won't get into any trouble."
 - E) "Tough luck, I'm going out anyways."

3. You've been going steady with someone for about three months. It used to be a lot of fun, but lately it has been sort of a drag. There are some other people you would like to go out with now. You decide to break up, but you know that the person you are going out with now will be very upset and probably angry too. He/she may even tell lies about you to other people which could hurt your chances of going out with them. How will you go about breaking up gently? What will you say or do?

- A) "My father says I have to go out with other people."
- B) I'd just stop seeing that person
- C) "I think that it's kind of over with us. It was fun when we had it, but it's over now. I want you to go out with other people and I want to go out with other people. We're too young to be tied down."
- D) "We've had some wonderful times together, and I like you an awful lot, but I'm beginning to feel tied down. I think it would be a good idea if we kept on seeing each other, but went out with other people too."
- E) I'd have one of my friends tell him/her it was over

4. You're playing basketball in the school yard, and some guys you don't know very well are standing on the sidelines. They start yelling at you, calling you names, and making fun of the way you play. One of them says, "Hey man, look at the tub of lard! You look like a ball of pizza dough!" What do you say or do now?

- A) "Look at you! You look like a slob."
- B) I'd hit him
- C) "Come on out and help me work it off!"
- D) I'd just ignore them and keep playing
- E) "Let's see you try to do better!"

5. One of your friends does some dealing on the street. Once in a while he even gives you some pills or stuff for nothing. Now he says to you, "Listen man, I've got to get some stuff delivered on the south side, but I can't do it myself right now. How about it - will you take this stuff down there for me in your car? I'll give you some new stuff to try, plus \$25 for half an hour's driving. Help me out, will you? What do you say or do?"
- A) "I'll drive you there, but I won't deliver the stuff myself."
 - B) "No I can't make it. My car's in the shop."
 - C) "Sure, I'll do it."
 - D) "No thanks."
 - E) "Forget it, I won't take that kind of risk!"
6. It's 1:30, and you're walking along a street near your house. You're on your way home from a friend's house, and you know it's after curfew in your town. You weren't doing anything wrong. You just lost track of time. You see a patrol car cruising along the street, and you feel scared because you know you can get into trouble for breaking curfew. Sure enough, the car stops next to you and the policeman gets out and says, "You there! Put your hands on the car, and stand with your feet apart!" What do you say or do now?
- A) "I just lost track of time."
 - B) I'd take off running
 - C) "This is a free country and I'll walk around where I want, when I want."
 - D) "I just got out of Pete Jones' house. You can call him if you want to."
 - E) "What's wrong officer? Is something the matter?"
7. You're browsing in a discount department store with a friend, in the sporting goods section. You notice that the glass case where they keep the hand guns is open, and the guns are just lying there, where you could reach in and grab them out. There's nobody in sight, no employees and no customers. Your friend says, "Quick, let's get some." What do you say or do now?
- A) "Forget it!"
 - B) I wouldn't take a gun, but I'd wait for my friend outside
 - C) I'd agree to steal a gun
 - D) "No, I'm no good at using a gun, and neither are you."
 - E) "What do you want them for?"

8. You're backing your car out of the driveway, and your friend is in the front seat with you. He tells you a joke, and you look at him and laugh, and the next thing you know, you've backed into your neighbour's empty garbage can and dented it. He's a grouchy old man, and he's never liked you much. Now he bursts out of his front door, waving his fist, and yells, "You no-good punk! Now look what you've done!" What do you say or do?
- A) "Gee, I'm awfully sorry. If it's damaged too much I'll be glad to get you a new one."
 - B) "I'm sorry." (Sarcastic, annoyed)
 - C) "I'm sorry."
 - D) "I wasn't really going that fast and I didn't notice the garbage can."
 - E) I'd just drive away without saying anything
9. One of your friends really likes a girl/guy in your school, but they're not going steady. You think she/he's pretty hot yourself. You went out with her/him Saturday night, and you both had a real good time. Someone must have told your friend, because he/she comes running up to you outside school and says, "You dirty cheating bum! Bill just told me about you. I'm gonna knock your face in!" What do you say or do now?
- A) "Why not let Debbie decide between us?"
 - B) I'd hit him
 - C) "Well, it's only a date."
 - D) "Cool it minute, man. Let's talk about this first. She's not your girl yet. You know I'd never take her out if you were going steady or something like that."
 - E) "Just try it."

10. You've been arguing with your father for a long time now over how long your hair is, and tonight he's set for a show-down. He is at the front door as you come in. He says to you, "You look like a goddam hippy! No kid of mine is going to run around looking like that! Either you get a haircut, or you don't come back here for dinner tonight." What do you say or do now?
- A) I'd go to my room and not show up for dinner
 - B) "Can I have a few bucks for dinner?"
 - C) "A persons looks have nothing to do with their actions. I keep it clean and neat and I think I should be able to wear it this way because I like it this way."
 - D) "Come on it's not so bad. It's just the fashion now."
 - E) I'd walk out of the house and not come back till the next day
11. Someone in school has recently been defacing the walls by writing obscene words all over them with black paint. Mr. Redford, a teacher in school has always had it in for you. Today he calls you out of class and says to you in the hall, "OK, we know you're the one who wrote all over the walls. I recognize your writing. Didn't you even have the brains to disguise your writing?" You know you didn't do it, and you're burning up because he accused you. What do you say or do now?
- A) "Prove it! Just try and prove it! If you can, fine, but if you can't, forget it!"
 - B) "But I didn't do it, Mr. Redford. I know I've been wild in the past, but I'd never do something like that now. That's the truth."
 - C) "I didn't do it."
 - D) "All I know is I didn't do it. You have no proof that I did it."
 - E) I'd tell him to stop picking on me and I'd walk out on him and skip the rest of the day

12. It's Saturday night and your parents are staying home. You ask your father for the car, so you can drive to your friend's house on the other side of town. Your father says no, that your friend can come over to your house to pick you up. He says "You kids think you can do just what you want when you want! You always want the car on Saturday night, but never on Sunday morning when I wash it! You don't take any responsibility around here for anything! You're just a lazy, selfish kid! You've always had things given to you. You've never had to work for anything!" What do you say or do now?
- A) "You're not going to be using the car tonight and I don't see any reason why I shouldn't take it."
 - B) I'd call my friend to come pick me up
 - C) "I'll help you wash the car tomorrow and I'll put in a full tank of gas when I'm through."
 - D) "You're the selfish one."
 - E) I'd ask someone else if I could use their car
13. You have a part-time job as a stock clerk in a discount shop, and one of your friends has been after you to steal him a battery for his car. You figure it wouldn't be too difficult because lots of times you're alone in the stockroom and there's nobody around who could see you. Your friend knows this too. He says, "Come on, tonight would be the perfect night, with your boss going home early. There won't be anyone in that back room. How about it?" What do you say or do now?
- A) "I'll see about it."
 - B) "No, somebody will be there taking inventory."
 - C) "No I don't need that kind of trouble."
 - D) I'd leave the back door open so my friend could steal it
 - E) "No, I don't think so."

14. You have a friend who's a few years older than you. He's been in trouble with the law a lot, and he's even been to prison, but he's out now. You really like him and respect him, and you wish that he would like you too, because he's popular in the neighbourhood. He comes to your house one night, and says that he and another man are going to hold up a gas station in the country. He says, "You want to come along? We think you could be a big help to us." What do you say or do now?
- A) "No, I'd rather not."
 - B) "No, I really can't. My parents are forcing me to go somewhere tonight. It's my brother's birthday and we all go out."
 - C) "Yeah, I guess so."
 - D) "Well, I don't know."
 - E) "No, that's a little heavy for me."
15. You're looking for a job, and as you pass the local McDonald's you notice a sign in the window that says, "part time help wanted". You go in and ask for the manager. He comes to the counter. What will you say to him now?
- A) "I'd like an application form."
 - B) "Hey what's this job like?"
 - C) "Give me an application form."
 - D) "I saw your sign in the window and I'd like to apply for the job."
 - E) "I saw your sign in the window and I'd like to apply for the job. I'm a senior in high school and I'm working my way through school. I really need the money and I'd like to work here."
16. You ask the girl/guy who sits next to you in study hall if she'd like to see a show Saturday night, and she says, "I'd like to, but my father won't let me go out with boys/girls who are on parole." What do you say now?
- A) "How would he know? Tell him that you're going to study with a friend and I'll meet you downtown."
 - B) "I've learned my lesson and I'm not going to get into trouble anymore."
 - C) "Who does he think he is?"
 - D) "OK, I guess that's your decision."
 - E) "Could I meet your father and explain the situation to him?"

17. You're on parole after a 10-month stay at a school for truancy and car-theft. It seems like your troubles just started when you got back home. Some of the kids at school treat you like a hardened criminal. You're at your locker and a classmate asks you for a quarter. Another kid who you don't know well, says, "What? You're gonna take money from a jailbird?" What do you say or do now?
- A) "Would you mind repeating that?"
 - B) "It should buy you as much as any quarter."
 - C) "Here's the quarter. It's just as good as any quarter he would give you."
 - D) "I was a jailbird but I'm not anymore."
 - E) I'd turn around and hit him
18. It's early afternoon, and ever since you woke up this morning you've been in a bad mood. You feel empty, tired, a little sad, and a little angry, all at the same time. What can you do to get out of this bad mood?
- A) I'd try not to let anyone else know I was in such a bad mood
 - B) I'd go out drinking
 - C) I'd go to a movie
 - D) I'd go back to bed
 - E) Go talk to someone and try to figure out what's on my mind
19. You're 13 years old, and that's too young to get a regular part-time job. But you need money badly, for clothes, and snacks, and records and to go out. Your parents can't afford to give you much money. How might you go about getting some money?
- A) I'd take some odd jobs, like doing home repairs or working on lawns
 - B) I'd borrow money
 - C) I'd lie about my age and get a regular part-time job
 - D) I'd shovel snow in the winter
 - E) I'd shoplift what I needed

20. It's Thursday night , and you're home studying for an algebra final exam you'll have the next day on Friday. The phone rings, and it's your friend, Dave. He tells you that his cousin just dropped off two tickets which he couldn't use to a sell-out rock concert that ~~very~~ night. He's really excited about the concert, and he says you can come too, for free. Now this is a problem. You're sick of studying, and you'd love to go, but if you go, you won't have enough time to study algebra. It's your worst course, and you're behind in it, and you need all the time you can get, or there's a good chance you will flunk. He says, "I'll be over in half an hour to pick you up." What do you say or do now?

- A) I'd go to the concert and take my chances with the exam
- B) I'd go to the concert and cut classes the next day in school in order to study
- C) "I can't go. I'm really behind in my algebra and if I fail the test tomorrow, I fail the course
- D) I'd go to the concert and study the next day during school, in the study halls
- E) I'd go to the concert, but wake up early the next day to study before classes

21. Your parents never seem to like your friends. They say they're dirty, or that they have no manners, or that they'll get you into trouble. Joe, a new friend has just left your house after his first visit to your place. After he's gone, your mother gets on his case and calls him a good-for-nothing and forbids you to see him again. How will you go about handling this problem? What will you do or say?

- A) I'd ask her what she doesn't like about Joe and try to correct her impressions
- B) "How can you criticize Joe when you don't even know him? This is the first time he's been over to the house. You could at least give him a chance to prove he's not a bad kid
- C) I'd tell her that I'll stop seeing Joe, but I really won't
- D) "I'll pick my friends, you pick yours."
- E) "Joe and I are good friends because we have a lot of things in common and some of the things you say about Joe are true of me too."

22. It's Friday night and you have the car but you don't have anywhere to go. The evening stretches ahead of you, empty. You're bored and you feel restless and you wish there was some excitement. What can you do about solving this problem?

- A) I'd go drinking or drag racing
- B) I'd drive around
- C) I'd drive around looking for a party
- D) I'd go to a friend's or a movie or bowling
- E) I'd drive around looking for action, maybe try to pick someone up but I don't

STOP !

- DO NOT TURN THE PAGE -

- WAIT FOR FURTHER INSTRUCTIONS -

PART B

=====
 Read carefully each of the following paragraphs. Imagine that you are actually in that situation. For each situation answer:

Could you do this? Yes = you believe you could make the response.
 No = you believe you could not make the response.

How sure are you? How sure you are in your belief IF YOU SAY YES.
 (Choose the corresponding number from 1 to 5)
 IF YOU SAY NO, go to the next situation.

Continue using computer sheet #1, beginning with question #23.

=====

Imagine that you are sitting in English class. It's hot, and there's a ruffling sound of papers as the teacher goes up and down the aisles collecting homework. She gets to you. You open your notebook to give it to her, but it's not there. You shuffle through your books and still can't find it. You tell her you've lost it, but she leans over your desk and tells you she thinks you never did it. You say, "I'm really sorry that I lost the assignment, I did really lose it and I'd like to arrange a time to make it up if you'll let me do that".

23. Could you do this? A) Yes (answer question 24)
 B) No (skip question 24)

24. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You are at home with a friend who asks you to a party tonight. Plans are all set. Just as you hang up the phone, your mother walks in and tells you she needs you to babysit tonight with your sister so that she and your father can visit an aunt in the hospital. You say, "I've been invited to a party tonight and I really want to go. How about if I help find another babysitter?"

25. Could you do this? A) Yes (answer question 26)
 B) No (skip question 26)

26. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You're at the locker getting books to take home. You see your best friend coming toward you. He asks you to hang out and get rowdy with him. You don't want to because he usually gets into trouble. You say, "Thanks for asking, but I don't want to do that tonight."

33. Could you do this? A) Yes (answer question 34)
 B) No (skip question 34)

34. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You've just bought shoes that seemed to fit alright in the store, but now that you've got them on at home, they feel too tight. You go back to the store, approach the salesperson, and say, "I'd like to return these shoes. I bought them here a little while ago, but when I tried them on at home, they were too tight. If you have another size, I'd like to make an exchange. If not, I'd like a refund..."

35. Could you do this? A) Yes (answer question 48)
 B) No (skip question 48)

36. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You are lying in front of a pool getting a suntan. A couple of kids come over to the pool and start diving next to you. They're having a nice time, but everytime they dive, you get splashed. You say, "Could you move down a bit, everytime you dive it splashes me."

37. Could you do this? A) Yes (answer question 50)
 B) No (skip question 50)

38. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You're favorite outfit was taken to the cleaners over two weeks ago and was supposed to be ready in a couple of days. You have have been back and were told it will be ready any day. You go again and the clerk says that it's still not ready. You say, "I really think it should have been done already. I want the outfit cleaned right away and I'll be back for it tomorrow."

39. Could you do this? A) Yes (answer question 52)
 B) No (skip question 52)

40. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You're in a closed car with other people. One person is smoking and blowing a lot of smoke in your direction. It really bothers you and you say, "Would you mind putting out that cigarette or blowing the smoke so it doesn't come over here. Thank you."

41. Could you do this? A) Yes (answer question 54)
 B) No (skip question 54)

42. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

You're at a football game where you have a reserved seat. As you walk down the aisle of the bleachers, you see someone sitting in the seat assigned to you. You say, "I think you are in my seat My ticket says I should be sitting here Could you please check your ticket?"

43. Could you do this? A) Yes (answer question 56)
 B) No (skip question 56)

44. How sure are you? 1 2 3 4 5
 Not Somewhat Very
 at all sure

PART C

=====
 Read over each event and think if this event has happened to you in the past year. If this event has happened to you, choose "A" for yes. If this event has not happened to you, choose "B" for no.

Continue using computer sheet #1, beginning with question #59.

=====

	YES	NO
47. A parent dying	A	B
48. Brother or sister dying	A	B
49. Close friend dying	A	B
50. Parents getting divorced or separated	A	B
51. Failing one or more subjects in school	A	B
52. Being arrested by the police	A	B
53. Flunking a grade in school	A	B
54. Family member (other than yourself) having trouble with alcohol	A	B
55. Getting into drugs or alcohol	A	B
56. Losing a favorite pet	A	B
57. Parent or relative in your family (other than yourself) getting very sick	A	B
58. Losing a job	A	B
59. Breaking up with a close girlfriend or boyfriend	A	B
60. Quitting school	A	B
61. Close girlfriend getting pregnant	A	B
62. Parent losing a job	A	B
63. Getting badly hurt or sick	A	B

	YES	NO
64. Hassling with parents	A	B
65. Trouble with teacher or principal	A	B
66. Having problems with any of the following: acne, overweight, under weight, too tall, too short	A	B
67. Starting new school	A	B
68. Moving to a new home	A	B
69. Change in physical appearance	A	B
70. Hassling with brother or sister	A	B
71. Starting menstrual periods (for girls)	A	B
72. Having someone new move in with your family (grandparent, adopted brother or sister, or other)	A	B
73. Starting a job	A	B
74. Mother getting pregnant	A	B
75. Starting to date	A	B
76. Making new friends	A	B
77. Brother or sister getting married	A	B

- GO ON TO THE NEXT SECTION -

- CONTINUE USING COMPUTER SHEET #1 -

PART D

=====

Please read the following statements about the effects of alcohol. If you think the statement is true or mostly true, then choose "true". If you think that the statement is false, or rarely happens to most people, then choose "false".

When the statements refer to "drinking alcohol", you may think in terms of any alcoholic beverage such as beer, wine, whiskey, liquor, rum, scotch, vodka, gin, or various alcoholic mixed drinks. Whether or not you have had actual experience yourself, YOU ARE TO ANSWER IN TERMS OF HOW YOU THINK ALCOHOL AFFECTS THE TYPICAL OR AVERAGE DRINKER. It is important that you respond to every statement.

=====

	TRUE	FALSE
78. Drinking alcohol makes a person feel good and happy	T	F
79. Alcohol makes sexual experiences easier and more enjoyable	T	F
80. Drinking alcohol can get rid of physical pain	T	F
81. People become harder to get along with after they have had a few drinks of alcohol	T	F
82. Drinking alcohol creates problems	T	F
83. People feel sexier after a few alcoholic drinks	T	F
84. It easier to open up and talk about one's feelings after a few drinks of alcohol	T	F
85. A person can talk with people of the opposite sex better after a few drinks of alcohol	T	F
86. Drinking alcohol makes a bad impression on others	T	F
87. People drive better after a few drinks of alcohol	T	F
88. Drinking alcohol can keep a person's mind off his/her problems at home	T	F
89. Teenagers drink alcohol in order to get attention	T	F

	TRUE	FALSE
90. Parties are NOT as much fun if people are drinking alcohol	T	F
91. People are more creative and imaginative (can make-believe better) when they drink alcohol	T	F
92. People feel more caring and giving after a few drinks of alcohol	T	F
93. Drinking alcohol makes it easier to be with others and, in general, makes the world seem like a nicer place	T	F
94. It is easier to play sports after a few drinks of alcohol	T	F
95. Drinking alcohol makes the future seem brighter	T	F
96. A person can do things better after a few drinks of alcohol	T	F
97. Drinking alcohol makes people more friendly	T	F
98. People are more sure of themselves when they are drinking alcohol	T	F
99. Drinking alcohol makes people more interesting	T	F
100. Drinking alcohol is OK because it allows people to join in with others who are having fun	T	F
101. Drinking alcohol makes a person happier with himself/herself	T	F
102. When talking with people, words come to mind easier after a few drinks of alcohol	T	F
103. Drinking alcohol makes people worry less	T	F
104. People drink alcohol because it gives them a neat, thrilling, high feeling	T	F
105. Drinking alcohol makes people feel more alert	T	F
106. Alcohol increases arousal; it makes people feel stronger and more powerful and makes it easier to fight	T	F
107. Sweet alcoholic drinks taste good	T	F

	TRUE	FALSE
108. A few alcoholic drinks make people feel less shy	T	F
109. Most alcoholic drinks taste good	T	F
110. Most people think better after a few drinks of alcohol	T	F
111. Alcohol helps people stand up to others	T	F
112. People do not worry as much about what other people think of them after a few drinks of alcohol	T	F
113. People understand things better when they are drinking alcohol	T	F
114. Drinking alcohol gets rid of aches and pains	T	F
115. A person enjoys people of the opposite sex more after he/she has been drinking alcohol	T	F
116. Drinking alcohol makes a person feel less up-tight	T	F
117. People act like better friends after a few drinks of alcohol	T	F
118. Alcohol makes people feel more romantic	T	F
119. Drinking alcohol makes a person more pleased with himself/herself	T	F
120. Drinking alcohol loosens people up	T	F
121. Most alcohol tastes terrible	T	F
122. Alcohol makes people more relaxed and less tense	T	F
123. Having a few drinks of alcohol is a nice way to enjoy holidays	T	F
124. It's fun to watch others act silly when they are drinking alcohol	T	F
125. Drinking alcohol makes a person feel healthier	T	F
126. People feel less alone when they drink alcohol	T	F

	TRUE	FALSE
127. Drinking alcohol makes a person feel close to people	T	F
128. Teenagers drink alcohol because they feel forced to do so because of their peers	T	F
129. A few drinks of alcohol makes it easier to talk with people	T	F
130. People can control their anger better when they are drinking alcohol	T	F
131. People have stronger feelings when they are drinking alcohol	T	F
132. Alcoholic beverages make parties more fun	T	F
133. Alcohol makes people better lovers	T	F
134. People don't feel so alone when they drink alcohol	T	F
135. Drinking alcohol gets rid of a person's feelings that he/she is not as good as other people	T	F
136. Drinking alcohol relaxes people	T	F
137. Drinking alcohol allows people to be in any mood they want to be	T	F
138. Drinking alcohol can keep a persons mind off his/her mistakes at school	T	F
139. It is easier to speak in front of a group of people after a few drinks of alcohol	T	F
140. People get in better moods after a few drinks of alcohol	T	F
141. Drinking alcohol helps teenagers to do their homework	T	F

	TRUE	FALSE
142. Alcohol seems like magic	T	F
143. People become more interested in people of the opposite sex after a few drinks of alcohol	T	F

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- WAIT FOR FURTHER INSTRUCTIONS -

- YOU HAVE NOW COMPLETED COMPUTER SHEET #1 -

- GO ON TO COMPUTER SHEET #2 -

PART E

=====

The questions in this section ask you about your parent's drinking behaviors and their attitudes towards your drinking. For each question choose ONE letter which corresponds to your best choice.

If you were raised by foster parents, stepparents, grandparents, or some other person or persons, answer for them. For example, if you have both a stepfather and a natural father, answer for the one that was most important in raising you.

=====

1. What is the attitude of your father toward your drinking?

- A) Strongly approves
- B) Indifferent
- C) Strongly disapproves
- D) Does not apply

2. What influence did your father have on your drinking?

- A) Drink less
- B) None
- C) Drink more
- D) Does not apply

3. How often does your father usually have a drink of alcohol?
(Beer, wine, or hard liquor)

- A) Does not drink alcohol at all
- B) Drinks every day
- C) Drinks three or four days a week
- D) Drinks one or two days a week
- E) Drinks three or four days a month
- F) Drinks about once a month
- G) Drinks less than once a month, but at least
once a year
- H) Drinks less than once a year
- I) Does not apply

4. On the average, how much do you think your father usually has at any one time when he drinks? (Beer, wine, or hard liquor)
- A) Does not drink alcohol at all
 - B) Twelve or more drinks
 - C) About nine drinks
 - D) Six drinks
 - E) Five drinks
 - F) Four drinks
 - G) Three drinks
 - H) Two drinks
 - I) One drink or less
 - J) Does not apply
5. What is the attitude of your mother toward your drinking?
- A) Strongly approves
 - B) Indifferent
 - C) Strongly disapproves
 - D) Does not apply
6. What influence does your mother have on your drinking?
- A) Drink less
 - B) None
 - C) Drink more
 - D) Does not apply
7. How often does your mother usually have a drink of alcohol? (Beer, wine, or hard liquor)
- A) Does not drink liquor at all
 - B) Drinks every day
 - C) Drinks three or four days a week
 - D) Drinks one or two days a week
 - E) Drinks three or four days a month
 - F) Drinks about once a month
 - G) Drinks less than once a month, but at least once a year
 - H) Drinks less than once a year
 - I) Does not apply

8. On the average, how much do you think your mother has at any one time when she drinks? (Beer, wine, or hard liquor)
- A) Does not drink liquor at all
 - B) Twelve or more drinks
 - C) About nine drinks
 - D) Six drinks
 - E) Five drinks
 - F) Four drinks
 - G) Three drinks
 - H) Two drinks
 - I) One drink or less
 - J) Does not apply

=====
The following questions are about your friends's drinking behaviors.
Read each question carefully and choose the ONE best answer for each
question.
=====

9. How often do your two or three closest friends have a drink of alcohol? (Beer, wine, or hard liquor)
- A) Do not drink alcohol at all
 - B) Drink every day
 - C) Drink three or four days a week
 - D) Drink one or two days a week
 - E) Drink three or four days a month
 - F) Drink about once a month
 - G) Drink less than once a month, but at least once a year
 - H) Drink less than once a year
10. How many drinks do your two or three closest friends have at one time, on the average? (Beer, wine, or hard liquor)
- A) Do not drink alcohol at all
 - B) Twelve or more drinks
 - C) About nine drinks
 - D) Six drinks
 - E) Five drinks
 - F) Four drinks
 - G) Three drinks
 - H) Two drinks
 - I) One drink
 - J) Less than one drink

PART F

=====
The questions in this section ask about your experience with beer, wine, and liquor.

Please try to answer all the questions as truthfully as possible. Remember that no one at the school will see or read your answers. Your answers will not be available to anyone else.

=====

11. Let's take BEER first. How often do you usually have beer? (Choose the ONE letter that is the best answer.)

- A) Do not drink beer at all
- B) Every day
- C) Three or four days a week
- D) One or two days a week
- E) Three or four days a month
- F) About once a month
- G) Less than once a month, but at least once a year
- H) Less than once a year

12. Think of all the times you have had beer recently. When you drink beer, how much do you usually have at one time, on the average?

- A) Do not drink beer at all
- B) Twelve or more bottles of beer
- C) About nine bottles of beer
- D) Six bottles of beer
- E) Five bottles of beer
- F) Four bottles of beer
- G) Three bottles of beer
- H) Two bottles of beer
- I) One bottle of beer
- J) Less than one bottle of beer

13. What is the greatest amount of beer you have ever had at any one particular time?

- A) Do not drink beer at all
- B) Twelve or more bottles of beer
- C) About nine bottles of beer
- D) Six bottles of beer
- E) Five bottles of beer
- F) Four bottles of beer
- G) Three bottles of beer
- H) Two bottles of beer
- I) One bottle of beer
- J) Less than one bottle of beer

14. Now, I want to ask you about WINE. How often do you usually have wine?

- A) Do not drink wine at all
- B) Every day
- C) Three or four days a week
- D) One or two days a week
- E) Three or four days a month
- F) About once a month
- G) Less than once a month, but at least
once a year
- H) Less than once a year

15. Think of all the times you have had wine recently. When you drink wine, how much do you usually have at one time, on the average?

- A) Do not drink wine at all
- B) Twelve or more glasses
- C) About nine glasses
- D) Six glasses
- E) Five glasses
- F) Four glasses
- G) Three glasses
- H) Two glasses
- I) One glass
- J) Less than one glass

16. What is the greatest amount of wine you have ever had at any one particular time?
- A) Do not drink wine at all
 - B) Twelve or more glasses
 - C) About nine glasses
 - D) Six glasses
 - E) Five glasses
 - F) Four glasses
 - G) Three glasses
 - H) Two glasses
 - I) One glass
 - J) Less than one glass
17. Now I want to ask you about LIQUOR (whiskey, vodka, gin, mixed drinks, etc.). How often do you usually have a drink of liquor?
- A) Do not drink liquor at all
 - B) Every day
 - C) Three or four days a week
 - D) One or two days a week
 - E) Three or four days a month
 - F) About once a month
 - G) Less than once a month, but at least
once a year
 - H) Less than once a year
18. How many drinks do you have at any one time, on average?
- A) Do not drink liquor at all
 - B) Twelve or more drinks
 - C) About nine drinks
 - D) Six drinks
 - E) Five drinks
 - F) Four drinks
 - G) Three drinks
 - H) Two drinks
 - I) One drink
 - J) Less than one drink

19. What is the greatest number of drinks you have ever had at any one time?

- A) Do not drink liquor at all
- B) Twelve or more drinks
- C) About nine drinks
- D) Six drinks
- E) Five drinks
- F) Four drinks
- G) Three drinks
- H) Two drinks
- I) One drink
- J) Less than one drink

During the past year, how many times have each of the following happened to you? (Choose ONE letter for each row.)

- | | NONE | ONCE | 2-3
TIMES | 4-5
TIMES | 6-9
TIMES | 10 +
TIMES |
|--|------|------|--------------|--------------|--------------|---------------|
| 20. You've gotten into trouble with your teachers or principal because of your drinking | A | B | C | D | E | F |
| 21. You've gotten into difficulties of any kind with your friends because of your drinking | A | B | C | D | E | F |
| 22. You've driven when you've had a good bit to drink | A | B | C | D | E | F |
| 23. You've been criticized by someone you were dating because of your drinking | A | B | C | D | E | F |
| 24. You've gotten into trouble with the police because of your drinking | A | B | C | D | E | F |
| 25. During the past year, how many times have you got drunk or very, very high? | | | | | | |

- A) None
- B) 1 time
- C) 2-3 times
- D) 4-5 times
- E) 6-10 times
- F) Once a month
- G) Twice a month
- H) Once a week or more

PART G

=====
The questions in this section ask you to identify yourself - not by name - but by age, grade level, etc.

Choose the letter by your best answer to each question.
=====

26. In what year were you born?

- | | | |
|---------|---------|---------|
| A) 1969 | C) 1971 | E) 1973 |
| B) 1970 | D) 1972 | F) 1974 |

27. Are you: A) Male
 B) Female

28. What grade are you in?

- A) Grade 10
- B) Grade 11
- C) Grade 12

29. With whom do you live most of the time? (Circle ONE best answer)

- A) Both parents
- B) Father only
- C) Mother only
- D) Father and stepmother
- E) Mother and stepfather
- F) Foster parents
- G) Husband or wife
- H) Other relatives
- I) Others

30. Choose the ONE letter that BEST describes your ethnic origin.

- | | |
|---------------------|------------------|
| A) British | F) Oriental |
| B) French | G) Other Asian |
| C) German | H) Native Indian |
| D) Ukrainian/Polish | I) Black |
| E) Filipino | J) Other |

31. Please look over the list of religions on your left. Choose the ONE letter which best indicates your religion.

- A) Protestant
- B) Baptist
- C) Lutheran
- D) Presbyterian
- E) Roman Catholic
- F) Jewish
- G) Eastern religion (e.g., Moslem, Buddhist)
- H) Other religion
- I) Do not have a religion

=====
 The following questions refer to your parents. If you were raised by foster parents, stepparents, grandparents, or some other person or persons, answer for them. For example, if you have both a stepfather and a natural father, answer for the one that was most important in raising you.
 =====

32. How much education does your FATHER have? (Choose ONE letter)

- A) Did not complete 8th grade
- B) Completed the 8th grade but did not go to high school
- C) Went to high school but did not graduate
- D) Graduated from high school
- E) Some college or special training after high school
- F) Graduated college
- G) Some education after college, like graduate school, a masters degree, doctor's degree, medical school, law school, etc
- H) I don't know
- I) Does not apply

33. How much education does your MOTHER have? (Choose ONE letter)

- A) Did not complete 8th grade
- B) Completed the 8th grade but did not go
to high school
- C) Went to high school but did not graduate
- D) Graduated from high school
- E) Some college or special training after high
school
- F) Graduated college
- G) Some education after college, like graduate
school, a masters degree, doctor's degree,
medical school, law school, etc
- H) I don't know
- I) Does not apply

Thank-you for completing the questionnaire. Please make sure that you have answered each question and have erased any mistakes. When you have finished, place the question booklet and the computer sheets face-down on the desk in front of you.

* PLEASE REMAIN SEATED UNTIL EVERYONE HAS FINISHED *

In order to learn more about alcohol use in adolescents and young adults, we are planning to conduct a follow-up study in 2 or 3 years. To help us locate individuals who wish to participate in the follow-up, we will need some personal information. This information will be kept strictly confidential and will not be shown to anyone else. If you choose to participate now, you will still have complete freedom to change your mind when we contact you for the follow-up study.

Please check ONE of the following:

YES, I would like to take part in the follow-up

NO, I do not want to take part in the follow-up

If you checked YES, please fill in the following spaces:

Copy the three digit code number from the
UPPER RIGHT HAND CORNER of computer sheet #1

— — —

Name _____

Present address _____

Phone number _____

In case we have trouble reaching you at your present address, could you give us the name of a close friend or relative (who does not live with you) who would most likely know where you are living? We will not contact these persons for any other reason.

Person #1 _____ (name) _____ (address)

_____ (phone number)

Person #2 _____ (name) _____ (address)

_____ (phone number)

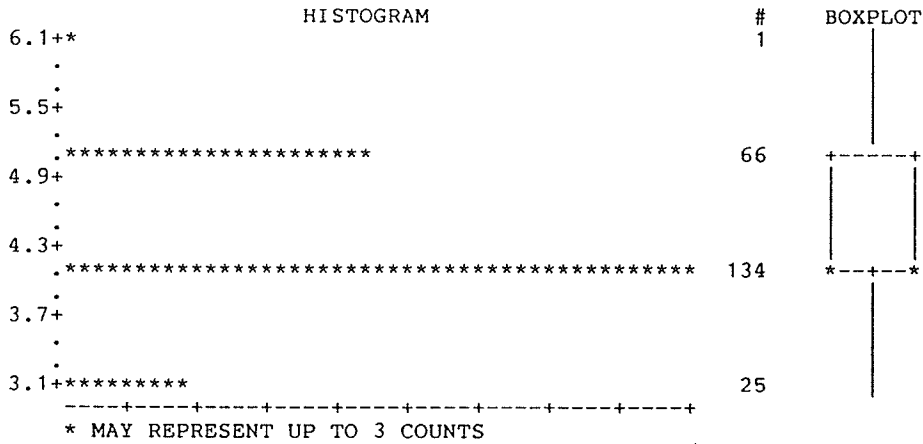
Appendix D
Tests of Normality

VARIABLE=APROVF

FATHER APPROVAL

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	4.19027	SUM	947	75% Q3
STD DEV	0.621177	VARIANCE	0.38586	50% MED
SKEWNESS	-0.0395189	KURTOSIS	-0.297972	25% Q1
USS	4055	CSS	86.8186	0% MIN
CV	14.8243	STD MEAN	0.0413201	
T:MEAN=0	101.41	PROB> T	0.0001	RANGE
SGN RANK	12825.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	226			MODE
D:NORMAL	0.323851	PROB>D	<.01	

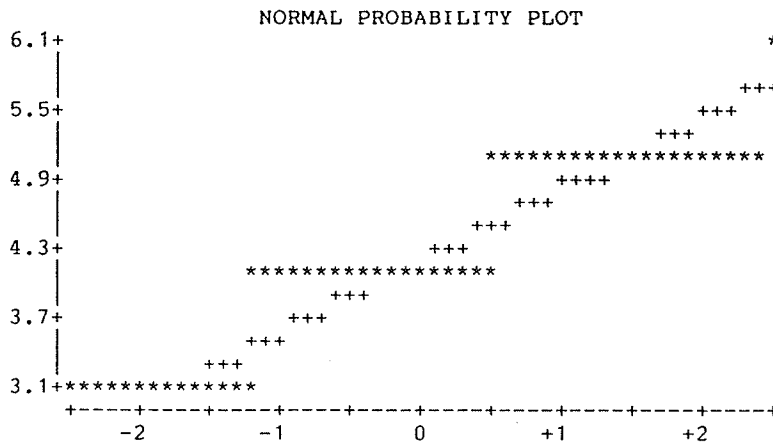


QUANTILES(DEF=4)

6	99%
5	95%
4	90%
4	10%
3	5%
	1%
3	
1	
4	

EXTREMES

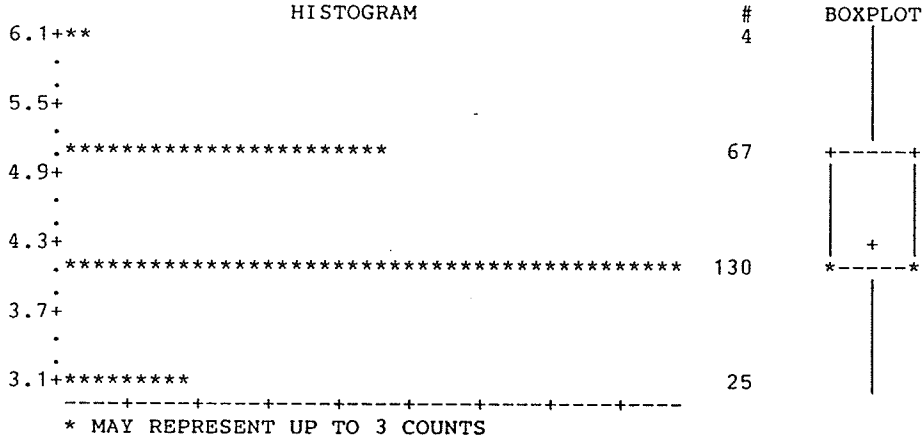
	LOWEST	HIGHEST
5	3	5
5	3	5
3	3	5
3	3	5
3	3	6



VARIABLE=APROVM MOTHER APPROVAL

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	4.22124	SUM	954	75% Q3
STD DEV	0.656381	VARIANCE	0.430836	50% MED
SKEWNESS	0.114378	KURTOSIS	-0.0745931	25% Q1
USS	4124	CSS	96.9381	0% MIN
CV	15.5495	STD MEAN	0.0436618	
T:MEAN=0	96.6804	PROB> T	0.0001	RANGE
SGN RANK	12825.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	226			MODE
D:NORMAL	0.317804	PROB>D	<.01	

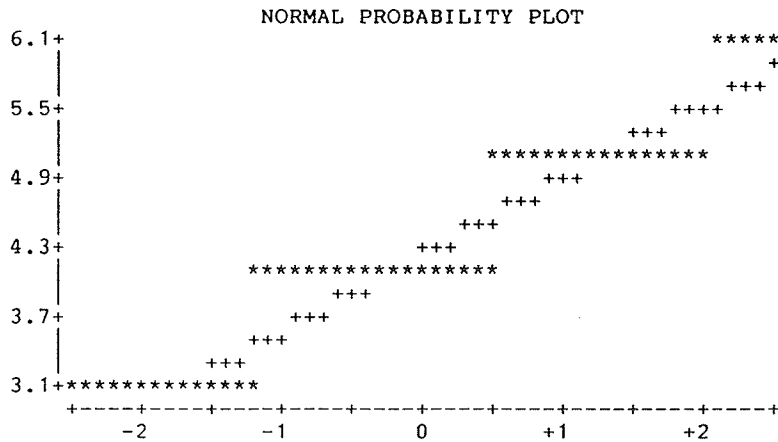


QUANTILES (DEF=4)

6	99%
5	95%
4	90%
4	10%
3	5%
3	1%
3	
1	
4	

EXTREMES

	LOWEST	HIGHEST
6	3	5
5	3	6
4	3	6
3	3	6
3	3	6



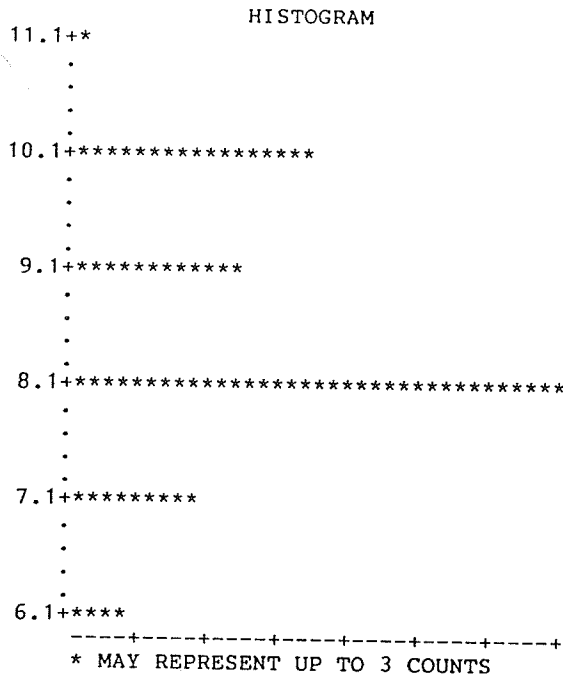
VARIABLE=APROVPAR PARENTAL APPROVAL

MOMENTS

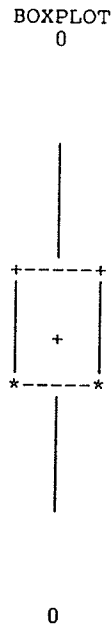
N	226	SUM WGTS	226
MEAN	8.4115	SUM	1901
STD DEV	1.105	VARIANCE	1.22102
SKWENESS	0.0268996	KURTOSIS	-0.535807
USS	16265	CSS	274.73
CV	13.1368	STD MEAN	0.0735034
T:MEAN=0	114.437	PROB> T	0.0001
SGN RANK	12825.5	PROB> S	0.0001
NUM ^= 0	226		
D:NORMAL	0.264672	PROB>D	<.01

100% MAX
75% Q3
50% MED
25% Q1
0% MIN

RANGE
Q3-Q1
MODE



1
51
34
104
26
10



QUANTILES (DEF=4)

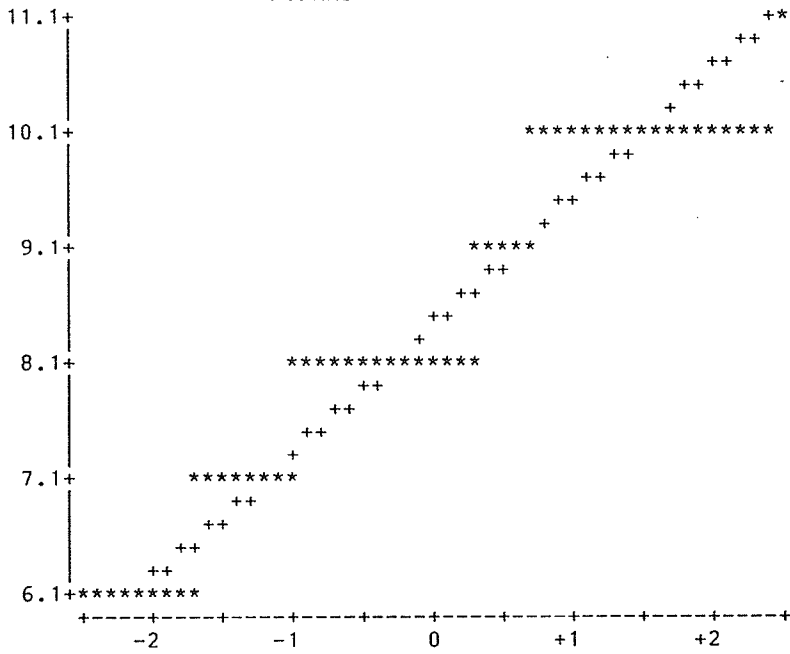
11	99%
9	95%
8	90%
8	10%
6	5%
	1%
5	
1	
8	

10
10
10
7
7
6

EXTREMES

LOWEST	HIGHEST
6	10
6	10
6	10
6	10
6	11

NORMAL PROBABILITY PLOT

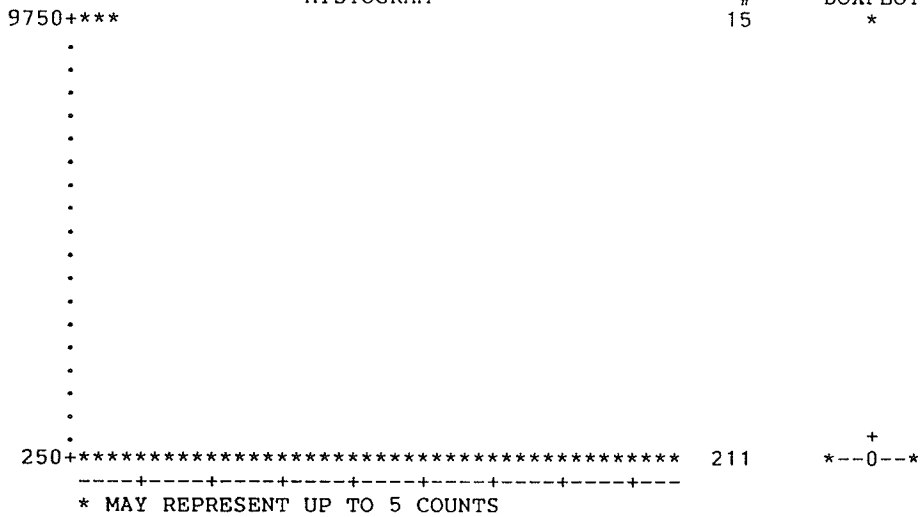


VARIABLE=DRDAD FATHER DRINKING

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	679.115	SUM	153480	75% Q3
STD DEV	2438.04	VARIANCE	5944058	50% MED
SKEWNESS	3.50477	KURTOSIS	10.3818	25% Q1
USS	1441643553	CSS	1337412976	0% MIN
CV	359.003	STD MEAN	162.176	
T:MEAN=0	4.18751	PROB> T	0.0001	RANGE
SGN RANK	6045	PROB> S	0.0001	Q3-Q1
NUM ^= 0	155			MODE
D:NORMAL	0.505882	PROB>D	<.01	

HISTOGRAM



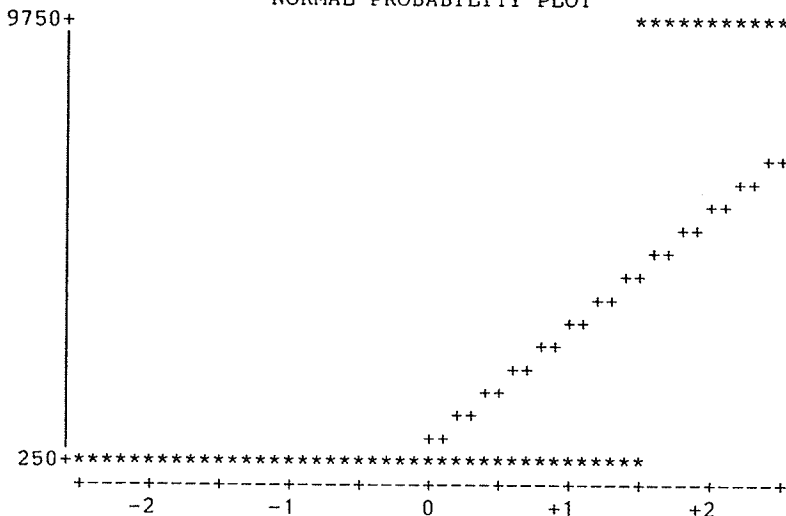
QUANTILES (DEF=4)

9801	99%
60	95%
11.25	90%
0	10%
0	5%
	1%
9801	
60	
0	

EXTREMES

LOWEST	HIGHEST
0	9801
0	9801
0	9801
0	9801
0	9801

NORMAL PROBABILITY PLOT



VARIABLE=DRMOM

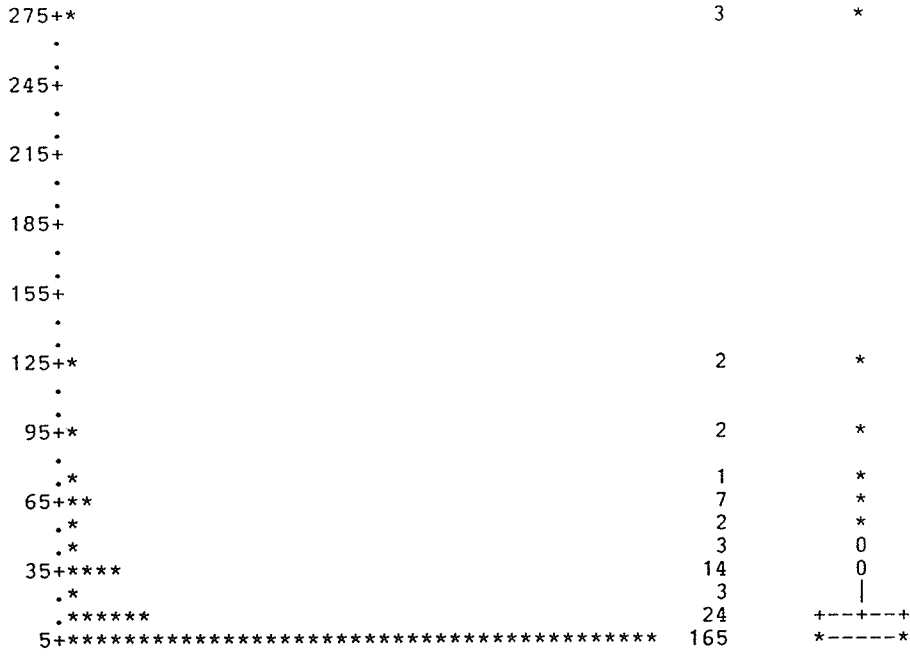
MOTHER DRINKING

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	13.6018	SUM	3074	75% Q3
STD DEV	35.8557	VARIANCE	1285.63	50% MED
SKEWNESS	5.33466	KURTOSIS	33.8389	25% Q1
USS	331078	CSS	289267	0% MIN
CV	263.61	STD MEAN	2.38508	
T:MEAN=0	5.70285	PROB> T	0.0001	RANGE
SGN RANK	3164	PROB> S	0.0001	Q3-Q1
NUM ^= 0	112			MODE
D:NORMAL	0.352215	PROB>D	<.01	

HISTOGRAM

BOXPLOT



* MAY REPRESENT UP TO 4 COUNTS

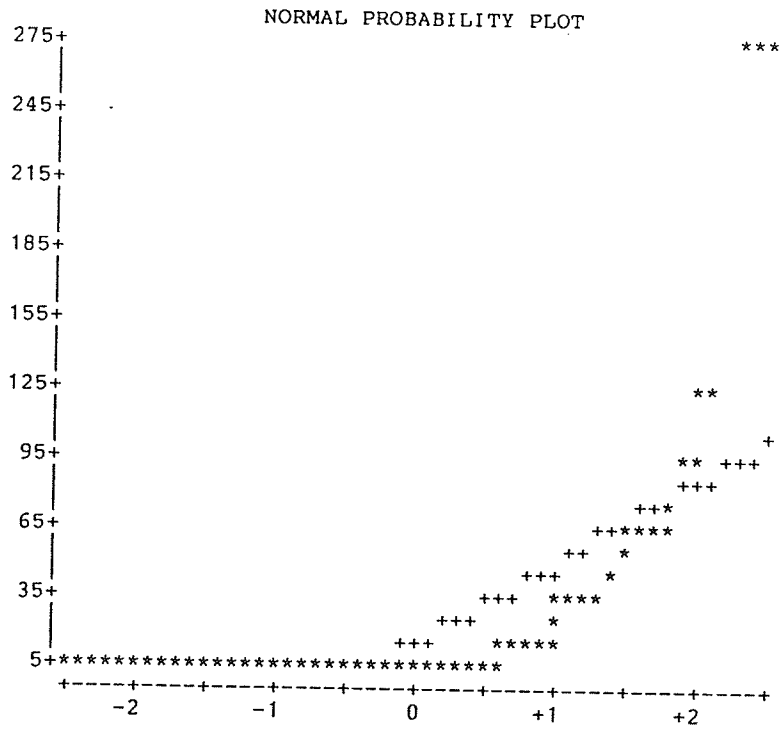
QUANTILES (DEF=4)

270 99%
 13 95%
 0 90%
 0 10%
 0 5%
 0 1%
 270
 13
 0

270
 60
 39
 0
 0
 0

EXTREMES

LOWEST	HIGHEST
0	120
0	120
0	270
0	270
0	270

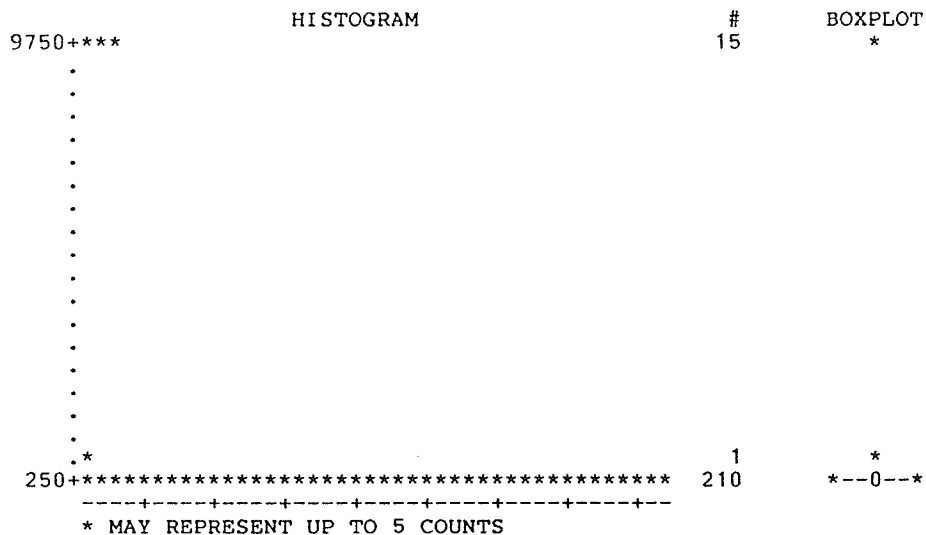


VARIABLE=PARDR

PARENTAL DRINKING

MOMENTS

N	226	SUM WGTs	226	100% MAX
MEAN	692.717	SUM	156554	75% Q3
STD DEV	2435.24	VARIANCE	5930394	50% MED
SKEWNESS	3.50219	KURTOSIS	10.3703	25% Q1
USS	1442786311	CSS	1334338723	0% MIN
CV	351.549	STD MEAN	161.99	
T:MEAN=0	4.2763	PROB> T	0.0001	RANGE
SGN RANK	7267.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	170			MODE
D:NORMAL	0.485483	PROB>D	<.01	

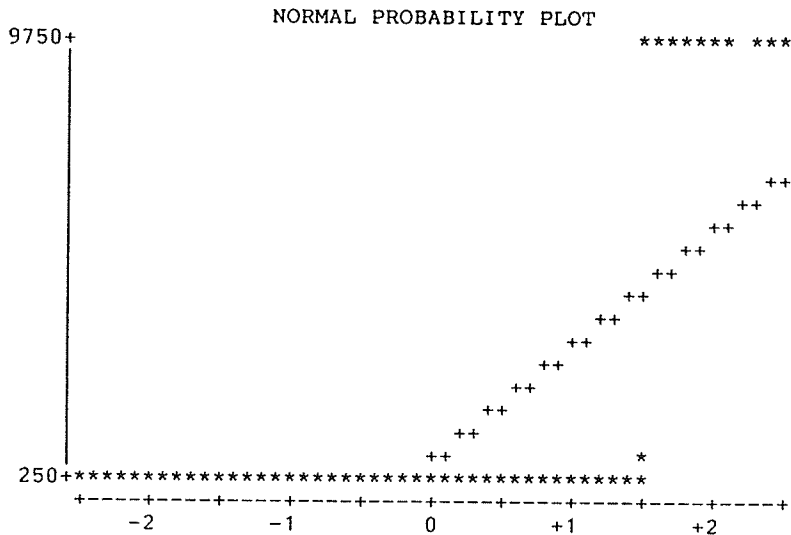


QUANTILES (DEF=4)

9808	99%	9806.69
79	95%	9801
17.5	90%	220.8
0.75	10%	0
0	5%	0
	1%	0
9808		
78.25		
0		

EXTREMES

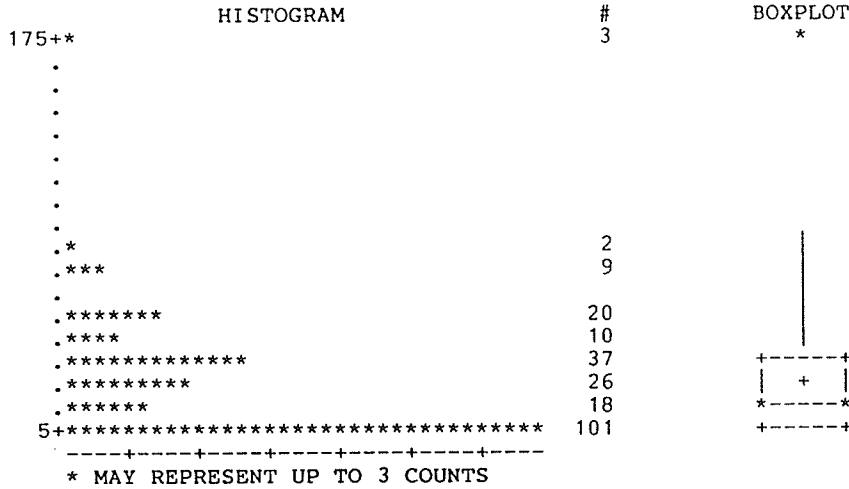
LOWEST	HIGHEST
0	9801
0	9801
0	9804.5
0	9807.5
0	9808



VARIABLE=DRPEER PEER DRINKING

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	23.6925	SUM	5354.5	75% Q3
STD DEV	29.4358	VARIANCE	866.468	50% MED
SKEWNESS	2.33305	KURTOSIS	8.89697	25% Q1
USS	321817	CSS	194955	0% MIN
CV	124.241	STD MEAN	1.95804	RANGE
T:MEAN=0	12.1001	PROB> T	0.0001	Q3-Q1
SGN RANK	6440	PROB> S	0.0001	MODE
NUM ^= 0	160			
D:NORMAL	0.210443	PROB>D	<.01	

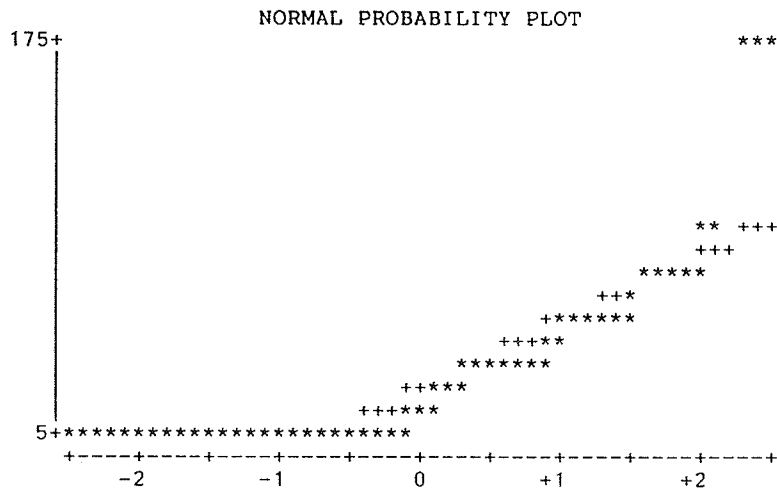


QUANTILES (DEF=4)

180	99%	180
39	95%	78
15.75	90%	58.5
0	10%	0
0	5%	0
	1%	0
180		
39		
0		

EXTREMES

LOWEST	HIGHEST
0	90
0	180
0	180
0	180



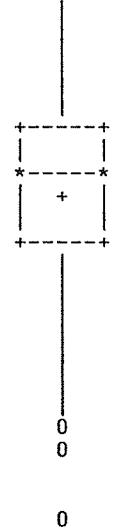
VARIABLE=SSKILOS SOCIAL SKILLS

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	124.991	SUM	28248	75% Q3
STD DEV	19.7929	VARIANCE	391.76	50% MED
SKEWNESS	-0.710226	KURTOSIS	0.644161	25% Q1
USS	3618896	CSS	88146	0% MIN
CV	15.8355	STD MEAN	1.31661	
T:MEAN=0	94.9344	PROB> T	0.0001	RANGE
SGN RANK	12825.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	226			MODE
D:NORMAL	0.0818014	PROB>D	<.01	

STEM LEAF	#
16 02	2
15 66666888	8
15 00222222444	12
14 66666666888888	15
14 0000000000002444444	19
13 666666668888888	16
13 00000000000002222222444444444444	32
12 6666666666888888888	19
12 00000022222222224444444444444444	28
11 666666668888888888	18
11 0022222444	10
10 6666688888888	12
10 00002222244444	14
9 666888	6
9 00	2
8 66688	5
8 2	1
7 88	2
7 24	2
6 66	2
6	
5	
5 4	1

BOXPLOT



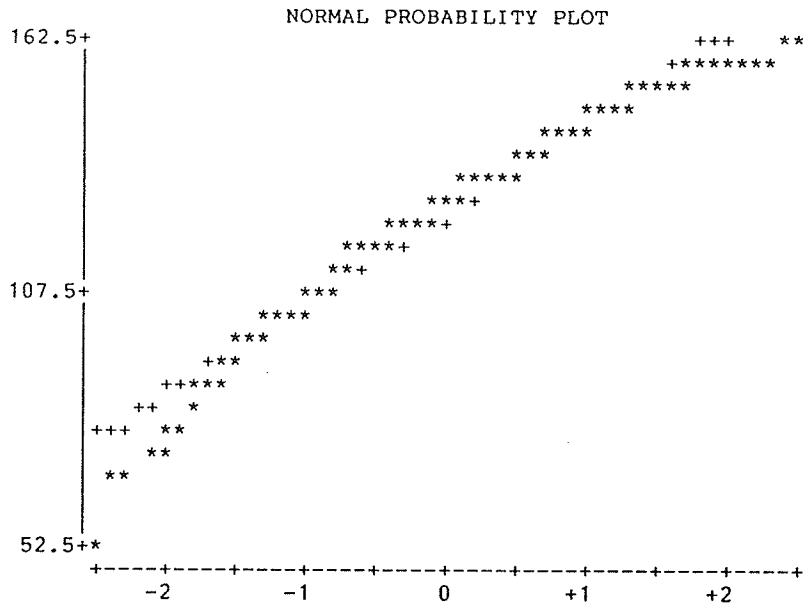
MULTIPLY STEM.LEAF BY 10**+01

QUANTILES (DEF=4)

162	99%	159.46
138.5	95%	154
127	90%	148.6
114	10%	100
54	5%	86.7
	1%	66
108		
24.5		
130		

EXTREMES

LOWEST	HIGHEST
54	158
66	158
66	158
72	160
74	162



VARIABLE=STRESS

OVERALL STRESS SCORE

MOMENTS

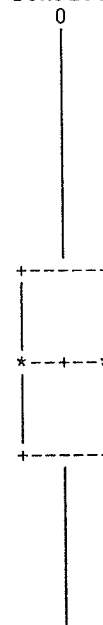
N	226	SUM WGTs	226
MEAN	577.606	SUM	130539
STD DEV	258.036	VARIANCE	66582.7
SKEWNESS	0.173977	KURTOSIS	-0.241541
USS	90381233	CSS	14981098
CV	44.6734	STD MEAN	17.1643
T:MEAN=0	33.6516	PROB> T	0.0001
SGN RANK	12600	PROB> S	0.0001
NUM ^= 0	224		
D:NORMAL	0.0426095	PROB>D	>.15

100% MAX
 75% Q3
 50% MED
 25% Q1
 0% MIN

 RANGE
 Q3-Q1
 MODE

STEM	LEAF	#
13	3	1
12		
12	12	2
11	59	2
11	00	2
10	9	1
10	0000013	7
9	6	1
9	01113444	8
8	5666778899	10
8	001122223344	12
7	555566677788999	14
7	0011222344	10
6	555556677888888999999	20
6	000122334444444	14
5	5555666677788899999	18
5	001111111222223333344	20
4	55666666777889	13
4	0012223444	10
3	55666677777889	14
3	00000011222333344	17
2	55566666889	10
2	012333	6
1	677778	6
1	01	2
0	688	3
0	003	3

BOXPLOT



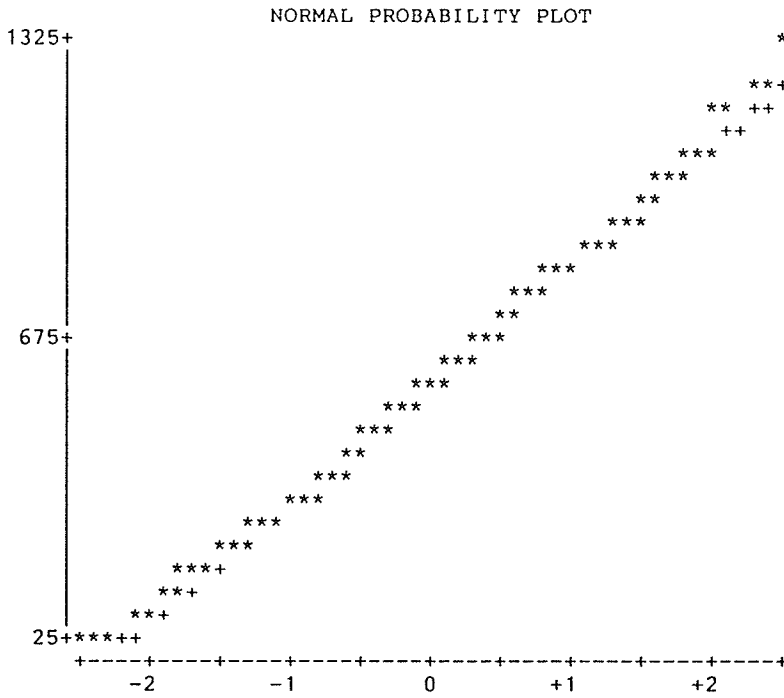
MULTIPLY STEM.LEAF BY 10**+02

QUANTILES (DEF=4)

1329	99%	1216.19
755.25	95%	1003.25
573	90%	909.9
374	10%	250.7
0	5%	167.35
	1%	9.45
1329		
381.25		
0		

EXTREMES

LOWEST	HIGHEST
0	1153
0	1195
35	1214
58	1217
77	1329



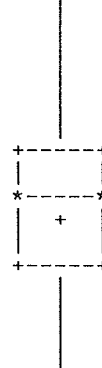
VARIABLE=ALCEXG ALCOHOL EXPECTANCY GLOBAL

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	6.9646	SUM	1574	75% Q3
STD DEV	3.61461	VARIANCE	13.0654	50% MED
SKWENESS	0.0978164	KURTOSIS	-0.715267	25% Q1
USS	13902	CSS	2939.72	0% MIN
CV	51.8997	STD MEAN	0.24044	
T:MEAN=0	28.966	PROB> T	0.0001	RANGE
SGN RANK	12045	PROB> S	0.0001	Q3-Q1
NUM ^= 0	219			MODE
D:NORMAL	0.0742385	PROB>D	<.01	

STEM	LEAF	#
15	00	2
14	00000	5
13	0000000000	10
12	00000000000000	15
11	0000000000	10
10	00000000000000	14
9	000000000000000000	20
8	00000000000000000000	23
7	00000000000000000000	21
6	0000000000000000000000	24
5	0000000000000000000000	22
4	0000000000000000	16
3	00000000000000000000	20
2	00000000	8
1	000000000	9
0	0000000	7

BOXPLOT



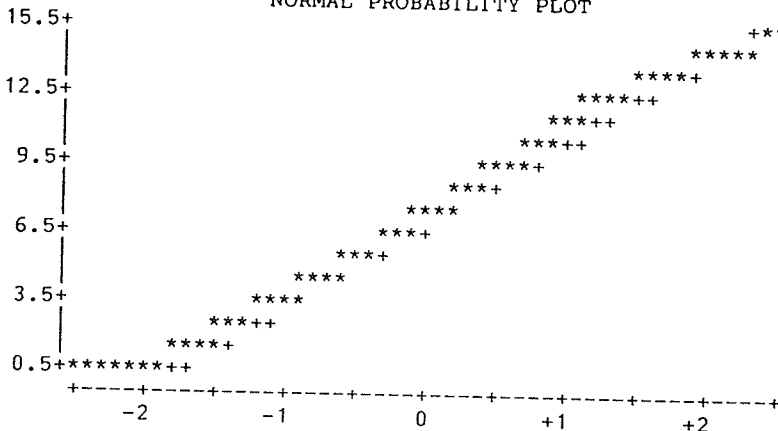
QUANTILES (DEF=4)

15	99%	14.73
9.25	95%	13
7	90%	12
4	10%	2
0	5%	1
	1%	0
15		
5.25		
6		

EXTREMES

LOWEST	HIGHEST
0	14
0	14
0	14
0	15
0	15

NORMAL PROBABILITY PLOT



VARIABLE=ALCEXSB

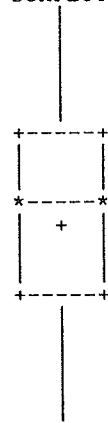
ALCOHOL EXPECTANCY SOCIAL BEHAVIOR

MOMENTS

N	226	SUM WGTs	226	100% MAX
MEAN	8.5885	SUM	1941	75% Q3
STD DEV	4.26913	VARIANCE	18.2255	50% MED
SKEWNESS	-0.0764681	KURTOSIS	-1.02811	25% Q1
USS	20771	CSS	4100.73	0% MIN
CV	49.7075	STD MEAN	0.283978	
T:MEAN=0	30.2435	PROB> T	0.0001	RANGE
SGN RANK	12488	PROB> S	0.0001	Q3-Q1
NUM ^= 0	223			MODE
D:NORMAL	0.0951081	PROB>D	<.01	

STEM	LEAF	#
17	0	1
16	0000000	7
15	000000000	9
14	0000000000000000000	18
13	0000000000000000000	19
12	0000000000000	12
11	0000000000000000000	17
10	0000000000000000000	19
9	00000000000000000	15
8	0000000000000	12
7	000000000000000	14
6	0000000000000000000000000	26
5	00000000	8
4	0000000000000000000	18
3	0000000000000	12
2	00000000	8
1	00000000	8
0	000	3

BOXPLOT



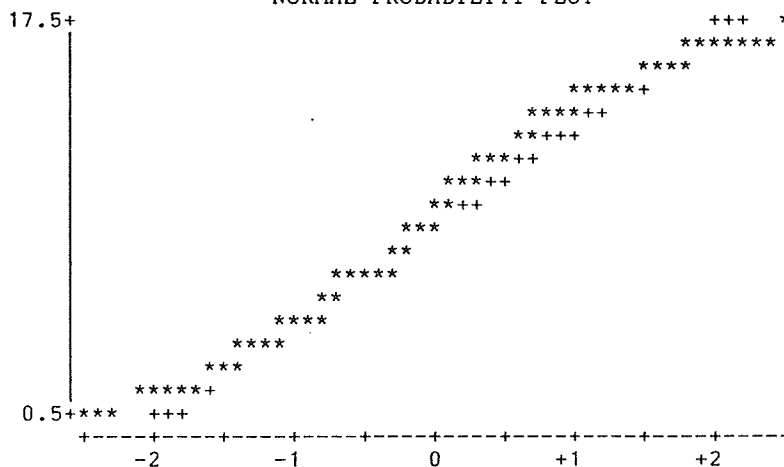
QUANTILES (DEF=4)

17	99%	16
12	95%	15
9	90%	14
5	10%	3
0	5%	1.35
	1%	0
17		
7		
6		

EXTREMES

	LOWEST	HIGHEST
	0	16
	0	16
	0	16
	1	16
	1	17

NORMAL PROBABILITY PLOT

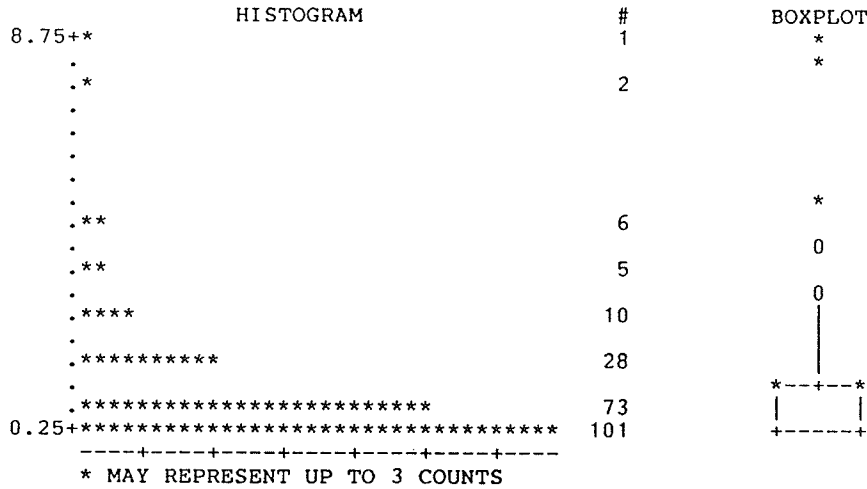


VARIABLE=ALCEXEC

ALCOHOL EXPECTANCY ENHANCED COGNITIVE

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	1.0354	SUM	234	75% Q3
STD DEV	1.44794	VARIANCE	2.09652	50% MED
SKEWNESS	2.47262	KURTOSIS	8.26605	25% Q1
USS	714	CSS	471.717	0% MIN
CV	139.843	STD MEAN	0.0963153	
T:MEAN=0	10.7501	PROB> T	0.0001	RANGE
SGN RANK	3937.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	125			MODE
D:NORMAL	0.279663	PROB>D	<.01	



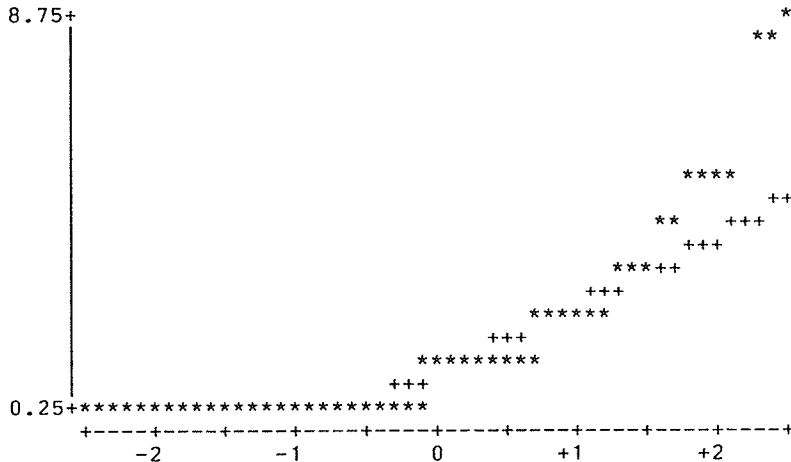
QUANTILES(DEF=4)

9	99%	8
1	95%	4
1	90%	3
0	10%	0
0	5%	0
	1%	0
9		
1		
0		

EXTREMES

	LOWEST	HIGHEST
	0	5
	0	5
	0	8
	0	8
	0	9

NORMAL PROBABILITY PLOT

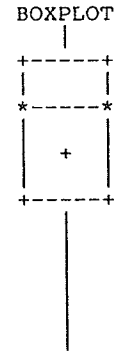
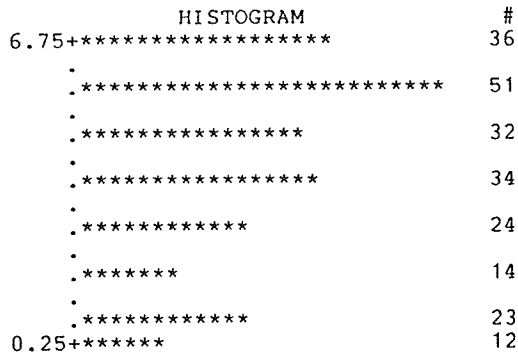


VARIABLE=ALCEXSEX

ALCOHOL EXPECTANCY SEXUAL

MOMENTS

N	226	SUM WGT	226	100% MAX
MEAN	4.32301	SUM	977	75% Q3
STD DEV	2.12438	VARIANCE	4.51298	50% MED
SKEWNESS	-0.516633	KURTOSIS	-0.858419	25% Q1
USS	5239	CSS	1015.42	0% MIN
CV	49.1412	STD MEAN	0.141311	RANGE
T:MEAN=0	30.5921	PROB> T	0.0001	Q3-Q1
SGN RANK	11502.5	PROB> S	0.0001	MODE
NUM ^= 0	214			
D:NORMAL	0.170018	PROB>D	<.01	



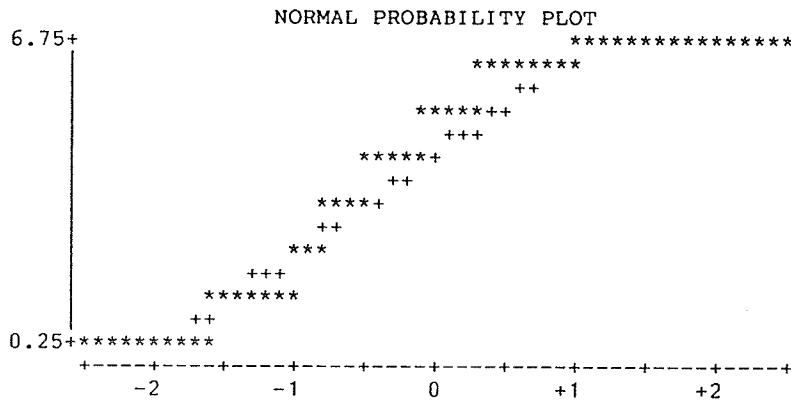
* MAY REPRESENT UP TO 2 COUNTS

QUANTILES (DEF=4)

7	99%	7
6	95%	7
5	90%	7
3	10%	1
0	5%	0
	1%	0
7		
3		
6		

EXTREMES

	LOWEST	HIGHEST
	0	7
	0	7
	0	7
	0	7
	0	7

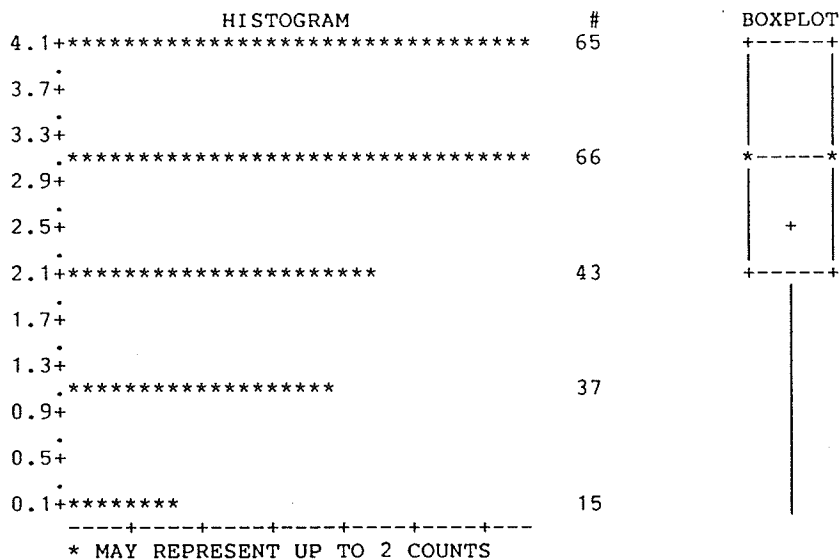


VARIABLE=ALCEXAR

ALCOHOL EXPECTANCY AROUSAL

MOMENTS

N	226	SUM WGTs	226	100% MAX
MEAN	2.5708	SUM	581	75% Q3
STD DEV	1.24609	VARIANCE	1.55274	50% MED
SKEWNESS	-0.489656	KURTOSIS	-0.847235	25% Q1
USS	1843	CSS	349.367	0% MIN
CV	48.471	STD MEAN	0.0828888	
T:MEAN=0	31.015	PROB> T	0.0001	RANGE
SGN RANK	11183	PROB> S	0.0001	Q3-Q1
NUM ^= 0	211			MODE
D:NORMAL	0.214388	PROB>D	<.01	

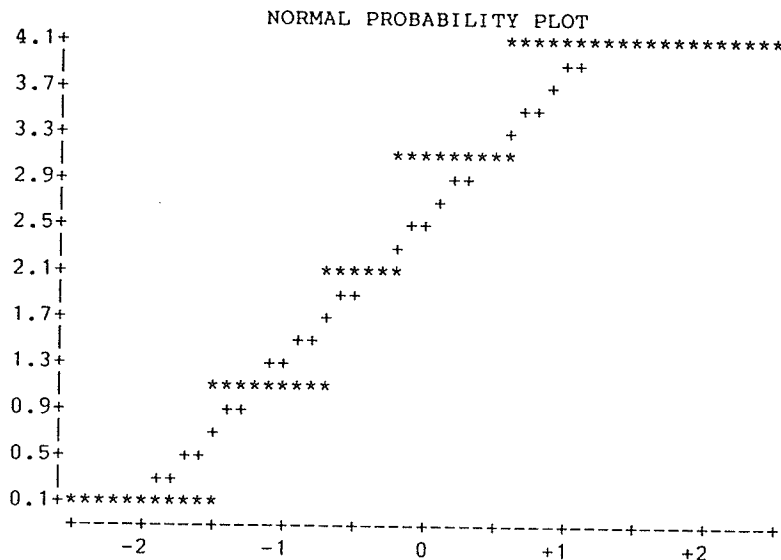


QUANTILES(DEF=4)

4	99%	4
4	95%	4
3	90%	4
2	10%	1
0	5%	0
	1%	0
4		
2		
3		

EXTREMES

	LOWEST	HIGHEST
	0	4
	0	4
	0	4
	0	4
	0	4



VARIABLE=ALCEXREL ALCOHOL EXPECTANCY RELAXATION

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	10.0664	SUM	2275	75% Q3
STD DEV	2.77449	VARIANCE	7.6978	50% MED
SKEWNESS	-1.15516	KURTOSIS	0.666617	25% Q1
USS	24633	CSS	1732	0% MIN
CV	27.562	STD MEAN	0.184556	
T:MEAN=0	54.5436	PROB> T	0.0001	RANGE
SGN RANK	12825.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	226			MODE
D:NORMAL	0.180723	PROB>D	<.01	

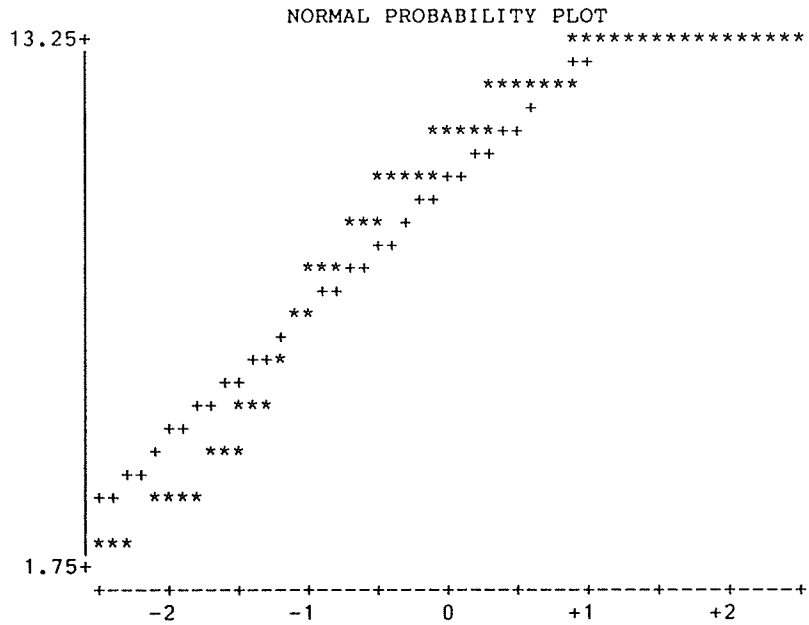
STEM	LEAF	#	BOXPLOT
13	000	42	
12			
12	000	44	-----+----- +-----+ +
11			
11	000	36	*-----* * +-----+ +
10			
10	000	34	 +
9			
9	000	19	+-----+ + +-----+ +
8			
8	000	17	
7			
7	000000	6	
6			
6	0000	4	
5			
5	00000000	8	
4			
4	0000000	7	0
3			
3	000000	6	0
2			
2	000	3	0
1			
-----+-----+-----+-----+-----+-----+-----+-----			

QUANTILES (DEF=4)

13 99%
 12 95%
 11 90%
 9 10%
 2 5%
 1 1%
 11
 3
 12

EXTREMES

LOWEST	HIGHEST
2	13
2	13
2	13
3	13
3	13



VARIABLE=ALCEXP

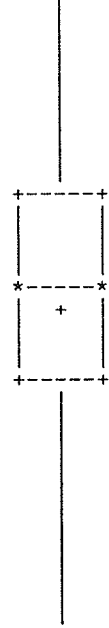
ALCOHOL EXPECTANCIES LATENT VARIABLE

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	33.5487	SUM	7582	75% Q3
STD DEV	11.9324	VARIANCE	142.382	50% MED
SKWENESS	-0.273222	KURTOSIS	-0.461612	25% Q1
USS	286402	CSS	32036	0% MIN
CV	35.5674	STD MEAN	0.793731	
T:MEAN=0	42.267	PROB> T	0.0001	RANGE
SGN RANK	12825.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	226			MODE
D:NORMAL	0.0556483	PROB>D	0.087	

STEM	LEAF	#
58	000	3
56	0	1
54	000	3
52	00000	5
50	0000000	6
48	0000000000000000	12
46	00000000	7
44	0000000000	9
42	00000000000000000000	16
40	0000000000000000	13
38	000000000000000000	15
36	00000000000000	12
34	000000000000000000000000	18
32	00000000000000000000	16
30	00000000000000000000	16
28	00000000000000	11
26	000000000	8
24	000000000	8
22	000000000	8
20	000000000000	10
18	000	3
16	000	3
14	00000	5
12	000000	6
10	00000	5
8	0000	4
6	000	3

BOXPLOT



-----+-----+-----+-----+

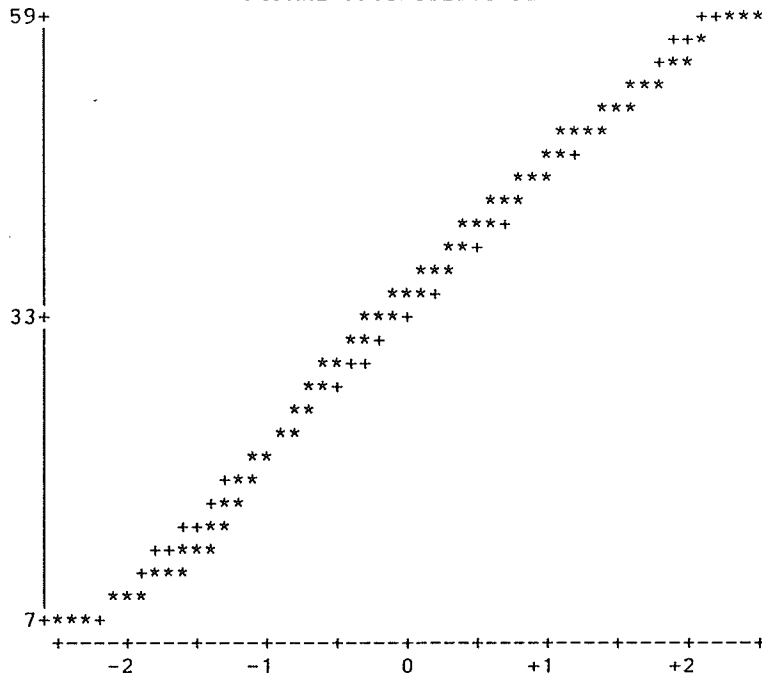
QUANTILES (DEF=4)

59	99%	58
42	95%	52.65
34	90%	49
26	10%	15
6	5%	11
	1%	7
53		
16		
34		

EXTREMES

LOWEST	HIGHEST
6	55
7	56
7	58
8	58
8	59

NORMAL PROBABILITY PLOT

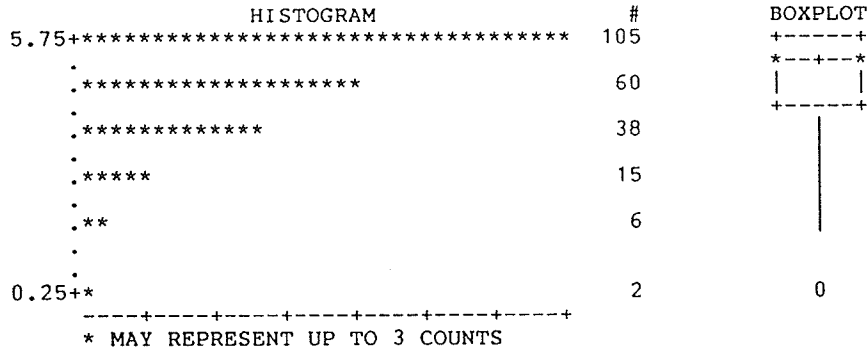


VARIABLE=SELU

LEVEL SELF-EFFICACY UNFAMILIAR

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	5.03982	SUM	1139	75% Q3
STD DEV	1.16741	VARIANCE	1.36285	50% MED
SKEWNESS	-1.41385	KURTOSIS	2.35633	25% Q1
USS	6047	CSS	306.642	0% MIN
CV	23.1638	STD MEAN	0.0776551	
T:MEAN=0	64.9001	PROB> T	0.0001	RANGE
SGN RANK	12600	PROB> S	0.0001	Q3-Q1
NUM ^= 0	224			MODE
D:NORMAL	0.259201	PROB>D	<.01	

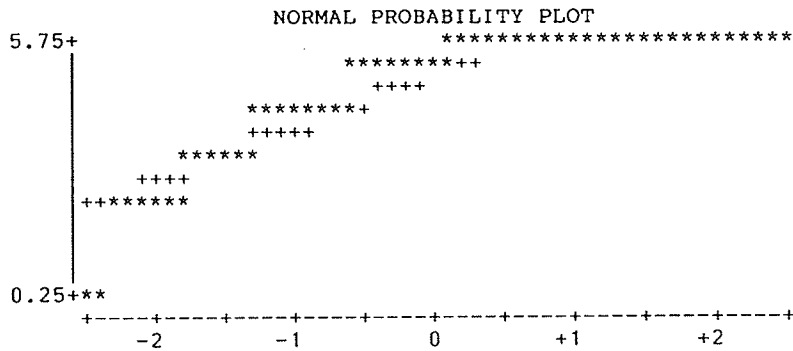


QUANTILES (DEF=4)

6	99%	6
6	95%	6
5	90%	6
4	10%	3
0	5%	3
	1%	0.54

EXTREMES

LOWEST	HIGHEST
0	6
0	6
2	6
2	6
2	6



VARIABLE=SESU

STRENGTH SELF-EFFICACY UNFAMILIAR

MOMENTS

N	226	SUM	WGTS	226	100% MAX
MEAN	22.1195	SUM		4999	75% Q3
STD DEV	6.50257	VARIANCE		42.2834	50% MED
SKEWNESS	-0.786724	KURTOSIS		0.338429	25% Q1
USS	120089	CSS		9513.77	0% MIN
CV	29.3975	STD MEAN		0.432545	
T:MEAN=0	51.138	PROB> T		0.0001	RANGE
SGN RANK	12600	PROB> S		0.0001	Q3-Q1
NUM ^= 0	224				MODE
D:NORMAL	0.112773	PROB>D		<.01	

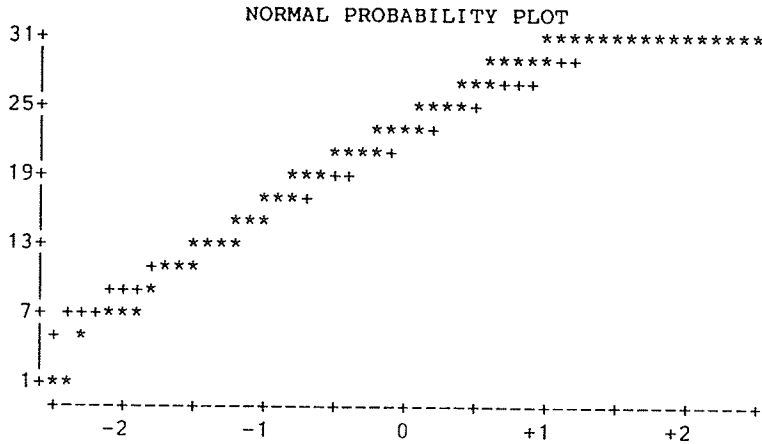
STEM LEAF		#	BOXPLOT
30	000	37	
28	000	24	+-----+
26	000	20	
24	000	24	
22	000	24	*-----*
20	000	31	
18	000	16	+-----+
16	000	13	
14	000	12	
12	000	10	
10	0000000	6	
8	00	2	
6	0000	4	
4	0	1	
2			
0	00	2	0

QUANTILES (DEF=4)

30	99%	30
28	95%	30
23	90%	30
18	10%	13
0	5%	10
	1%	1.08
30		
10		
30		

EXTREMES

LOWEST	HIGHEST
0	30
0	30
4	30
6	30
6	30



VARIABLE=SELFEFF SELF-EFFICACY LATENT VARIABLE

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	53.2389	SUM	12032	75% Q3
STD DEV	11.7419	VARIANCE	137.872	50% MED
SKEWNESS	-0.901051	KURTOSIS	1.39319	25% Q1
USS	671592	CSS	31021.1	0% MIN
CV	22.055	STD MEAN	0.781058	
T:MEAN=0	68.1626	PROB> T	0.0001	RANGE
SGN RANK	12712.5	PROB> S	0.0001	Q3-Q1
NUM ^= 0	225			MODE
D:NORMAL	0.0910659	PROB>D	<.01	

STEM LEAF	#	BOXPLOT
7 000111222	9	
6 55555666666666666667788888999	29	
6 00000000011111112222223333444444444444	42	+-----+
5 55555555666666666777788888889999999999	38	+-----*
5 00000000112222223334444444444	29	+
4 55555666666667777888888899999	29	+-----+
4 00001111222223334444	20	
3 55556666778888999	18	
3 012444	6	
2 78	2	
2 34	2	
1		
1 2	1	0
0		
0 0	1	0

-----+

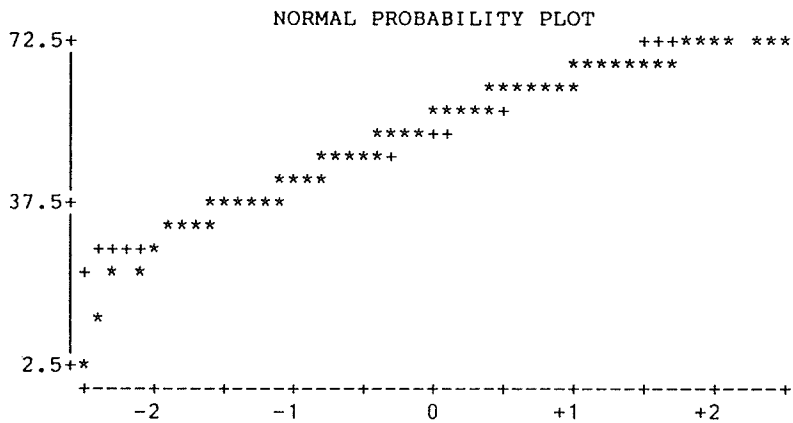
MULTIPLY STEM.LEAF BY 10**+01

QUANTILES (DEF=4)

72	99%	72
62.25	95%	69
55	90%	66
46	10%	37
0	5%	34
	1%	14.97
72		
16.25		
64		

EXTREMES

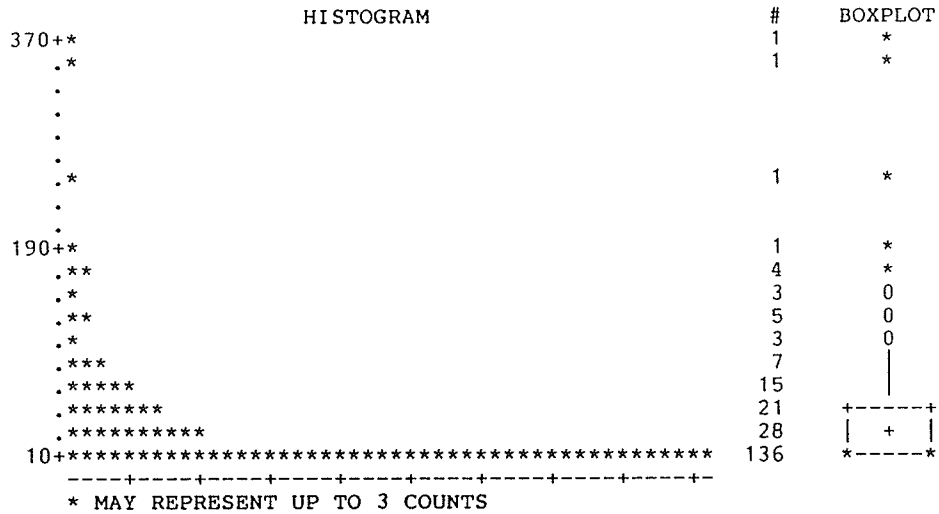
LOWEST	HIGHEST
0	71
12	71
23	72
24	72
27	72



VARIABLE=ADOLDR ADOLESCENT ALCOHOL CONSUMPTION

MOMENTS

N	226	SUM WGTS	226	100% MAX
MEAN	31.7456	SUM	7174.5	75% Q3
STD DEV	53.0334	VARIANCE	2812.54	50% MED
SKEWNESS	3.07199	KURTOSIS	12.7467	25% Q1
USS	860580	CSS	632822	0% MIN
CV	167.058	STD MEAN	3.52773	
T:MEAN=0	8.99887	PROB> T	0.0001	RANGE
SGN RANK	5513	PROB> S	0.0001	Q3-Q1
NUM ^= 0	148			MODE
D:NORMAL	0.274721	PROB>D	<.01	

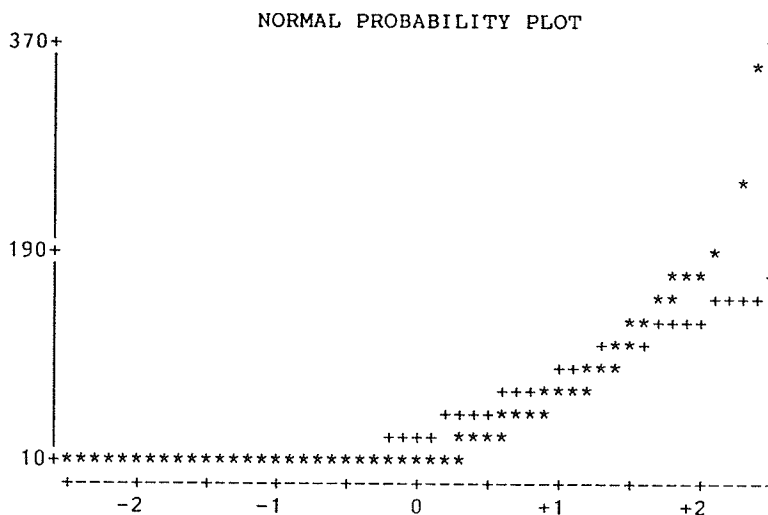


QUANTILES (DEF=4)

360	99%	321.375
43.125	95%	139.025
8.5	90%	91.15
0	10%	0
0	5%	0
	1%	0
360		
43.125		
0		

EXTREMES

LOWEST	HIGHEST
0	177
0	186
0	257.5
0	345
0	360



Appendix E
Correlation Matrix

	APROYF	APROYM	APROYPAR	DRDAD	DRMOM	PARDR	DRPEER	SSKILOS	STRESS
APROYF	1.00000								
APROYM	0.49583	1.00000							
APROYPAR	0.65668	0.67274	1.00000						
DRDAD	-0.06331	0.01812	-0.03607	1.00000					
DRMOM	-0.05475	-0.13863	-0.11312	-0.08550	1.00000				
PARDR	-0.06421	0.01610	-0.03778	0.99989	-0.07088	1.00000			
DRPEER	-0.08356	-0.07812	-0.05338	-0.05857	0.35255	-0.05345	1.00000		
SSKILOS	0.21016	0.14794	0.20602	0.07137	-0.20455	0.06844	-0.34718	1.00000	
STRESS	-0.02618	0.00949	-0.00908	0.08446	0.08172	0.08577	0.20204	-0.08396	1.00000
ALCEXC	0.01687	-0.02104	-0.00301	-0.02880	0.12972	-0.02692	0.25330	-0.31484	0.17458
ALCEXSB	-0.01727	-0.01495	-0.01859	-0.07902	0.09178	-0.07776	0.42002	-0.38501	0.17202
ALCEXEC	0.08142	-0.07842	-0.00081	0.03370	0.20791	0.03680	0.37540	-0.38056	0.14663
ALCEXSEX	-0.12088	-0.05466	-0.10042	-0.04592	0.10194	-0.04447	0.27850	-0.16958	0.22034
ALCEXAR	0.04855	-0.01924	0.01587	-0.00644	0.08623	-0.00518	0.09920	-0.19171	0.19784
ALXEXREL	0.01843	0.04315	0.03599	0.00019	0.05106	0.00094	0.12231	-0.12717	0.22318
ALCEXP	-0.00335	-0.02294	-0.01551	-0.04171	0.13639	-0.03975	0.36094	-0.36140	0.22318
SELF	0.02233	0.04652	0.04019	0.03212	-0.14033	0.03009	-0.12805	0.11401	-0.00574
SESF	-0.03980	-0.01121	-0.01571	0.05498	-0.15027	0.05283	-0.08407	0.12525	0.00428
SELU	0.00176	-0.02315	-0.01276	-0.07059	-0.22248	-0.07395	0.09012	-0.08019	-0.05277
SESU	-0.04067	-0.04787	-0.06254	-0.03521	-0.16958	-0.03775	0.13505	-0.13291	-0.04784
SELFEFF	-0.04481	-0.01958	-0.03913	0.00069	-0.19525	-0.00219	0.03487	-0.01583	-0.03038
SEX	-0.10754	-0.11548	-0.12905	0.08877	-0.09792	0.08743	0.11044	-0.20919	-0.13628
RELIC	0.01664	0.00500	0.01732	-0.06877	0.06573	-0.06788	-0.00977	-0.08328	-0.07100
GERM	-0.02856	-0.06535	-0.05487	-0.08224	0.25525	-0.07858	0.20724	-0.10416	0.03865
BRIT	-0.08482	-0.06611	-0.08258	-0.01365	-0.05306	-0.01445	0.13479	-0.21027	-0.08729
ORIENT	0.14737	0.10097	0.14282	-0.05798	-0.13559	-0.06002	-0.16727	0.22226	-0.05739
ADOLDR	-0.12298	-0.11629	-0.13821	-0.05908	0.31431	-0.05452	0.66164	-0.46292	0.15151
STD DEVIATION	0.62118	0.65628	1.10500	24.38044	35.65567	24.3524	29.43583	19.78293	25.80362

	ALCEXC	ALCEXSB	ALCEXEC	ALCEXSEX	ALCEXAR	ALXEXREL	ALCEXP	SELF	SESF
APROYF									
APROYM									
APROYPAR									
DRDAD									
DRMOM									
PARDR									
DRPEER									
SSKILOS									
STRESS									
ALCEXC	1.00000								
ALCEXSB	0.53937	1.00000							
ALCEXEC	0.50296	0.32376	1.00000						
ALCEXSEX	0.63528	0.47979	0.35894	1.00000					
ALCEXAR	0.54919	0.38271	0.26711	0.49585	1.00000				
ALXEXREL	0.61669	0.49048	0.20408	0.53625	0.59191	1.00000			
ALCEXP	0.87077	0.79988	0.52878	0.76215	0.66604	0.77686	1.00000		
SELF	-0.04095	0.06553	-0.28601	0.00897	0.09925	0.18358	0.03098	1.00000	
SESF	-0.04661	0.07042	-0.25000	0.00749	0.06998	0.16758	0.02834	0.66629	1.00000
SELU	0.02035	0.11299	-0.02187	0.02167	0.06680	-0.00494	0.05362	0.36230	0.44131
SESU	0.06390	0.17357	-0.01508	0.07345	0.06285	0.04021	0.10861	0.31629	0.47608
SELFEFF	0.01308	0.14445	-0.14715	0.04696	0.08146	0.11261	0.08084	0.68544	0.82841
SEX	0.07781	-0.05054	0.05301	-0.08997	-0.00983	-0.13058	-0.03545	0.04019	0.08551
RELIC	-0.08635	0.05172	0.00489	-0.04500	-0.06660	-0.00887	-0.02404	0.03024	0.06543
GERM	-0.03404	0.08078	0.17793	-0.01483	-0.01870	-0.08875	0.01496	-0.16305	-0.15876
BRIT	0.19735	0.23418	0.11975	0.20544	0.19257	0.13740	0.24673	-0.00550	0.04658
ORIENT	-0.06384	-0.32985	-0.08099	-0.16391	-0.16236	-0.08390	-0.21283	-0.08004	-0.07405
ADOLDR	0.30252	0.44185	0.44897	0.30126	0.15763	0.08693	0.39451	-0.11598	-0.05991
STD DEVIATION	3.61461	4.26813	1.44794	2.12438	1.24609	2.77449	11.93240	1.08317	5.17783

	SELU	SESU	SELFEFF	SEX	RELIC	GERM	BRIT	ORIENT	ADOLDR
APROYF									
APROYM									
APROYPAR									
DRDAD									
DRMOM									
PARDR									
DRPEER									
SSKILOS									
STRESS									
ALCEXC									
ALCEXSB									
ALCEXEC									
ALCEXSEX									
ALCEXAR									
ALXEXREL									
ALCEXP									
SELF									
SESF									
SELU	1.00000								
SESU	0.80627	1.00000							
SELFEFF	0.82934	0.88301	1.00000						
SEX	0.22362	0.27751	0.21733	1.00000					
RELIC	0.03329	0.07596	0.07702	0.01193	1.00000				
GERM	-0.04967	-0.04746	-0.11627	-0.10382	-0.00746	1.00000			
BRIT	0.09180	0.13970	0.10650	0.09777	-0.19281	-0.17504	1.00000		
ORIENT	-0.07888	-0.06465	-0.09486	0.04404	-0.08928	-0.13094	-0.21252	1.00000	
ADOLDR	0.12669	0.16859	0.06864	0.06195	0.08539	0.16364	0.17762	-0.19022	1.00000
STD DEVIATION	1.16741	6.50257	11.74187	0.49606	2.76810	0.29709	0.41600	0.34479	5.30334