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Drinking Patterns and Drinking Problems of College Students

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SUMMARY. Compared with the findings of previous studies, a recent survey of students at 13 U.S. colleges found that more women are drinking, fewer Black men are heavy drinkers, there are fewer differences in the drinking patterns of freshmen and seniors, and there has been no increase in the incidence of drinking-related problems.

EDUCATORS, parents and the general public have recently become concerned about the apparent increase in drinking and undesirable drinking-related behavior among youth. 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. These participants expressed concern about a dramatic increase during the preceding 1 or 2 years in drinking and drinking-related behavior, such as damage to university property, trouble with the law and hangovers. However, few recent studies have either refuted or validated this general opinion of the drinking-related behavior of university students.

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Studies of college students over the past 25 years have indicated that the prevalence of drinking has increased among women while increasing only slightly among men. In a national study of 17,000 students during 1949–50, Straus and Bacon (2) reported that 80% of the men and 61% of the women—74% of all the students—considered themselves to be drinkers. According to Rogers's study (3) of 725 students at a midwestern university in 1955–56, 56% of the sample, or 61% of the men and 38% of the women, reported that they used alcohol. At a private liberal arts college for men, Gusfield (4) in 1955 found that 95% of the 185 students surveyed drank. At a predominantly Black college, Maddox and Williams (5) found that 78% of 262 male students considered themselves to be drinkers.

During the late 1960s Pollock (6) reported that of 465 freshmen and sophomores at a western university, 68% of the women and 62% of the men drank; Dvorak (7) found that 58% of the freshmen and 88% of the seniors at a midwestern university used alcohol; Hope (8) found that 68% of the students he surveyed at a southern university drank; and Milman and Su (9), studying a sample of over 6000 students in a large eastern state university system, found that about 91% of the students used alcohol. In a national study conducted from 1969 to 1972, Robinson and Miller (10) found that the percentage of college students who drank had decreased from 90% in 1969 to 83% in 1972.

During the 1970s, Hanson's national study (11) of over 2000 college students reported that 80% of the men and 73% of the women considered themselves to be drinkers. In a 1971 study, Glassco (12) found that 85% of the men and 82% of the women students in a southern university were drinkers. At a northwestern university in 1973, Penn (13) found that 76% of the students drank wine and beer and 68% consumed distilled spirits at least once a year, and the percentages of men and women who drank were about equal. At a midwestern university in 1975, Engs (14) found that 86% of the students sampled drank beer, 82% spirits and 69% wine at least once a year.

Although most of these studies used different sampling procedures and statistical analyses, they indicate only a slight increase between 1950 and the 1970s in the percentage of men, but an appreciable increase in the percentage of women, who drink.

Many of these studies also examined the demographic variables that are important in influencing drinking patterns and behavior.

When year in school was examined, seniors during the 1950s and 1960s appeared to drink significantly more than did freshmen (2, 3, 7). However, in the past few years some studies have reported little difference in the drinking patterns of the four college classes (11, 12, 15), except among women (8).

Studies of Black students have indicated that the percentage of Black men who drink is about the same as that of White men, though Black men are inclined to be heavy drinkers (2, 5, 16) and Black women drink significantly less than do Black men (2).

Some studies have indicated problems resulting from drinking, such as hangovers and trouble with the law and in interpersonal relationships (5, 9, 17, 18). When the relationship between grade point average (GPA) and drinking behavior has been examined, some studies have found that drinkers and heavy drinkers have lower GPAs, (9, 19) and others have shown no significant differences between the GPAs of drinkers and nondrinkers (20).

In view of recent opinions that drinking and drinking-related problems have increased among college students, one purpose of the present study was to survey students at institutions participating in the 50 + 12 Project to assess the frequency and quantity of drinking and to determine the frequency of problem behavior resulting from drinking. Another purpose was to compare these drinking patterns with past trends, and a third purpose was to analyze drinking behavior according to selected demographic variables.

METHODS

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). Eleven of the schools in the sample were large universities (10,000 or more students). Five of the schools were located in areas with populations of 500,000 or more, 3 in areas with populations between 100,000 and 500,000 and 5 in areas with populations under 100,000. 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 large enough for statistical analysis.

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, the questionnaire was to be administered to undergraduate classes in which students from any major subject of study, college class level or ethnic group would have an equal chance of participating.²

Several biases may have been introduced in the sample: (a) the institutions included in the study were part of a project to stimulate alcohol awareness; (b) the institutions were not randomly selected; (c) most of the students were not randomly selected. It is possible that, compared with students in general, the students in this sample had more "alcohol awareness." It is also possible that only certain types of institutions or students agreed to participate in the study and that they and their students may not be representative of colleges or students in this country. However, different types and sizes of colleges in communities of various sizes in four geographic regions of the country were represented.

The Instrument. An instrument called the Student Alcohol Questionnaire containing 23 questions on drinking-related behavior, 36 on knowledge of alcohol and its effects and 11 on demographic variables was developed.³ The data on knowledge of alcohol will be reported separately. Of the questions on behavior, 6 were adapted from Straus and Bacon (2), Jessor et al. (22) and the 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 instrument was constructed so that answers could be placed on a standardized "five stem" optical-scan sheet. Those administering the questionnaire were asked to request anonymous responses in order to avoid either "faked good" or "faked bad" answers.

A panel of individuals currently working in the field of alcohol education and research commented on various items under consideration for the questionnaire. A preliminary questionnaire was assembled and presented to a group of students for their comments and suggestions; the questionnaire was then revised and resubmitted to the panel. After further revision, the questionnaire was resubmitted to the students for final evaluation. These procedures were used to determine the validity of the content of the questionnaire.

The 23 items on behavior were submitted twice to 122 students. For each item the percentage of students whose response did not change

² Only 1 school used a random sampling procedure. At this school, with an undergraduate population of about 13,000, 200 students were randomly selected to participate in the study. Of this group, 93 (46%) completed usable questionnaires. The other institutions collected their samples from classrooms in which virtually all students completed the questionnaire.

³ Available from the Ralph G. Connor Alcohol Research Reference Files (CARRF), Center of Alcohol Studies, Rutgers University, New Brunswick, NJ 08903, and to be listed in the next edition of the CARRF inventory.

during the 1-month interval was determined. These 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.

From the beverage (beer, wine or distilled spirits) most frequently used and the amount of 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 Composition. The sample of 1128 students had the following demographic characteristics: 48.1% were men and 51.9% women; 79.3% Whites, 17.2% Blacks, and 3.7% included Orientals, Spanish Americans, American Indians and other racial groups; 34.6% were freshmen, 22.2% sophomores, 21.5% juniors, 17.5% seniors, and 3.6% were in other levels; 21.9% were from communities of under 5000, 28.6% from communities between 5000 and 50,000, 18.3% from communities between 50,000 and 500,000 and 12.7% from populations of over 500,000; 71.4% reported that their parents belonged to religious organizations which permitted drinking while 14.4% were from Protestant backgrounds which did not allow drinking, and 14.2% indicated "other" backgrounds. Many of the students who

reported "other" described themselves as Pentecostal or Southern Baptist or Mormon.

Frequencies and Quantity of Drinking. Most of the students (79%) drank at least once a year, and about half (57%) drank at least once a month or more. Of these students, 70% drank beer, 65% drank wine and 75% drank spirits at least once a year, and 57% drank beer, 41% drank wine and 45% drank spirits once a month or more.

As Table 1 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.

Although different statistical procedures and sampling methods have been used in studies of college students over the past 25 years, it appears that the percentage of students in this sample who are drinking—79%—is about the same as that in samples studied in the past. In 1950 Straus and Bacon (2) found 74% of the students in their sample to be drinkers; in 1969 Robinson and Miller (10) found 90%, decreasing to 83% in 1972; and in 1971 Hanson (11) found approximately 77% of his sample to be drinkers. Of those students who drink, Straus and Bacon, using the Q-F index, found 17% to be heavy drinkers; in the present study the heavy drinkers comprised 14% of the students who drink. Milman and Su (9), defining heavy drinkers as those who drink at least a few times a week, found 20% of the drinkers in their sample to be heavy drinkers; Penn (13) found that 16% of the drinkers in his sample drank

TABLE 1.—Percentages 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 beverage on any typical occasion.

at least a few times a week. It appears that the percentage of heavy drinkers in the sample described in the present study is slightly lower than those reported in past studies that examined drinking levels. However, these results must be viewed with caution because of different sampling and analytical procedures.

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.

Most students who drink reported "hangovers," "nausea and vomiting" and "driving after drinking" at some point in their lives, as the result of drinking (Table 2). Certain types of problem behavior such as "fighting" or "lower grade because of drinking" were likely to have occurred at some point other than the past year, suggesting that the behavior resulted from drinking experimentation at a younger age.

Other investigators have reported some of this problem behavior. Bogg and Hughes (18) indicated that 74% of their sample of Canadian students had experienced nausea and vomiting, which

TABLE 2.—Percentage of the Students Who Drink at Least Once a Year ($N = 883$) Reporting Alcohol-Related Problems at Least Once in Past Year and in Lifetime

	Past Year	Lifetime
Hangover	57.6	73.7
Nausea and vomiting	37.8	69.7
Driving after drinking	51.0	68.4
Driving after excessive drinking	30.8	50.8
Driving while drinking	25.7	45.7
Missing class because of hangover	16.8	24.2
Coming to class after drinking	10.9	21.9
Fighting with someone after drinking	9.1	19.4
Being criticized by date because of drinking	10.0	18.9
Missing class after drinking	10.6	18.6
Damaging university property, setting off false fire alarm, because of drinking	8.8	17.6
Knowing of problem with drinking	8.5	16.2
Having trouble with the law because of drinking	3.5	9.2
Receiving a lower grade because of drinking	4.1	8.7
Having trouble with school administration because of drinking	1.8	3.8
Being arrested for driving while intoxicated	1.8	2.5
Losing job because of drinking	0.5	0.9

is similar to the finding of the present study. Orford et al. (17) reported 50% of the British students they studied had a hangover at some time, compared with 74% of those described in the present study. Since these studies were conducted in different cultures, their comparison with the present study must be viewed with caution. "Trouble with the police" was reported by 7% of Hanson's students (11), 6% of Maddox and Williams's students (5) and 9% of Orford et al.'s British students (17); 9% of the sample described in the present study reported trouble with the police.

Other problems such as missing school (17), losing a job (11), getting into a fight (16, 18), and being criticized by friends for drinking (11) have been reported by other investigators, whose findings were similar to those of the present study (Table 2). On the whole it does not appear that problems resulting from drinking have increased appreciably in the past 15 years. Again, these results must be viewed in light of different procedural and statistical methods.

Sex Differentials. Eighty-two per cent of the men and 75% of the women studied reported drinking at least once a year. Straus and Bacon found in 1950 that 79% of the men and 61% of the women drank; Hanson found in 1971 that 80% of the men and 73% of the women drank. The findings of the present study suggest that a slightly higher percentage of men are drinking now, compared with 25 and 5 years ago, and that there has been a steady increase in the percentage of women who drink.

Beer appears to be the most popular beverage among men and spirits among women. Of the 508 men, 81.1% drank beer at least once a year, 75.2% drank spirits and 65.5% drank wine. Of the 610 women, 74.1% drank spirits at least once a year, 64.6% drank wine and 60.9% drank beer. Chi-square analysis indicates that men drink beer significantly more frequently and in greater quantities ($p < .001$) than do women, and that men drink a significantly greater quantity of wine and spirits ($p < .05$) than do women. There were no significant differences in the frequency of drinking wine or spirits. There are significant differences ($p < .001$) between the Q-F levels of men and women. As Table 3 shows, about five times as many men (20%) as women (4%) are heavy drinkers. Straus and Bacon reported that 21% of the men and 10% of the women they studied were heavy drinkers.

The greater incidence of heavy drinking among women in the 1950s, compared with the findings of the present study, is interest-

TABLE 3.—*Relationship between Q-F Level and Sex, Race, College Class and Grade Point Average, in Per Cent*

	N	Q - F L E V E L					
		Never	Infre- quently	Light	Moderate	Moderate- Heavy	Heavy
<i>Sex</i> ‡							
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
<i>Race</i> ‡							
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
<i>College Class</i>							
Freshmen	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
<i>Grade Point Average</i> *							
4.0	56	35.7	10.7	8.9	14.3	12.5	17.9
3.5	288	22.2	12.2	13.9	23.3	23.6	4.9
3.0	425	19.1	11.1	10.8	24.7	21.2	13.2
2.5	273	17.9	8.8	11.7	23.4	23.1	15.0
2.0	61	23.0	11.5	9.8	26.2	16.4	13.1
<2.0	14	21.4	7.1	7.1	35.7	28.6	0

* $P < .05$.‡ $P < .001$.

ing. Perhaps there is now less pressure on women to drink heavily to prove that drinking by women is "all right." Again, because of different sampling procedures, this comparison must be viewed cautiously.

Differentials for Four College Classes. Approximately the same percentage of seniors (72.2) as freshmen (71.4) reported drinking beer at least once a year. More seniors, however, reported drinking wine (72.1%) and spirits (82.4%) than did freshmen, 64.2% of whom drank wine and 73.5% of whom drank spirits. Chi-square analysis indicated no significant difference between freshmen and seniors in the frequency of drinking beer or spirits or the quantity drunk. However, there was a significant difference ($p < .05$) between seniors and freshmen in the frequency of drinking wine and the quantity drunk, seniors drinking more frequently and greater quantities than did freshmen.

The Q-F level also showed no significant difference in drinking related to year in school (Table 3), though—beginning with the sophomore year—there is a decrease in the number of abstainers with each college year. The national studies of Straus and Bacon (2)

and Hanson (11) found significant differences between the classes, but some studies at individual colleges (6, 13) have found few differences in the drinking patterns of freshmen and seniors. Perhaps the lowering of the drinking age in many states over the past 15 years has resulted in more students' drinking before entering college rather than beginning to drink as part of the college experience.

Race Differentials. Since only 37 students were of racial groups other than Blacks and Whites, and since the validity of results for such a small group would be questionable, they were eliminated from the calculations. Chi-square analysis showed a significant difference in the Q-F levels of White and Black students (Table 3). More Whites (84%) than Blacks (60%) drank, and about three times as many Whites as Blacks appeared to be heavy drinkers. Further analysis indicated that about 22% of the White men and 5% of the Black men were heavy drinkers, and 86% of the White men and 72% of the Black men drank at least once a year; approximately the same percentage of White (5%) and Black (4%) women were heavy drinkers, and 82% of the White women and 52% of the Black women drank at least once a year.

Compared with the findings of studies conducted in the past, these results indicate that fewer Black men students are drinking and fewer are heavy drinkers, while the percentage of Black women students who are drinking has increased. Maddox and Williams (5) found that 79% of the Black men they studied drank, 27% being heavy drinkers. Straus and Bacon (2) reported that 81% of the Black men and 43% of the Black women they studied drank.

The small percentage of Black men who are heavy drinkers can probably be explained in part by religious background. Of the Black students, 24% indicated that they were from religious backgrounds which do not allow drinking, and 36% indicated the "other" category of religious background, which included many nondrinking Protestant groups. It is interesting to note that the recent NIAAA national study (23) of teen-agers also indicated that 41% of Black students did not drink and only 6% were heavy drinkers. Perhaps social changes are occurring which should be further investigated.

Effect of Grade Point Average. The relationship between Q-F level and GPA is significant (Table 3). The higher the GPA, the less the students tended to drink. It might be noted that at a GPA lower than 2.0 there were no students in the category of heavy drinker and

over 60% in the categories of moderate and moderate-heavy drinkers. Perhaps when these students became heavy drinkers they failed and left college. Other studies have shown a relationship between GPAS and drinking (9, 19).

CONCLUSIONS

Educators, administrators and even students themselves appear to feel that there has been a dramatic increase in drinking and drinking-related problems on college campuses. However, according to the results of the present study the percentage of students who are drinking now is similar to the percentage drinking 5 and 25 years ago. The proportions of students who are heavy drinkers or abstainers appear to be about the same as the proportions in samples studied in the past. Among both Black and White women, larger percentages are drinking now than in the past. Fewer Black men are heavy drinkers. There appear to be fewer differences now in the drinking patterns of freshmen and seniors. And there appears to have been no increase in recent years in the incidence of negative drinking-related behavior.

In view of these findings, it is interesting to speculate as to why mass media, college personnel in general and individuals associated with institutions in this sample consider drinking and negative drinking-related behavior more serious problems now than in the past. The reasons for these opinions about an apparent increase may be that (1) students may be drinking more openly than in the past because of changes during the past 15 years in state laws regulating the minimum age for drinking; (2) students may be discussing drinking escapades more openly with university personnel; and (3) when alcohol was found to be the "drug of choice" in many studies conducted during the early 1970s, university personnel may have become more aware of drinking-related problems which had existed previously but had been ignored.

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