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Family Background of Alcohol Abuse and Its Relationship to Alcohol Consumption among College Students: An Unexpected Finding*

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ABSTRACT. The purpose of this study was to determine the possible association between positive family background of alcohol abuse (having a parent or grandparent who sometimes or often drank too much) and the amount of alcohol consumed per week among college students. It was additionally to determine the possible differences between students with positive, compared to students with negative, family backgrounds of alcohol abuse in regards to drinking patterns, using a survey instrument that indirectly measures family background for alcohol abuse. For this cross-sectional study, a quota sample of 971 college students from all four regions of the United States was selected. Results revealed no association between family history and mean amount of alcohol consumed per week for the total sample ($r = .007$), or for men ($r = .04$) or women ($r = .02$). Curve analy-

sis indicated a slightly positively skewed curve for the total group and also for male and female students. A t test and chi-square analysis found no significant difference between positive and negative family backgrounds and mean amount of alcohol consumed or drinking patterns. Among those with positive family backgrounds there was no clustering on a scatter plot for either heavy or light amounts of alcohol consumed. The results showed remarkable similarity in alcohol consumption and drinking patterns between students who were classified as having a positive, as opposed to negative, family background. It was concluded that having a positive family background for heavy drinking was not associated with either light or heavy alcohol consumption among this national sample of college students. (*J. Stud. Alcohol* 51: 542-547, 1990)

THERE IS EVIDENCE that alcoholism is a genetically influenced condition (Goodwin, 1985; Schuckit, 1985). Also, there is evidence suggesting that individuals who are adult children of alcoholics have a higher probability of becoming alcoholic or problem drinkers as a result of their unstable childhood family systems. This dysfunctional environment is thought to foster an "either/or" personality trait that would cause a person to be either a heavy drinker or to be an abstainer or very light drinker, compared to individuals from nonalcoholic backgrounds (Weigscheider-Cruse, 1985). It is implied that individuals from these backgrounds are more likely to experience alcohol abuse, other addictions or mental health problems compared to other individuals (Cotton, 1979; Roosa et al., 1988).

Many of these authors designate individuals from alcoholic or problem-drinking families as being co-dependents, children of alcoholics or adult children of alcoholics. For the purpose of this report the term *positive family background* will be used to designate individuals who are from families with a probable history of alcohol-related problems.

Many studies separating individuals into alcohol positive or negative family backgrounds interview subjects or take a family history to determine if a family member was alcoholic or abused alcohol. For survey research with large numbers of subjects this method is not practical. Some instruments developed for mass administration and screening, to determine familial alcoholism or problem drinking, primarily ask items related to parental drinking. This approach may lead to problems in correctly classifying individuals into positive or negative categories as respondents may not be truthful. This is because many individuals are reluctant to label a family member as an alcoholic or alcohol abuser, are in denial about the condition or are not even aware until later adulthood that there was problem drinking in their family. Also, some individuals who think they "know what the researcher is looking for" may fake responses that could influence the validity of a study. To avoid these potential errors, the instrument used for this study, the CODE (Engs and Anderson, 1988), indirectly identifies a family history of alcohol abuse. For this instrument, which is discussed in the methodology section, the higher the score the more problems and negative feelings the individuals indicated they experienced in their family environment and the higher the probability that they had a parent or grandparent who abused alcohol.

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College students are at risk for heavy drinking and problems related to alcohol abuse. Engs and Hanson's (1988) most recent study indicated that over 80% of students drink, and that one in five is a heavy drinker. Because of the increasing awareness of alcohol abuse among college students, 4-year institutions of higher learning are addressing these problems (Anderson and Gadeleto, 1984). Positive family background for problem drinking and its relationship to alcohol abuse among students would be of interest as a possible adjunct to solving campus alcohol problems. If there is an association between problematic drinking and positive family background it would help in program planning, education and counseling for university students.

There have been a few studies comparing quantity-frequency patterns and alcohol-related problems between young males with self-reported familial alcoholism compared to self-reported nonalcoholic backgrounds (Schuckit and Sweeney, 1987). However, there appears to be a lack of research that explores the possible association between drinking patterns and positive family background that is collected by methods other than by taking a detailed history or by questionnaire that directly asks for a description of parental drinking. Thus, the purpose of this study was to determine the possible association between family background of alcohol abuse and the amount of alcohol consumed per week, and also to determine whether differences exist between positive and negative family background students, in terms of drinking patterns, with a survey instrument that indirectly identifies positive family background for alcohol abuse.

The null hypotheses for this cross-sectional study design were: (1) there is no significant association between family background status and drinking patterns, and (2) there is no significant difference between students with positive or negative background in relation to possible problem drinking.

Method

Instruments

The SAQ. An anonymous precoded instrument, the Student Alcohol Questionnaire (SAQ) (Engs, 1975), which has been utilized by hundreds of researchers investigating college students' drinking patterns over the past 15 years, was used. It has demonstrated an internal consistency reliability of 0.79 and includes demographic items, questions regarding the quantity and frequency of consumption of various alcoholic beverages and 17 items concerning possible negative consequences of drinking.

The calculations to determine mean number of drinks per week consumed by each students were based on a method devised by Room (1985) and Lemmens et al. (1988). Of course, there are problems in most quantity-

frequency measures including this method. Due to the fact that the SAQ gives ranges for average amount of beer, wine and spirits, and not an exact amount consumed on any one occasion, a mean for the range was taken.¹ The mean number of drinks of beer, wine or spirits were multiplied by the frequency with which each beverage was consumed. These numbers were then summed to give the total mean number of drinks consumed per week. A limitation to this study is that under- or overestimation of mean weekly drinks could have occurred for some individuals.

Using this method, individuals who consume less than 1 drink per week are considered abstainers. Those consuming between 1 and 7 drinks are light drinkers; 8 to 14, moderate; 15 to 21, moderate/heavy; 22 to 28, heavy; and those consuming 29 or more drinks per week are considered very heavy or at-risk drinkers.

The CODE. The CODE questionnaire (Engs and Anderson, 1988) was used to determine a "co-dependency," or positive family background, score for each student. The development and characteristics of the instrument are briefly described as follows: A literature search was, first, carried out to determine characteristics of individuals from families with a history of problem drinking or alcoholism. For this search 68 items dealing with conflict between family members, emotional abuse, current and past negative feelings, current or past addictive behaviors and problems in the childhood environment were found.

These items were assembled into a questionnaire along with demographic and familial alcohol consumption information. For each of these items, other than demographic data, a 4-point Likert scale for which subjects indicated "never," "rarely," "sometimes" or "often" was used. Subjects were classified as being "co-dependent," or having a positive family background of alcohol abuse, if they indicated that either a parent or grandparent "sometimes" or "often" drank too much. It should be noted that subjects were not asked if they thought a relative was alcoholic to avoid possible invalid answers as discussed in the introduction. Consequently, this instrument does not indicate a family history of alcoholism as classified by DSM-III, but gives a positive family background of possible problem drinking if the subjects thought that a parent or grandparent sometimes or often drank too much. Individuals were classified as not being "co-dependent," or having a negative family history, if they indicated that *all* relatives had only "never" or "sometimes" drunk. Subjects who had siblings or aunts and uncles who were identified as sometimes or often drinking too much, without parental or grandparental heavy drinking, were eliminated from the validity and cross-validity analysis.

The instrument with the 68 items, plus familial drinking patterns and demographic questions, was given to 381 students in residential units at four universities including one from the South, East, Midwest and North-Central re-

gions of the United States. Item reliability using the Pearson correlation coefficient between each item and family background status was performed. A *t* test was accomplished between students with positive and negative family background for each item. Reliability over time was determined for each item with 84 students in an undergraduate class that had students from every major and class year. Eleven items remained after elimination of the others due to nonsignificant *t* test or correlation coefficient less than .3.

Construct validity and internal consistency tests were performed. A factor analysis identified one factor. The Cronbach alpha test for homogeneity resulted in an alpha of .89 and Spearman-Brown split-half technique revealed the reliability coefficient of the questionnaire to be .87.

After these procedures the predictability of the instrument to correctly classify family background was calculated. Discriminate analysis revealed that the 11 items correctly classified individuals as positive 69% of the time, and negative, in terms of family background, 78% of the time with a total of 71% of all individuals being classified correctly.

Next, cross-validation procedures for the instrument were accomplished. The instrument was administered to 614 students at 12 universities located around the nation. Since the original procedures indicated a significant difference between male and female students, separate calculations were accomplished for the total group and each gender. For the total group, item analysis revealed that each item had a reliability coefficient of .2 or above. The Spearman-Brown test indicated a reliability of .76 and Cronbach alpha measure indicated a highly significant alpha of .88. Discriminate analysis indicated that 74% of students were correctly classified. Results for each gender were similar.

In order to categorize individuals as either positive or negative for research purposes, the authors recommend selecting students whose scores fall one standard deviation above or below the mean. This procedure was used for this study.

The final questionnaire contains 11 items.² The student is instructed to answer degree of agreement with each item on a Likert scale ranging from 1 to 4. The answers for all 11 items are then summed to obtain a mean score for each subject. Scores range from a minimum of 11 to a maximum of 44 points.

Sample

For this study, a subsample of universities from a larger U.S. database, which has been collected every three years since 1982 for an ongoing study of drinking patterns and problems of students attending 4-year institutions of higher learning in every state, was collected (Engs and Hanson, 1985, 1988). For this study, 81 colleges and uni-

versities were initially selected as a quota sample to represent the types of 4-year colleges and universities in terms of financial support, number of students enrolled, size of the community and representativeness of the percent of institutions found in the four geographic regions as defined by the NIAAA (1975). Institutions were also selected to reflect the universe of students who attend universities in terms of the demographic characteristics of gender, race and year in school.

To collect these data, faculty in sociology, health or physical education, who teach survey type classes that have a high probability of containing students from every academic major and class level, were contacted at each university. They were asked to administer the SAQ to all students in the classroom and return the questionnaires to the researchers.

To obtain a subsample for this current report, it was determined that a sample of approximately 1,000 students would provide sufficient power (0.80) to detect significant differences ($p < .05$) (Cohen, 1988). To obtain this sample, sociology or health education faculty members were contacted at 21 (26%) of the total pool of 81 colleges, and asked to administer, in addition to the SAQ, the CODE questionnaire during the 1987–88 academic year. These 21 schools were chosen at random. Each instructor was asked to administer up to 75 questionnaires in a general elective class in which students from all class levels and majors were likely to be enrolled.

Of these 21 schools, 15 returned completed questionnaires (71%) with a resulting sample of 981 students. Students from these colleges were pooled into one sample. No analysis was accomplished between schools because the database from which they were selected was originally selected to reflect the various types of schools found across the nation and would not be expected to be similar. This subsample of institutions appears to be remarkably similar to the types of colleges and to the types of students who attend 4-year colleges.³ Both in this sample and in the national statistics from the Department of Education (Snyder, 1987) there is a slight overrepresentation of women and freshmen with a decreasing percentage of students from freshmen to senior. In both this sample and the national statistics, over 75% of students attended public institutions and approximately 90% were white.

Further calculations to describe the characteristics of this sample, using *t* test and one-way analysis of variance procedures, revealed there was a significant difference ($p < .05$) in alcohol consumption due to gender, race and class year as has been found in numerous other studies of university students. In terms of the number of drinks consumed per week, males (16.3) were found to consume more alcohol than females (8.2), and whites (13.5) consumed more alcohol than blacks (5.7). Furthermore, there was a significant difference ($p < .05$) in family background scores due to gender (men, 21.6; women, 22.6),

and race (whites, 22.2; blacks, 20.5). Because of these differences, separate analysis was accomplished for men and women as suggested by the authors of the CODE. However, since the number of black students was only 10% of the sample, which could have affected the reliability of these results, no further analysis was accomplished with this demographic variable.

When the sample was compared by class year, sophomores (14.7) were shown to have consumed the most ($p < .05$) alcohol followed by juniors (12.5), seniors (11.9) and freshmen (10.0). No significant difference was found between class year in terms of family background scores. Furthermore, within each class year there was no significant difference between positive or negative family background students in terms of number of drinks consumed per week. Based upon these analyses, it was concluded that class year was not an important variable in terms of family background status and no further analysis was carried out for this variable.

After initial means and standard deviations were calculated, outliers (mean + 3 SD) were eliminated from subsequent analyses. This resulted in 11 individuals being eliminated with a resulting sample of 970 students comprised of 415 men and 555 women.

Data analysis

The SPSS-X (Statistical Package for the Social Sciences, 1986) was utilized to calculate the various statistical procedures used in this study. The reason for use of these procedures will be discussed in the Results section at the appropriate place.

Results

The results of a Pearson correlation coefficient between family background score (mean \pm SD) (22.0 ± 6) and mean number of drinks consumed per week (11.4 ± 13.3) demonstrated no association ($r = 0.007$) for the sample as a whole. Likewise, there was no association ($r = 0.04$) between family background score (21.6 ± 6) and number of drinks consumed among male students (16.3 ± 17.3), or family background score (22.6 ± 6) and drinking (8.2 ± 10.3) among female students ($r = 0.02$).

Since the correlation coefficient is a measure of linear association, the linearity of the relationship between family background status and alcohol intake was assessed to rule out a curvilinear relationship (Allen and Yen, 1979). For ungrouped samples, departures from linearity can be tested only by visual inspection. A scattergram was used for this procedure and inspection of the resulting scatterplot for the total group and for the men and women appeared to indicate no deviation from linearity.

The lack of association between family background and alcohol consumption could occur because of a true lack of association between the two variables or if the curve is a non-normal or bimodal distribution because students were either heavy or nondrinkers to light drinkers. Further analyses were conducted to determine characteristics of the curve representing mean amount of alcohol consumed per week.

An inspection for skewness, kurtosis and variance did show that the curve for the number of drinks consumed per week departed slightly from normal. The curve for the total group and for the men and women were all positively skewed ($p < .05$). In addition, the Komologrov-Smirnoff test for normalcy indicated that the curves varied ($p < .05$) from the normal curve (see Table 1).

Histograms for weekly alcohol consumption levels were constructed for the total group and for the men and women. They did not demonstrate a bimodal curve (see Figure 1).

To rule out possible differences in drinking patterns between positive and negative family background students, a *t* test between the mean number of drinks consumed per week was conducted. In addition, the levels of drinking between positive and negative family background students were examined by chi-square analysis. No significant difference was found between positive and negative family background students for the total group and for the men and women for either the *t* test or the chi-square analysis (see Table 2).

Since the results of this study were based on nonsignificant correlations between family background and alcohol consumption, it was determined that a post hoc power analysis was warranted to determine whether the nonsignificant differences were the result of a lack of power. It was determined that power for this investigation was at the 85% level (Cohen, 1988) which corresponds with the previous estimate.

TABLE 1: Curve analyses for number of drinks consumed per week

	Mean	SD	Variance	Skewness	Kurtosis	Percentile			K-S
						25th	Median	75th	
Total (<i>n</i> = 970)	11.4	13.3	176.5	1.2	.86	0.4	5.3	20.0	6.1*
Males (<i>n</i> = 415)	16.3	16.4	271.0	1.0	.75	0.1	13.1	27.0	3.3*
Females (<i>n</i> = 545)	8.2	10.3	107.1	1.2	.85	0.3	2.5	14.2	5.4*

* $p < .05$.

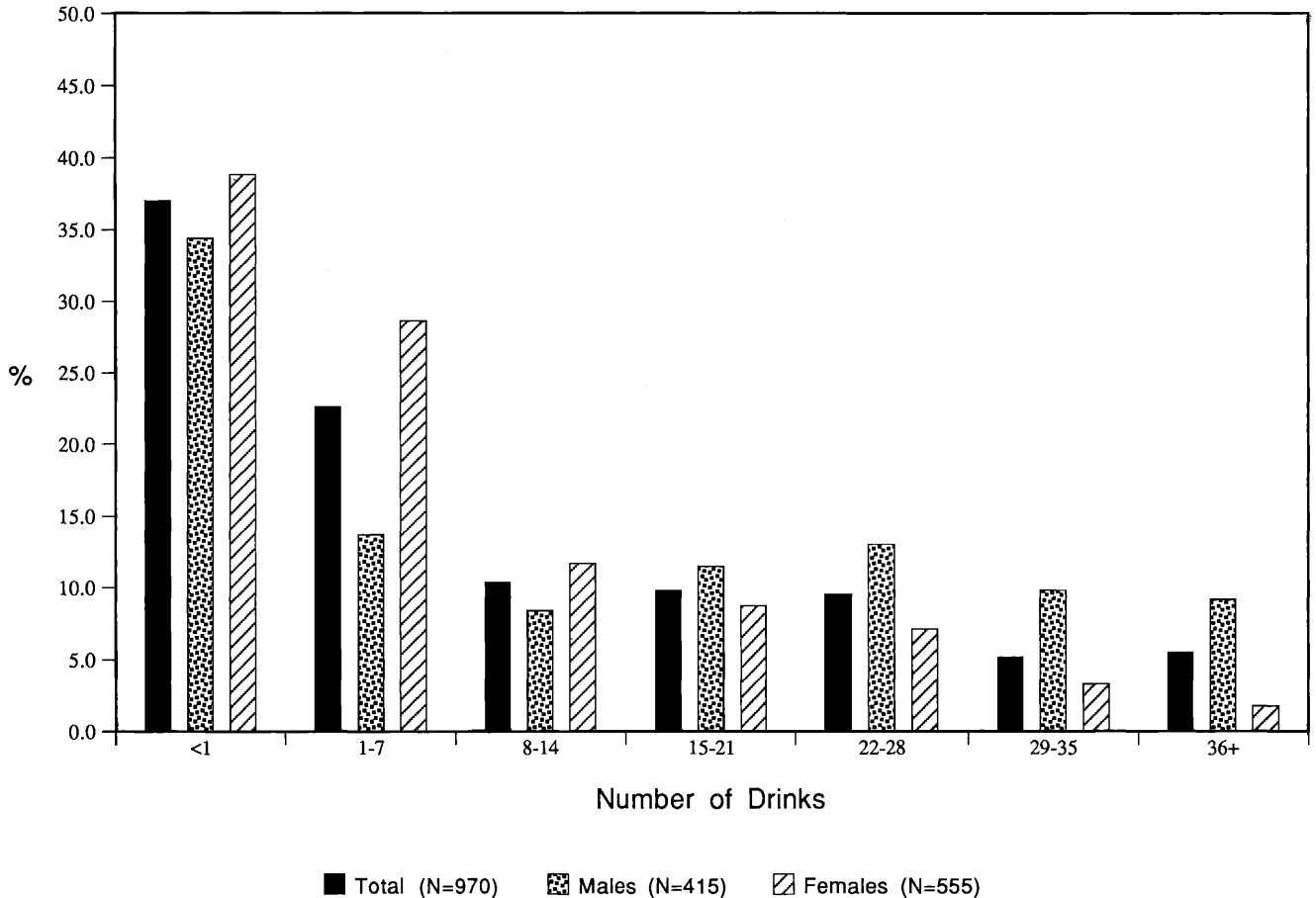


FIGURE 1. Number of drinks consumed per week in terms of the percent within each group

Discussion

The results demonstrate a lack of association between family background status and drinking patterns. Among those with positive family background, there was no clustering on a scatterplot for either heavy or light amounts of alcohol consumed. Furthermore, there was no difference between positive and negative family background students in terms of drinking patterns using a survey instrument that indirectly identifies positive family background for alcohol abuse.

The results show a remarkable similarity in alcohol consumption between students who were classified as having positive, as opposed to having negative, family backgrounds. No matter what the student's family background, approximately a third consumed less than one drink per week (Table 2). An additional third were considered to be light to moderate drinkers consuming from 1 to 7 drinks on a weekly basis. Of the total sample, approximately 10% were at-risk drinkers consuming 29 or more drinks per week. An additional 20% were moderate-heavy to heavy drinkers consuming between 15 and 28 drinks per week. Thus, the results appear to support the

null hypotheses for this study that there would be no association between family background status and alcohol consumption and no difference between positive and negative family background students in terms of alcohol consumption. It was concluded that having a positive family background related to alcohol abuse was not associated with either light or heavy alcohol consumption among this sample of students.

Case studies appear to suggest that most heavy drinking and alcoholic individuals have positive family histories for alcoholism. Biological research suggests that alcoholism has a genetic basis. Because of these observations many professionals assume that individuals with a positive history of familial problem drinking are likely to be at risk for heavy drinking. However, among this sample of college students, individuals with positive family background appear to be very similar to students with negative family background in terms of their drinking patterns. This study appears to support Schuckit and Sweeney's (1987) report that also found no difference in drinking patterns between male college students and staff members, with and without familial alcoholism, at one university. It is speculated that college students generally drink for such reasons as

TABLE 2. Comparison of students with positive and negative family backgrounds using *t* test for mean number of drinks and chi-square for percent of students consuming different number of drinks per week

	<i>n</i>	Mean	SD	<i>t</i>	Abstainer (<1)	Light (1-7)	Moderate (8-14)	Mod./heavy (15-21)	Heavy (22-28)	At risk (>28)
Total										
Positive	155	10.1	11.8	1.2	34	25	12	10	10	9
Negative	175	10.1	12.7		40	21	9	9	9	12
Male										
Positive	68	13.4	13.5	1.6	33	15	7	15	16	13
Negative	64	15.2	17.4		36	13	9	8	9	25
Female										
Positive	86	7.6	9.8	1.6	35	33	15	7	6	4
Negative	110	7.6	10.0		42	25	9	10	8	6

peer pressure, rite of passage and rebellion against authority rather than for emotional or addictive reasons related to familial alcoholism at this point in their psychosocial development.

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Notes

1. Loading values for usual frequency of drinking by each respondent: every day = 7.0; at least once a week but not daily = 3.5; at least once a month but not weekly = .5; more than once a year but not monthly = .12; once a year or less .02; never = 0. Values for number of drinks of beer, wine, spirits: 6+ = 7.5; 5-6 = 5.5; 3-4 = 3.5; 1-2 = 1.5; <1.0 = .5; 0 = 0.
2. The 11 CODE items. Childhood environment: emotional abuse, conflict between parents, conflict between me and one or both of my parents, tension, uncertainty, overreaction on parents' part to a minor misbehavior, attempts by me to change a parent's drinking behavior. Feelings and behavior: observed myself to be an approval seeker, felt no sense of power or choice in the way I lived, had difficulty in establishing boundaries between myself and others, thought of myself as a problem drinker.
3. The demographic characteristics of the sample are as follows: type of school: public (88%), private (12%); region: Northeast (22%), North Central (29%), South (23%), West (26%); enrollment: fewer than 10,000 (65%), greater than 10,000 (35%); gender: male (43%), female (57%); race: white (87%), black (13%); college year: freshman (31%), sophomore (27%), junior (22%), senior (20%). The mean age of the sample was 20.7 years (freshmen, 18.6; sophomores, 20.0; juniors, 21.6; seniors, 23.2).
In 1985, the latest year for which statistics have been published by the Department of Education (Snyder, 1987), 47.5% of college students were men, 77.4% attended public institutions, and 8.8% were black. In terms of class level, 29% freshmen, 27% sophomores, 22% juniors and 20% seniors.

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