

Reducing alcohol-related harm in the workplace: a feasibility study of screening and brief interventions for hazardous drinkers

INTRODUCTION

The negative impact of hazardous and harmful drinking on health and well-being for individuals and at a societal level has been well documented, and there is convincing evidence of the cost-effectiveness of brief interventions in primary care (Kaner et al. 2007, Fleming et al. 2002). Less attention has been focused on the workplace as an arena for brief alcohol interventions.

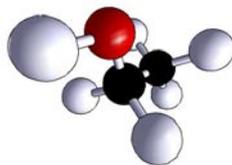
Recent policy has highlighted the importance of Occupational Health Services in providing screening and interventions on a range of lifestyle issues (World Health Organization 2006, Scottish Executive 2003; Department of Health 2003). However, our literature search identified only two reports of lifestyle screening of the workforce in the UK that included alcohol use (Hanlon et al. 1995, 1998 and Addley 2001) and no empirical studies of brief interventions in UK occupational settings were found.

METHODS

The exploratory study reported here was designed to examine the feasibility and cost implications of conducting a randomised controlled trial of screening and brief interventions (SBI) delivered by an occupational health nurse. It also aimed to explore the acceptability of SBI to members of the workforce.

The study was conducted in a local authority Council which serves a mixed urban and rural population in Scotland. Screening was undertaken by administering the Alcohol Use Disorders Identification Test (AUDIT) within a self-complete general lifestyle questionnaire which was mailed to a randomly selected sample of employees. Employees who were identified as hazardous drinkers by the AUDIT tool were invited to take part in an exploratory randomised controlled trial.

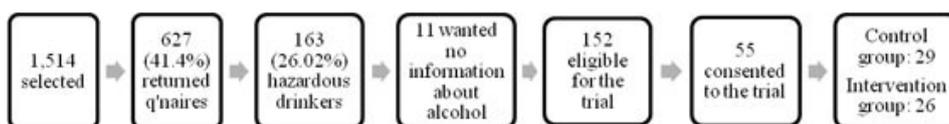
The brief intervention that was tested was delivered by an occupational health nurse. The intervention was underpinned by self-efficacy (Bandura 1977) and readiness to change theory (Prochaska and Di Clemente 1984, Miller and Rollnick 2002) and was based on the principles of motivational enhancement.



Screening

A random stratified sample of 1,514 employees that reflected the occupational profile of the Council was mailed a self-complete general lifestyle questionnaire that incorporated the Alcohol Use Disorders Identification Test (AUDIT). The criterion for identification as a hazardous drinker, and therefore eligible to the exploratory trial, was an AUDIT score of between 8 and 15 for males or between 6 and 15 for females (Bergman and Kallmen 2002). The number of employees who took part in the screening and trial are as follows:

Exploratory randomised controlled trial



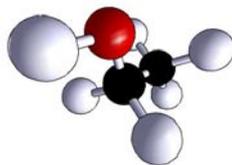
The data that were collected at both baseline and at follow-up 6 months after delivery of the intervention were:

- the AUDIT score
- variables from a 7-day retrospective drinking diary (the maximum number of units in one 24-hour period, the number of days in the week when alcohol was consumed, and the total consumption reported for the week)
- a generic measure of health-related quality of life based on the EQ-5D score
- information on use of health, social and voluntary sector service use
- a self-assessment of health state using a visual analogue scale (thermometer)

FINDINGS

Alcohol use variables and indicators of health

The analysis of the pre- and post-test data showed that the employees in the intervention group reported greater reductions than those in the control group



in terms of:

- the mean maximum number of units consumed in one 24-hour period
- the number of drinking days per week
- the mean number of units consumed in one week

The employees in the intervention group at follow-up reported fewer days use of hospital services and primary care than at baseline. This contrasts with the control group whose use of health care resources increased.

None of these changes reached levels of statistical significance, but the aim of the study was not to show the effectiveness of a brief intervention on alcohol use or health status. Rather, the aim was to provide data on which to calculate the sample size required for a randomised controlled study and to determine the feasibility of conducting such an investigation.

Both groups reported a statistically significant reduction in AUDIT scores at follow-up ($p = 0.004$) but there were no differences at either point between the groups.

Economic evaluation

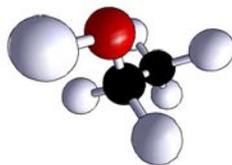
The total costs were:

- Screening: £5,043.36, i.e. £3.60 per individual screened
- Intervention: £12.48 per intervention
- Net saving of resources from the intervention: £332.02

Given the small sample size of this feasibility study, the estimate of £332.02 as the net saving of resources is subject to a wide margin.

Statistical power calculation

The statistical power calculation showed that 8,258 employees would need to be screened to identify 150 hazardous drinkers each for the intervention and



control group in order to achieve statistical power in excess of 90%. A sample size of 6,606 employees should be screened to detect 120 hazardous drinkers for both groups for a trial with a power of 80%. This estimate assumes attrition rate between pre- and post-test of up to 20%.

Acceptability of the screening and interventions

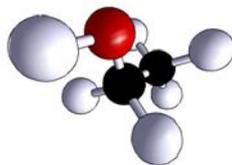
The views of participants of the acceptability of the screening and interventions were sought through a postal survey of 20% of those who had been selected as potential participants at the screening stage and through the use of open ended questions at the end of the follow-up telephone interview with the trial participants.

The vast majority (92%) of respondents indicated that they had been happy to take part in the general health and lifestyle survey in which the AUDIT was administered as the screening tool. Most (60.4%) said they would prefer to receive such questionnaires at their home address, compared with 16.7% whose preference was to receive it at work. 21.9% had no preference for either home or work. 70% felt that the Council's occupational health service should provide advice and information to employees about alcohol use and health.

When asked about the intervention, all except one participant were very positive about its content and the manner in which it had been carried out. Several participants commented that the intervention had raised their awareness of risks associated with alcohol use and had found the information about calculating the ethanol content of different beverages useful. They had appreciated receiving the Drink-Aware unit calculator wheel. Several said that, since the intervention, they now used smaller wine glasses when pouring drinks at home or used a measure for spirits.

IMPLICATIONS

The main results from the trial suggest that brief interventions in the workplace have the potential to reduce alcohol related harm and also save public sector resources. The employees in the intervention group reported greater reductions



than those in the control group in terms of the mean alcohol use variables, and fewer days use of hospital services and primary care than at baseline compared with those in the control group, whose use of such services rose at follow-up.

None of the analyses, however, indicated statistically significant effects, so the findings need to be regarded with caution. However, interesting trends were evident in this small sample and the study has shown that conducting a fully powered RCT of screening and delivering a brief intervention for hazardous alcohol use within the working population would make a useful contribution to the evidence base.

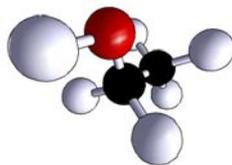
This study raises a number of feasibility issues that would face a full trial. First the screening method did not yield the expected number of hazardous drinkers and therefore the overall screening costs could be significant. Second, all the analyses point to the large sample size that would be needed for definitive trials possibly also with follow-up over longer periods so that a fuller impact of changes in drinking could be captured.

If the same design were to be adopted in a main study, 8,258 employees would need to be screened to identify 150 hazardous drinkers each for the intervention and control group in order to achieve statistical power in excess of 90%. A sample size of 6,606 employees should be screened to detect 120 hazardous drinkers for both groups for a trial with a power of 80%. These estimates assume attrition rate between pre- and post-test of up to 20%. It may be that a lower number of participants would require to be screened if a face-to-face or telephone method was used, but this was not an option in this study.

REFERENCES

Aalto M, Seppa K, Kiiianmaa K, Sillanaukee P. (1999) **Drinking habits and prevalence of heavy drinking among primary health care outpatients and general population.** *Addiction*. 94(9):1371-9.

Addley K, McQuillan P, Ruddle M. (2001) **Creating healthy workplaces in Northern Ireland: evaluation of a lifestyle and physical activity assessment programme.** *Occupational Medicine (Oxford)* 51(7):439-49.



Alcohol Concern (2006) **Impact of alcohol problems on the workplace.** *Acquire: Alcohol Concern's Quarterly Information and Research Bulletin*, Winter 2006, Alcohol Concern, London.

Bandura A. (1977) *Social learning theory*. Englewood Cliffs, N.J. Prentice Hall.

Bergman H, Kallmen H (2002) **Alcohol use among Swedes and a psychometric evaluation of the Alcohol Use Disorders Identification Test.** *Alcohol Alcohol* 37:245-251.

Department of Health, Royal College of Nursing, Association of Occupational Health Nurse Practitioners (UK) (2003). **Taking a Public Health Approach in the Workplace.** http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4069327

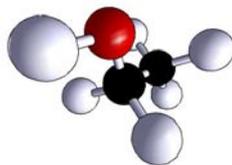
Fleming MF, Mundt MP, French MT, Manwell LB, Stauffacher EA, Barry KL. (2002) **Brief physician advice for problem drinkers: long-term efficacy and benefit-cost analysis.** *Alcohol Clin Exp Res.* 26(1), 36-43.

Hanlon P, McEwen J, Carey L, Gilmour H, Tannahill C, Tannahill A, Kelly M (1995) **Health checks and coronary risk: further evidence from a randomised controlled trial.** *British Medical Journal.* 311:1609-1613.

Hanlon P, Carey L, Tannahill C, Kelly M, Gilmour H, Tannahill A and McEwen J. (1998) **Behaviour change following a workplace health check: how much change occurs and who changes?** *Health Promotion International.* 13, 131-139.

Kaner EF, Dickinson HO, Beyer FR, Campbell F, Schlesinger C, Heather N, Saunders JB, Burnand B, Pienaar ED. (2007) **Effectiveness of brief alcohol interventions in primary care populations.** *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD004148. DOI: 10.1002/14651858.CD004148.pub3.

Miller WR. and Rollnick S. (2002) *Motivational interviewing: preparing people for change.* 2nd ed. London: Guilford Press.



Prochaska, J.O. and DiClemente C.C. (1984) *The transtheoretical approach: Crossing traditional boundaries. Ch.3.* Dow Jones-Irwin, Illinois.

Scottish Executive (2003) *Improving Scotland's Health: the Challenge.* The Stationery Office, Edinburgh.

World Health Organization (2006) http://www.who.int/occupational_health/Declarwh.pdf

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