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SOCIODEMOGRAPHIC, SOCIAL INFLUENCE, AND PSYCHOLOGICAL VARIABLES AS PREDICTORS OF ALCOHOL-RELATED ATTITUDES AND BEHAVIOURS IN A UNIVERSITY SAMPLE

by

Laura S. Magee

B. A. University of Calgary, 1989

A Thesis
Submitted to the Faculty of Graduate Studies
through the Department of Psychology
in Partial Fulfilment of the
Requirements for the Degree
of Master of Arts at the
University of Windsor
Windsor, Ontario, Canada
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ABSTRACT

Alcohol use is prevalent among college students and the factors that contribute to drinking behaviour in this population need to be more carefully delineated. Respondents in the current study were 183 first-year undergraduate students at the University of Windsor who participated for research credit. They answered questions about their sociodemographic characteristics, their drinking attitudes and behaviours, and their perceptions of the drinking attitudes and behaviours of peers and parents. Participants also completed several self-report measures that assessed alcohol dependence, expectancies associated with alcohol consumption, achievement anxiety, and problem-solving skills. Sociodemographic variables (i.e., age, sex, SES, social desirability), social influence variables (i.e., perceived attitudes of parents and peers toward alcohol consumption, estimated consumption of alcohol by parents and peers), and psychological variables (i.e., tension-reduction expectancies, problem-solving skills, achievement anxiety) were entered into a series of regression analyses to determine the best combination of predictors for participants' alcohol-related attitudes and behaviours. Results indicated that sociodemographic variables account for less variance in college students' alcohol consumption than social influence and psychological variables. Peer and parental attitudes toward alcohol and

personal tension-reduction alcohol expectancies accounted for 56% of the variance in students' attitudes toward alcohol. Living arrangements, perceived quantity of alcohol consumption by friends, and tension-reduction expectancies accounted for 61% of the variance in participants' quantity of consumption. Estimated quantity of consumption by close friends, and frequency of drinking on weekends and weekdays, accounted for 68% of the variance in respondents' frequency of alcohol consumption. Finally, living arrangements, estimated attitudinal ratings of mothers, estimated alcohol consumption by close friends, and tension-reduction expectancies accounted for 35% of the variance in respondents' alcohol dependence. These results replicate past research that peers are more influential than parents on college students' drinking behaviour. The results of the current study also support the possibility of a relationship between tension-reduction expectancies and heavier, more frequent alcohol consumption. Implications for future research include the development of a more comprehensive understanding of the factors associated with drinking in college populations.

ACKNOWLEDGEMENTS

I would like to thank my advisor, Dr. Cheryl Thomas, for the extra work and effort she put into this project. I would also like to express my gratitude to my parents, Anne and Gerry Magee, for their continuing love and support.

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CHAPTER I

INTRODUCTION

Drinking Behaviour of College Students

Alcohol use is prevalent among college students and predictors of drinking behaviour in this population need to be more carefully delineated. Recent surveys indicate that more than 90% of college students consume alcohol on at least an occasional basis. Although the estimated prevalence of alcohol abuse in this population ranges from six to 72%, in the majority of survey studies, 20-25% of college students are classified as problem drinkers (Berkowitz & Perkins, 1986). According to Berkowitz and Perkins (1986), students who abuse alcohol may experience difficulties with authority figures, have problems in their personal relationships, and exhibit poor academic performance.

The purpose of the current study was to assess the utility of sociodemographic, social influence, and psychological variables as predictors of alcohol-related attitudes, consumption and dependence in first-year university students. Studying the correlates of problematic attitudes and behaviours may help to identify risk factors associated with problem drinking in this population. Ultimately, the goal is to target interventions so that they reach those students who are at higher risk for developing or maintaining abusive drinking habits.

Problems and Issues

Conceptual issues and operational definitions. A fundamental difficulty with research in this area is the multitude of different theoretical and operational definitions of drinking behaviour (Berkowitz & Perkins, 1986). Berkowitz and Perkins (1986) identify four different conceptualizations of problem drinking in the literature. These are: (a) excessive consumption and intoxication; (b) self-identified problem drinkers; (c) reasons for drinking; and (d) negative consequences of drinking. Thus, there has been a notable lack of consistency in the research literature as to what constitutes "problem drinking." The terms "drinking pattern" and "drinking style" are used inconsistently, sometimes referring to actual drinking behaviour (e.g., Brown, 1985) or sometimes to the reasons subjects give for using alcohol (e.g., Williams & Kleinfelter, 1989). The lack of standardization in operational definitions makes it difficult to compare findings across studies.

Each of the four operational definitions of problem drinking identified by Berkowitz and Perkins (1986) can provide important information about drinking behaviour. Although it was not feasible for the current study to assess all four definitions, an attempt was made to consider at least one aspect of each. For example, the Quantity-Frequency index used in the current study provided

a measure of alcohol consumption, although it did not assess intoxication. The self-report measures of alcohol-related attitudes and consumption provided information about whether or not participants identified themselves as frequent, heavy drinkers. Expectancies of tension-reduction with the consumption of alcohol can be viewed as one set of reasons participants may give for drinking, and scores on the Short Alcohol Dependence Data reflected, in part, some negative consequences of drinking.

In contrast with much of the research on correlates of alcohol consumption, the present study did not categorize participants as "problem drinkers" or "nonproblem drinkers," partly because there are no standard criteria in the literature upon which to base such groupings. Moreover, the dimensional view of alcohol consumption adopted by the current study made such classifications unnecessary.

Assessing drinking behaviour. A methodological problem recently identified in the research literature concerns the use of the timeline method of assessing alcohol use versus the more "traditional" quantity and frequency measures (e.g., Sobell, Sobell & Klajner, 1986; Sobell, Sobell, Leo & Cancilla, 1988; Werch, 1990). The timeline method involves having subjects record their drinking behaviour retrospectively over a specific period of time (e.g., 30 days) or self-monitor and record drinking behaviour prospectively over a period of time. Based on timeline

records, researchers can review the participant's recent drinking history and determine the total amount of alcohol consumed, the number of drinking days, and overall patterns of drinking and abstention (Sobell et al., 1986). Several reports (e.g., Sobell et al., 1986; Sobell et al., 1988; Werch, 1990) indicate that the prospective timeline method may be more reliable than retrospective reports about the quantity and frequency of alcohol consumption. Moreover, external criteria such as arrests, hospitalizations, and biochemical tests have been used to validate timeline data in studies of individuals diagnosed as alcoholic. However, the validity of the timeline method for nonreferred and nondiagnosed individuals is difficult to establish, since few validating events exist for these populations (Babor, Stephens & Marlatt, 1987).

Retrospective quantity and frequency self-reports have been found to underestimate participants' drinking behaviour (Westermeyer, 1990). Sobell et al. (1988) state that the biggest difficulty with these measures is that they do not accurately reflect drinking behaviour. However, despite these criticisms, retrospective quantity and frequency reports have been shown to have good test-retest reliability, with correlations ranging from .85 to .99 (Babor et al., 1987). Moreover, Babor et al. (1987) found that studies comparing self-estimations of quantity and frequency have good agreement with estimations by

significant others, and show high reliability across different populations.

Although observing drinking behaviour in real-life settings would be the ideal method of data collection, it is simply not feasible, from a pragmatic standpoint, either in terms of time or money. No other methods of data gathering have yet been developed that offer the same ease of use and economy of time and money. Therefore, it seems that self-report measures are, at present, the most viable tools for inquiry in college students' drinking behaviour.

Sociodemographic Variables Associated with Drinking

A great deal of research has focused on the relationships between sociodemographic variables and alcohol consumption. Sociodemographic studies focus on associations between drinking and variables such as sex, socioeconomic status and religion.

Sex differences in drinking behaviour. The literature suggests that there are important differences between men and women in their consumption of alcohol (Berkowitz & Perkins, 1986). Friedman and Humphrey (1985) state that historically, males have been found to drink larger quantities of alcohol on more frequent occasions than their female counterparts. However, these authors report that the discrepancy between men's and women's drinking behaviour seems to be diminishing with time. Although men continue to drink more alcohol than women, it is no longer clear whether

they drink more often than females (Berkowitz & Perkins, 1986). In their review of the literature, Saltz and Elandt (1986) report that some studies found men to drink significantly more often than women, whereas other studies found no such difference.

Socioeconomic status and drinking behaviour. Friedman and Humphrey (1985) report that alcohol consumption is related to socioeconomic status. According to these authors, adolescent children of higher income parents tend to consume more alcohol than children from lower income families.

Religion and drinking behaviour. A relationship between college students' alcohol consumption and their religious affiliation has been consistently reported in the literature (e.g., Engs, Hanson, Gliksman & Smythe, 1990). Some religious groups view alcohol as food and use it in their rituals, whereas other religious groups view the consumption of alcohol as an indication of poor moral character (Engs et al., 1990). Research findings indicate that members of religious groups advocating abstinence from drinking are less likely to drink than members of religious groups that do not abstain from alcohol (Wechsler, Demone & Gottlieb, 1978; Engs et al., 1990). For instance, Engs et al. (1990) found that non-abstaining religious groups, such as Roman Catholics and mainstream Protestants (e.g., Anglicans, Presbyterians and Lutherans), consumed more

alcohol than abstinence-oriented Protestants (e.g., Mormons, Seventh Day Adventists and Nazarenes).

The influence of religion on alcohol consumption seems to be connected to the cohesiveness between members of the group. More devout members of religious groups are likely to attend religious services more frequently and feel more connected to the group as a whole (Engs et al., 1990). Research has shown that students who are more devout and who attend religious services more frequently are less likely to experience drinking-related problems than their less devout counterparts (Berkowitz & Perkins, 1986). Consequently, studies of the relationship between religious affiliation and alcohol consumption must include a measure of the extent of devoutness (Roebuck & Kessler, 1972). In the current study, frequency of attendance at religious services was employed as an operational measure of religious devoutness.

Social Influence Groups and Drinking Behaviour

Family influences. Berkowitz and Perkins (1986) point out that frequency of religious attendance and extent of religious devoutness are determined to some extent by family background. Family background and parental influences may affect college students' drinking in a variety of ways (Berkowitz & Perkins, 1986). Children of abstaining parents are more likely to abstain from alcohol than are children of drinking parents (Saltz & Elandt, 1986). However, modelling of problem drinking behaviour is only one aspect of parental

influences on drinking behaviour. According to Berkowitz and Perkins (1986), in families where either or both parents abuse alcohol, there may be financial difficulties, as well as physical and/or emotional abuse. As these authors point out, the lack of emotional and physical security that are common in problem-drinking families may also be detrimental to children's emotional growth. Thus, children of alcohol-abusing parents may not develop a secure, stable identity during childhood, which may leave them vulnerable to problem-drinking later on. Berkowitz and Perkins also note that the lack of a relationship between the alcohol-abusing parent(s) and the child may be associated with greater vulnerability to peer pressures around alcohol consumption.

Peer influences. In general, college students' drinking behaviour is more affected by peer influences than by parental influences (e.g., Berkowitz & Perkins, 1986). College students are generally trying to establish personal independence from parents and family and forge closer relationships with friends and peers (Berkowitz & Perkins, 1986). Berkowitz and Perkins (1986) note that friends and peers are more likely to engage in (and model) heavier drinking behaviours.

Recent reports in the literature support the suggestion that peer groups are more influential than parents on collegians' drinking behaviour. Shore and Rivers (1985)

assessed the ability of students to resist peer pressure to drink. Their results indicated that past influences (e.g., parental drinking habits, family religion) were not highly correlated with students' ability to resist peer pressure to drink. Instead, environmental factors (e.g., class standing, living unit), had more impact on students' resistance to pressure to drink. More recently, Sherry and Stolberg (1987) investigated the relative strength of family and peer influences on college students' alcohol use. They found that the best predictor of alcohol consumption was peer pressure, followed by family history.

Similarly, Johnson (1989) found peers to be more influential than parents on female college students' alcohol use. In this study, perceived parental disapproval of drinking was negatively correlated with students' drinking behaviour, whereas perceived peer approval was positively correlated with drinking. As Johnson notes, the relative strength of these relationships suggests that parents' negative reactions to alcohol are not as influential on collegians' drinking as the positive reactions of peers.

The results of the above studies indicate that peer influences are more salient in college students' drinking behaviour than parental influences. It is possible that peers are more influential in students' drinking because the student is immersed in an environment dominated by his/her peers. Not surprisingly, other studies (e.g., Saltz &

Elandt, 1986) suggest that students who live with their parents drink less than students who live on campus.

Psychological Variables Associated with Drinking

Psychological variables have also been identified as important correlates of drinking behaviour in college populations (Berkowitz & Perkins, 1986). Psychological approaches to the study of alcohol use assess relationships between personality characteristics and drinking behaviour. In the current study, relationships between drinking attitudes and behaviours, and three specific psychological variables were assessed. These were: expectancies of tension-reduction with the consumption of alcohol, achievement anxiety, and perceptions of problem-solving skills. In the following sections, some of the literature on tension-reduction alcohol expectancies, achievement anxiety and problem-solving skills are reviewed.

Tension-reduction expectancies, achievement anxiety, and drinking. According to Berkowitz and Perkins (1986), much of the research on alcohol use has ignored the possible relationship between expectancies and drinking behaviour in college samples. Nevertheless, as Berkowitz and Perkins point out, expectancies may be of equal or greater importance than the pharmacological effects of drinking.

The Tension-Reduction hypothesis states that alcohol abusers use alcohol to reduce stress (Schukitt, 1984). Indeed, many studies have shown that problem drinkers often

expect alcohol to alleviate tension. For example, Brown, Goldman and Christiansen (1985) compared the alcohol expectancies of alcoholics, medical patients, and college students. These researchers reasoned that if different drinking patterns are associated with different expectancies, then people who demonstrate similar drinking patterns should present with similar alcohol expectancies. Their results indicated that expectancies do mediate drinking behaviour. Specifically, heavier drinkers (i.e., alcoholics, excessive drinking medical patients and heavy drinking college students) expected more social and physical pleasure, enhanced social assertiveness, and greater tension-reduction than did the other groups (i.e., nonexcessive drinking medical patients, moderate and occasional drinking college students). Brown et al. found that tension-reduction expectancies predicted relapse after alcohol treatment as well as the degree of problem drinking among collegians. They concluded that tension-reduction expectancies may be involved both in the development of abusive drinking and in the continuation of problem drinking behaviours.

Brown (1985) attempted to identify the alcohol expectancies associated with different drinking styles of college students. She found that non-problem drinkers (i.e., students who were "light drinkers" and reported no physical problems arising from their alcohol consumption)

expected alcohol to enhance their physical and social pleasure. On the other hand, problem drinkers (i.e., students who reported drinking large quantities of alcohol on a frequent basis, and experienced legal or academic difficulties arising from their alcohol consumption) expected alcohol to reduce their tension levels. In fact, Brown (1985) found that the tension-reduction expectancies best predicted problem drinking in college students. Brown suggests that college students who expect alcohol consumption to reduce tension may be at risk for developing problematic drinking behaviours, and that tension-reduction expectancies may play a part in increasing light or moderate drinking to abusive levels.

Tension-reduction alcohol expectancies do seem to be associated with problem drinking (e.g., Brown, 1985; Brown et al., 1985). However, few studies to date have focused on specific sources of tension in relation to tension-reduction expectancies. Among college students, one important potential source of stress is achievement-related anxiety. Tanck and Robbins (1979) found that 78% of college students reported school-related stress as a source of tension.

Couch, Garber and Turner (1983) observe that achievement anxiety may either assist students in performing well on exams (facilitating anxiety) or impede their academic performance (debilitating anxiety). In their

study, Couch et al. found that debilitative achievement anxiety was associated with lower GPAs, whereas facilitative anxiety was related to higher GPAs.

Heavier alcohol consumption has also been found to relate to lower GPAs among college students (Saltz & Elandt, 1986). Thus, it appears that there may be at least an indirect relationship between achievement anxiety and alcohol consumption. Accordingly, in the present study, debilitative achievement anxiety was assessed as a possible correlate of drinking attitudes and behaviours.

Problem-solving skills and drinking behaviour. Williams and Kleinfelter (1989) hypothesized that alcohol use among college students is associated with poor problem-solving skills. In their study of college students, drinking patterns were related to students' evaluation of their problem-solving capabilities. Students who reported low self-confidence in their problem-solving skills and avoided problem-solving activities, also reported using alcohol to control negative emotions and to escape problem situations. Thus, there is some research evidence to suggest that problem-solving deficits may be related to drinking behaviours in college samples. Accordingly, in the present study, problem-solving was assessed as a potentially useful predictor of alcohol-related attitudes and behaviours.

Rationale for the Current Study

The above review of the literature indicates that alcohol abuse is not uncommon in college student populations, and may be associated with a range of interpersonal, academic, and sometimes legal problems (Berkowitz & Perkins, 1986). Moreover, a large number of variables appear to correlate with drinking attitudes and behaviours in such populations. Sociodemographic characteristics including sex, socioeconomic status, religious affiliation, and religious devoutness have often been found to relate to drinking behaviour among college students. Parental attitudes and consumption of alcohol, peer pressures, and residence also appear to be important influences on collegians' alcohol consumption. Additionally, it appears that students who experience greater achievement-related anxiety, lack adaptive problem-solving skills, and/or experience debilitative achievement anxiety may report increased alcohol consumption.

One purpose of the current study was the replication of these previous research findings. It was expected that drinking attitudes and behaviours reported by students in the current sample would be consistent with those previously reported for similar samples. It was also expected that the sociodemographic, social influence, and psychological variables that have been linked to student attitudes and

drinking patterns in previous studies would also emerge as significant correlates in the present study. A more important, but related, purpose of the current study was to identify the combination of sociodemographic, social influence, and psychological variables that best predicts students' attitudes toward alcohol consumption, consumption patterns, and self-reported dependence on alcohol. This approach stands in contrast to the bulk of research in this area; most previous studies have focused on less comprehensive sets of correlates or predictors.

The current study is correlational rather than experimental. However, correlational studies can be helpful in identifying variables that may subsequently be useful in differentiating problem drinkers from nonproblem drinkers in a student population. Students identified as problem drinkers or potential alcohol abusers could then be directed to appropriate intervention programs. Delineating the correlates of drinking behaviour among college students will also facilitate future research, by suggesting areas which require more rigorous experimental study.

CHAPTER II

METHOD

Participants

Participants were 200 undergraduate student volunteers who were enroled in Introductory Psychology at the University of Windsor during the 1992 winter term. They all provided written informed consent (see Appendix A) and were treated according to ethical standards for research with human participants (American Psychological Association, 1982). The majority of participants (n = 167) completed the study questionnaires during class time, with the permission of their course section instructors. Four of the 11 instructors who were approached were unable to allocate class time for the study. Therefore, the remaining 33 respondents completed the questionnaires in small groups during scheduled testing sessions in the Department of Psychology. In exchange for participation, respondents each received one experimental credit point to be applied to their final course grade.

Of the initial 200 respondents, 17 did not meet the age criterion for inclusion in the study (18 to 25 years of age) and were excluded from the analyses. Thus, the final sample included 183 students who ranged in age from 18 to 25 years of age (M = 19.9 years, SD = 1.3). Sixty-eight percent (n = 124) were female and 32% (n = 59) were male. The mean Hollingshead Two-Factor Index score in the current sample

(based on reported paternal occupation and education) was 42.3 (SD = 17.4). All but four respondents were single, never married; two were married, two living common-law. One hundred and thirteen (61.8%) lived with parents or other relatives, 67 (36.6%) lived with other students (in residence or off-campus), and 3 (1.6%) lived alone.

The breakdown by reported religious affiliation was 49.5% Catholic (n = 90), 27.9% Protestant (n =51), 13.2% none (n = 24), 7.1% Other Christian (e.g., Orthodox, Mennonite, Pentecostal) (n = 13), 1.6% Muslim (n = 3), and 0.5% Hindu (n = 1). Twenty-four (13.2%) "never" attended religious services, 36 (19.7%) attended "once a year or less," 56 (30.6%) attended "a few times a year," 36 (19.7%) attended "once or twice a month," and 31 (16.9%) attended "once a week or more."

Measures

General research questionnaire. The general research questionnaire (see Appendix B) includes questions about sociodemographic characteristics (e.g., sex, age, marital status), current living arrangements, religious preference, and attendance at religious services. Socioeconomic status was derived on the basis of reported paternal occupation and education, using the Hollingshead Two-Factor Index, as described in Myers and Bean (1968).

Respondents reported their personal attitudes about alcohol consumption and indicated perceived attitudes of

close friends, peer acquaintances, and parents using a seven-point Likert-type scale (1 = "Strongly approving" to 7 = "Strongly disapproving"). They indicated the frequency of their own drinking behaviour on an eight-point ordinal scale (0 = "Never" to 7 = "Once a day"). They rated the comparative frequency of their drinking behaviour relative to close friends, peer acquaintances and parents on a seven-point Likert-type scale (1= "Much less often" to 7 = "Much more often"). Respondents also reported the average number of alcoholic drinks they consumed per drinking occasion and estimated the number of alcoholic drinks typically consumed by close friends, peer acquaintances, and parents. [Note that a distinction was made between "close friends" (well-known individuals) and "peer acquaintances" (less familiar, faceless individuals) in accordance with Shore and Rivers' (1985) finding that these two terms are not equivalent.] Finally, the general research questionnaire included several questions soliciting information about situational variables associated with alcohol consumption (i.e., where, when, with whom).

The Short Alcohol Dependence Data (SADD). The SADD (Raistrick, Dunbar, & Davidson, 1983) is a 15-item self-report measure designed to assess current (state) alcohol dependence; it measures behavioral, subjective and biological changes related to alcohol dependence. The SADD is based on the original 39-item Alcohol Dependence Data

(ADD) which was developed to assist in the assessment and treatment of patients with drinking problems, regardless of sociocultural background (Raistrick et al., 1983), or alcohol intake (Davidson & Raistrick, 1986). The SADD is highly correlated with the original full-length version (r = .92) (Raistrick et al., 1983). Test-takers respond to each statement by choosing one of four response options -- "never," (scored 0) "sometimes" (scored 1), "often" (scored 2), and "nearly always" (scored 3). Higher scores reflect greater dependence. According to Raistrick et al. (1983), scores between one and nine suggest low dependence, scores between 10 and 19 suggest moderate dependence, and scores of 20 or higher suggest high dependence. Since the SADD assesses the present state of dependence, Raistrick et al. (1983) contend that calculating test-retest reliability coefficients for the measure is inappropriate. However, the instrument has acceptable internal consistency (split-half r = .87) (Davidson & Raistrick, 1986). It also appears to be valid as a measure of alcohol dependence, particularly in populations at the mild to moderate end of the dependence continuum (Davidson, 1987).

The Marlowe-Crowne Social Desirability Scale (MCSDS). The MCSDS (Crowne & Marlowe, 1960) is a 33-item true-false scale that is intended to assess the respondent's need for social approval. Items reflect culturally accepted and sanctioned actions that are not likely to occur in everyday

life. Higher scores on the MCSDS reflect greater need for social approval and are associated with socially desirable response sets. The MCSDS is a relatively homogeneous measure (Kuder Richardson 20 coefficient = .88) and has been found to be very reliable over a one-month test-retest interval (r = .89) (Crowne & Marlowe, 1960).

Alcohol Expectancy Questionnaire, Revised (AEQ-R). The adult form of the AEQ-R (Brown, Christiansen, & Goldman, 1987; Brown, Goldman, & Christiansen, 1985) is designed to assess expectations about the specific effects of moderate alcohol consumption. Respondents are asked to indicate whether they agree or disagree with each of the 120 statements on the AEQ-R and scores are obtained on each of six scales that were derived from factor analyses of the AEQ-R items. These are Global Positive Change, Sexual Enhancement, Physical and Social Pleasure, Increased Social Assertiveness, Relaxation and Tension-Reduction, and Arousal and Power. However, in the current study, only one of these scales -- Relaxation and Tension-Reduction -- was of interest. Internal consistency coefficients for the six scales range from .72 to .92, with a mean coefficient of .84. Test-retest reliability is only fair (r = .64 for all scales over an eight week interval) but the AEQ-R appears to have adequate criterion and discriminant validity (Brown, et al., 1987).

Problem-Solving Inventory - Form B (PSI-B). The

PSI-B (Heppner, 1988) is a 32-item self-report measure designed to assess problem-solving skills. Respondents indicate the extent to which they agree with each statement using a six-point Likert scale where 1 = Strongly Agree and 6 = Strongly Disagree. In addition to an overall score, scores are obtained on three subscales: Confidence, which reflects self-efficacy expectations in problem solving; Approach-Avoidance, which assesses the extent to which problem-solving activities are avoided; and Personal Control, which assesses perceived ability to control emotions and behaviours during problem-solving. However, for purposes of the current study, only the total PSI-B score was used. Higher scale and total scores on the PSI-B reflect more dysfunctional responses to problem-solving situations. Heppner and Petersen (1982) report internal consistency coefficients of .85, .84 and .72, respectively, for the three scales. Similarly, Williams and Kleinfelter (1989) report Kuder-Richardson 20 values of .84, .83, and .64, respectively. Concurrent and discriminant validity are acceptable (Heppner, 1988; Williams and Kleinfelter, 1989).

Achievement Anxiety Test (AAT). The AAT assesses achievement anxiety on two scales: the Facilitative scale (9 items; e.g., "Anxiety helps me to do better during examinations and tests"); and the Debilitative scale (10 items; e.g., "Anxiety interferes with my performance during examinations and tests"). The original version of the AAT

(Alpert & Haber, 1960) included nine neutral items. However, these are typically excluded as Tuck (1982) found that their removal increased the reliability of the two scales and had no effect on intrascale correlations. Huck and Jacko (1974) suggest that the discrepancy score (Facilitative - Debilitative) be employed as the overall measure of test anxiety because it is somewhat more reliable than either the Facilitative or Debilitative scale. However, in the current study, the focus of interest was dysfunctional achievement anxiety; thus, only the Debilitative scale was employed.

A variety of response formats have been used with the AAT. The original version of the AAT employed a multiple-choice format, with response options tailored to fit individual questions. The revised version of the AAT, as used in the present study, employs a continuum format which is constant across items. Respondents are asked to indicate how frequently each statement is true for them on a continuum where the two endpoints are defined as "never" and "always". A third response format involves ratings on a Likert-type scale where each response option is labelled ("rarely," "sometimes," "frequently," "generally," and "almost always"). Huck and Jacko (1974) found the psychometric characteristics of the AAT varied depending on which of the three response formats was used. More recently, Tuck (1982) found that although the Likert format

differs significantly from both the original multiple choice and the continuum formats, the multiple choice and continuum response formats yield similar results. Reliabilities for the AAT using the continuum format and omitting the buffer items is acceptable. Tuck (1982) reports coefficient alphas of .62 for the Facilitative scale, .78 for the Debilitative scale, and .82 for the Facilitative minus Debilitative scale.

Procedure

The experimenter contacted 11 introductory psychology teaching assistants (TAs) at the University of Windsor. She requested permission to come into their classes and recruit volunteers for participation in the study. Seven TAs allowed the experimenter to administer the questionnaires in-class to those students willing to participate. The remaining four TAs allowed the experimenter to recruit subjects for separate testing sessions. The latter group of TAs read a prepared statement to their students that outlined the study and the nature of participation. They circulated among the class a list of times and places for the separate test administrations. Students who wished to participate then signed up.

The prospective volunteers were told prior to participating that the study concerned factors associated with college students' drinking behaviour. They were told that participation involved answering a series of

questionnaires that would take approximately 30 minutes to complete. The confidentiality of participants' responses and the voluntary nature of participation were stressed. Potential subjects were told that if they chose to participate, they would be given one experimental credit point toward their introductory psychology final grade.

The experimenter distributed the questionnaire packages (arranged in random orderings prior to administration) to participants. She summarized the main points of the written informed consent form, and asked participants to read and sign this form prior to completing the questionnaires. Subjects returned the questionnaire packages to the experimenter upon their completion. At this time, any questions or concerns the participants had about the study were addressed. The students were given their copies of the consent form, thanked for their participation, and dismissed.

CHAPTER III

RESULTS

Overview of the Analyses

Dependent variables. The presentation of the results is organized around the four dependent variables. These were (a) self-reported attitudes toward the consumption of alcohol; (b) self-reported frequency of alcohol consumption (i.e., frequency of drinking occasions); (c) self-reported quantity of alcohol consumed per drinking occasion; and (d) alcohol dependence, as measured by the Short Alcohol Dependence Data.

Independent variables. There were three groups of independent variables. The first group included sociodemographic variables (i.e., age, sex, SES, religious attendance, social desirability) that have been found to be associated with reported patterns of alcohol use. The second group included social influence variables (e.g., perceived attitudes of peers and parents toward alcohol consumption, estimated consumption of alcohol by peers and parents, living arrangements). The third group, psychological variables, included scores on the Relaxation and Tension-Reduction scale of the Alcohol Expectancy Questionnaire - Revised (AEQ-R), scores on the Problem-Solving Inventory - Form B (PSI-B), and scores on the Debilitative scale of the Achievement Anxiety Test (AAT).

Sequence of analyses. Preliminary analyses focused on assessing means, standard deviations and frequencies for all variables. Individual relationships between independent and dependent variables were examined to provide a more complete descriptive picture of the sample prior to multiple regression analyses.

Alpha level. Due to the relatively large number of planned statistical analyses, alpha was set at .01 for each comparison, rather than at the more conventional but less conservative .05 level. Thus, for purposes of the present study, comparisons that are not significant at $p < .01$ are considered to be statistically nonsignificant.

Personal Attitudes, Alcohol Consumption, and Alcohol Dependence in the Current Sample

Respondents' attitudes about alcohol consumption ranged from 1.0 ("Strongly approving") to 7.0 ("Strongly disapproving") with a mean approval rating of 3.3 (SD = 1.4). The mean reported frequency of alcohol consumption was 3.7 (SD = 1.7), which corresponds to "2 or 3" drinking occasions per month. The breakdown by frequency of drinking occasions is presented in Table 1. Students in the current sample reported consuming a mean 4.0 (SD = 2.9) alcoholic drinks per drinking occasion (range = 0 to 18). The frequency breakdown by number of drinks consumed per drinking occasion is reported in Table 2. Scores on the Short Alcohol Dependence Data (SADD) ranged from 0 to 22

Table 1

Reported Frequency of Alcohol Consumption in the Total Sample (N = 183)

	n	%
"Never"	11	6.0
"1-2 times a year"	12	6.6
"Several times a year"	27	14.8
"Once a month"	18	9.8
"2-3 times a month"	44	24.0
"Once a week"	40	21.9
"Several times a week"	29	15.8
"Once a day"	2	1.1

Table 2.

Reported Number of Drinks Consumed Per Drinking Occasion (N = 183)

	n	%
0	8	5.0
1	21	13.0
2	34	21.1
3	18	11.2
4	24	14.9
5	18	11.2
6 to 10	34	21.1
11 or more	4	2.4

with a mean of 6.2 (SD = 4.8). The majority of students in the present sample (75.0%, n = 120) obtained SADD scores indicating no or "mild" dependence (scores between 0 and 9). Another 24.4% (n = 39) obtained scores suggesting moderate dependence (scores between 10 and 19), and one individual (0.6%) had a score of 22, suggesting marked alcohol dependence (scores of 20 or more).

Sociodemographic Measures and the Dependent Variables

Attitudes about alcohol consumption and quantity of alcohol consumption were not significantly correlated with age, SES, frequency of attendance at religious services, or scores on the Marlowe-Crowne Social Desirability Scale (see Table 3). Frequency of alcohol consumption was not significantly related to age, SES, or social desirability but there was a small negative correlation between reported frequency of consumption and religious attendance ($r = -.20$, $p < .01$). There were small negative correlations between Short Alcohol Dependence Data (SADD) scores and age ($r = -.19$, $p < .01$) and social desirability ($r = -.23$, $p < .01$), but SADD scores were not correlated with SES or religious attendance. There were no significant sex differences on any of the dependent variables (see Table 4). Although the mean number of drinks consumed per drinking occasion was somewhat higher for males than females, this difference was not significant at the .01 level.

Table 3.

Correlations Between Sociodemographic Variables and Attitudes, Alcohol Consumption and Alcohol Dependence (N = 183)

	Attitude	Frequency	Quantity	SADD
Age	-.05	-.01	-.06	-.19*
Socioeconomic status (SES)	.04	-.18	-.08	-.06
Religious attendance	.16	.20*	-.09	-.02
Marlowe-Crowne Social Desirability Scale	.14	-.09	-.12	-.23*

Note. SES was derived using Hollingshead's Two-Factor Index, based on paternal occupation and education. Attitude = Attitude toward alcohol consumption, Frequency = Frequency of alcohol consumption, Quantity = Quantity of alcohol consumption, SADD = Short Alcohol Dependence Data.

* $p < .01$

Table 4.

Attitudes Toward Alcohol, Alcohol Consumption, and Alcohol Dependence By Sex

		Males (n = 59)	Females (n = 124)	F(1,181)	p
Attitude toward alcohol consumption	M	3.2	3.3	0.17	.68
	SD	1.5	1.5		
Frequency of alcohol consumption	M	4.0	3.6	1.92	.17
	SD	1.9	1.7		
Quantity of alcohol consumed	M	4.7	3.7	4.41	.04
	SD	3.7	2.5		
Short Alcohol Dependence Data	M	6.7	5.8	1.14	.29
	SD	5.3	4.6		

Social Influence Measures and the Dependent Variables

Perceived attitudes of peers and parents toward alcohol consumption. Personal attitudes about alcohol consumption (M = 3.3) were less approving than the perceived attitudes of close friends [M = 2.9; matched-pair $t(1,182) = 4.28$, $p < .001$] and peer acquaintances [M = 2.7; $t(1,182) = 5.15$, $p < .001$]. However, personal attitudes were more approving than the perceived attitudes of fathers [M = 3.7; $t(1,182) = 2.62$, $p < .01$] and mothers [M = 4.5; $t(1,182) = 8.98$, $p < .001$]. The attitudinal ratings of respondents were positively correlated with the perceived attitudes of close friends (r = .68, $p < .001$), peer acquaintances (r = .40, $p < .001$), mothers (r = .36, $p < .001$), and fathers (r = .23, $p < .01$).

Living arrangements and attitudes toward alcohol consumption. Attitudinal ratings did not vary as a function of living arrangements. However, respondents who lived with other students reportedly drank more often [$F(1,172) = 10.00$, $p < .01$] and consumed more drinks per occasion than students who lived with parents or other relatives [$F(1,172) = 35.16$, $p < .001$]. Respondents who lived with other students also had significantly higher SADD scores than did students who lived with parents or other relatives [$F(1, 172) = 9.49$, $p < .001$] (see Table 5).

Perceived frequency of alcohol consumption compared to peers and parents. Participants reported using alcohol

Table 5.

Attitudes Toward Alcohol, Alcohol Consumption, and Alcohol Dependence By Living Arrangements

		Lives with parents/relatives (n = 113)	Lives with other students (n = 67)	F(1,172)	p
Attitude toward alcohol consumption	M	3.4	3.1	1.47	.23
	SD	1.4	1.4		
Frequency of alcohol consumption	M	3.4	4.3	10.00	.01
	SD	1.9	1.7		
Quantity of alcohol consumed	M	3.1	5.6	35.16	.001
	SD	2.0	3.5		
Short Alcohol Dependence Data	M	5.3	7.4	9.49	.01
	SD	4.4	5.3		

comparatively less often than peer acquaintances (*M* = 2.5, *SD* = 1.5) and close friends (*M* = 2.9, *SD* = 1.5), but more often than fathers (*M* = 3.7, *SD* = 2.3) and mothers (*M* = 4.5, *SD* = 2.3).

Situational variables and frequency of alcohol consumption. Students in the current sample reported drinking alone (*M* = 0.4) significantly less often than they did with friends [*M* = 3.4; matched-pair *t*(1,182) = 20.37, *p* < .001], or family members [*M* = 1.6; *t*(1,182) = 10.00, *p* < .001]. They drank more often with friends than with family members [*t*(1,182) = 12.08, *p* < .001], and more frequently on weekends (*M* = 3.5) than on weekdays [*M* = 1.0; *t*(1,182) = 18.34, *p* < .001].

Perceived quantity of alcohol consumed by peers and parents. Participants (*M* = 4.0) reported consuming significantly fewer alcoholic drinks per occasion than close friends [*M* = 5.2; matched-pair *t*(1, 182) = 7.52, *p* < .001] and peer acquaintances [*M* = 5.4; *t*(1,182) = 6.32, *p* < .001]. However, they reportedly consumed more alcohol per drinking occasion than did their fathers [*M* = 2.8; *t*(1,182) = 3.62; *p* < .001] or mothers [*M* = 1.7; *t*(1,182) = 9.66, *p* < .001]. Personal consumption was significantly correlated with the estimated consumption of close friends (*r* = .76, *p* < .001) and peer acquaintances (*r* = .49, *p* < .001) but not with estimated consumption by fathers (*r* = .17) or mothers (*r* = .23).

Psychological Measures and the Dependent Variables

Higher scores on the Relaxation and Tension-Reduction Scale of the AEQ-R were associated with more approving attitudes toward alcohol consumption (r = -.39, p < .001), more frequent alcohol consumption (r = .44, p < .001), consumption of greater quantities of alcohol per drinking occasion (r = .37, p < .001), and higher scores on the Short Alcohol Dependence Data (SADD) (r = .49, p < .001). Scores on the Problem-Solving Inventory were not significantly related to any of the dependent variables (see Table 6), and debilitative achievement anxiety was associated only with higher SADD scores (r = .32, p < .001).

Multiple Regression Analyses

Correlations among dependent variables. Relationships between alcohol-related attitudes, frequency and quantity of consumption, and scores on the Short Alcohol Dependence Data were assessed prior to conducting multiple regression analyses in order to determine the degree of overlap among these four dependent variables. Intercorrelations were all significant but moderately low in size (see Table 7). Therefore, regression analyses were performed separately for each of the dependent variables.

Selection of best predictor variables. An important goal of the current study was to determine the combination of sociodemographic, social influence, and psychological variables that could account for the most variance in the

Table 6.

Correlations Between Psychological Variables and Attitudes, Alcohol Consumption, and Alcohol Dependence (N = 183)

	Attitude	Frequency	Quantity	SADD
Alcohol Expectancy Questionnaire - Revised				
Relaxation and Tension Reduction	-.39**	.44**	.37**	.49**
Problem Solving Inventory - Form B				
Total Score	-.09	-.10	.03	.16
Achievement Anxiety Test				
Debilitative Anxiety	-.15	.05	.08	-.25*

Note. Attitude = Attitude toward alcohol consumption, Frequency = Frequency of alcohol consumption, Quantity = Quantity of alcohol consumption, SADD = Short Alcohol Dependence Data.

*$p < .01$, **$p < .001$.

Table 7.

Correlations Among Dependent Variables (N = 183)

	Attitude	Frequency	Quantity	SADD
Attitude toward alcohol consumption	1.00	- .46*	- .35*	- .38*
Frequency of alcohol consumption		1.00	.56*	- .46*
Quantity of alcohol consumed			1.00	.41*
Short Alcohol Dependence Data (SADD)				1.00

* $p < .001$.

dependent or criterion variables. All of the sociodemographic variables were entered as predictors in the first series of multiple regression analyses and those that made significant individual contributions to the regression equation were retained. (Sex and living arrangements were dummy coded so that they could be entered as predictors in the regression equations.) In the second series of regressions, the social influence variables were entered as predictors and the best of these were retained. All of the psychological variables were entered as predictors in the third series of regression analyses and those that made significant individual contributions were again retained.

Finally, for each dependent or criterion variable, the sociodemographic, social influence and psychological predictors that had been retained from the above series of regression analyses were entered together to assess their combined predictive utility. The results of these analyses are reported below.

Prediction of attitudes toward alcohol consumption. Based on the initial series of regression analyses using each of the three groups of independent variables, three variables were retained for inclusion in the final regression. These were perceived attitudes of close friends, perceived attitudes of mothers and the Relaxation and Tension-Reduction scale of the AEQ-R. The results of the final regression analysis are presented in Table 8. The

Table 8.

Multiple Regression Results: Predicting Attitudes Toward Alcohol Consumption

Variable	Parameter Estimate	Standard Error	t for H_0	p
Perceived attitudes of close friends	.60	.07	4.86	.001
Perceived attitudes of mother	.18	.05	3.68	.001
AEQ-R Relaxation and Tension Reduction	-.16	.03	4.60	.001

$F(3,154) = 65.61$, $p = .001$. R^2: .56

Note. t for H_0: t-test of the null hypothesis that the parameter estimate = 0. AEQ-R = Alcohol Expectancy Questionnaire - Revised.

regression equation accounted for 56% of the variance in respondents' attitudinal ratings. Each of the predictors made significant individual contributions to the equation.

Prediction of frequency of alcohol consumption. The initial series of regression analyses using the three groups of independent variables resulted in the inclusion of five variables in the final regression analysis: frequency of drinking on weekends and on weekdays, estimated quantity of alcohol consumption by close friends, the Relaxation and Tension-Reduction scale of the AEQ-R, and total score on the Problem-Solving Inventory. These results are presented in Table 9. The regression equation accounted for 68% of the variance in participants' frequency of alcohol consumption. However, only frequency of drinking on weekends and weekdays and estimated consumption by close friends made significant individual contributions to the equation.

Prediction of quantity of alcohol consumption. Based on the initial regression analyses for each of the independent variable groups, three variables were retained for inclusion in the final regression equation: living arrangements, estimated quantity of alcohol consumed by friends and the Relaxation and Tension-Reduction scale of the AEQ-R. These results are presented in Table 10. The regression equation accounts for 61% of the variance in participants' quantity of alcohol consumption. Only living

Table 9.

Multiple Regression Results: Predicting Frequency of Alcohol Consumption

Variable	Parameter Estimate	Standard Error	t for H_0	p
Drinking on weekends	-.53	.06	- 8.83	.001
Drinking on weekdays	-.24	.08	- 3.12	.01
Estimated consumption by close friends	-.10	.04	2.79	.01
AEQ-R Relaxation and Tension Reduction	-.05	.04	1.12	.26
PSI-Form B Total score	-.01	.01	-1.70	.09

$F(5,131) = 54.62$, $p = .001$. R^2: .68.

Note. t for H_0: t-test of the null hypothesis that the parameter estimate = 0. AEQ-R = Alcohol Expectancy Questionnaire - Revised, PSI-B = Problem Solving Inventory - Form B.

Table 10.

Multiple Regression Results: Predicting Quantity of Alcohol Consumption

Variable	Parameter Estimate	Standard Error	t for H_0	p
Estimated consumption by close friends	.68	.06	11.81	.001
Living arrangements	-.97	.34	2.89	.01
AEQ-R Relaxation and Tension Reduction	.03	.07	0.48	.63

$F(3,151) = 77.18$; $p = .001$. R^2: .61.

Note. t for H_0: t-test of the null hypothesis that the parameter estimate = 0. AEQ-R = Alcohol Expectancy Questionnaire - Revised.

arrangement and estimated consumption by close friends made significant contributions to the equation.

Prediction of alcohol dependence. Initial regression analyses using the three groups of independent variables yielded four variables for inclusion in the final regression: living arrangements, estimated attitudinal ratings of mothers, estimated quantity of consumption by close friends, and the Relaxation and Tension Reduction scale of the AEQ-R. These results are presented in Table 11. The regression equation accounted for 35% of the variance in respondents' alcohol dependence as measured by the Short Alcohol Dependence Data. However, only estimated consumption by close friends and tension-reduction expectancies made significant individual contribution at the .01 alpha level.

Personal attitudes and consumption as predictors of alcohol dependence. In the final regression analyses, attitudes toward alcohol consumption, frequency of consumption, and quantity of alcohol consumption) were entered as predictors of alcohol dependence (SADD scores). These results are presented in Table 12. The regression equation accounted for 7% of the variance in participants' scores on the SADD. None of the predictors contributed to the significance of the equation at the .01 alpha level.

Table 11.

Multiple Regression Results: Predicting Alcohol Dependence

Variable	Parameter Estimate	Standard Error	t for H_0	p
Living arrangements	-.28	.70	-0.40	.69
Perceived attitudes of mother	.33	.18	1.88	.06
Estimated consumption by close friends	.52	.12	4.32	.001
AEQ-R Relaxation and Tension Reduction	.67	.14	4.81	.001

$F(4,148) = 19.79$, $p = .001$. R^2: .35

Note. t for H_0: t-test of the null hypothesis that the parameter estimate = 0. AEQ-R = Alcohol Expectancy Questionnaire - Revised.

Table 12.

Multiple Regression Results: Personal Attitudes and Consumption as Predictors of Alcohol Dependence

Variable	Parameter Estimate	Standard Error	t for H_0	p
Personal attitudes	-.13	.11	-1.15	.25
Reported quantity of consumption	.04	.06	0.61	.54
Reported frequency of consumption	.18	.11	1.68	.10

$F(3,155) = 3.88$, $p = .01$. R^2: .07

Note. t for H_0: t-test of the null hypothesis that the parameter estimate = 0.

CHAPTER IV

DISCUSSION

Alcohol Consumption in the Current Sample

The current findings are consistent with previous surveys (e.g., Berkowitz and Perkins, 1986) indicating that more than 90% of college students drink at least occasionally. In the current sample, 95% (n =172) of participants reported consuming at least one alcoholic beverage on occasion. Although respondents were not categorized as alcohol abusers or nonabusers in the current study, it is worthwhile to compare data from the present sample with past reports on the prevalence of problem drinking in college samples.

Problem drinking has often been identified in past research using the Quantity-Frequency index. According to Berkowitz and Perkins (1986) problem drinking has been operationalized in some studies as the consumption of five or more drinks on at least one drinking occasion per week. In the current study, 34.7% (n = 56) of participants reported consuming at least five drinks per drinking occasion. Seventy-one participants (38.8%) reported having at least one drinking occasion per week.

Another measure of problem drinking is alcohol dependence. Raistrick et al. (1983) state that scores on the Short Alcohol Dependence Data (SADD) ranging from 0-9 indicate no to mild alcohol dependence, scores ranging from

10-19 indicate moderate dependence, and scores of 20 and above indicate high dependence. In the current study, 75% (n = 120) of participants reported no/mild alcohol dependence, 24.4% (n = 39) reported moderate dependence, and 0.6% (n = 1) reported high dependence.

In the current study, depending on the operational definition used to define "problem drinking," the percentage of participants who might be classified as problem drinkers varies from 25% (based on SADD scores) to 39% (based on reported frequency of alcohol consumption). This range of findings reflects problems in defining and categorizing participants as "problem drinkers." Based on these results, it appears that until a standard set of criteria have been developed and validated, drinking behaviours cannot be reliably categorized.

Sociodemographic Variables and Alcohol-Related Attitudes, Behaviour and Dependence

In the present study, sociodemographic variables had only weak associations with participants' attitudes toward alcohol, their drinking behaviour, and their alcohol dependency. These results contradict past findings (e.g., Berkowitz & Perkins, 1986; Friedman & Humphrey, 1985) which indicate that sociodemographic variables are related to drinking behaviour. The following sections discuss in greater detail the relationships between sociodemographic variables and participants' alcohol consumption.

Social desirability. In the present study, participants' scores on the Marlowe-Crowne Social Desirability Scale (MCSDS) were not associated with either their attitudes toward alcohol or their drinking behaviour. These results suggest that participants' self-reported alcohol-related attitudes and behaviour were not affected by a social desirability response set. However, social desirability was related to respondents' scores on the Short Alcohol Dependence Data (SADD): higher scores on the MCSDS were associated with less alcohol dependence. Perhaps participants in the current sample viewed alcohol dependence as socially undesirable, and respondents with a greater need for social approval under-reported their dependence on alcohol. Alternatively, it is possible that participants responded honestly and accurately to both measures. That is, perhaps respondents who reported less alcohol dependence were also more likely to behave in socially desirable ways.

Age. In the present study, age was not associated with either participants' attitudes toward alcohol or their alcohol consumption. However, age was negatively related to alcohol dependence, with older participants reporting less dependence on alcohol. Given that participants in the current sample were between 18 to 25 years of age (a restricted range), this relationship is somewhat of a surprise. Zucker and Gomberg (1986) suggest that the correlates of alcohol consumption differ, depending upon the

individual's developmental stage. Thus, it may be that older participants report less alcohol dependence because they are at a more mature developmental stage than younger participants.

Sex differences. The results of the present study revealed no significant sex differences in respondents' alcohol-related attitudes, consumption, or dependence. These results contradict past findings that males consume greater quantities of alcohol per drinking occasion than females. However, the current findings are consistent with more recent research reports (e.g., Friedman & Humphrey, 1985; Berkowitz & Perkins, 1986) which indicate that sex differences in the frequency of college students' alcohol consumption are diminishing. Indeed, the current findings suggest that the discrepancy between males' and females' alcohol consumption may no longer exist. However, further research is required before any firm conclusions can be drawn.

Socioeconomic status. The results of the present study do not replicate past findings (e.g., Friedman & Humphrey, 1985) that socioeconomic status is related to alcohol consumption. In the current sample, higher socioeconomic standing was not associated with heavier alcohol consumption. Perhaps socioeconomic status is no longer a correlate of drinking behaviour in college samples. Alternatively, this finding may be unique to the current

sample.

Religious attendance. The results of the present study replicate previous findings that religious devoutness (i.e., attendance at religious services) is associated with less alcohol consumption (e.g., Engs et al., 1990).

Social Influence Variables and Alcohol-Related Attitudes, Behaviour and Dependence

Peer and parental attitudes and consumption. The present study replicates the results of past studies (e.g., Sherry & Stolberg, 1987; Shore & Rivers, 1985; Johnson, 1989) which have shown peers and friends to be more influential than parents on college students' alcohol consumption. In the current sample, reported personal consumption was significantly associated with the perceived quantity of consumption by peers and friends, but not with the perceived parental quantity of consumption. Participants' attitudes toward alcohol, however, appear to be related to both parental and peer attitudes. Although respondents in the current sample reported less approving attitudes toward drinking than their close friends and peers and more approving attitudes than their parents, their attitudes were significantly associated with the perceived attitudes of all the social influence groups assessed in the current study.

The differential impact of parents and peers on college students' alcohol-related attitudes and drinking behaviour

may not be as clearly separable as has been assumed in the literature (and in the current study). As Berkowitz and Perkins (1986) point out, parental drinking habits have been modelled to the student since childhood. If the student has learned and internalized the drinking behaviours and attitudes of her/his parents, then she/he may select friends who act and think in similar ways. If so, the issue of parental versus peer influences may be difficult to disentangle.

The current findings and interpretations must be approached with caution, since they are based on correlational data and on participants' perceptions of the attitudes and drinking behaviours of peers, friends and parents. Respondents' perceptions of the alcohol-related attitudes and consumption of the social groups may be inaccurate. Indeed, participants may have mistakenly attributed their own alcohol-related attitudes and behaviours to their friends, peers and parents, thus creating the illusion of relationships where none may actually exist.

Living arrangements. Current results replicate past findings that living arrangements are associated with college students' alcohol consumption. Respondents who live with other students report drinking more alcohol on more frequent occasions than respondents who live with parents or other relatives. The current findings also add knowledge in

this area in that participants living with other students also reported greater alcohol dependence than participants living with parents or family. Living with other students may mean living in an environment in which frequent and heavier alcohol consumption is encouraged or expected. However, it is also possible that individuals who drink more often, and in greater amounts, choose to live in environments (i.e., with other students) where drinking is accepted. Lighter, less frequent drinkers, on the other hand, may choose to live with parents or relatives and avoid environments where alcohol use is sanctioned.

Although the current data cannot provide any definitive answers about the nature of the relationship between living arrangements and alcohol consumption, it seems likely that both environmental and individual characteristics play a part. That is, students who enjoy participating in activities involving alcohol will probably seek out situations where such activities occur. As Saltz and Elandt (1986) conclude, although it is unclear whether or not situational variables initiate drinking behaviour, environment does seem to play a part in maintaining the behaviour.

Psychological Variables and Alcohol-Related Attitudes, Behaviours and Dependence

Tension-reduction expectancies. Consistent with previous reports in the literature (e.g., Brown, 1985; Brown

et al., 1985; Brown et al., 1987) the results of the current study indicate that college students who expect alcohol to reduce their tension levels tend to drink more alcohol, more frequently, than students who do not have such expectations. The current findings indicate that greater tension-reduction expectancies are also associated with higher dependence on alcohol. The latter finding provides support for Brown et al.'s (1985) conclusion that tension-reduction expectancies are associated with heavier, more frequent drinking behaviours.

Problem-solving skills. In the current study, problem-solving skill was not associated with respondents' alcohol-related attitudes, reported consumption, or alcohol dependence. These results contradict Williams' and Kleinfelter's (1989) finding that students who perceive themselves as ineffective problem-solvers consume more alcohol.

Debilitating achievement anxiety. Debilitative anxiety was not associated with respondents' alcohol-related attitudes or their drinking behaviours in the current study. Greater anxiety was not associated with more approving attitudes toward alcohol or with increased alcohol consumption. However, debilitative achievement anxiety was related to greater dependence on alcohol in the current sample. Given the strength of the association between alcohol dependence and participants' drinking behaviour, the

lack of a relationship between anxiety and alcohol consumption is curious. It appears that debilitating anxiety in and of itself does not increase students' drinking behaviour. However, anxiety may act in combination with alcohol dependence to increase students' alcohol consumption. It is also possible that the relationship between anxiety and alcohol dependence is separate and independent from the relationship between alcohol dependence and the drinking behaviour of college students.

Sociodemographic, Social Influence, and Psychological Variables as Predictors of Alcohol-Related Attitudes, Behaviour and Dependence

Attitudes toward alcohol. In the current study, the best predictors of participants' attitudes toward drinking were the perceived attitudes of friends and mothers, and personal tension-reduction alcohol expectancies. The exclusion of the peer and father attitudes from the regression equation probably occurred as a result of the overlap between perceived attitudes of friends and peers, and mothers and fathers. The inclusion of tension-reduction expectancies in the regression equation suggests that respondents' approval or disapproval of alcohol consumption was related to whether or not they expected alcohol to have a positive effect -- in this case, tension-reduction. Whether tension-reduction expectancies lead to more approving attitudes or the reverse cannot be determined from

these findings.

Frequency of alcohol consumption. The best predictors of the frequency of alcohol consumption in the current sample were the frequencies with which participants drank on weekends and weekdays, and their estimations of the quantity of alcohol consumed by close friends. Thus, it seems that students who drank more often on weekends and during the week drank more frequently in general. Moreover, students who thought their friends consumed greater amounts of alcohol tended to drink more often.

Quantity of alcohol consumption. In the current sample, living arrangements and perceived quantity of alcohol consumed by friends were the best predictors of participants' quantity of alcohol consumption. Thus, quantity of alcohol consumption may be most affected by peer and environmental factors.

Alcohol dependence. Tension-reduction expectancies and estimated quantity of alcohol consumption by close friends were the best predictors of participants' alcohol dependence. These results again point to the salience of peer influences on college students drinking. Moreover, the relationship between expectations of tension-reduction and problem drinking is further supported.

Personal attitudes and consumption as predictors of alcohol dependence. Neither personal attitudes toward alcohol nor alcohol consumption were predictive of scores on

the Short Alcohol Dependence Data (SADD). In the current sample, heavier, more frequent consumption of alcohol was not predictive of higher levels of alcohol dependence. These findings suggest that students who are dependent on alcohol are not necessarily engaging in heavier, more frequent drinking; nor does increased alcohol consumption necessarily indicate higher levels of alcohol dependence. Based on these data, it seems that alcohol dependence, as measured by the SADD, is separate and distinct from actual alcohol consumption.

Implications of Findings

In the current study, an attempt was made to identify the best predictors of college students' attitudes toward alcohol, their alcohol consumption, and alcohol dependence. This study, in contrast to most of the research on alcohol consumption, addressed the combined influence of three different classes of variables (sociodemographic, social influence, and psychological) on collegians' drinking behaviour. However, the results are preliminary and must be replicated before their utility in differentiating problem drinkers from nonproblem drinkers can be firmly established.

Limitations of the Present Study

Caution must be exercised when considering the results of this study for several reasons. First, there may be biases operating in the sample that limit the generalizability of the findings. The subjects were drawn

exclusively from introductory psychology classes, and they may not be representative of college students in general. Moreover, the sample consisted of students volunteering to participate in exchange for course credit. It is possible that this procedure led to further sampling biases, since volunteers may differ in important ways from students who do not volunteer.

The results of the current study are also limited by the design of the study itself. The data are correlational in nature, and therefore causality cannot be determined. An objective for future research is to conduct longitudinal studies, where possible, in order to more firmly establish cause and effect relationships in the alcohol-related attitudes and behaviours of college samples.

The use of the Quantity-Frequency self-report index may be considered another weakness of the study. Although Quantity-Frequency measures have shown good test-retest reliability with nonclinical populations (Babor et al., 1987), they may underestimate respondents' alcohol consumption (e.g., Sobell et al., 1986; Sobell et al., 1988). If timeline methods are, as some studies have shown, superior to the Quantity-Frequency index, then future studies should focus on expanding the research base in which timeline methods are used. Only by doing so will a converging data base be possible. The compilation of comparable studies on college students' drinking behaviour

(and on alcohol abuse in general) is of utmost importance in future research endeavours. Without such a compilation, conclusive findings regarding the variables involved in initiating and maintaining drinking habits are not possible.

APPENDIX A

SUBJECT INFORMATION AND CONSENT

CONSENT FORM FOR PARTICIPATION IN RESEARCH

Conducted by: Laura S. Magee, B.A.
Supervised by Cheryl Thomas, Ph.D.
Department of Psychology
University of Windsor

Past research has shown that college students frequently use alcohol in their free-time activities. The purpose of this study is to find out how certain characteristics of college students are related to their drinking behavior.

The testing procedure will take about one-half to one hour of your time. During the testing, you will be asked to answer a series of questions contained in a booklet of questionnaires. For your participation in this study, you will receive one experimental point toward your Psychology 116 final grade. If you are interested, the experimenter will send you a summary of the results at the study's conclusion.

The information contained in the questionnaires is completely confidential. You will not put your name on any of the forms, and no record identifying you as the source of that information will be kept.

Please remember that your participation in this study is completely voluntary. You do not have to answer any questions that you do not want to, and you may withdraw from the study at any time.

To give your consent to participate in this study, please sign this form. This study has been approved by the Department of Psychology Ethics Committee. If you have any questions or concerns about your participation in this project, please feel free to contact any of the following persons:

Experimenter:	Laura Magee, B.A. 977-5556
Supervisor:	Cheryl Thomas, Ph.D. 253-4232 (ext. 2252)
Ethics Committee:	Jim Porter, Ph.D. 253-4232 (ext. 7012)

- I understand that I may ask questions about this study at any time during my participation and after.
- I understand that the information I give will be kept completely confidential, even though the results of the study may be published.
- I understand that my participation is voluntary, and that I may withdraw from the study at any time.
- I understand that I may receive a summary of the results by contacting the experimenter after the study has been finished.

I have carefully read and understood this agreement, and therefore I freely consent to participate in this study.

_____ _____

Participant's name Date

APPENDIX B

GENERAL RESEARCH QUESTIONNAIRE

GENERAL RESEARCH QUESTIONNAIRE #_____

INSTRUCTIONS: Do not put your name anywhere on this questionnaire. This will ensure that your responses will remain confidential. Please answer all of the following questions as honestly as you can.

PART I

1. Sex (check one): _____ Male _____ Female 2. Age: _____ years

3. Marital status (check one):

(a) _____ Single, never married (d) _____ Separated or divorced

(b) _____ Commonlaw (e) _____ Widowed

(c) _____ Married

4. Current living arrangements (check one):

(a) _____ At home with my parents (d) _____ With other students, off-campus

(b) _____ In residence on campus (e) _____ Other (please specify):

(c) _____ Alone, off-campus _____

5. Which of the following best describes your religious preference? (check one):

(a) _____ Catholic

(b) _____ Protestant (specify denomination): _____

(c) _____ Jewish

(d) _____ Other (please specify): _____

(e) _____ None

6. Which of the following best describes your parents' religious preference? (check one):

(a) _____ Catholic

(b) _____ Protestant (specify denomination): _____

(c) _____ Jewish

(d) _____ Other (please specify): _____

(e) _____ None

General Research Questionnaire - Page 2

7. About how often do you attend religious services? (check one):

(a) _____ Once a week or more
(b) _____ Once or twice a month
(c) _____ A few times a year
(d) _____ Once a year or less
(e) _____ Never

8. What is your expected future occupation? _____

9. How many years of formal education have you completed? _____ years

10. What is your father's occupation? _____

11. How many years of formal education did your father complete? _____ years

12. What is your mother's occupation? _____

13. How many years of formal education did your mother complete? _____ years

PART II

SECTION A: For the questions in this section, use the scale printed below and write the appropriate number in the space provided beside each item:

1_____2_____3_____4_____5_____6_____7
Strongly approving — Strongly disapproving

_____ 1. How would you describe your own attitude toward people who have drinks containing alcohol?

_____ 2. How would you describe the attitude of your closest friends toward people who have drinks containing alcohol?

_____ 3. How would you describe the attitude of peer acquaintances toward people who have drinks containing alcohol?

_____ 4. How would you describe the attitude of your father toward people who have drinks containing alcohol?

_____ 5. How would you describe the attitude of your mother toward people who have drinks containing alcohol?

General Research Questionnaire - Page 3

SECTION B: Which of the following best describes how often you have drinks containing alcohol (check one only):

(a) _____ several times a day

(b) _____ once a day

(c) _____ several times a week

(d) _____ once a week

(e) _____ two or three times a month

(f) _____ once a month

(g) _____ several times a year

(h) _____ once or twice a year

(i) _____ never

(j) _____ other (please specify):

_____

SECTION C: For the questions in this section, use the scale printed below and write the appropriate number in the space provided beside each item:

1_____2_____3_____4_____5_____6_____7
Always Never

1. How often do you have drinks containing alcohol:

_____ (a) at your home

_____ (b) at friends' homes

_____ (c) at restaurants or bars

_____ (d) at other places (please specify): _____

2. How often do you have drinks containing alcohol when you are:

_____ (a) by yourself

_____ (b) with close friends

_____ (c) with peer acquaintances

_____ (d) with family members

_____ (e) with other people (please specify): _____

3. How often do you have drinks containing alcohol:

_____ (a) during weekends (Friday night to Sunday night)

_____ (b) during weekdays (Monday morning to Thursday night)

General Research Questionnaire - Page 4

SECTION D: For the questions in this section, base your responses on the following equivalencies:

1 drink = 12 ounces of beer OR 4 ounces of wine OR 1 ounce of hard liquor

1. On occasions when you have drinks containing alcohol, how many drinks do you typically have? _____
2. On occasions when your close friends have drinks containing alcohol, how many drinks do they typically have? _____
3. On occasions when your peer aquaintances have drinks containing alcohol, how many drinks do they typically have? _____
4. On occasions when your father has drinks containing alcohol, how many drinks does he typically have? _____
5. On occasions when your mother has drinks containing alcohol, how many drinks does she typically have? _____

SECTION E: For the questions in this section, use the scale printed below and write the appropriate number is the space provided beside each item:

1	2	3	4	5	6	7
Much less often			About as often			Much more often

_____ 1. Compared to your close friends, how often do you have drinks containing alcohol?

_____ 2. Compared to your peer acquaintances, how often do you have drinks containing alcohol?

_____ 3. Compared to your father, how often do you have drinks containing alcohol?

_____ 4. Compared to your mother, how often do you have drinks containing alcohol?

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