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Engs-Alcohol knowledge and drinking behaviors at 13 colleges: Development of SAQ. Presented: *ACHA National Conference*, Philadelphia, March 1977.

ALCOHOL KNOWLEDGE AND DRINKING BEHAVIOR AT THIRTEEN COLLEGES AND UNIVERSITIES
(And Development of the *Student Alcohol Questionnaire*)

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ABSTRACT

The knowledge of alcohol and drinking patterns and among thirteen of the 62 schools in the 50 + 12 Project, an alcohol education initiative of NIAAA, is discussed. A major purpose of this descriptive study was to develop a valid and reliable instrument to measure college students knowledge of alcohol, their drinking patterns, and problems related to their drinking. To this end the *Student Alcohol Questionnaire* was developed. Both the drinking patterns and knowledge sub-scales and the total instrument were found to be highly reliable (r=.79). The result of the survey revealed that males and whites had higher alcohol knowledge scores than females and blacks respectively. Significantly more seniors had scores above 26 compared to underclassmen. The results revealed that 79% of student drink at least once a year and approximately 20% were heavy or at risk drinkers consuming 6 or more drinks at any one sitting. Over half the sample reported they had experienced "hangovers" and "driven a car after drinking" during the past year. Whites and males were significantly more likely to consume alcohol and to be heavy at risk drinkers compared to blacks and females. There was no significant different due to class year.

INTRODUCTION

To encourage colleges to examine drinking attitudes and behavior and to develop alcohol awareness programs on their campuses, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and its National Clearinghouse for Alcohol Information began the "50 + 12 Project" (1). As part of this program students and staff from 62 selected universities around the country were invited to a conference in the fall of 1975 to discuss campus drinking problems and to share ideas about alcohol awareness and education programs.

Universities were encouraged to develop alcohol awareness programs. Indiana University developed the *Booze and You's* program to meet these federal mandates. One purpose of the present study was to develop a survey instruments to survey students at institutions participating in the 50 + 12 Project to assess their knowledge of alcohol, the frequency and quantity of drinking, and problem behavior resulting from drinking. Another purpose was to analyze drinking behavior according to selected demographic variables which have been known to be associated with different drinking patterns such as sex, race, and year in school.

Sample Selection and Limitations of the Study.

Thirteen of the 62 schools in the 50 + 12 Project agreed to participate in this study during the 1975-76 academic year. Of the 13 schools, 3 were in eastern, 4 western, 3 north central and 3 southern parts of the country (21). Two of the four predominately Black colleges in the 50 + 12 Project were included in the sample, resulting in an overrepresentation of Blacks. However, the proportionately large number of Blacks was included to provide a sample with enough power for statistical analysis.

For the study, at each of the 13 schools, a person from student personnel, the student health service, or the department of health education was asked to select a sample of 100 undergraduate students, preferably a random sample, and administer the questionnaire. If a random sample could not be obtained, a convenience sample in a classroom was used. Only one participating school used the random sampling procedure. The other institutions used in class administration.

The Instrument

A major aim of this study was to develop a valid and reliable instrument to measure student's knowledge of alcohol and to determine their drinking patterns. An instrument called the *Student Alcohol Questionnaire* containing 36 questions on knowledge of alcohol and its effects, 23 questions on drinking-related behavior along with demographic variables was developed and tested. The directions for completing the questionnaire called for anonymous responses so as to minimize either "fake good" or "faked bad" answers.

Content/face validity was obtained by having a panel of individuals presently working in the field of alcohol education and research comment on various knowledge items and questions under consideration for the instrument. A questionnaire was then assembled and presented to a group of undergraduate students for comments and suggestions. The question was revised again submitted to the students for final evaluation.

The *reliability* of the instrument was determined. For a test-retest reliability, the questionnaire was administered to 122 students. Students were asked to write a secret code on the top right hand corner of the instrument, such as "Mickey Mouse" and to write it down in a notebook they usually had in their possessions such as lecture notes so they could use it again. One month later the students were administered an alternative form of the test and asked to place their code name again on the top of the questionnaire. The test-retest reliability of the questionnaire was .79. The Kuder-Richardson reliability of the questionnaire was found to be .79 for the total sample of, 1,128 students.

Knowledge Scale

The 36 alcohol knowledge, true/false questions for the instrument were based on information found in pamphlets published by the American Medical Association, Alcoholics Anonymous, and the National Council Alcoholism. The questionnaire contains items regarding: facts about alcohol (e. g., "Alcohol is usually classified as a depressant"); The effect of alcohol on the body (e. g., "A blood alcohol concentration of .02% usually causes a person to be in a stupor"); myths about drinking (e.g., "An effective way to sober up is to drink black coffee and to take a cold shower"); and facts about alcoholic beverages (e.g., "Beer usually contains about 3 to 6% alcohol by volume").

In the administration of the questionnaire for the study, students were directed to answer each question on a commonly used IBM five-stem answer sheet. For each of the knowledge items, they were asked to mark either "true," "false," or "don't know". A mean score for the number of correct answers out of the 36 questions was calculated for each student in the sample.

Drinking and Problems Related to Alcohol Scales

Of the questions on drinking behavior, 6 were adapted from Straus and Bacon (2), Jessor et al. (22) and a NIAAA national study (23), and were used to determine the quantity and frequency of drinking. The remaining questions, concerning problem behavior resulting from drinking, were adapted from other studies (16-18) and from items submitted by a group of students at Indiana University. The 23 items on problem behaviors resulting from drinking were submitted twice to 122 students as discussed above for a test-retest reliability

for each item. For each item percentages ranged from .61 to .92, the mean being .79, and were used as an estimate of reliability.

Calculations

The quantity-frequency index (Q-F) was used to determine the drinker classifications. The index was developed by Straus and Bacon (2), and slightly modified by Maxwell (24), Mulford and Miller (25-29), Cahalan et al. (30-31), and Maddox and Williams (5), and used in a number of other studies (23, 32-37). Most of these studies have restructured the "frequency" and "amount" responses for a variety of reasons. In the present study, the amount over 6 drinks drunk on any one occasion was statistically collapsed since heavy drinkers have usually been classified as individuals consuming 5 or more drinks at least once a month. The addition of separate categories for each drink in excess of 6 was thought to be superfluous as drinking six drinks on any one occasion would be considered problematic drinking by most professionals.

From the beverage (beer, wine or distilled spirits) most frequently used and the amount of the beverage consumed on a typical occasion, a Q--F level was calculated for each subject, who was then placed in one of six categories: *abstainer*, drinking less than once a year or not at all; *infrequent drinker*, drinking at least once a year but less than once a month; *light drinker*, drinking at least once a month but not more than 1 to 3 drinks at any one sitting; *moderate drinker*, drinking at least once a month with no more than 3 to 4 drinks, or at least once a week with no more than 1 to 2 drinks, at any one sitting; *moderate-heavy* drinker, drinking 3 to 4 drinks at least once a week or drinking 5 or more drinks at least once a month; *heavy drinker,* drinking 5 or more drinks more than once a week. The "abstainer" category was used according to the procedure outlined by Mulford and Miller (28). The same categories were used for men and women.

For other calculations, such as the cross-tabulation of various demographic variables and drinking patterns, chi-square analyses from the Statistical Package for the Social Sciences program were used.

RESULTS

Demographic characteristics

The sample of 1,128 students had the following demographic characteristics: 48.1% were men and 51.9% women; 79.3% Whites, 17.2% Blacks, and 3.7% other racial groups; 34.6% were freshmen, 22.2% sophomores, 21.5% juniors, 17.5% seniors, and 3.6% were in other class levels.

Knowledge of alcohol

Out of 36 possible answers, the total group obtained a mean score of 20.08 which represented 56%, or a little over one half, of the questions being answered correctly. Many students adhered to common myths about alcohol. Approximately 32% subscribe to the myth that alcohol is a stimulant; 48%.if one makes distilled liquor with soda pop it would affect one faster than if the liquor had been drunk straight and unmixed; and 48% thought that drinking coffee or taking a cold shower was an effective way of sobering up.

There are many misconceptions concerning the actions of alcohol on the body or facts about beverages. About 81% of students did not know that the legal definition for intoxication in most states regarding driving was 0.1% Blood Alcohol Concentration (BAC). 62% did not know that proof on a liquor bottle represented twice the percent of alcohol in the product; about 60% did not know that drinking milk or eating before consuming alcoholic beverage could slow down the absorption of alcohol.

Demographic Information and Mean Knowledge Scores

To determine possible relationships of knowledge scores to demographic characteristics, scores were divided into approximately 1/2 standard deviation interval levels on either side of the mean. The mean score was 20.2 and standard deviation was 5.4. Chi-square analysis of these different interval levels with the various demographic variables was then employed. (See Table 1)

Sex: the data appear to indicate that there is a highly significant (P <.0001) relationship between score and sex with a higher percentage of male students scoring above the mean and female students. For scores above 26, around 21% of males compared to 11% of females had scores at this level.

Race: when chi-square analysis was accomplished with the score intervals and race, there was a highly significant relationship (P <.001) between scores and race. In addition, whites had a mean score of 21 while blacks have a mean score of 16.

Class Year: there appears to be a slight significant relationship between class level and alcohol knowledge score with a trend for more Junior and seniors to obtain higher scores than freshman sophomore.

Frequencies and Quantity Levels of Drinking.

Most of the students (79%) drank at least once a year. Of these students, 70% drank beer, 65% drank wine and 75% drank spirits at least once a year. Most of the students (79%)

drank at least once a year. Of these students, 70% drank beer, 65% drank wine and 75% drank spirits at least once a year,

As Table 2 shows, about one-third of all students appeared to be abstainers or infrequent drinkers. With regard to wine, this was true of 67% of the students; spirits, 51%; and beer, 43%. Heavy drinking was reported by 11% of the students consuming beer, 2% of those consuming wine and 5% of those consuming spirits-12% of the total sample. Beer still appears to be the most popular beverage and the beverage most likely to be consumed by the heavy drinkers.

Demographic characteristics and drinking patterns

Sex: of the men in the sample, 82%, and 75% of the women reported drinking at least once a year. There are significant differences ($p < .001$) between the Q-F levels between men and women. About 20% of men drank over 6 drinks at any one sitting (heavy drinkers) compared to only 4% of women. (See Table 3)

Race: there was a significant difference ($p < .05$) in the Q-F level of alcohol consumption between whites and blacks. Of whites 16% were abstainers compared to 40% of blacks.

Class year: Chi-square analysis indicated no significant difference between freshmen and seniors in the quantity and frequency of drinking.

Problems Resulting from Drinking

Approximately 20% of the students reported no problems as the result of drinking. About 29% reported one or two problems, and about 22% reported three or four problems as the result of drinking. It appears that it is common for about one-half of all students to have had up to four problems occur as the result of drinking. Over half of students who drink at least one a year reported "hangovers," and "driving after drinking" during past year as the result of drinking (See Table 4).

SUMMARY AND RECOMMENDATIONS

Gathering information about students' knowledge of alcohol and the drinking patterns is important to aid in planning alcohol education programs on the college level. The *Student Alcohol Questionnaire*, with both knowledge and behavior questions, is suited for pre-program planning and for assessment after campus alcohol education programming. It is recommended that campus alcohol awareness programs include factual information as part of the program so as to increase the students' general knowledge about alcohol and give

them basic facts for making responsible drinking decision in order to decrease irresponsible drinking behaviors leading to problems related to alcohol consumption.

Table 1: Chi-square results of demographic variables and interval scores knowledge and alcohol and drinking

	N	Rounded mean score	Under 14	14 to 16	17 to 19	20 to 22	23 to 25	26 and above
Sex*								
Males	508	21%	8%	9%	17%	24%	21%	21%
Females	610	19	13	18	19	23	16	11
Race*								
White	887	21	5	12	19	25	21	18
Black	194	16	34	19	20	14	9	4
Class+								
Freshman	380	20	11	11	21	26	19	12
Sophomores	250	19	12	20	19	19	17	13
Juniors	246	20	13	13	15	23	18	18
Seniors	199	21	8	10	17	26	19	20

* p<.001 +p<.05

Table 2: *Percent of 1128 Students in Q-F Levels, by Type of Beverage and Absolute Alcohol*

	Beer	Wine	Spirits	Absolute Alcohol[a]
Abstainers	30.5	35.0	25.3	20.6
Infrequent drinkers	12.9	32.2	25.9	10.8
Light drinkers	11.2	13.6	13.6	11.8
Moderate drinkers	19.2	13.0	17.8	23.8
Moderate-heavy drinkers	15.0	4.2	12.0	21.5
Heavy drinkers	11.2	2.0	5.4	11.5

   a. Determined by total amount of absolute alcohol contained in the most frequently consumed

TABLE 3 Relationship between Q-F Level and Sex, Race, Class Level in Per Cent

	N	Never	Infrequently	Light	Moderate	Moderate-Heavy	Heavy
Sex*							
Men	508	16.5	7.1	9.1	20.9	26.4	20.1
Women	610	23.9	13.8	13.9	26.6	17.5	4.3
Race +							
Whites	887	16.0	11.0	11.6	24.6	24.1	12.6
Blacks	194	39.7	9.3	13.4	21.6	11.3	4.6
College Class							
Freshman	380	20.8	11.8	10.5	23.7	21.1	12.1
Sophomores	250	25.2	9.6	12.8	21.6	18.8	12.0
Juniors	246	19.1	10.6	12.2	26.8	20.7	10.6
Seniors	199	15.6	10.6	13.1	20.6	28.1	12.1

TABLE 4: Percent of the Students Who Drink at Least Once a Year (N = 883) Reporting Alcohol-Related Problem at Least Once in Past Year

	Past Year
Hangover	57.6
Driving after drinking	51.0
Nausea and vomiting	37.8
Driving after excessive drinking	30.8
Driving while drinking	25.7
Missing class because of a hangover	16.8
Coming to class after drinking	10.9
Missing class after drinking	10.6
Being criticized by date because of drinking	10.0
Fighting with someone after drinking	9.1
Damaging university property, setting off false fire alarm, because of drinking	8.8
Knowing of problem with drinking	8.5
Having trouble with the law because of drinking	3.5
Received a lower grade because of drinking	4.1
Having trouble with school administration because of drinking	1.8
Being arrested for driving while intoxicated	1.8
Losing job because of drinking	0.5

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