



Computerised screening for hazardous drinking in primary care

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Abstract

Introduction. Brief interventions undertaken in primary care settings have been shown consistently to reduce hazardous drinking, but they are not commonly offered in practice. The aims were to determine the uptake by young people of an offer of screening in a primary care setting; to identify patients' drinking risk levels; and to estimate the proportion who would consent to computerised brief intervention and follow-up.

Methods. Participants were 1120 patients attending a university student health service that were invited for screening while in the waiting room. Participants were also asked for their consent to be contacted for follow-up assessment 1, 6, and 12 months later.

Results. 1,010 patients (90%) accepted the invitation for screening. Of these, 35 (4%) failed to complete screening, thus leaving 975 with complete Alcohol Use Disorders Identification Test (AUDIT) data. Sixty percent of women and 73% of men screened positive. Twenty-three patients (4%) eligible for intervention declined follow-up assessments.

Discussion. The study demonstrates that the primary care setting can be used to facilitate access via computer to a large number of individuals whose drinking is hazardous. Limitations of the study include the use of an educated segment of the population who may be more receptive to computerised screening than other groups. Strengths of the study include the high rate of participation and the naturalistic setting in which the data were collected.

Hazardous consumption of alcohol is a leading contributor to the global burden of disease and injury.¹ Aggregate consumption in many countries has stabilised or increased in the last 5 years, after 20 years of steady decline.^{2,3} There is evidence of a change (in the pattern of drinking) toward larger quantities per drinking occasion, particularly among young people (aged 15–24 years).⁴ In young people, the intoxicating effects of alcohol account for a greater burden of disease than the chronic effects, given the high incidence of injury and other acute outcomes (e.g. sexually transmitted infections) in this age group.¹

Primary care services have been identified as settings where screening and intervention for alcohol problems might be effective. The World Health Organization (WHO), therefore, developed the Alcohol Use Disorders Identification Test³: a 10-item questionnaire with questions on alcohol consumption, symptoms of dependence, and other alcohol-related problems.

With a cut-off score of 8, the test has a sensitivity of 92% and specificity of 94% for the identification of individuals with hazardous or harmful drinking in primary care

settings.⁵ It has consistently been found to outperform other questionnaires and blood markers in the identification of individuals with alcohol use disorders.⁶ The AUDIT is cheap to administer⁷ and its use provides practitioners with a suitable opportunity to offer advice to patients with hazardous drinking.⁸

A significant advance in the treatment of hazardous alcohol consumption (and thus the prevention of alcohol-related harm) over the last two decades has been the development and evaluation of screening and brief intervention (SBI). SBI typically involves opportunistic administration by a GP or nurse of a brief screening questionnaire such as the AUDIT and (for those who screen positive) provision of 5–10 minutes of brief advice or a short session (<30 minutes) of motivational therapy.⁹

For people identified with severe problems or an established alcohol dependence, a referral may be made for further assessment and specialist treatment.¹⁰ More than 40 randomised controlled trials have been published on SBI, most of which have been in primary care settings.

In 2002, Moyer and colleagues¹¹ published a pivotal meta-analysis which revealed significant (albeit modest) reductions in hazardous drinking lasting at least 6–12 months among people who were not specifically seeking treatment. Among those actually seeking treatment, the effects of SBI were similar to those of more intensive interventions. On the basis of an extensive review of the effectiveness of SBI in primary care,¹² the US Preventive Services Task Force¹³ found that SBI of 15 minutes duration is helpful, and that multi-contact interventions are effective for patients ranging from 17 to 70 years of age.

In New Zealand, around one in six persons visiting their general practitioner meets criteria for hazardous or harmful drinking,¹⁴ defined as a score of 8 or higher on the AUDIT.⁵ In the only published New Zealand study in which screening of young people (18–29 years) in primary care has been examined, McMenemy found that 16% of men and 6% of women met criteria for an alcohol-use disorder.¹⁵ He highlighted the importance of screening, noting that ‘without [it], nearly half of those identified would have been missed’ (p.128).

McMenemy also found that screening rates were low for young men (59%) relative to young women (83%).¹⁵ He suggested measures to overcome this barrier included the ‘availability of a patient self-administered computerised lifestyle assessment not requiring supervision by clinical staff’ (p.128).

The potential utility of computerised screening or intervention has been identified in other primary care settings.¹⁶ For example, in a survey of a random sample of university students (n=1,564; response rate 82%), we found that computerised screening and brief intervention was the most acceptable of a range of brief intervention options, including practitioner-delivered interventions.¹⁷ Four out of five hazardous drinkers said they would use such a service if they thought they had a drinking problem.¹⁷

The aims of this study were to:

- Determine the uptake by young people of an offer of screening in a primary care setting;
- Identify patients' drinking risk levels; and to
- Estimate the proportion who would consent to computerised brief intervention and follow-up.

Methods

Setting—The data used for this study were collected during the baseline phase of a randomised controlled trial of a brief intervention for hazardous drinking. Participants were students aged 17–29 years who attended the University of Otago Student Health Service in the period 3–25 March 2003. In 2002, the service conducted 42,000 consultations with over 10,000 individuals,¹⁸ making it the largest provider of primary care for young people in New Zealand (personal communication, Dr Jim Jerram, Director of Student Health Service, 2002).

Sampling—True random sampling (i.e. random selection of individuals from a sampling frame of some description) was not practicable for this study given that eligible participants were recruited from patients presenting for care. We opted instead for a selection protocol which would minimise the risk of systematic biases, and allow for measurement of the potential bias resulting from self selection. Each week (Monday–Friday inclusive) of the sampling period was broken into 10 sessions: five morning sessions 9am to 12:30pm and five afternoon sessions 1:30pm to 5pm. Based on the ratio of men to women using the service as measured in a pilot study,¹⁹ and to ensure approximately equal numbers of men and women in the study, we randomly selected 2 of the 10 sessions in each week for recruitment of men only.

Illustration 1. The University of Otago Student Health Service waiting room



Research assistants were trained in the application of a study protocol, which stipulated that the assistant should invite the next patient leaving the reception desk (see Illustration 1) to participate in the study, go through the informed consent procedure, log the participant into a computer (see Illustration 2) and return to the reception desk to recruit the next patient. Instances in which a patient appeared too sick or injured or whose English was not sufficient to participate were recorded, as were refusals to participate.

Illustration 2. Computers used for screening



Consent—A two-stage recruitment procedure was used, whereby patients were first invited to complete a computerised survey (stage 1: screening). Patients eligible for the study on the basis of screening were asked for consent to be contacted for follow-up surveys (stage 2: assessment and intervention). In accordance with ethical approval, the study was presented to potential participants as a series of surveys on alcohol use, not as a randomised trial. Randomisation was effected by computer upon completion of screening. Participants and researchers were blind to group assignment. This study reports only on data collected during stage 1: screening.

Measures—Participants were asked to indicate their gender, age, and ethnicity, using the questions from the 2001 census.²⁰ Their drinking risk was assessed with the AUDIT. The consumption questions were based on standard drinks (10g ethanol) which were defined and depicted in graphics presented on the relevant pages of the web questionnaire. The whole questionnaire can be viewed at <http://ipru.otago.ac.nz/eSBI2003Demo/Index.html> Participants were also asked to indicate how many standard drinks they had consumed in their heaviest drinking episode in the preceding four weeks.

Results

Of 1120 patients invited to complete the screening questionnaire, 1,010 accepted the invitation (90%). Of these, 35 (4%) failed to complete screening due to being called for their consultation, leaving 975 individuals (538 women and 437 men) with complete AUDIT data—i.e., a screening rate of 87%. A summary of the AUDIT data of these patients is presented in Table 1.

Table 1. Distributions of AUDIT item responses by gender (N=975)

AUDIT item	Women n=538 (%)	Men n=437 (%)	χ^2 statistic and p-value
1. Drinking frequency			
Never	9	9	18.43 p=0.001
Monthly or less	12	10	
2-4 times a month	39	33	
2-3 times a week	35	38	
4 or more times a week	5	11	
2. Typical occasion quantity (g ethanol)			77.37 p<0.001
1 or 2 (< 20 g)	22	18	
3 or 4 (30-40 g)	20	14	
5 or 6 (50-60 g)	23	15	
7 to 9 (70-90 g)	19	12	
10 or more (>100 g)	17	42	
3. Frequency of drinking \geq 60 g			32.00 p<0.001
Never	16	11	
Less than monthly	26	18	
Monthly	20	16	
Weekly	38	53	
Daily or almost daily	0	2	
Experienced the problem monthly or more often			
4. Unable to stop drinking once you had started	11	17	8.34 p=0.004
5. Failed to do what was normally expected from you	13	14	0.63 p=0.427
6. Needed a first drink in the morning to get yourself going after a heavy drinking session	1	2	2.35 p=0.126
7. Had a feeling of guilt or remorse after drinking	10	14	3.57 p=0.059
8. Unable to remember what happened the night before because you had been drinking	10	21	22.16 p<0.001
Experienced the problem in the past year			
9. You or someone else been injured as a result of your drinking	17	28	15.21 p<0.001
10. A relative, friend, doctor, or other health worker been concerned about your drinking or suggested that you should cut down	8	14	11.01 p=0.001
Mean AUDIT score (SD)	9.7 (6.3)	12.2 (7.4)	t=5.81 p<0.001
Proportion of sample with an AUDIT score of eight or higher (95% CI)	60 (56-64)	73 (69-77)	

Two-thirds of patients (66%; 60% of women, and 73% of men) met criteria for hazardous drinking (an AUDIT score of eight or higher). Relative to women, men reported significantly higher drinking frequencies (item 1), typical occasion quantities (item 2), and binge drinking frequencies (item 3). For both men and women, the modal pattern was to consume six or more drinks (>60g ethanol) at least once per week. Men also reported a higher frequency of being unable to stop drinking once started (item 4). Blackouts (item 8) on at least a monthly basis were reported by 1 in 5 men and 1 in 10 women. Alcohol-related injuries (item 9) were reported by 1 in 4 men and 1 in 6 women.

In the 4 weeks preceding their visit to Student Health, 71% of women and 71% of men had exceeded the Alcohol Advisory Council of New Zealand's recommended upper limits of no more than four drinks per occasion for women and no more than six per occasion for men. Among women, 46% reported at least one episode of more than 8 drinks (>80g ethanol) while 55% of men reported at least one episode of more than 12 drinks (>120 g ethanol).

A frequency distribution of AUDIT scores is presented in Figure 1, with indicators of the standard cut-off score and the more liberal score of 11 recommended by Fleming et al²¹ in a study of American college students.

Of 599 service users (311 women, 288 men) who screened positive for hazardous drinking, 23 (4%) did not consent to web-based follow-up assessments as part of the study, leaving 576 individuals (300 women, 276 men) in the intervention trial.

Discussion

These results show that between half and two-thirds of this young population drink at hazardous levels, that most (87%) will complete computerised screening in a primary care setting, and that only 4% of those who screen positive for hazardous drinking decline follow-up contact. The study supports the notion that the primary care setting can facilitate access via computer to a large number of individuals whose drinking is hazardous.

Limitations include the fact that trained research assistants issued the invitations to complete screening. Although the intervention is computerised, when put into routine practice some involvement from receptionists or other staff dedicated to the task would probably be required to promote its use to patients. The program assessed in this study has been delivered as a service (i.e. not as part of a research project) at two student health services at Victoria University Wellington since April 2005. Early reports show that even with minimal promotion by receptionists, large numbers of students have utilised the screening and computerised intervention program, but acceptance rates under these naturalistic conditions have not been measured.

The rates of hazardous drinking identified in this study were remarkably high: 60% of women and 73% of men met the commonly used criterion of >8 on the AUDIT. These prevalence rates can be compared with those attained in 2002 from a large probability sample of students aged 17–29 who completed a web survey (n=1,564, response rate 82%). In that sample, 58% (95% CI: 54%–61%) of women and 70% (66%–73%) of men scored >8 on the AUDIT.²² While the rates are slightly higher in the present study, the confidence intervals overlap, suggesting that patients using the

student health service are broadly representative of the student population in terms of their drinking behaviour.

We did not diagnose students in the present study, but it is likely, given the AUDIT scores attained, that a far higher prevalence of alcohol use disorders would be found in this tertiary student population than among patients presenting to their general practitioners.¹⁵ Direct comparisons of students and non-students of the same age in the general population reveal very large differences in the prevalence of hazardous drinking.²³ The reasons for this are unclear, but probably relate to the presence in the university environment of ‘...high concentrations of licensed premises, events that have a primary focus on drinking, intense advertising, promotion, and aggressive pricing by the liquor industry, institutional policies that do not adequately discourage drunkenness, and inadequate enforcement of the intoxication provisions of liquor legislation’ (pp. 713-714).²³

In the last 15 years, New Zealand has drastically altered its laws with respect to alcohol. There has been a shift away from supply-side policies, in which the primary mechanism is to restrict the availability of alcohol to the consumer.²⁴ Examples include the introduction of wine (1989) and beer (1999) in supermarkets, allowing a wider range of retail outlets to sell alcohol (1989) and the reduction of the minimum purchase age from 20 to 18 years (1999), which increased alcohol-related harm among young people.²⁵ This move toward increased availability at a time when the burden of disease and injury attributable to alcohol is increasing,¹ highlights the need for greater efforts by public health advocates to influence policy but also for interventions to reduce heavy consumers’ demand for alcohol. To make an impact at a population level, such interventions would have to be inexpensive and deliverable to many. Opportunistic screening for hazardous drinking followed by brief intervention in the primary care setting meets both of these criteria.

Despite evidence from at least 36 randomised controlled trials from several countries,¹¹ screening and brief intervention is not yet a routine aspect of primary care in any country. One obstacle to its widespread implementation is the lack of time and remuneration available for preventive medicine. Another is the view held by general practitioners that their patients would not accept their advice to drink less if an alcohol-related condition was not the presenting problem.²⁶

In recognition of these circumstances, and the reported willingness of students to participate in a computerised intervention,¹⁷ we conducted a pilot randomised controlled trial at the Student Health Service at the University of Otago.¹⁹ Of 112 students who screened positive for hazardous drinking, 104 agreed to be contacted for follow-up assessments, and were randomised to a computerised brief intervention delivered in the reception area (n=51) or a leaflet-only control group (n=53).

Follow-up assessments were conducted 6 weeks and 6 months post-intervention and were completed by 80% and 90% of participants respectively. Results showed reductions of episodic heavy drinking and alcohol-related problems in the intervention group relative to controls of 20–30% over 6 months.¹⁹ It was concluded that the results warranted a larger, more comprehensive trial.

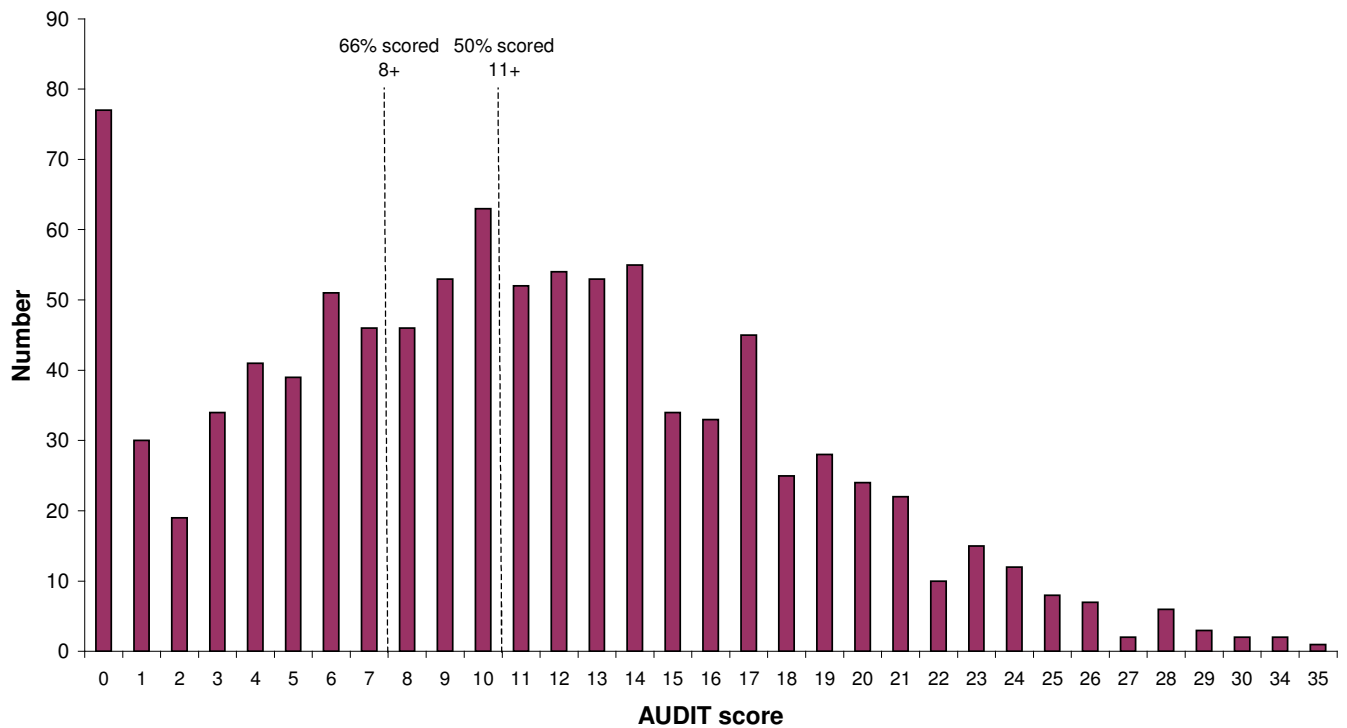
Screening is only of benefit to patients if there is a viable intervention to offer them. The pilot research described above suggests that there is a viable intervention and that early signs regarding its efficacy are positive.

On the basis of the screening described in the present study, we conducted a four-arm randomised controlled trial in which students with hazardous drinking were assigned to one of four conditions:

- Control (information leaflet only);
- Information leaflet with full follow-up;
- Brief intervention; or
- Brief intervention with booster sessions at 4 weeks and 6 months after initial contact.

These interventions represent the least to the most that we judge young people could accept in a primary care setting.

Figure 1. AUDIT scores of Student Health Service users (N=975)



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