

**TESTING REACTANCE THEORY WITH A NATIONWIDE SAMPLE OF COLLEGE STUDENTS:
IMPLICATIONS FOR COLLEGE ALCOHOL EDUCATION PROGRAMMING USING THE HEALTH
BELIEF MODEL**

Scanned for IUScholarWorks April, 2014. Retrieved from: <http://hdl.handle.net/2022/17411>

Ruth C. Engs, RN, EdD
HPER Rm 116
Indiana University,
Bloomington, IN 47405
(812) 855-9581/-3627

David J. Hanson, PhD
Sociology
State University of New York
Potsdam, NY 13676

ABSTRACT

There is a need to improve existing alcohol education programming for young adults, including college students. Therefore, the authors have combined the findings derived in testing a behavioral science theory with the health belief model to suggest principles for more effective alcohol education programs.

Telling students that it is illegal to drink, according to reactance theory is counterproductive as students are unlikely to comply. Since it is now illegal for under 21 year old students to purchase alcohol, and since drinking has been traditionally part of the college experience, it was hypothesized that more underage, compared to legal age students, would drink and experience problems related to drinking. Thus, a purpose of the study was to test reactance theory.

The health belief model suggests that people do not change behavior unless they personally feel susceptible and can take action in which the benefits outweigh the costs. In order to reduce abusive drinking behaviors, problems in which youth are personally susceptible need to be identified and used as part of the educational program. Thus, a purpose of the study was to determine what alcohol problems students exhibited after the change in the law.

From a nationwide sample of over 3000 university students during the 1987-1988 academic year, the results of the study support reactance theory. Significantly more underage students (81%) drank and were heavy drinkers (24%) compared to legal age students (75% and 15%). Based upon the common alcohol abuse problems of vomiting, hangovers and driving while intoxicated and the implications of the health belief model and reactance theory, sample educational messages to prevent alcohol abuse are described.

INTRODUCTION

Various individuals have suggested that alcohol education needs to be improved so that is more effective in preventing alcohol abuse. Unfortunately, the primary method has been to tell underage youth, including college students, that they should not drink because it is illegal or dangerous. Over the years various authors have pointed out that these methods have not been effective (Hanson, 1980, 1985; Botvin, 1984; Goodstadt, 1986; Engs and Fors, 1988). One reason for their ineffectiveness may be that policy makers and educators may not have taken into account principles from the health belief model along with information from other behavioral science theories in designing adequate programs for preventing alcohol abuse among youth including college students.

College Student Drinking

College student drinking, legally or illegally, is not a recent occurrence in the United States. As far back as the early 18th century, alcohol was used by students and there were admonitions and strict regulation on the part of authority figures regarding the practice (Kuder, 1976). Regardless of the restrictions in the past, or even national prohibition against drinking, students continued to drink. During this past decade more universities and panhellenic groups, in an renewed attempt to cope with student alcohol abuse, have begun to restrict alcohol from their functions. (Gadelato and Anderson, 1986).

Many studies over the decade have indicated that over 80% of college students drink. Over the past half century the highest proportion of students drinking occurred in the late 1970s and has declined after that point although there has been little change in the percent who abuse alcohol (Engs and Hanson, 1988).

Since the early 1970s the drinking age in a number of states has changed, often being lowered, and then raised in the same state within a few years. However, studies over this time period have generally found little difference between the drinking patterns of student who were legal and not legal to drink. (Engs and Hanson, 1986). One reason for lack of differentiation may have been be that it was possible for underage students to go to contiguous states to purchase or consume alcohol legally. Because of this, existing statistics concerning the proportion of underage college students who drank illegally within various states may not be accurate. However since July 1987, all states were required to have or enact laws establishing 21 as the minimum purchase age. The intent of this law was to decrease drinking and alcohol abuse among youth, including college students. Thus, it is now possible to better examine evidence concerning the drinking patterns of legal and underage students without intervening variables such as going to other states to obtain alcohol.

Education Programming and the Health Belief Model

Presently colleges and universities that receive federal funding must have in place alcohol/drug abuse prevention programs on their campuses. There are educational programs in existence but few address the actual problems of students, and in particular underage students, However, the health belief model suggests the value of basing programs upon actual student alcohol abuse problems. The reasons for this is that the model specifies (Rosenstock, 1974) that in order to change a person's behavior the person needs (1) to feel personally susceptible to the health problem, (2) to believe the problem will cause serious personal harm, and (3) to believe there are actions the individual can take in which the benefits outweigh the costs.

When designing educational programs for young adults and college

students, who often think they are immortal and that negative things only happen to other people, based upon this model, it is important to keep in mind that personal susceptibility must be something that may occur during, or immediately after, alcohol abuse and not something that could occur years in the future.

Reactance -- "Rebellion" -- Theory.

Researchers in the behavioral sciences have found that telling persons not to do something often produces the opposite reaction. People value their sense of freedom and autonomy and like to project an image of self control (Baer, et al., 1980). Reactance theory suggests that whenever people believe their freedom either has or will be threatened, they enter into a reactance motivational state and act to regain control by not complying (Brehm, 1966). Coercion, in particular, leads to the arousing of reactance, which tends to reduce compliance (Brehm and Brehm, 1981).

Evidence that people act so as to promote their sense of control comes from experimental studies showing that attempts to restrict autonomy are often counter-productive according to Brehm and Brehm (1981). For example, they mention that a study by Hermon and Leyens(1977) found that advising people that a TV program, about to be aired, contained sex and violence and that viewers may not want to watch it, actually increased the number of persons watching the show compared to the control group which did not get any warning advisories. A study by Worchel, Arnold and Baker(1975) found that censoring or limiting the availability of pornography heightened its appeal. Another study (Mazis, 1975) found that banning phosphate detergents increased the desire to use the product. Brehm and Brehm feel that anytime control is exerted over a behavior, that people wish to do, that reactance motivation is aroused.

Based upon this theory, it is implied that more underage students may

drink, or have more alcohol related problems due to drinking, out of rebellion compared to legal student drinkers. This would be due to the fact they feel their autonomy has now been threatened with the new law as alcohol for decades has been a campus tradition for all age students.

Hypothesis and Purposes of Study

Because drinking is typically part of the college experience and that it is now illegal for college students under twenty one in all states to purchase alcohol, it is hypothesized that reactance motivation has been aroused among underage college students leading them to exhibit higher levels of both 1) alcohol consumption, and 2) more drinking problems compared to collegians of legal purchase age. Thus one purpose of this study was to test reactance theory.

Because all colleges and universities receiving federal funds must have drug/alcohol programming, we wished to collect data concerning alcohol consumption and drinking problems after the nation-wide institution of the minimum age purchase law. This information would make it possible to design programs based upon current alcohol abuse problems experienced by students. Thus, the other purpose of the study was to determine current drinking problems to be used as a basis for designing alcohol abuse prevention programs based upon the principles of the health belief model.

METHODS

Instrument.

An anonymous pre-coded instrument, The Student Alcohol Questionnaire (Engs, 1975) which has been used by hundreds of researchers over the past 15 years, was used. It has demonstrated an internal consistency reliability of .79 and includes demographic items, questions regarding the consumption of various alcoholic beverages, and 17 items concerning possible negative

consequences of drinking. The instructions on the instrument explained the voluntary nature of participation in the study as approved by the authors' respective Human Subjects Review Committees.

Sample.

All colleges and universities that participated in the authors' previous national studies were contacted during the 1987-88 academic year. The resulting sample contained 3,375 students from 56 universities in every state.

The sample was drawn as in earlier studies, from in-class administration in survey type sociology, health or physical education courses which had a high probability of containing students from every academic major and class year. The response rate exceeded 98% and the demographic composition of the resulting sample closely approximates that of students attending baccalaureate institutions of higher learning in the United States.

Data Analysis.

Data analysis between the two age groups for drinking patterns and problems was accomplished by Chi Square analysis using the SPSS cross tabulation method. A drinker was considered someone who consumed alcohol at least once a year. A heavy drinker was a person who consumes six or more drinks at any one sitting at least once a week. The sample had high power for detecting significant difference due to its large size. According to Cochran(1952) the power for chi square analysis for large sample sizes approaches one. The .001 level of significance was selected to rule out type A errors due to the large sample size.

RESULTS

For the total sample, a significantly higher proportion ($\chi^2 = 47.5$ $df=5$ $p < .001$) of underage students were drinkers (81.2%) compared to students of

legal age (75.3%). Additionally, a significantly higher proportion of underage students are heavy drinkers (29.5%) than are those of legal age (20.3%).

Table 1 about here

Among those students who indicated they were drinkers, there are significant differences between younger and older students with respect to five of the 17 drinking problems examined and also to heavy drinking. In three of the seven cases a higher proportion of problems is found among younger students while in two cases it is found among older students. A significantly higher proportion of underage students indicated: vomiting, being criticized because of their drinking, and trouble with the law because of drinking. Among drinkers a higher percent of underage compared to legal age students were heavy drinkers. On the other hand, a higher proportion of legal age students indicated both driving after drinking and drinking while driving.

DISCUSSION

Though it is illegal for much of the student population to purchase alcohol, it is clear that more underage students, compared to students of legal age in this national sample, drink and that a higher proportion of these underage students were heavy drinkers. Also, among drinkers, a higher proportions of underage students were heavy drinkers. Thus the first part of the hypothesis that underage students would be more likely to drink compared to collegians of legal age is supported. This result appears to give credence to the suppositions of reactance theory.

On the other hand, there were difference between the two age groups on

only 5 of 17 of the alcohol abuse items. Items for which the underage students were higher such as having legal problems because of drinking and being criticized because of drinking perhaps were indicative of more serious problem drinking among these younger individuals. More vomiting because of drinking could be due to the fact that these younger students had not learned their limit. It is curious to note that a higher proportion of legal drinkers indicated they had driven while drinking since it was legal to go into a tavern. Perhaps these students were continuing a behavior from when they were underage drinkers and had not changed this habit.

A high proportion of both groups experienced hangovers, which is indicative of abusive alcohol consumption. More serious problems such as driving a car when they know they had too much to drink and missing classes because of hangovers which could cause accidents or poor school performance were exhibited by both the underage and legal drinkers. Because of only a few differences between the two groups concerning most of the alcohol abuse items, the second part of hypotheses that a higher proportion of underage students would experience alcohol abuse problems was only partially supported.

EDUCATIONAL IMPLICATIONS

As educators, we must face the reality that almost all (81%) underage college students do in fact drink and that 73% of legal age students drink. The implications of these results concerning alcohol education for students is that telling underage college students that it is illegal to drink and they will be punished if they are found breaking the law, is likely to further increase reactance arousal and have little impact upon drinking and alcohol abuse problems. Unfortunately this is what constitutes most alcohol education programming today for underage youth. (Hanson, 1980, 1985; Goodstadt, 1986; Engs and Fors, 1988). Because a high percent of all students exhibited abusive

alcohol behaviors, educational programs need to be aimed at all students, and not just the underage ones, in order to reduce alcohol abuse among the student population as a whole.

Based upon the results of this study, as part of educational programming, messages should be designed which reflect the health belief model and which are based upon immediate effects of alcohol abuse upon the student. Messages that could possibly arouse further reactance motivation need to be eliminated. Hangovers, are common to almost all students, and vomiting, is higher among illegal drinkers. Both are indicative of abuse. If these abusive behaviors, can be reduced it could be assumed that more serious problems such missing class because of hangover, getting into trouble with the law, getting into fights and driving while intoxicated because of drinking are also likely to be reduced as the alcohol consumption will be lower. Educational messages concerning these negative effects from drinking, (including driving while intoxicated exhibited by a third of all students) and to which most students who abuse alcohol might feel personally susceptible, along with positive alternatives in which the benefits outweigh the cost, should be designed. If students follow the suggested actions they are more likely to reduce heavy drinking which have been found to be correlated with the other problems related to alcohol consumption.

The following are examples of the type of educational messages, based upon the three primary components of the health belief model and avoiding reactance arousal, which could be developed.

"If you drink more than 5 drinks in a few hours you are likely to get hungover. Hangovers make you feel terrible and interfere with your studying and class attendance. You can prevent hangovers by spacing your drinks at about one or two per hour."

"If you drink more than 6 drinks in a few hours you are likely to vomit. Vomiting is likely to turn off your close friends and won't attract a romantic person. You can prevent vomiting by drinking no more than one or two drinks per hour."

"If you drink more than four drinks in a hour you are likely to be over the legal driving limit. Drunk driving can cause you major problems. So if you have drunk enough to become intoxicated have someone else drive, ask a friend to drive you home or stay overnight where you are.

This approach to alcohol education is not widely used with college students or other young adults. Therefore, it is recommended that this type of approach be more extensively implemented and evaluated. At the very least, it is important to refrain from practices which may further stimulate reactance arousal and rebellion among students, especially among those who are underage.

SUMMARY

A higher proportion of underage students drink, are heavy drinkers and experience a few more alcohol abuse problems compared to students of legal age. These findings support reactance theory, which suggests that if individuals perceives their autonomy to be denied, they will do the opposite in order to regain control. To develop more effective alcohol education programs, it is recommended that programs and messages using the guidelines of health belief model with alcohol abuse problems likely to immediately effect students be developed and evaluated.

REFERENCES

- Baer, R., Hinkle, S., Smith, K., and Fenton, M. (1980). Reactance as a function of actual versus projected autonomy. Journal of Personality and Social Psychology 38, 416-422.
- Brehm, J. W. (1966). A theory of psychological reactance. New York: Academic Press.
- Brehm, S. and Brehm, J. W. (1981). Psychological Reactance: A Theory of Freedom and Control. New York: Academic Press.
- Botvin, G. (1984). Prevention Research in Drug Abuse & Drug Abuse research. Rockville, MD, NIDA, pp 39-40.
- Cochran, W.G. Goodness of fit. (1952). Annals of Mathamatic Statistics. 23, 315 - 345.
- Engs, R. C. (1975). The Student Alcohol questionnaire Bloomington, IN
- Engs, R. C. and Hanson, D. J. (1988). University students' drinking patterns and problems: examining the effect of raising the purchase age with implications for educational programming. Public Health Reports, in press
- Engs, R.C. and Hanson, D.J. Age specific prohibition of college student drinking problems. (1986). Psychological Reports, 59, 979-984.
- Engs, R.C. and Fors, S. (1988). Drug abuse hysteria the importance of keeping perspective. Health Education, 58(1), 26-28.
- Gadaleta, A. S. and Anderson, D.S. (1986). Continued progress: the 1979, 1982, and 1985 college alcohol survey. Journal of College Student Personnel, 27, 499-509.
- Goodstadt, M. S. (1986). School-based drug education in North America: What is wrong? What can be done? Journal of School Health, 56, 278-281.

- Hanson, D. J. (1980) Drug Education: Does it work? In F. R. Scarpitti and S. K. Datesman (Eds.) Drugs and the Youth Culture - Beverly Hills, CA: Sage, 251-282.
- Hanson, D. J. (1985) Drug Education Programs. In T. Husen and T. N. Postlethwaite (Eds.) The International Encyclopedia of Education. Oxford, England: Pergamon, 1, 457-460.
- Herman and Leyens. (1981). Referenced in: Brehm and Brehm (1981). Psychological Reactance: A Theory of Freedom and Control. New York: Academic Press.
- Kuder, J.M and Madson, D.J. (1976). College student use of alcoholic beverages. Journal of College Student Personnel, 17, 142-144
- Mazis, M. B. (1975). Antipollution measures and psychological reactance theory: A field experiment. Journal of Personality and Social Psychology, 31(4), 654-660.
- Rosenstock, I. M. (1974). Historical origins of the Health Belief Model. Health Education Monographs, 2(4), 328-335.
- Worchel, S., Arnold, S. and Baker, M. (1975). The effect of censorship on attitude change: the influence of censor and communication characteristics. Journal of Applied Social Psychology, 5, 227-239

Table 1 Drinking patterns of all students by age group in percent

Drinking age	Under 21	21 and over
Age	(N = 1,987)	(N = 1,388)
Abstainer	18.8	24.7 *
Infrequent Drinker	9.6	11.0
Light Drinker	9.5	11.1
Moderate Drinker	17.8	18.2
moderate/Heavy Drinker	20.4	19.8
Heavy Drinker	24.0	15.3

* p < .001

NOTE: **ABSTAINER**, drinks less than once a year or not at all; **INFREQUENT DRINKER**, drinks more than once a year but less than once a month; **LIGHT DRINKER** drinks at least once a month but not more than 1 to 3 drinks at any one sitting; **MODERATE DRINKER** drinks at least once a month with no more than 3 to 4 drinks, or at least once a week 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**, drinks 3 to 4 drinks at least once a week or drinks 5 or more drinks at least once a month or drinks 5 or more drinks at least once a month; and **HEAVY DRINKER**, drinks six or more drinks at any one sitting more than once a week.

Table 2 :Problems Experienced among Drinkers by Age, in Percent

<u>Problem</u>	<u>Age</u>	
	<u>Below 21</u>	<u>21 or Above</u>
Had a hangover	77.1	73.7
Vomited as a result of drinking	56.5	39.5*
Driven a car after having had several drinks	46.0	54.3*
Driven a car when they knew they had too much to drink	32.5	36.2
Driven a car while drinking	34.7	41.3*
Come to class often having several drinks	8.8	7.8
"Cut a class" after having several drinks	8.9	9.3
Missed a class because of hangover	26.7	26.3
Been arrested for DWI (Driving While Intoxicated)	1.5	1.8
Been criticized by someone they were dating because of their drinking	14.8	11.2*
Had trouble with law because of drinking	14.8	11.2*
Lost a job because of drinking	.7	1.4

Got a lower grade because of drinking too much	6.2	4.2
Gotten into trouble with school administration because of behavior resulting from drinking too much	3.2	2.4
Gotten into a fight after drinking	16.3	12.3
Thought they might have a problem with their drinking	9.9	10.0
Damaged property, pulled a false fire alarm or other such behavior after drinking	13.0	8.6
Heavy drinkers	29.5	20.3

* p < .001

Indiana University Bloomington
IUScholarWorks

Citation for this item

Citation format and information for this document is found at: <http://hdl.handle.net/2022/17411>

This paper is from:

Dr. Ruth C(lifford) Engs - Presentations, Publications & Research Data Collection.

This collection is found at IUScholarWorks: <http://hdl.handle.net/2022/16829> **When in the collection and within a category, click on “title” to see all items in alphabetical order.**

The Collection

This document is part of a collection that serves two purposes. First, it is a digital archive for a sampling of unpublished documents, presentations, questionnaires and limited publications resulting from over forty years of research. Second, it is a public archive for data on college student drinking patterns on the national and international level collected for over 20 years. Research topics by Dr. Engs have included the exploration of hypotheses concerning the determinants of behaviors such as student drinking patterns; models that have examine the etiology of cycles of prohibition and temperance movements, origins of western European drinking cultures (attitudes and behaviors concerning alcohol) from antiquity, eugenics, Progressive Era, and other social reform movements with moral overtones-Clean Living Movements; biographies of health and social reformers including Upton Sinclair; and oral histories of elderly monks.

Indiana University Archives

Paper manuscripts and material for Dr. Engs can be found in the IUArchives
http://webapp1.dlib.indiana.edu/findingaids/view?doc.view=entire_text&docId=InU-Ar-VAC0859