

IS PUBLIC POLICY EFFECTIVE IN REDUCING THE DRINKING PROBLEMS OF AMERICAN UNIVERSITY STUDENTS ?*

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Ruth C. Engs Applied Health Science, HPER 116, Indiana University, Bloomington, In. 47405 USA

INTRODUCTION

In 1987 the purchase age of alcoholic beverages in all states of the USA was mandated to be 21 years of age. This law was passed in an attempt to reduce drunk-driving and other alcohol abuse problems among youth. Some studies have indicated that youthful fatal crashes have decreased along with a decrease in alcohol consumption^{4,8,10,21,25}. Other reports have suggested little change in consumption or other alcohol related problems among youth over the past decade^{8,9,11,13-15,27}. Thus the purpose of this study was to examine the trends in self reported drinking and driving and other problems related to alcohol abuse among a national sample of American college and university students.

The null hypotheses for this study were: there was no significant difference between a) Drinking and Driving, b) Health and School, and c) Legal and Social problems of collegians related to drinking at four time periods covering the decade from from 1982 until 1991.

METHODS

A cross-sectional trend design was the research design for this study. Data were collected during four different academic years with three year intervals beginning in 1981 and ending in 1991.

Instrument

A pre-coded instrument, the Student Alcohol Questionnaire (SAQ) was utilized⁶. Used by numerous researchers over the past 15 years, it has an internal consistency reliability coefficient of .79. It includes demographic items, questions regarding the consumption of various alcoholic beverages, and items concerning behaviour

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consequences of drinking^{6,7}. All questions items have been used in the four time periods for this project. Instructions for the instrument explained the voluntary nature of participation in the study as approved by the author's institutional review boards.

Sample

Colleges from throughout the United States were originally selected so as to be generally representative of baccalaureate granting institutions in the country in terms of size of enrollment, racial composition, institutional control or sponsorship, and population of community location²³. An effort was made to utilize the same institutions in all four time periods. When this was not possible, schools from the same state matched on the basis of the above institutional characteristics were substituted. The resulting sample of colleges from each time period was 68.

Contacted at each university were sociology, health or physical education faculty who taught survey type classes which had a high probability of containing students from every academic major and class level. They were asked to administer the SAQ to the students in the classroom. In each sample, the percentage of incomplete or otherwise unusable questionnaires was less than two percent. The sample contained 59% female, 92% white and 83% students from public state universities. The demographic characteristics of the students in each time period approximated that of the universe of baccalaureate college students in the USA²³ except for a consistently higher percent of female students.

Students from each time period who consumed alcohol at least once during the past year were selected from this population. The resulting sample in the 1990-1991 time period was 3820. The sample for the 1987-1988 period was 4232. For the 1984-1985 period it was 3377 and 4324 for the 1981-1982 time periods. Because of its large size the sample had high power for detecting non-significant differences.

Alcohol problem factors and calculation of mean problem scores

A factor analysis with the 17 problems related to drinking from the SAQ to determine groupings of problems was carried out with the 1991 sample. The factor analysis was calculated with a minimum eigenvalue of 1.0 using the orthogonal rotation (varimax) solution. The resulting three factors accounted for 55% of the variance.

Items loading on Factor 1 were composed of seven **Health and School** related problems^a. This factor had an eigenvalue of 6.6 and accounted for 38.7% of the variance. Factor 2 contained three **Drinking and Driving** related items. It had an eigenvalue of 1.7 and accounted for 10.1 % of the variance. Factor 3 was composed of five **Legal and Social** problems related to drinking. It had an eigenvalue of 1.0 and accounted for 6.3% of the variance.

To determine the mean problems for each factor, students who had exhibited the problem at least once during the past 12 months were given a score of one. The problem items were then summed. Because the frequency of occurrence for each problem could not be determined, an underestimation of the problem score for each factor could have occurred.

A One-Way Analysis of Variance was used to compare the mean number of problems exhibited for each of the three factors over the four time periods. The Scheffe test of means was used as a post-hoc test to determine where differences occurred. All analysis were accomplished using the SPSS program on Indiana University's VAX computer.

RESULTS

The ANOVA results for the Health and School related problems suggest a significant ($F=20.1$, $p < .000$) increase over the 10 year time period. The Scheffe post-hoc means test showed the differences occurred between the 1982 and each of the later time period and between the 1985 and 1990 time periods. ANOVA results for the Drinking-Driving factor revealed a significant ($F=72.5$, $p < .000$) decrease over the decade (See Table 1). The post-hoc Scheffe analysis indicated the decrease occurred between each year and all successive years. For Social and Legal problems, ANOVA analysis revealed a significant ($F=10.7$, $p < .001$) increase over the decade. The Scheffe post-hoc results revealed the difference was between both the 1982 and 1985 time periods and the 1988 and 1991 periods.

DISCUSSION AND CONCLUSIONS

The null hypothesis that there would be no difference in problems related to alcohol over the decade from 1982 and 1991 was rejected for each of the three problem factors. There was a decreasing trend in the mean number of self reported Drinking and Driving related

problems. It began at the beginning of the decade and continued over the 10 year time period. This decrease occurred between each time period and the followings one. Perhaps this decrease is due to the various mass media, school and other educational programs concerning the dangers of drinking and driving which began during the early 1980's. In addition legal and societal admonishment for this behavior beginning in the mid 1980's, and culminating in the 1987 21 year old drinking law may have reinforced this trend. On the other hand, since drunk driving is now considered to be socially unacceptable, it is possible that students may be under-reporting this behaviour. However, other recent studies^{21,25} have also found a decrease in motor vehicle crashes related to alcohol over the past decade, so it is unlikely that students were under reporting the drinking and driving items that made up this factor.

The other problems areas including Health and School and Legal and Social problems increased over the decade. For these two factors there were few difference between the first two time periods at the beginning of the decade or between the two time periods at the end of the decade. The differences occurred between the early (1982 and 1985) and latter part of the decade (1988 and 1991).

There are several possible reasons for these other self-reported increases in drinking related problems. First of all, the change occurred at the same time that the legal age for purchasing alcoholic beverages was increased to 21 years of age in the United States. By 1987 all states were mandated to change their alcohol purchase laws in order to continue to receive federal highway funding. Perhaps students felt that drinking which has been traditionally part of the college life and was now illegal, was taking away their freedom thus causing "reactance" motivation to occur⁵. This in turn lead to rebellion against the new law with increased problems related to drinking^{1,5}.

Research reports by the author, and others, have suggested that even though there has been a decrease in the percent of students who consumed alcohol during the 1980's, there has been little change in the proportion of heavy or "binge" drinkers^{8,13,24}. Moreover, it is these heavier drinkers who are more likely to exhibit problems related to alcohol²²). Some reports have suggested that students may now be drinking in places not supervised by adults such as private apartments because the 21 year old drinking laws have driving them from more public places such as bars and university sponsored social

occasions¹⁶. This lack of adult monitoring may be a contributing factor for increased problems associated with drinking.

In the United States as a whole, there has been an increase in Legal and Violent problems related to alcohol since the mid 1980's^{2,3}. Perhaps the increased legal and social problems among this sample of American collegians was just a reflection of the increased societal problems. Lastly, due to alcohol education programming in the media and schools, students may now associate these problems with their alcohol abuse whereas they did not do so previously.

It was concluded that the 1987 law may be effective in reinforcing the decline in drinking and driving problems over the decade among this sample of college students. However, this public policy measure may have been counter-productive or ineffective in terms of other alcohol abuse problems.

FOOTNOTES

a

The following drinking related problems were associated with each of the three factor solutions: Health and School: Hangover, vomited, missing class because of hangover, cutting class after drinking, come to class after drinking, getting a lower grade, damaging university property, and gotten into a fight. Drinking and Driving: Driven a car after drinking, driven after drinking drinking too much, driven white drinking. Legal and Social: Lost a job, had problems with the school administration, had problems with the law, was stopped for DWI, and thought he/she had a problem with alcohol.

Table 1: Results of ANOVA analysis for Drinking and Driving, Health and School and Social and Legal problems at four time periods over the past decade

Drinking-Driving		df	Sum of Squares	Mean Squares	F
Between Groups		3	351.5	117.2	75.2*
Within Groups		15800	24980.9	1.6	

Year	Mean	(sd)
1982	1.47	(1.3)
1985	1.34	(1.3)
1988	1.21	(1.2)
1991	1.08	(1.2)

Health and School

Between Groups		3	143.8	44.9	20.2*
Within Groups		15800	35167.9	2.2	

Year	Mean	(sd)
1982	1.72	(1.4)
1985	1.86	(1.5)
1988	1.89	(1.5)
1991	1.98	(1.5)

Social and Legal

Between Groups		3	9.7	3.3	10.7*
Within Groups		15800	4802.6	.3	

	Mean	(sd)
1982	.17	(1.4)
1985	.15	(1.5)
1988	.21	(1.5)
1991	.22	(1.5)

* p < .001

REFERENCES

1. Perkins, H.W. & Berkowitz, A.D. (1990) Stability and contradiction in college students' drinking following a drinking-age law change. Journal Alcohol and Drug Education , 60-77
2. Collins, J. (1984). Drinking and Crime: Perspectives on the Relationships between Alcohol Consumption and Criminal Behavior. New York: Guilford Alcohol Studies Series
3. Crime in the United States. 1983; 1986; 1990). US Department of Justice. Washington, DC: FBI.
4. Davis, JE. & Reynolds, N. C. (1990) Alcohol use among college students: responses to raising the purchase age. Journal of American College Health. 38, 263-269.
5. Engs, R. C. & Hanson, D.J. Reactance Theory: A test with collegiate drinking. Psychological Reports, 64, 1083-1086
6. Engs, R.C. (1975) The Student Alcohol Questionnaire, (Bloomington, IN, HPER).
7. Engs, R.C. (1977) Drinking patterns and drinking problems of college students, Journal of Studies on Alcohol. 38, 2144-2156.
8. Engs, R.C., and Hanson, D.J. (1989). Public Health Reports, 103(6):687-673
9. George, W.H., Crowe, L.C., Abwender, D. & Skinner, J.B. (1989) Effects of raising the drinking age to 21 years in New York State on self-reported consumption by college students. Journal of Applied Social Psychology, 19, 623-635
10. Gonzalez. G. M. (1990) Effects of drinking age on reduced consumption of alcohol reported by college students: 1981-1986 Journal of Drug Issues, 20:67-73
11. Gonzalez, G. M. (1989) Effects of raising the drinking age among college students in Florida. College Student Journal, 67-75
12. Hanson, D.J. and Engs, R.C. (1986) College students' drinking problems: 1982-1985, Psychological Reports, 58, 276-278.
13. Hanson, D. J. & Engs, R. C. (1992) College students' drinking problems: A national study, 1982-1991, Psychological Reports, 71: 39-42
14. Hayworth-Hoeppner, S, Globetti, G, Stem, J. & Morasco, F. (1989) The quantity and frequency of drinking among undergraduates at a southern university. Int. Journal of the Addictions, 24:829-57

15. Hingson, R. et. al. (1983) Impact of legislation raising the drinking age in Massachusetts from 18 to 20. American Journal of Public Health 73:163-170
16. Hughes, S. P. & Dodder, R. A. (1986) Raising the minimum drinking age: short-term effects with college student samples. Journal of Drug Issues 16:609-620
17. Lemmens, P., Tan, E.S. & Knibbe, R. (1988) Comparison of indices of alcohol consumption: Issues of validity of self-reports, Paper presented at the Fourth Annual Alcohol Epidemiology Symposium, Berkeley, California, June 5-11.
18. Lotterhos, J.F, Glover, E.D., Hobert, D. & Barnes, R.C. (1988) Intentionality of college students regarding North Carolina's 21-year drinking age law. Int. Journal of Addiction, 23, 629-647
19. Meilman, P.W., Stone, J.E., Gaylor, M.S. and Turco, J.H. (1990) Alcohol consumption by college undergraduates: current use and 10-year trends, J. Studies on Alcohol, 51:389-395.
20. O'Hare, T.M. (1990) Drinking in college: consumption patterns, problems, sex differences and legal drinking age, J. Studies Alcohol, 51:536-541.
21. O'Malley, P. M. & Wagenaar, A. C. (1991) Effects of minimum drinking age laws on alcohol use, related behaviors and traffic crash involvement among American youth: 1976-1987 Journal Studies Alcohol 52(5):478-491
22. Sarvela, P.D. et al. (1988) Indicators of drinking and driving among university students, Health Education. Oct/Nov.:72-77
23. Snyder, T. D. Digest of Educational Statistics: 1987, U.S. Department of Education: Washington DC
24. Wechsler, H. & Isaac, N. (1992) "Binge" Drinkers at Massachusetts Colleges. JAMA, 267(21), 2929-2931
25. Williams, T. P. & Lillis, R.P. (1986) Changes in alcohol consumption by 18 year olds following an increase in New York State's purchase age to 19. J Studies Alcohol 47:290-296
26. Williams, J. G. & Morrice, A. Measuring drinking patterns among college students. Psychological Reports (1992) 70:231- 238
27. Williams, F. G., Kirkman-Lieff, Szivek, P.H. (1990) College student drinking behaviors before and after changes in state policy. Journal of Alcohol and Drug Education 35(3): 12-5

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