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## CHANGING THE PERCEPTION OF THE NORM: A STRATEGY TO DECREASE BINGE DRINKING AMONG COLLEGE STUDENTS

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**Abstract.** A reduction in college students' **binge** drinking associated with an intervention to change **perceptions** of drinking **norms** is described. The 5-year study was conducted at a public residential campus of 23,000 students. A traditional intervention proved unsuccessful, but a media campaign designed to change student **perceptions** of the amount of **binge** drinking showed an 18.5% drop in the number of students who perceived **binge** drinking as the **norm** (from 69.7% to 51.2%) and a corresponding reduction in self-reported **binge** drinking of 8.8% (from 43.0% to 34.2%). The apparent effectiveness of this prevention effort suggested that **changing** college students' **perceptions** of drinking **norms** may lower the proportion of students who engage in **binge** drinking.

**Key Words:** alcohol, behavior change, **binge** drinking, media, peer **norms**, prevention

In the late 1980s, the Fund for the Improvement of Post-Secondary Education (FIPSE)[ 1] for the first time made federal funds available to colleges and universities to provide direct services for programs to prevent substance abuse. Historically, such funds could be used only for research or for demonstration projects. In response to the FIPSE initiative, as well as to priorities outlined in Healthy People 2000,[ 2] Northern Illinois University (NIU) applied for and received FIPSE funding in 1987 to target the problem of **binge** drinking among college students.

### Literature Review

Existing literature on drinking behavior among college students indicated that 80% to 90% of all college students drink alcohol. Forty percent to 45% of these students engage in **binge** drinking[ 3-6]; that is, they drink five or more drinks in "an evening" as part of a single drinking episode.

It is popularly believed that heavy drinking among college students plays a role in such other problem behaviors as date rape, vandalism, accidents, and unintended sexual activity, and that heavy drinkers are at increased risk for other problem behaviors.[7.8]

Various **strategies** have been used in an attempt to prevent or reduce **binge** drinking among college students, including teaching students refusal skills, clarifying values, rewriting policies, increasing knowledge, and using peer education and scare tactics. Nevertheless, assessments of these approaches have provided little evidence that they are successful in preventing or decreasing students' **binge** drinking.[ 9-14]

Faced with the apparent ineffectiveness of existing prevention **strategies** in reducing college students' **binge** drinking significantly, the health promotion staff at NIU sought direction from a broad range of social psychology literature. This effort led to a review of the work of Perkins and Berkowitz,[ 9] who reported significant discrepancies between the actual levels of alcohol consumption among college students and the students' **perceptions** of their peers' usual drinking levels. Students consistently overestimated both the amount of alcohol other students routinely consumed and the proportion of their fellow students who were heavy drinkers.

Perkins and Berkowitz's findings suggested that students saw the higher levels of alcohol consumption as the **norm**. Having perceived heavy or **binge** drinking as the "usual" behavior of their peers, they may have been more likely to engage in this "typical" behavior. That link between adolescents' **perceptions** of the **norm** and their actual behavior is also suggested by the findings of a number of other studies.[ 15, 16] The most recent data, from a 1995 study by Evans et al[ 17] that specifically targeted alcohol use, indicated a relationship between adolescents' **perceptions** of the **norm** of peers' health-related behavior and the individual's own behavior.

### Purpose

The health promotion staff at NIU, building on the Perkins and Berkowitz theory, sought to develop **strategies** to prevent **binge** drinking that focused on **changing** students' **perceptions** of the typical drinking behavior of college students. In addition, the staff sought a means of comparing the results of this new **strategy** with traditional approaches targeting **binge** drinking. We therefore designed a 5-year study to compare changes in **perceptions** and in self-reported drinking behavior following implementation of traditional approaches and our "change in **perception** of the **norm**" **strategy**.

### Project Overview

The project began in 1988 and continued through 1992. During Year 1 (1988), we collected baseline data related to (a) students' **perceptions** of how many drinks, on average, they thought most students have when they "party"; and (b) how many drinks, on average, the individual reported having had when he or she partied.

During Year 2 (1989), we implemented traditional prevention **strategies**, and during Years 3, 4, and 5, we implemented the **strategy** aimed at **changing** the students' **perceptions** of the **norm**. We also collected data on students' **perceptions** of their peers' drinking behavior and on the students' self-reported drinking behavior, starting in 1988 (Year 1) and continuing through 1992 (Year 5).

### Traditional Strategy

Our Year 2 traditional prevention campaign focused on **binge** drinking. It included educational presentations in classrooms, at Greek houses, and in residence halls; an extensive media and advertising campaign; implementation of new policies; and awareness events. The **strategies** had three prominent themes: (a) It's OK to abstain; (b) It's OK to drink in moderation; and (c) Heavy drinking/intoxication cause harm to oneself and others.

### Changing Perceptions Strategy

During Year 3 (1990), the university health service implemented a media campaign focusing on the **perception** of heavy **binge** drinking as the **norm** among college students. We conducted a major public information campaign to **decrease** the number of students who believed that drinking six or more drinks when partying was the normal practice. The campaign included display advertisements as well as weekly classified advertisements in the campus daily newspaper.

Throughout the school year, we distributed fliers at student events that highlighted actual drinking **norms** on campus. We also posted the pamphlets in areas with heavy pedestrian traffic. In addition, we hired two students (the "Money Brothers") to approach tables in the student union at lunch time and in the residence halls during the dinner hour. The two students, who were highly conspicuous, wore a costume consisting of dark glasses, trench

coats, and fedoras. They carried a briefcase filled with fliers and \$1 bills. At each table, the brothers loudly asked whether anyone knew the proportion of NIU students who drank five or fewer drinks when they partied. If a student answered correctly, that student received a crisp \$1 bill.

Whatever the answer, all of the students at that and nearby tables were given a flier containing the correct information. The Money Brothers appeared for 2 weeks during each semester (4 weeks during the 9-month academic year). During Years 4 and 5 (1991, 1992), we continued the intervention to change the perceived drinking **norms**. The only change we made was to update the statistics on the NIU students' actual drinking behavior.

## METHOD

We collected survey data every April over the 5-year period, using the figures from Year 1 to establish baseline measures of both perceived drinking levels of peers and self-reports of actual drinking levels. We used data from Years 2, 3, 4, and 5 to monitor **perceptions** of peer drinking and actual drinking behavior after the two interventions, namely, traditional programs in Year 2 and the **changing-the-norm strategy** in Years 3, 4, and 5. We also used national data on drinking among college students to monitor the overall longitudinal drinking trends in this population.[ 6]

We recognize that it is difficult to be completely confident that different outcomes are attributable to the interventions because (a) the students were not randomly assigned to the intervention and (b) the interventions occurred in different years,

We adapted the survey instrument from three previous studies: the National Institute of Drug Abuse (NIDA) study of alcohol, tobacco, and drug use[ 6]; the Perkins and Berkowitz[ 9] study at Hobart and William Smith Colleges; and the studies of drinking consequences conducted by Engs and Hanson.[ 3] We used the same self-report questionnaire, which consisted of approximately 45 items, throughout the project. A member of the university health services health promotion staff distributed and collected the questionnaires in each class.

We used two questions to measure the **perception** of drinking behavior and the students' actual drinking behavior. To determine the students' **perceptions** of peer drinking **norms** and to verify the discrepancy between perceived and drinking reported by Perkins and Berkowitz, we asked, "How many drinks, on the average, do you think most students have when they 'party?'" The second question, designed to collect data on actual drinking behavior, was "When you 'party,' how many drinks do you have on the average? (One drink is defined as a beer, a glass of wine, a shot of liquor, or a mixed drink.) State your best estimate." Responses to both questions were A = 0; B = 1-2; C = 3-5; D = 6-9; E = 10+.

We labeled those who gave responses indicating six or more drinks (D and E) **binge** drinkers, those in the one to five range were considered moderate drinkers, and students who marked the zero were called abstainers. Additional questions gathered a series of demographic data from the students.

## The Sample

Members of the university health services health promotion staff administered the questionnaires in undergraduate general education classes. We chose these classes because they tended to have large enrollments and were required for all undergraduate students at the university. This convenience sampling approach gave us easy access to large numbers of students and increased the likelihood of high response rates. General education classes were also more likely to reflect the overall composition of the NIU undergraduate student body than were smaller, major-specific courses. An anticipated bias in the sample was that general education courses might have a higher proportion of 1st-and 2nd-year students and fewer upper division participants than the undergraduate population as a whole.

For the 5-year period of the project, the average return rate was 89% of the distributed surveys, varying from 85.9% in 1988 to 91.6% in 1989. See Table 1 for a comparison of the characteristics of sample respondents with

the university's overall population. In general, the data indicate that the sample was representative of the undergraduate population in terms of gender and ethnicity; as anticipated, however, the participants were slightly younger and more likely to be undergraduates than the overall university student population.

For both the NIU population as a whole and the sample, somewhat more women (57%) than men (53%) were represented. In addition, the proportion of minority students attending NIU increased during the late 1980s and early 1990s. This trend in minority student enrollment was evident in the sample slightly earlier than it was in the data for the NIU population as a whole. For the first 2 years of the study, the proportion of minorities in the annual samples exceeded the proportion in the overall NIU population. One possible explanation for this difference is that the sample overrepresented undergraduates, particularly 1st- and 2nd-year students, who were in the first classes to include the increasing proportion of minorities that, over time, characterized the entire NIU population.

## RESULTS

Data in Tables 2 and 3 show findings on the two dependent variables of interest in this study. These are (a) the students' **perceptions** of the **norm** of drinking behavior among their peers, and (b) the students' self-reported drinking behavior. We used chi-square tests to compare the sample data relative to these two variables. That is, to determine whether students' **perceptions** of the **norm** of drinking behavior changed following the intervention that targeted the **perception**. Second, we used chi-square analysis to compare baseline data on the number of students who reported **binge** drinking after the traditional intervention and again after the intervention aimed at **changing** the **perception** of the **norm**.

### Perception of the Norm of Drinking Behavior

Students' responses to the question about the number of drinks they thought other students consumed when at a party (the **norm**) are shown in Table 2. Four hundred forty-nine students (69.7%) in the 1988 baseline-year sample thought that fellow students consume 6 or more drinks, on average, at a party. In other words, 69.7% of the students believed **binge** drinking to be the **norm**.

During 1989, when we implemented a traditional **strategy**, 540 (69.3%) of the respondents continued to believe that **binge** drinking is the **norm**. Thus, we found that the traditional **strategy** did not appear to bring about any significant change in the students' **perceptions** that **binge** drinking is the normal practice.

In 1990, we implemented the **strategy** to change the **perception** of the **norm**. Following that intervention, we found a significant drop in the proportion of students who believed **binge** drinking to be the **norm**,  $\text{Chi}^2(1, N = 644) = 54.76, p < .001$ . Thus, 57% of the students in 1990, compared with 69.7% in 1988, perceived **binge** drinking as the **norm**. We continued the intervention to change **perceptions** of the **norm** during the next 2 years; the **decrease** in the number of students who perceived **binge** drinking as the **norm** was sustained. Compared with 1988 (the baseline year), significantly fewer students than expected believed that **binge** drinking is the **norm**,  $\text{Chi}^2(1, N = 792) = 127.42, p < .001$ , and in 1992,  $\text{Chi}^2(1, N = 814) = 132.37, p < .001$ .

The **decrease** in the proportion of the students who viewed **binge** drinking to be the **norm** continued as the intervention targeting that **perception** continued. This change in **perceptions** followed the implementation of an intervention focusing on students' **perceptions** of typical student drinking behavior. Based on our findings in this survey, we suggest that (a) the intervention may have influenced students' **perceptions**; and (b) it would be reasonable to examine the additional data on self-reported drinking behavior and search for the links, if any, between **perception** and behavior.

### Self-Reported Drinking Behavior

#### Comparison of NIU Samples

The self-reported drinking behavior of NIU students sampled each year from 1988 (the baseline year) through 1992 are shown in Table 3, making it possible to compare the year after the traditional intervention (1989) with the years following the intervention to change the **perception** (1990-1992).

In 1988, the baseline year, 277 students (43.0%) reported they engage in **binge** drinking when they party. In 1989, the NIU health promotion staff used traditional intervention **strategies** in an attempt to reduce **binge** drinking on campus. That same year, 349 students (44.8%) self-reported **binge** drinking--six or more drinks, on average--when they party. The percentage of **binge**-drinking students in the 1989 sample was not significantly different from the self-reported **binge** drinking in the baseline year.

In 1990, the NIU health promotion staff implemented our change-in-**perception-of-the-norm strategy**. We performed a chi-square test to compare the 1990, 1991, and 1992 samples with the results from 1988, the baseline year, and from 1989, the traditional intervention year. The analysis indicated that significantly fewer students reported **binge** drinking in 1990 than had done so in 1988,  $\chi^2(1, N = 716) = 8.23, p < .01$ . Similarly, in comparison with the 1988 data, sample data from 1991 indicated that 291 students, rather than the expected 340 students, reported **binge** drinking,  $\chi^2(1, N = 792) = 12.37, p < .01$ . A comparison of the 1992 data with the baseline figures indicated that 278 students reported **binge** drinking, rather than the 350 that could have been predicted from the 1988 data,  $\chi^2(1, N = 814) = 25.35, p < .001$ .

The percentage of students reporting **binge** drinking in 1989 was slightly, though not significantly, higher than the percentage of students reporting this behavior in 1988 (**binge** drinking 1988 = 43.0%; 1989 = 44.8%). Thus, the expected frequencies of self-reported **binge** drinking for 1990 through 1992 would be slightly higher if we used the 1989 data rather than the 1988 data to calculate expected frequencies for the 1990 to 1992 samples. Significantly fewer students reported **binge** drinking in 1990 through 1992 than might have been anticipated on the basis of the sample data from 1989, the year of the traditional intervention. In each of the years in which we implemented our change-in-**perception-of-the-norm strategy**, significantly fewer students than expected reported **binge** drinking, compared with students in 1988 (baseline year) and in 1989 (the traditional **strategy** year).

### Comparing the NIU and National Survey Samples

Although the change in self-reported **binge** drinking occurred only after we implemented our **strategy** to change the **perception** of the **norm**, the quasi-experimental design of the study does not allow researchers to rule out all other possible explanations for this change. Some encouragement for continuing to explore the effect of this intervention can be gained by comparing the NIU results with national data from the Monitoring the Future[ 6] study for the same period. Basically, the comparison suggests that during the years when the number of students in the NIU sample who reported **binge** drinking decreased, no such change was taking place nationally. Comparison of the NIU data and the US data (Table 3) for 1988 and for 1989 suggests that there were no significant differences in self-reported **binge** drinking of NIU students and students in the national sample.

In 1990, following the implementation of our effort focused on **changing** the **perception** of the **norm**, 37.6% of the NIU sample versus 41.0% of the US sample reported engaging in **binge** drinking. Again, we used chi-square analysis to compare data from the two samples. The 3.4% difference in reported **binge** drinking behavior between the two samples was small though statistically significant,  $\chi^2(1, N = 716) = 3.33, p < .10$ . The NIU **strategy** to change **perceptions** of the **norm** was implemented again in 1991. Data from 1991 indicate that 291 students (37.6%) in the NIU sample and 604 respondents (42.8%) in the US sample reported **binge** drinking behavior. In comparison with the US sample, significantly fewer NIU students than expected reported **binge** drinking,  $\chi^2(1, N = 792) = 11.88, p < .001$ . In 1992, the 3rd year we used the changed **perception** intervention, the number of NIU students reporting **binge** drinking behavior (278) was significantly lower than the number expected to report that behavior on the basis of the US data,  $\chi^2(1, N = 814) = 13.01, p < .001$  for the same year.

Finally, it should be noted that the definition of **binge** drinking in the NIU study was six or more drinks, whereas the Monitoring the Future researchers used a **binge** drinking measure of five or more drinks. Nevertheless, the most important aspect of this comparison is that (a) there were no significant differences between the NIU sample and the US sample in 1988 and in 1989; (b) in 1990 through 1992, there were no changes in the

proportion of the US sample reporting **binge** drinking, whereas a significant **decrease** occurred within the NIU sample; and (c) in 1990 through 1992, significantly fewer NIU students reported **binge** drinking than would be expected if we based our prediction on data from the US sample.

### Study Limitations

Before considering results of the study, we must look at some limitations that provide the context within which a careful discussion of the findings must take place. The limitations flow from two characteristics of the study: the quasi-experimental research design and our reliance on the students' self-reported behavior.

First, in this quasi-experimental design, the comparison groups included different cohorts of NIU students and respondents in the Monitoring the Future study. The cohorts of NIU students who responded to the questionnaire in 1988 and in 1989 may have been different from the cohorts responding in the study in 1990 through 1992, the years during which we carded out the program to change the students' **perceptions** of drinking **norms**.

In reality, we do not know about actual differences across these cohorts. For example, the 1990 to 1992 cohorts' responses may have reflected a cumulative effect of interventions at NIU or exposure to prevention programs that predated the NIU students' experiences. Although the data from NIU 1990-1992 respondents are parallel in time with the 1990-1992 Monitoring the Future data, the likelihood of differences in the experiences of the two sets of cohorts must be recognized. Thus, it is possible that factors other than the interventions influenced the outcomes of the NIU data and were unique to NIU and, therefore, were not experienced by respondents in the national monitoring study.

Second, it is important to recognize that the behaviors were self-reported. Concerns about the reliability of self-reported data are well known. In this study, the particular areas of concern included unreliable recall or students' misperceptions of their own behavior and the tendency to adjust reported behavior to give the "expected" answer. It is always possible that multiyear studies with repeated data collection points may heighten respondents' awareness of the study's purpose, and that such awareness may influence a respondent to report behaviors that reflect the intended outcome of the research. Both the limitations of the quasi-experimental design and reliance on self-reports should be kept in mind in considering the discussion of the study results.

### DISCUSSION

The findings in this study are consistent with the earlier work of Perkins and Berkowitz.[ 9] That is, a significant difference exists between students' **perceptions** of typical drinking behavior among college students and the self-reported drinking behavior in this population. Data gathered during Year 1 (the baseline year) of the study indicate that students significantly overestimated the proportion of their peers who engage in heavy or **binge** drinking at parties.

Our purpose was to go beyond the Perkins and Berkowitz[ 9] findings and to determine whether it was (a) possible to change students' **perceptions**, and (b) whether a change in **perceptions** would be accompanied by a change in behavior. Our findings indicated that after we implemented the change-in-**perception-of-the-norm strategy**, the proportion of students who reported heavy or **binge** drinking as the **norm** decreased significantly. In addition, we also found a significant drop in the proportion of students who reported engaging in **binge** drinking after we implemented the **strategy** to change **perceptions**.

Although these preliminary findings must be considered in the context of the limitations discussed earlier, they are encouraging. Outcome data on more traditional **strategies** indicated no significant change in drinking behavior.[ 9-14] Findings from Year 2 (1989) of the NIU study were consistent with the earlier studies that found no significant changes in drinking behavior following use of traditional **strategies**. In addition, we found no change in the proportion of students who viewed **binge** drinking at parties as normal behavior when we compared data from the baseline year and the year when we used traditional approaches.

Changes in both the **perception** of others' behavior and self-reported **binge** drinking followed only after we

implemented the **strategy** to change the **perception** of the **norm**. We felt encouraged to continue to implement and assess the program to change **perceptions** when we compared reported drinking behavior data from the NIU students with that reported in the national assessment for the same years. That is, between 1988 and 1992, no significant changes took place in the proportion of participants in the national sample who reported engaging in heavy or **binge** drinking, and no significant change in the proportion of students in the NIU sample occurred in those 2 years. However, after we implemented the **strategy** to change **perceptions** in 1990, 1991, and 1992, fewer students reported that they engage in **binge** drinking.

The absence of change in self-reported **binge** drinking in the Monitoring the Future samples lends additional support to the results that imply that the self-reported **decrease** in NIU student drinking behavior may be attributable to the intervention rather than to a national trend of decreasing heavy or **binge** drinking.

### Implications

Although the results of this preliminary work are encouraging, it must be recognized that they are in no way definitive. Nevertheless, they suggest the potential importance of altering the **perception** of what is normative for one's peers. The findings also raise cautions for health promotion interventions that may contribute to the **perception** that **binge** drinking among high percentages of college students is normal. These results indicate that such interventions may be self-defeating. Most important, the data suggest the need for further work focusing on the implications of **perceptions** for health-related behavior.

The health promotion and research team at NIU is now examining data collected from student samples between 1993 and 1996. If these data are consistent with the findings of this preliminary study, more significant recommendations for health promotion interventions that target **binge** drinking and other risky behaviors will be warranted.

### TABLE 1

Comparison of Overall Student Population at Northern Illinois University (NIU) With Study Sample, 1988-1992

Legend for Chart:

- A - Characteristic
- B - 1988, NIU
- C - 1988, Sample
- D - 1989, NIU
- E - 1989, Sample
- F - 1990, NIU
- G - 1990, Sample
- H - 1991, NIU
- I - 1991, Sample
- J - 1992, NIU
- K - 1992, Sample

A	B	C	D	E	F
	G	H	I	J	K

Sex						
Men	45.6%	45.2%	45.5%	46.2%	46.0%	
	43.7%	46.9%	43.3%	46.2%	44.4%	
Women	54.4%	54.8%	54.6%	53.8%	54.0%	
	56.3%	53.1%	56.7%	53.8%	55.6%	
Mean age (years)	21.2	19.6	21.2	19.3	21.3	
	19.8	21.4	20.3	21.6	20.4	
Ethnicity						
African American	5.9%	7.9%	6.4%	8.5%	6.9%	
	6.3%	7.1%	5.2%	7.9%	6.4%	
Hispanic American	2.6%	3.6%	2.9%	3.7%	3.3%	
	2.2%	3.7%	3.6%	4.2%	3.2%	
European American	86.6%	79.2%	84.5%	81.5%	84.1%	
	86.3%	83.3%	85.0%	81.8%	85.0%	
Asian American	3.6%	5.6%	4.2%	4.7%	4.5%	
	4.2%	4.6%	5.0%	4.8%	5.0%	
N	18,122	644	18,029	779	18,220	
	716	18,220	792	17,437	814	

**TABLE 2**

Northern Illinois University Students Who Perceived **Binge** Drinking as the **Norm**, 1988-1992, During a Study of Prevention **Strategies**

Year	Strategy	Yes		No		N
		n	%	n	%	
1988	Baseline	449	69.7	195	30.3	644
1989	Traditional	540	69.3	239	30.7	779
1990	<b>Changing norm</b>	408	57.0	308	43.0	716

		<b>perception</b>					
1991	<b>Changing norm perception</b>	406	51.3	386	58.7	792	
1992	<b>Changing norm perception</b>	417	51.2	397	48.8	814	

**TABLE 3**

Students' Self-Reports of **Binge** Drinking, 1988-1992, Comparing Northern Illinois University (NIU) With a National Sample During a Study of Prevention **Strategies**

Legend for Chart:

- A - Year
- B - **Strategy**
- C - NIU: Yes, n
- D - NIU: Yes, %
- E - NIU: No, n
- F - NIU: No, %
- G - US: Yes, n
- H - US: Yes, %
- I - US: No, n
- J - US: No, %

A	B	C	D	E	F
		G	H	I	J
1988	Baseline	277	43.0	367	57.0
		566	43.2	744	56.8
1989	Traditional	349	44.8	430	55.2
		542	41.7	758	58.3
1990	<b>Changing perception</b>	269	37.6	447	62.4
		574	41.0	826	59.0
1991	<b>Changing perception</b>	291	36.7	501	63.3
		604	42.8	806	57.2

1992	<b>Changing perception</b>	278	34.2	536	65.8
		617	41.4	873	58.6

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