Screening and Brief Intervention for Alcohol Problems in a University Student Health Clinic

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Abstract. The purposes of this study were (1) to determine whether a university student health center (SHC) is a feasible location to introduce a campus-based screening and brief intervention (SBI) program for alcohol and (2) to determine whether the patients seen in the SHC differ in terms of the prevalence and severity of alcohol-related problems compared with students reported by emergency department programs. The authors used motivational interview techniques to counsel subjects from a convenience sample of patients waiting for medical treatment in the SHC who had screened positive with the Alcohol Use Disorders Identification Test (AUDIT). The authors interviewed patients again after 3 months. Seventy-five percent of eligible students participated. Sixty percent screened positive and received an intervention. The authors contacted 66 students (51.2%) again after 3 months. Seventy-five percent of students interviewed again after 3 months reported that SBI was helpful, 92% found the information clear, and 90% thought that the SHC was a good place to learn this information.

Key Words: alcohol, brief intervention, students

Excessive drinking and its consequences are a continuing public health problem in the United States.[1–7] Researchers have identified college students as a specific group of people at high risk for alcohol-related problems.[8–12] Eighty percent of college students drink, and half of college student drinkers engage in heavy episodic drinking.[8–12] Alcohol consumption by college students results in deaths, injuries, crimes, and sexual assaults. It disrupts the lives and studies not only of students who drink but also of their nondrinking peers, and it has a negative impact on the college environment and surrounding community. Researchers estimate that 1,400 college students die each year from alcohol-related unintentional injuries, including motor vehicle crashes.[10,12] Other researchers estimate that there are a half-million students injured and more than 600,000 alcohol-related assaults yearly. Understanding the factors that contribute to college drinking and developing effective interventions are major research and educational initiatives of the National Institute on Alcohol Abuse and Alcoholism (NIAAA).

One common manifestation of alcohol abuse is binge drinking. In February 2004, the National Institute of Alcohol Abuse and Alcoholism defined binge drinking as consumption of 5 or more drinks by a man or 4 or more drinks by a woman within a period of 2 hours on at least 1 occasion.[4,11,12] Binge drinking is often considered a rite of passage for young people, especially those in college. The Harvard-based College Alcohol Studies have clearly shown that the college campus is among the most prominent locales for binge drinking. As a consequence, college students are in a high-risk environment to develop alcohol-related problems. Despite campus policies, environmental interventions, and local legislation, the prevalence of binge drinking has changed little in the last decade. In 2001, the rate of binge drinking was 44% on college campuses, the same as it was in the early 1990s.[11,12]

Health care providers are actively seeking effective methods for treating patients with alcohol problems. A major obstacle, however, is the reality that people at risk for alcohol problems rarely seek help until after they experience adverse consequences (eg, injury, dependence). A key development occurred in the 1970s, when researchers reported that a single counseling session was as effective a

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treatment for alcoholism as extensive inpatient and outpatient therapy.[13] This process has come to be known as Screening and Brief Intervention (SBI). A milestone in the evolution of SBI occurred in 1990, when the Institute of Medicine released a report recommending greater use of SBI for a broad spectrum of alcohol-related problems.[14] SBI combines a short screen (eg, CAGE, AUDIT, MAST, TWEAK)[15] to identify at-risk persons with a motivational interview (MI) to help patients change their drinking behaviors. SBI is based, in part, on a harm-reduction approach using MI techniques intended to empower the patient to make a behavioral change.[16–18] SBI has been successful in reducing the frequency and amount of alcohol consumption and is therefore directly relevant to the binge-drinking college population.[19,20]

The emergency department (ED) has become a primary source of health care for many people, and it is often a common end point for alcohol-related health problems. As such, it was an ideal place to test the applicability of SBI programs. In an ED-based study, a brief intervention through a low-cost MI, followed by a booster session, reduced alcohol-related negative consequences for injured patients (aged 18 years and older) who exhibited problematic drinking.[16] In another study, patients treated for injuries in a hospital ED who received both a 40- to 60-minute MI intervention and a booster MI session 7 to 10 days later reported fewer negative consequences from drinking and fewer alcohol-related injuries at 1-year follow-up, compared with patients receiving no MI treatment. Patients in all groups reduced their days of heavy drinking (6 or more drinks on 1 occasion).[16]

In a series of studies conducted at a rural university-based ED, we showed that the ED is a feasible and operationally practical place to conduct SBI.[21–23] In 1 study, a large subpopulation of participants (913 of 2,067) were college students.[21] Over half of this student cohort coming to the ED was at risk for alcohol problems, and three fifths indicated that injury was the reason for their ED visits. Furthermore, we found that more than 80% of the at-risk students reported binge drinking at least once in the 2 weeks before their baseline ED visit and more than 40% reported binging 3 or more times in that period. Of importance were the 90% of consenting students who were willing to accept an intervention and counseling. Three fourths of the 296 students successfully contacted after 3 months reported that they had reduced their alcohol consumption.

These results suggest that SBI might be an excellent secondary prevention strategy for altering alcohol abuse in college students, but they also raise a number of important questions. The first is whether the ED is the best venue in which to conduct a campus-based clinical preventive SBI alcohol program. A potential alternative is using the campus student health center (SHC). The clientele of the SHC is a pure college population, and expansion of SBI to the student health setting may be an even more promising venue. Other critical considerations are (1) whether students seen in a SHC will have the same risk profile for alcohol problems as those seen in the ED and (2) whether those students will be as willing to accept an intervention and counseling as were students seen in the ED.

The first step in developing a successful intervention is to determine whether it is feasible to conduct the protocol. Therefore, prior to a randomized controlled study to test SBI efficacy, it is prudent to address feasibility and acceptability issues. These include operational concerns to ensure that the SBI protocol does not alter or intrude upon the established clinical programs and routine of the SHC, to ensure that the SBI process is acceptable to students and staff, and to ensure that the SBI results in reproducible measures and positive behavioral changes.

We conducted this study for the following 2 purposes: (1) to determine whether the SHC is a feasible location to introduce a campus-based SBI program for alcohol and (2) to determine whether the patients seen in the SHC differ in terms of the prevalence and severity of alcohol-related problems compared with students previously seen in the ED. Answers to these questions will lay the groundwork for developing an effective secondary prevention program for college drinking.

METHODS

The university Institutional Review Board approved this study. We conducted the study between February and August 2003 in the West Virginia University (WVU) SHC.

Study Participants

Eligible study participants were students aged 18 years or older who presented for medical care at the WVU SHC and who had consumed alcohol in the year prior to their SHC visit. We described the study to eligible patients and solicited from them written consent to participate. We excluded patients from the study if they had life- or limb-threatening conditions, were mentally incompetent, had severe communication deficits, did not speak English, or arrived in police custody. In addition, we excluded any student who had participated in an alcohol study in any ED or at WVU. Research staff determined each patient's eligibility for the study using a short face-to-face interview in the SHC waiting area. The SBI provider recorded basic patient demographic and contact information (for follow-up).

Student Health Center

The WVU SHC has an average of 20,000 student visits per year. Students can have both regular and drop-in appointments. The SHC provides a broad range of services, including mental health services and social work, and it has direct links with all the major health care facilities and treatment centers in the region. The WVU SHC serves as a primary source of health care for a substantial portion of the student body.

Provider Training

The SBI provider was a postgraduate student in the discipline of social work. We trained this student SBI provider using a structured training curriculum, which consisted of

32 classroom hours and covered topics including the Alcohol Use Disorders Identification Test (AUDIT), brief interventions, MI techniques, and patient referral. The SBI provider also underwent several sessions of didactic training in the SHC under the direct supervision of the research project manager.

Screening

The SBI provider administered a general health screen and the AUDIT to consenting patients. The general health screen included questions regarding frequency of exercise, tobacco use, seat belt usage, marital status, self-reported mental and physical health status, and site of regular health care. The AUDIT is a 10-question screening tool developed by the World Health Organization to identify individuals at risk for alcohol problems.[24–28] Scores range from 0 to 40 (see Appendix). A detailed description of the AUDIT and its psychometric properties is published elsewhere.[21] It is important to note that the alcohol intake domain assessed by AUDIT facilitates the identification of patients who have not developed alcohol-related harm behavior or dependency symptoms, but who are at high risk for developing these symptoms and behaviors. We therefore selected the AUDIT for its particular sensitivity in identifying patients at early stages of problem drinking. Sensitivities and specificities for the AUDIT for various indices of problematic drinking are in the mid-0.90s, and the internal consistency of the AUDIT is high (Cronbach's α values 0.77–0.94), demonstrating that the AUDIT is a reliable measure.[25–29] Based on prior research by our group and by others,[25–29] we considered patients with AUDIT scores of 6 or greater in this study to be screen positive, and we offered them the intervention. We did not further interview students scoring below 6, but they completed their SHC visits.

Additional data collected from students who screened positive during the interview included the following: (1) the patients' readiness to change their drinking habits; (2) baseline information to help the patients reflect on their drinking behaviors, their alcohol-related problems, and factors that could influence future drinking behavior and consequences; and (3) an inventory of alcohol-related harm the patients had already experienced.[30]

Intervention

Screen-positive patients received a brief intervention. We used the motivational interviewing strategies of Miller and Rollnick[17] and the motivational interview and states of change research of Prochaska et al[18] to derive the SHC-based intervention. The brief intervention consisted of both verbal and written information. The process included: (1) patients' feedback on their screening and assessment results, including discussion of how their alcohol intake exceeds acceptable, safe, or usual general population levels; (2) a discussion of the adverse consequences of excessive drinking (both those that have already occurred and those that are likely to occur in the future) and, to the extent reasonable, relating the current ED visit to excessive alcohol consumption; (3) a recommendation to reduce consumption or abstain from drinking, along with help in making that decision; (4) a discussion of reasonable alcohol intake limits; and (5) an offer of referral to specialized treatment, if appropriate. At the end of the intervention, the SBI provider gave each student participant 2 locally developed brochures, *Guide to Sensible Drinking* and *Warning Signs of a Drinking Problem.*

After the intervention and patient encounter was completed, the SBI provider summarized and recorded the intervention process and the specific strategy employed for each patient. The SBI provider offered referrals to specialized services for patients with conditions that required more intensive intervention. If the patient had acute, severe, or complex problems, the intervention may have included an immediate referral to WVU's Behavioral Medicine Department. Others were referred to the WVU Student Assistance Program, the Carruth Counseling Center, or other community social services for more intensive intervention.

Qualitative Reports

At the end of each work shift, the SBI provider documented issues that impacted the success or failure (eg, recruitment, consent, disruption of SHC normal routine) of this feasibility study. On a case-by-case basis, the SBI provider documented his perception of the accuracy of patients' answers, any problems encountered, and how well the SBI process integrated with the SHC routine. He also documented reasons and circumstances associated with patients' withdrawal from the study.

Follow-up

Three months after the SHC visit, SBI project personnel contacted screen-positive patients by phone to assess changes in total AUDIT score, current alcohol intake, alcohol-related harm, and alcohol-dependence symptoms.

SHC Acceptability

We surveyed the medical faculty and administrative staff of the SHC about the study and its potential effects, both positive and negative, on the daily activities of the SHC. We also assessed the perception of the clinical "value" of the research project using questions based on a 5-point Likert-type scale (strongly agree, agree, neutral, disagree, or strongly disagree).

Statistical Analysis

We analyzed data using the Statistical Package for Social Sciences (SPSS for Windows, Chicago, IL), version 8.0, and we used descriptive measures to assess operational issues, such as feasibility and acceptability. We evaluated feasibility through approach, accrual, and screen-positive rates, and we compared these to rates from our previous ED-based SBI studies. We assessed acceptability using the self-reported SHC survey described above. We divided the AUDIT score into intake, harm, and dependency domain variables.[21,31] Intake variables are measures of the frequency of drinking

and the amount of alcohol a person drinks on a typical day on 1 occasion. The harm variables are measures of the frequency of failures to accomplish what was planned or expected because of drinking, injuries due to drinking, and others' concerns about one's drinking. The dependency variables assess alcohol dependency symptoms. We dichotomized each of these dependent variables according to its change from baseline to 3-month follow-up. We used frequency analyses to describe patients' socio-demographic and other individual characteristics taken from the Individual Information Form (eg, age, gender, education).

RESULTS

Between February and April 2003, we approached 326 students in the WVU SHC. All but 1 of these students met eligibility criteria, and 245 (75%) consented to participate. We could document reasons for nonparticipation in 60 of the 80 students who did not participate. Forty-seven simply refused, 3 felt they were too sick, 5 had previously participated in this type of study and were excluded, 3 were with a physician, 1 had a sore throat, and 1 was verbally combative (Figure 1). One hundred and twenty-nine (60%) screened positive (AUDIT ≥ 6) and underwent a brief intervention. We successfully contacted 66 (51%) after 3 months, and 48 (37%) continued to completion of the full follow-up component of the study.

Table 1 contains the demographics of the students who participated in the study. The majority of participants were female, were undergraduates, were aged between 18 and 22 years, were single, and were nonsmokers. Furthermore, 64% of the students used the SHC as their primary source of medical care, and less than 1% used the ED in a similar capacity. Consent rates (75%) were similar for those students aged younger than 21 years (underage drinkers) and those who were aged 21 years and older (legal drinkers). Five percent of the screen-positive AUDIT scores were greater than 20 and were categorized as at severe risk, 17% of scores indicated moderate risk (16–20), and 78% fell in the mild alcohol-risk range (6–15).

One of our goals in conducting this study was to determine the similarities and differences among students assessed in the ED and SHC clinical settings (Table 2). In our ED-based study, 54% of students (490 of 913) screened positive, whereas 60% screened positive in the SHC.[21] The drinking characteristics of both of these groups of screen-positive patients are shown in Table 2. Although the median AUDIT scores were the same for students in both settings (10), we noted significant differences in responses to different AUDIT questions. Typical SHC students were less likely to stop drinking once they started (22% vs 11%, $p = .002$), felt remorse over failure to fulfill normal expectations (60% vs 43%, $p = .001$), and were more likely to have experienced amnesia as a result of drinking (72% vs 52%, $p < .001$). In contrast, students seen in the ED reported drinking larger amounts of alcohol more regularly than did students seen in the SHC (46% vs 29%, $p < .001$). In response to the other harm-related alcohol questions, the students in the SHC reported that, when they had been drinking, they were more likely to get in a fight (27% vs 14%, $p < .05$) and spend too much or lose a lot of money (68% vs 46%,

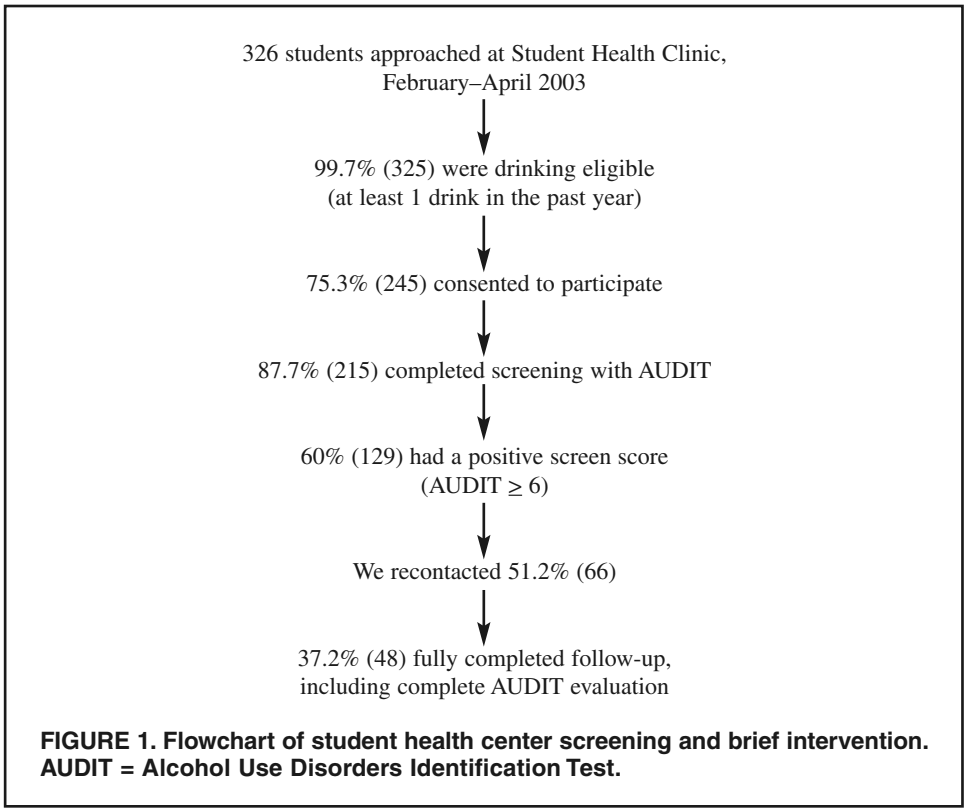

FIGURE 1. Flowchart of student health center screening and brief intervention. AUDIT = Alcohol Use Disorders Identification Test.

TABLE 1. Consenting College Students' Characteristics (*N* = 245)

Characteristic	*n*	%
Gender		
Female	173	71
Male	72	29
Age (in years) (*N* = 221)†		
18–22	170	77
23–25	32	14
26–40	19	9
Race (*N* = 243)†		
Caucasian	209	86
African American	19	8
Asian	13	5
Hispanic	2	1
Type of student		
Undergraduate	192	78
Graduate/professional	53	22
Marital status		
Single	232	95
Married	13	5
Tobacco use		
Nonsmokers	192	78
Smokers	53	22
Source of regular medical care (*N* = 237)†		
Student health clinic	152	64
Private MD	35	15
Public clinic or HMO	33	14
Don't usually seek care	15	6
Emergency department	2	1

†Data not available from all patients for these variables.

$p < .001$) than those students seen in the ED. In both groups, a significant percentage of respondents reported taking risks when drinking and later regretting actions taken when drinking (69%).

Operational Issues

Median times for consent, screening, and intervention were 1, 4, and 14 minutes, respectively, and they compare favorably with the ED study.[21] We assessed the acceptability of running this prevention program in the SHC from the perspective of the faculty and staff. We reviewed the 16 SHC medical faculty who interacted regularly with the students and SBI provider and found that 81% of the SHC medical faculty were supportive of SBI in the SHC, 50% felt it increased awareness about alcohol, and 72% reported positive interactions with the SBI provider. More than half felt it went beyond the regular standard of care offered in the SHC, and only 6% felt it prolonged the students' time in the SHC (Table 3).

Follow-up

We successfully contacted 66 students (51.2%) 3 months after their baseline visits, and 48 of them agreed to complete the follow-up component of the study. This included repeating the AUDIT and the acceptability questionnaire. In this group of 48 patients, the median baseline AUDIT score was 11 and the median follow-up score was 7.2, with a change of -4.1 from baseline. Six percent reported drinking more, 42% reported drinking the same amount, 46% reported drinking less, and 6% reported that they quit drinking. During their phone interviews, 70% of the students reported that they remembered the information about how alcohol can hurt them, 60% remembered a discussion about sensible and reasonable drinking limits, and 50% recalled information about legal blood-alcohol limits and the relationship to body weight, as well as the recommended number of drinks per hour. Furthermore, 50% recalled information on drinking cessation, and 70% discussed information on limiting drinking.

SBI Acceptability

In terms of the SBI program's acceptability to students, 75% felt it was helpful, 92% felt the information was clear, and 96% felt the provider treated them respectfully. Although 9 of 10 students felt that the SHC was a good place to learn this information, 60% reported they would hear this information on campus in some other form.

DISCUSSION

The college social experience and alcohol use have become intertwined into a subculture, and there is a percep-

TABLE 2. Percentage of College Students Screening Positive for Alcohol-Related Risk at Baseline in the Student Health Clinic (SHC) Versus in the Emergency Department (ED)

Questions	% SHC	% ED	*p*
AUDIT			
1. Seven or more drinks per typical drinking day	00.0	00.0	< .000‖
2. Usually drank			
1 or fewer times per week	57.0	45.5	.02‖
2 to 3 times per week	40.6	51.2	.03
4 or more times per week	2.4	3.3	.6
3. Binged† 3 or more times in past 2 weeks	51.6	45.5	.22
4. Not able to stop drinking once started‡	21.9	11.4	.002‖
5. Failed to fulfill normal expectations‡	60.2	43.5	.001‖
6. Needs drink in morning to get going‡	1.6	3.1	.36
7. Feels guilt or remorse after drinking‡	44.5	34.9	.04‖
8. Amnesia due to drinking‡	71.9	52.5	< .001‖
9. Injury to self or others‡	21.1	18.8	.55
10. Relatives, friends, or health care providers express concern about drinking‡	10.9	17.4	.07
Other harm-related§			
Taken foolish risks when drinking‡	69.4	61.0	.09
Done impulsive things later regretted‡	57.0	58.0	.84
Spent too much or lost a lot of money‡	68.3	45.9	< .001‖
Been in a physical fight‡	26.5	13.7	.001‖

Note. For AUDIT: SHC, *n* = 129; ED, *n* = 490. For other harm-related: SHC, *n* = 121; ED, *n* = 490.
†5 or more drinks for a man, or 4 or more drinks for a woman, on 1 occasion.
‡At least once during the 12 months prior to baseline visit.
§Data from Drinker Inventory of Consequences.
‖Significantly higher proportion in the student health clinic.

TABLE 3. Perceptions of Screening and Brief Intervention (SBI) Procedure by Student Health Clinic (SHC) Medical Personnel (*n* = 16)

Statement	% agreeing
I am supportive of SBI in SHC.	81
SBI should continue.	63
SBI fits into routine procedures.	60
I was adequately informed about the project.	100
I had positive interactions with the SBI provider.	72
SBI goes beyond the current standard of care.	56
Patients participating in an SBI intervention stay longer in the SHC.	6

tion that one cannot coexist without the other. This belief is so ingrained that excessive alcohol consumption is an expected rite of passage for the university student and has become the norm.[4,11,12] The negative consequences of alcohol use (eg, poor academic performance, injury, death) impact students' lives. These consequences affect not only those who consume alcohol but also those who do not. Campus alcohol consumption is now recognized as a serious national public health problem.[9,10] Virtually all campuses, community colleges, and students are affected to some degree.

There is compelling research evidence that suggests the strategy of combining cognitive–behavioral skills and motivational interviewing interventions may be an effective method to modulate the consumption of alcohol by university students.[19–21] Cognitive–behavioral skills training is an attempt to alter dysfunctional (and risky) beliefs about the use of alcohol. This is done through activities such as changing views about alcohol's effects and detailing daily alcohol consumption. In addition, students' perceptions about the acceptability of abusive drinking behavior on campus are challenged by data that refute beliefs about the tolerance of this behavior, beliefs about the number of students who drink excessively, and beliefs about the amounts of alcohol they consume. Motivational interviewing is a method used to encourage students' desire to change their drinking activities.[17] In these brief interventions, interviewers assess student alcohol consumption using a standardized and validated screening instrument. The students receive nonjudgmental feedback on their personal drinking behavior and its negative consequences (risk scores) compared with that of others (norms). Students also receive suggestions to support their decisions to change. Researchers have shown that the SBI reliably reduces the frequency and quantity of drinking.[1,16,19]

This is directly relevant to binge drinking, the most common and readily recognizable form of excessive and dangerous drinking in college students.

A number of important questions must be answered before we can further define the role of SBI in reducing collegiate alcohol use. One concern is where and how we can best access students to obtain the maximum benefit. Universal education-based interventions exist as part of the student orientation program, but limited data are available about the impact and efficacy of these programs. Other researchers have targeted high-risk groups, such as fraternities and sororities, athletes, and first-year students. The results of these studies are encouraging, but they may exclude many students who could also benefit. Primary tenets of successful SBI programs include the "teachable moment," combined with the knowledge that patients tend to accept short interventions in settings where other acute care (medical) services are provided.[16,32–35] The ED has therefore evolved into a breeding ground for developing SBI programs. A rural university-based ED has extensively evaluated and used our protocol.[21] During these studies, college students were a subpopulation of at-risk drinkers. Furthermore, our data clearly showed that students responded to the intervention. We were encouraged that our protocol might be appropriate for the broader college population at WVU, but we needed a venue that would provide better and more efficient access to university students. The SHC appeared to be such a setting that served a pure student population. To our knowledge, no study has reported testing a campus-based intervention in the SHC setting. However, prior to starting a clinical trial in the SHC, it was prudent to address operational and feasibility issues to ensure that the protocol would be successful.

Our results allow us to address the 2 main study objectives. First, the SHC is a feasible location and is potentially a superior venue to the ED for conducting SBI alcohol interventions for students. We were able to identify patients with alcohol problems through the AUDIT screen and then offer an immediate intervention tailored to the individual student's needs. The program was well received by the faculty and students, and the intervention was short. It did not interfere with the daily flow of the SHC, and students did not feel that their SHC visit was prolonged. Second, the risk profiles of SHC patients are very similar to those in the ED. This is a high-risk population with similar drinking habits and problems to those of the ED college population. This is a critical element because if the screen-positive rate was exceedingly low, the relative value of doing an indicative intervention in the SHC would be low. Based on the high eligibility (99%), consent (75%), and screen-positive (60%) rates, we suggest that this SBI protocol can be used effectively in the SHC.

We can draw other important conclusions from the study results. By conducting interventions in the SHC, we enhanced our ability to access a large number of students efficiently. In our 11-month ED-based study, 2 providers, who were available daily during typical ED peak hours (ie, 10 AM to 1 AM), consented 913 college students. In contrast, 1 provider worked 20 hours a week at the SHC and was able to obtain permission from 245 students in 4 months. The SHC is thus a more efficient location to apply the intervention. This is likely due to the fact that the SHC is the primary source of health care for up to two thirds of the students and SBI programs are well suited for primary care venues. Although we did not have a control group, follow-up AUDIT scores were lower and almost half the students were drinking less. These data are consistent with our ED-based clinical trial.

Student health care providers can use the results of this study to help guide future interventions. This SBI protocol can be easily transferred to the SHC from the ED. The SHC is a more efficient location to access a university population without weakening the study protocol. We characterized the alcohol-risk profile of students who visit the SHC and who would most likely benefit from alcohol intervention. The SHC faculty strongly supports the program and feels alcohol counseling is within the scope of their practice. One concern is whether the high proportion of underage drinkers on our campus would be reluctant to disclose their alcohol use in a facility with close ties to the university. However, our consent and intervention rates were similar among underage drinkers and students aged 21 years and older, thus dispelling this apprehension. Taken together, these results underscore the important role that the SHC can play in addressing the campus alcohol problem.

The SBI process and this study do have limitations. We cannot comment on the efficacy of the protocol in this study because no control group was used. We could also improve follow-up rates. Because most of the follow-up for students screened at the end of the intake period occurred after the semester ended, successful contact and follow-up was more difficult. Researchers could address this in future studies by conducting the follow-up component during the main academic year and obtaining consent to match contact information to the university registration data. Although men were a minority among study participants, this is representative of the population of patients who use the SHC. Men, however, generally experience and report more negative consequences from alcohol problems than do women. Future programs should develop methods of recruiting more men. We did not address any financial components of feasibility. We did, however, conclude that we needed fewer providers and hours to reach more students than we needed in the ED study. Health care providers who wish to implement SBI programs must also consider the problems of identifying long-term funding sources. Recent SBI protocols that use computers for screening and intervention are intriguing, especially considering the electronically savvy current student population. This approach may be more cost-efficient, and researchers have recently shown excellent promise with computer-based interventions.[36]

A comprehensive public health response that aims to minimize injuries and other consequences associated with alcohol problems requires both primary prevention through legislation and education and secondary prevention through programs that identify problem drinkers early and intervene

as effectively and economically as possible. Researchers must evaluate these secondary prevention programs to ensure their effectiveness. Feasibility is the first step to determine whether broad implementation of a product or protocol is warranted. Based on the promising results of this study, we suggest an efficacy trial based in a SHC, using this SBI protocol.

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NOTE

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APPENDIX
Alcohol Use Disorders Identification Test

1. In the past year, when you drink alcohol, how many do you usually drink?

1 or 2	3 or 4	5 or 6	7 to 9	10 or more
(0)	(1)	(2)	(3)	(4)

2. How often do you drink that amount?

≤ Monthly	2–4 times/month	2–3 times/week	≥ 4 times/week	
(0)	(1)	(2)	(3)	(4)

3. How often in the past year have you had 5 (male) / 4 (female) or more drinks on 1 occasion?

Never	< Monthly	Monthly	Weekly	Daily/almost daily
(0)	(1)	(2)	(3)	(4)

4. How often during the past year have you found that you couldn't stop drinking once you had started?

Never	< Monthly	Monthly	Weekly	Daily/almost daily
(0)	(1)	(2)	(3)	(4)

5. How often during the past year have you missed something important because of drinking? For example, have you ever missed school, class, or other activities?

Never	< Monthly	Monthly	Weekly	Daily/almost daily
(0)	(1)	(2)	(3)	(4)

6. How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Never	< Monthly	Monthly	Weekly	Daily/almost daily
(0)	(1)	(2)	(3)	(4)

7. How often during the past year have you "felt bad" or "felt guilty" after drinking?

Never	< Monthly	Monthly	Weekly	Daily/almost daily
(0)	(1)	(2)	(3)	(4)

8. How often during the past year have you been unable to remember what happened the night before because you had been drinking?

Never	< Monthly	Monthly	Weekly	Daily/almost daily
(0)	(1)	(2)	(3)	(4)

9. Has your drinking contributed to an injury to yourself or anyone else?

Never	Yes, but not in the last year	Yes, during the last year
(0)	(2)	(4)

10. Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested that you should cut down?

Never	Yes, but not in the last year	Yes, during the last year
(0)	(2)	(4)

Note. Alcohol Use Disorders Identification Test (AUDIT) scores range from 0 to 40. In this study, scores ≥ 6 are considered a positive screening result for alcohol problems.