

In Praise of Feedback: An Effective Intervention for College Students Who Are Heavy Drinkers

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Abstract. The efficacy of brief motivational feedback to reduce drinking among college students has been reported by several researchers. As an extension of this theoretical and applied framework, the author tested the use of mailed feedback to influence the drinking behavior of students self-identified as moderate-to-heavy drinkers in two randomized trials. A 6-week follow-up of the efforts suggested the efficacy of the feedback intervention at reducing alcohol consumption. The feedback mechanism used in the studies is described in detail and possible reasons for its efficacy are explored. In light of the cost-effective nature of this intervention, it may warrant a place in larger campus prevention programs.

Key Words: alcohol, college, drinking, feedback, treatment

The implications of the 1997 College Alcohol Study¹ are worth considering. Despite an increase in funding and the millions of dollars spent on collegiate alcohol prevention between 1993 and 1997, hazardous drinking remains common on US college and university campuses. Two out of 5 college students report binge drinking in the previous 2 weeks, and rates are nearly twice that among students who belong to fraternities and sororities. In light of the prevalence of drinking and the apparent stability of these findings over time, it may be time to ask ourselves what the college community is getting in return for its investment. Do our alcohol reduction programs really work?

Part of the problem of poor treatment efficacy may come from the traditional approach of many prevention programs. Although the shift toward environmental and social marketing strategies is promising,² programming to students still relies heavily on educational approaches: informing stu-

dents of the nature and consequence of excessive alcohol use. Unfortunately, despite its popularity, I have found little evidence to suggest that this type of approach works very well.³⁻⁵ Programs of this nature often do lead to an increase in alcohol-related knowledge, but they are rarely accompanied by actual decreases in consumption. By contrast, programs (albeit a minority) that personalize information to the needs of the individual, including skills and attitudinal techniques, show uniformly better success at reducing problematic drinking.^{6,7}

In fact, the briefest interventions sometimes produce the greatest effect. As an example, some evidence suggests that providing heavy drinkers with personalized feedback on consumption is as effective, and often more effective, than longer, more expensive interventions. In attempting to reduce alcohol consumption among college students who are heavy drinkers, Baer and associates⁸ found that a single hour of advice and feedback was nearly as effective as a 6-week class and discussion group. Throughout a 2-year follow-up, the group and feedback conditions yielded statistically similar decreases of 9.4 and 5.2 drinks per week (DPW), compared with baseline. Marlatt et al⁹ found similar results following brief motivational feedback. In an even more striking example, Agostinelli et al¹⁰ found substantial reductions, even when feedback was mailed to the participant and no face-to-face meeting occurred. At a 6-week follow-up, those in the feedback condition reported decreasing their consumption 7.9 DPW, compared with those in the control condition who, as a group, had remained relatively unchanged.

As we previously reported, my colleagues and I found similar reductions among students who were heavy drinkers who received mailed feedback.¹¹ We screened out 40 self-identified moderate-to-heavy drinkers from a psychology mass-testing pool (a project approved by the University of

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New Mexico Institutional Review Board). The participants filled out measures of quantity and frequency of consumption and answered other questions related to their alcohol use. The group represented approximately 65% of those who reported they had consumed more than 40 drinks in the previous month.

To reduce salience effects, we assigned the participants randomly to one of three groups: (a) a 2-hour information session plus mailed personal feedback about their drinking; (b) mailed feedback only; or (c) no treatment. Participants in the group condition attended a class consisting of educational, attitudinal, and skills-based approaches to promote responsible drinking. Participants assigned to receive feedback were mailed personalized information about the quantity and frequency of their consumption, peak weekly and monthly blood alcohol content levels, as well as other information about personal risk factors. To maintain confidentiality, we concealed the names of the participants from those calculating the feedback. After a 6-week period, 37 participants had completed quantity and frequency measures.

We were surprised by the results. Those participants who received only the mailed feedback reported the largest decrease, an average reduction of 13.8 DPW [effect size (ES) = 1.01]. Participants in the group-plus-feedback condition showed a smaller decrease in alcohol consumption—6.35 DPW (ES = .60); those students in the control group remained relatively unchanged, a decrease of 0.36 DPW (ES = .04). Because of the possibility of large variation in this sample of 37 (ie, 1 or 2 extreme cases driving the mean change), we then calculated effect sizes by dividing the mean change in drinking pretest to posttest by the pretest standard deviation of the group. Thus, in this context, an ES of 1.0 meant that the mean group score at posttest was one standard deviation less than at pretest; in other words, about 85% of students drank at levels that would have been below the mean at pretest.

Because of the success of the mailed feedback condition, we altered the classroom condition to include a presentation and discussion of feedback, then ran the study again at a different campus (approved by the San Diego State University Committee for the Protection of Human Subjects).¹² Forty-six similarly recruited students were randomly assigned to (a) a 2-hour information session that integrated personal feedback on drinking; (b) a mailed feedback-only condition; or (c) a no-treatment group (approximately 60% of those who reported they had consumed more than 40 drinks in the previous month). Thirty-four participants returned for follow-up 6 weeks later. In this study, participants in the mailed feedback condition again showed the largest decrease (6.6 fewer DPW; ES = .63), compared with those in the classroom feedback condition (0.35 fewer DPW; ES = .03), and participants in the control condition (2.75 fewer DPW; ES = .29).

In designing the feedback content for these two studies, we drew from several sources. First, we borrowed from the Drinker's Check-Up (DCU), which has proven effective at treating heavy drinkers in both short and long-term clinical

trials.^{13,14} To estimate alcohol consumption, blood alcohol levels, and tolerance, we asked participants to complete a calendar describing their alcohol consumption. Participants also answered questions concerning alcohol-related consequences and risks. The DCU feedback, which is presented and discussed with a therapist, incorporates simple quantity amounts, peak blood-alcohol levels, national norm comparisons, and potential health risks. Similarly, our feedback presented numbers of standard drinks consumed (Figure 1), estimated weekly and monthly peak blood-alcohol levels (Figure 2), risk of problems from alcohol use [eg, score on the Alcohol Use Disorders Identification Test (AUDIT)], estimated genetic risk, and tolerance level (Figure 3).

Second, the suggestion that problem drinkers are often motivated to change behaviors as a result of the cost of alcohol consumed (personal communication, Damaris Rohsenow, PhD) led to our inclusion of questions relating to income and alcohol expenditure, and to a corresponding presentation of the amount spent on alcohol per year and the percentage of income it represented (Figure 1).

Third, we considered the finding that college drinkers tend to overestimate the alcohol consumption of their peers, seeing their own drinking as more "normal" than it is.¹⁵ Therefore, we asked students to estimate the percentages of students on college campuses who (a) drink more than they do, (b) do not drink at all during an average month, (c) have 2 drinks or fewer in an average week, and (d) smoke marijuana at least once a year. On the feedback sheet, student

FIGURE 1
Feedback Form for Participants, Showing
Monthly and Weekly Amounts and Costs of
Alcohol Consumption

Standard drinks per month _____
Standard drinks per week _____
Amount spent on alcohol per year \$ _____
Percent of income spent on alcohol _____ %

These are the average number of drinks that you reported having in a typical month and week. Also listed is the percent of your income that you spend on alcohol and the total spent per year on alcohol. Because alcohol beverages vary in strength, we have converted your drinking pattern into standard "one drink" units. In this system, "one drink" equals:

10 ounces of beer (5% alcohol) or
4 ounces of table wine (12% alcohol) or
2.5 ounces of fortified wine (20% alcohol) or
1.25 ounces of 80 proof liquor (40% alcohol) or
1 ounce of 100 proof liquor (50% alcohol)

All of these drinks contain one-half ounce of pure ethyl alcohol.

Note. Form is shown as distributed to student participants.

estimates were provided alongside of corresponding published self-report estimates from recent nationwide surveys (Figure 4).^{1,16}

FIGURE 2
Feedback Form, Showing Individual Participant's Estimated Level of Intoxication, in Blood Alcohol Concentration

Estimated highest Blood Alcohol Concentration during a typical week: _____%

Estimated highest Blood Alcohol Concentration during your heaviest drinking episode: _____%

A second way of looking at your drinking is to examine your peak level of intoxication. The unit used to express the amount of alcohol that is circulating in your bloodstream is called the Blood Alcohol Concentration (BAC). BAC is an important indication of the extent to which alcohol is affecting your body and behavior. BAC might be thought of as a thermometer, in that the higher it is, the greater the intoxication. Police and the courts use it, for example, to determine whether a driver is too impaired to operate a motor vehicle.

People vary with regard to how their bodies process alcohol. The following factors might result in you having a higher BAC . . .

Note. Form is shown as distributed to student participants.

FIGURE 3
Students' Feedback Form for Indicating Individual Alcohol Tolerance Levels

This section provides you with information about your level of risk based on the characteristics you reported. High risk does not mean that one does (or will) definitely have serious problems with alcohol. Neither does "low risk" mean that one will be free of such problems. For high-risk people, however, the chances of developing problems are greater.

Your tolerance level: _____

- Low (0-60)
- Medium (61-120)
- High (121-180)
- Very High (181+)

Your peak BAC level is a pretty good indicator of your level of tolerance for alcohol. If you are reaching BAC levels beyond the normal social drinking range (especially if you are not feeling some of the effects of lower BACs), it means that you have a higher tolerance for alcohol. This might be partly hereditary and partly the result of changes in the body that occur with heavy drinking. See the box below for two common myths about tolerance.

Note. BAC = blood alcohol content. Form is shown as distributed to student participants.

Fourth, because of the association between alcohol and cigarettes, we also asked for and reported back the number of cigarettes the participants said they smoked per month and the number of years as a regular smoker. Finally, because this feedback was intended to be mailed to students, we embedded the personal information in four pages of explanation and advice. The mailed material included a discussion of drinking myths and facts, a presentation of the effects of alcohol at varying blood alcohol content levels, and a list of campus and community resources available for students with drinking problems.

The mailed feedback, in addition to being effective, was also inexpensive. We estimated that each feedback packet took 10 to 15 minutes to calculate and cost less than \$2 to copy and mail. This amount did not include the cost of the time spent to calculate the feedback, but we found that undergraduate volunteers were available and easily trained. Considering the financial savings to the drinkers alone suggests that this intervention was worthwhile. Students in our feedback condition initially reported they spent an average of \$78.13 per month on alcoholic beverages. Given the 53% reduction in consumption, this suggests that each student

FIGURE 4
Feedback Form, Comparing Individual Student's Estimated Alcohol Consumption With National Norms

What percentage of US college students drink more than you do?

You said _____% Survey said _____%

What percentage of students do not drink at all during an average month?

You said _____% Survey said 38%

What percentage of students have two drinks or less in an average week?

You said _____% Survey said 65%

What percentage of college students smoke marijuana at least once a year?

You said _____% Survey said 25%

The alcohol information is based on the responses of 35,636 students to an anonymous survey conducted at 4-year institutions throughout the United States in 1994-96. The marijuana percent is drawn from a similar survey of 17,592 college students enrolled throughout the United States. Several studies have shown that members of the campus community (including faculty and staff) consistently *overestimate* the number of students who drink heavily and use other drugs. In addition to showing how your drinking fits into national college norms, we have also shown you how close your estimates came to actual survey responses.

Note. Form is shown as distributed to student participants.

saved about \$41.47 in the first month alone. Students who are not binge drinkers may also experience some savings from the improved quality of life resulting from reduced second-hand effects associated with problem drinking, including violence and harassment.¹ Finally, one must consider the savings to the university that are likely to result from a reduction in vandalism and an improved academic climate.

Is it too much to believe that a brief intervention can have such dramatic results? I must admit that simply mailing students feedback on self-reported drinking behavior seems an unlikely solution at first glance. This was a very small study, and, despite our efforts to control for salience effects, there could be bias in our results. Our test pool may not have been representative of all students on either campus, and students with more severe drinking problems may not have been included. In addition, we did no follow-up studies to determine the durability of the initial benefits we detected.

Perhaps our hesitancy to abandon the more traditional methods of prevention accounts for our inclusion of information, myths, and facts, as well as the resource list alongside the pure feedback. On the other hand, because the feedback was mailed, some explanation was needed. We also thought that, whereas the feedback component might offer *motivation* for change, the information component might support the *ability* to change.

Whatever the reason for its efficacy, this type of intervention may have some unique advantages. If students are really unaware of the dangers of alcohol, what could be a better way of influencing their drinking behavior than to report the physical and financial effects on them personally? If treatment is dismissed by students as biased, how much more objective is reflecting and reframing the information they, themselves, provide? If defensiveness is the issue, what could be a better face-saving strategy for the individual students than giving them confidential feedback by mail? There may be inherent advantages to this brief, nonconfrontational intervention that warrant at least a second glance, if not a place in a larger framework of campus health promotion services.

NOTES

The findings in Walters, Bennett, and Miller¹¹ are reported as part of a longer article (in press) that includes such outcomes as number of drinks consumed per month, blood alcohol level, expectancies, and consequences. The article in this issue of *JACH* shares some results from that study, but the two studies are significantly different. The results of the study conducted at San Diego State University (Walters, Martin, and Noto¹²) have not been reported before. This article does not in any way duplicate the research described in Walters, Bennett, and Miller.

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REFERENCES

1. Wechsler H, Dowdall GW, Maenner G, Glendhill-Hoyt J, Lee H. Changes in binge drinking and related problems among American college students between 1993 and 1997. *J Am Coll Health*. 1998;47(2):57-68.
2. Haines M, Spear SF. Changing the perception of the norm: A strategy to decrease binge drinking among college students. *J Am Coll Health*. 1996;45(3):134-140.
3. Ametrano IM. An evaluation of the effectiveness of a substance-abuse prevention program. *J College Student Development*. 1992;33(6):507-515.
4. Kivlahan DR, Marlatt GA, Fromme K, Coppel DB, Williams E. Secondary prevention with college drinkers: Evaluation of an alcohol training program. *J Consult Clin Psychol*. 1990;58(6):805-810.
5. Schall M, Kemeny A, Maltzman I. Drinking by university dorm residents: Its prediction and amelioration. *J Alcohol and Drug Education*. 1991;36(3):75-86.
6. Darkes J, Goldman MS. Expectancy challenge and drinking reduction: Experimental evidence for a mediational process. *J Consult Clin Psychol*. 1993;61(2):344-353.
7. Walters ST, Bennett ME. Addressing drinking among college students: A review of the empirical literature. *Alcohol Treatment Quarterly*. In press.
8. Baer JS, Marlatt GA, Kivlahan DR, Fromme K, Larimer ME, Williams E. An experimental test of three methods of alcohol reduction with young adults. *J Consult Clin Psychol*. 1992;60(6):974-979.
9. Marlatt GA, Baer JS, Kivlahan DR, et al. Screening and brief intervention for high-risk college student drinkers: Results from a 2-year follow-up assessment. *J Consult Clin Psychol*. 1998;66(4):604-615.
10. Agostinelli G, Brown JM, Miller WR. Effects of normative feedback on consumption among heavy drinking college students. *J Drug Educ*. 1995;25(1):31-40.
11. Walters ST, Bennett ME, Miller JH. Reducing alcohol use among college students: A controlled trial of two brief interventions. *J Drug Educ*. In press.
12. Walters ST, Martin JE, Noto J. A controlled trial of two feedback-based interventions for heavy drinking college students. Presented at: Twenty-second Annual Meeting of the Research Society on Alcoholism; June 1999; Santa Barbara, CA.
13. Miller WR, Benefield RG, Tonigan JS. Enhancing motivation for change in problem drinkers: A controlled comparison of two therapist styles. *J Consult Clin Psychol*. 1993;61(3):455-461.
14. Miller WR, Sovereign RG, Krege B. Motivational interviewing with problem drinkers: II, The Drinker's Check Up as a preventative intervention. *Behavioral Psychotherapy*. 1988;16:251-268.
15. Prentice DA, Miller DT. Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *J Pers Soc Psychol*. 1993;64(2):243-256.
16. Meilman PW, Presley CA, Cashin JR. Average weekly alcohol consumption: Drinking percentiles for American college students. *J Am Coll Health*. 1998;45(5):201-204.