

Effectiveness of general practice interventions for patients with harmful alcohol consumption

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SUMMARY. Harmful alcohol consumption can have severe consequences for both the individual and society. A review of the six published studies on the effectiveness of general practitioner interventions for individuals with harmful alcohol consumption suggests that between five and 10 minutes of advice leads to reductions of alcohol consumption of around 25–35% at follow up six months or one year later. Two of the three studies which failed to demonstrate an intervention effect had inadequate sample sizes and in two of the studies the control group was a comparison group which received minimal advice to reduce alcohol consumption. There was greater evidence for an intervention effect among men than women. The methodological problems of the studies are discussed.

Keywords: problem drinkers; screening; alcoholism treatment; research methodology.

Introduction

IN 1980, a World Health Organization expert committee stressed the need for efficient methods to detect people with harmful alcohol consumption before they suffered pronounced health and social consequences.¹ The committee also called for the development of strategies that could be applied in primary health care settings with a minimum of time and resources.

These recommendations came at a time when efforts to implement a public health approach to alcohol-related problems had been initiated in a number of countries.² Other reasons for the growing interest in alcohol screening and brief interventions are the apparent effectiveness of various behaviour change techniques for both excessive alcohol consumption and other lifestyle areas;³ the need to conserve health care resources; the appeal of early intervention as a means of preventing more severe alcohol related problems and alcohol dependence; a recognition of the need to broaden the base or focus of our definitions and approaches to alcohol problems⁴ and evidence which suggests that the burden of illness imposed on society by harmful alcohol consumption is greater than that imposed by alcohol dependence.⁵

General practice has been identified as a setting in which brief interventions for patients with harmful alcohol consumption can take place.⁶ Screening instruments have been developed to identify harmful alcohol use in general practice.^{7–9} This paper reviews the evidence for the effectiveness of brief interventions in general practice for patients with harmful alcohol use.

Studies of brief interventions in general practice

Six studies have investigated the effectiveness of brief interventions for individual patients in general practice (Table 1).^{10–17} Two further studies are in progress, one in New South Wales, Australia,¹⁸ and the other in Wisconsin, United States of America.¹⁹ A World Health Organization multicentre study in

countries recruited patients from a number of settings, including primary care, but in its final report did not specify results from general practice settings in developed countries.²⁰

Study of the DRAMS scheme

In the study of the DRAMS (drinking reasonably and moderately with self control) scheme in Scotland 78 men and 26 women heavy drinkers without evidence of dependence were recruited in general practice on the basis of a health screening questionnaire.^{10,11} The heavy drinkers were allocated randomly to three groups — a non-intervention control group, which received an assessment, an advice group, which received advice from the general practitioner to cut down on drinking, and an intervention group, which received an intervention from the general practitioner supplemented with patient materials modelled on stages of behavioural change. At six-month follow up, there was a significant reduction in the last month's self-reported alcohol consumption for all three groups combined, but no significant differences between the groups.

Medical Research Council study on lifestyles and health

In this study in the United Kingdom 909 men and women heavy drinkers were recruited on the basis of a health screening questionnaire.¹² Heavy drinkers were allocated randomly to a control group, which received an assessment interview, and to a treatment group. Those in the treatment group received 15 minutes of advice about reduction of their alcohol consumption from their general practitioner. An initial follow-up appointment one month later was offered to all the patients in the treatment group. Subsequent appointments at four, seven and 10 months were at the discretion of the general practitioner. A man and a woman, both in the treatment group, died during the study and were excluded from the analysis of outcome. The 322 men in the control group reduced their self-reported alcohol consumption from a mean of 640 g to 560 g per week at one-year follow up. The 318 men in the treatment group reduced their consumption from 620 g to 440 g per week. This was a highly significant difference ($P < 0.001$) which was corroborated by significant differences in gamma-glutamyl transpeptidase level ($P < 0.01$). For the women a treatment effect was also observed, although the magnitude was less. The 137 women in the control group reduced their self-reported consumption from a mean of 370 g to 300 g per week at one-year follow up, whereas the 130 women in the treatment group reduced their consumption from 350 g to 240 g per week ($P < 0.05$). For the women, there was no significant difference between the treatment and control groups in gamma-glutamyl transpeptidase levels at follow up. The study also demonstrated that the proportion of excessive drinkers decreased in relation to the number of general practitioner advice sessions attended — for the 53 men who only received one advice session, 79% remained excessive drinkers at one-year follow up whereas for the 59 men who received five advice sessions 41% remained excessive drinkers; corresponding figures for women were 67% ($n = 9$) and 31% ($n = 32$).

Hämeenlinna study

This study in Finland recruited patients from a community screening programme on the basis of gamma-glutamyl transpeptidase levels.¹³ Two hundred and forty seven men were allocated

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Table 1. Effectiveness of brief interventions in general practice.

Study	Inclusion criteria (alcohol consumption or GGT level)	Size of study sample	Follow-up period	Statistical difference between control and treatment groups
DRAMS scheme ^{10,11}	Men >350 g per week Women >200 g per week	78 26	6 months	No
MRC ¹²	Men >350 g per week Women >210 g per week	641 268	1 year	Yes Yes
Hämeenlinna ¹³	Men GGT>60 IU l ⁻¹	247	1 year	No ^a
Stockholm ¹⁴	Men >280 g per week or GGT>60 IU l ⁻¹ Women > 210 g per week or GGT>36 IU l ⁻¹	70 13	1 year	No ^a
Royal Prince Alfred Hospital ¹⁵	Men >300 g per week Women >210 g per week	312 171	6 months	Yes
Oxford ^{16,17}	Men > 350 g per week Women >210 g per week	154 72	1 year	Yes No

DRAMS = drinking reasonably and moderately with self control. MRC = Medical Research Council. GGT = gamma-glutamyl transpeptidase. ^aThe control group was a comparison group which received minimal advice.

randomly to a control group, which received one advice session from a general practitioner to reduce alcohol consumption, and an intervention group, which received additional advice from a general practitioner and was educated about and encouraged to decrease alcohol consumption. At one-year follow up, there were significant reductions in mean gamma-glutamyl transpeptidase levels in both groups, but no differences between the control and intervention groups.

Stockholm study

In this study participants were recruited from a health examination of random samples of the adult population in Stockholm county, Sweden on the basis of a high alcohol consumption or an elevated gamma-glutamyl transpeptidase level.¹⁴ Seventy men and 13 women without evidence of dependence were allocated randomly to a comparison group, which received one session of advice from the general practitioner to cut down on alcohol consumption, and to an intervention group, which in addition received advice from the general practitioner, at, on average, three further visits. At one-year follow up, there were greater, although not significantly greater, reductions in mean gamma-glutamyl transpeptidase level and self-reported alcohol consumption in the intervention group than in the comparison group.

Royal Prince Alfred Hospital study

The results of this study, carried out in New South Wales, Australia, have been reported as part of the World Health Organization study.^{15,20} The study population, which excluded those with evidence of dependence, was recruited from different settings — 185 heavy drinkers from a hospital setting, 199 from a medicheck (private health screen) setting and 99 from general practice. Individuals were allocated randomly to one of four groups — a control group, which received an assessment, a simple advice group, which received five minutes of advice to cut down on drinking, an advice and counselling group, which received further advice supplemented with self-help material, and an extended counselling group. In the hospital and medicheck settings the interventions were largely administered by nurses, and in the general practice setting by general practitioners. At six-month follow up those in the control group had reduced their weekly self-reported alcohol consumption by a mean of 14%, those in the simple advice group by 25%, those in the advice and counselling group by 35% and those in the extended counselling group by 28% (analysis of variance for study group, $P<0.05$). There were no significant differences in the reduction of alcohol consumption between the three intervention groups and there

was no difference in outcome between men and women. The reduction in alcohol consumption was greater for patients in the medicheck setting (mean 86 g per week) than in the hospital setting (46 g per week) or general practice setting (18 g per week) (analysis of variance for intervention site, $P<0.001$).

Oxford study

In this study in Oxford, England 154 men and 72 women heavy drinkers without evidence of dependence were recruited using a screening questionnaire.^{16,17} Individuals were randomly allocated to a control group, which received an assessment interview, and to a treatment group, which received 10 minutes of advice from the general practitioner to cut down on drinking. At one-year follow up men in the control group had reduced their self-reported alcohol consumption from a mean of 530 g to 440 g per week and men in the treatment group from a mean of 520 g to 360 g per week ($P<0.05$). Women in both the treatment and the control groups had reduced their consumption from 360 g per week to 250 g per week.

World Health Organization study

This study was a cross-national multicentre clinical trial of brief intervention procedures designed to reduce the health risks associated with harmful alcohol use.²⁰ A total of 1655 heavy drinkers (1356 men and 299 women) who were not alcoholic were recruited from hospital settings, primary care clinics, work sites and educational institutions (exact numbers recruited in each setting not given). Individuals were recruited on the basis of their alcohol consumption (350 g per week or more for men and 225 g per week or more for women) or their frequency of intoxication (100 g or more on one occasion twice or more per month for men and 65 g or more on one occasion twice or more per month for women). Eight out of 10 centres followed a core research design that consisted of randomly assigning heavy drinkers to three groups — a control group, which received an assessment interview, a simple advice group, which received in addition five minutes of advice about the importance of sensible drinking or abstinence and a brief counselling group, which as well as the advice received a self-help manual and an extra 15 minutes of counselling. The professional providing the advice was a nurse for 46% of patients, a psychologist for 18%, a doctor for 18% and another professional for 18%.

The men in the control group reduced their typical daily self-reported consumption by a mean of 10%, while men in the simple advice group reported 38% less alcohol consumption (versus control group, $P<0.05$) and those in the brief counselling group

32% less alcohol consumption (versus control group, $P < 0.05$). For the women, significant reductions in alcohol consumption were observed in all the groups, with no significant differences between the groups.

Methodological problems of the studies

Recruitment

General practitioners. There was great variability in the percentage of general practitioners who agreed to participate in the studies. This reflects the applicability of the interventions to general practice as well as general practitioners' interest in research.²¹ Heather has suggested that a study involving a small select group of general practitioners who are interested in research and prepared to keep to protocols will determine whether interventions work under optimum conditions.¹¹ The results from such trials can be used to encourage others to take up the interventions and the wider applicability of the interventions in general practice can then be investigated. Thus, in the first instance maintaining a high internal validity with good research design and support is essential in order to ascertain whether interventions work, and then the issue of the generalizability of the methods becomes important, a test of external validity.

Patients. Maintaining the recruitment rate of eligible patients in order to achieve the required number of patients can be one of the problems of clinical trials in general practice. Recruitment rates usually plateau after about three months. Wodak and colleagues have attempted to overcome this problem by allocating three or four general practices to one research assistant, who visits these practices almost every day.¹⁸ Receptionists receive payments for each screening questionnaire completed by patients and for each eligible person who agrees to join the study. In the World Health Organization study recruitment from general practice sites had to be abandoned or supplemented with recruitment from other sites, because of recruitment difficulties and poor staff cooperation.^{20,22}

The representativeness of patients who participated in the studies needs to be considered.²³ Two methods have been used to identify the study sample. First, opportunistically, when patients present with medical complaints the general practitioner asked them to join the study or invited them based on their answers to a screening questionnaire completed in the waiting room. Secondly, practice patients identified themselves and actively sought help from the general practitioner after receiving a letter, postcard or questionnaire through the post. Opportunistic recruitment may be more representative of typical, day-to-day general practice while other methods of recruitment may lead to response bias by selecting patients who are motivated to change.

Enormous effort was expended in collecting study samples. In the Medical Research Council study the total number of completed questionnaires was 62 153.¹⁰ After excluding those who were ill, had died or had moved away in the interim period, the number of people who, on the basis of the screening questionnaire, were eligible to join the study was 4203. Of those invited, 2571 attended the initial interview (61%), with attendance rates ranging from 27% to 89% in the 47 practices, and being higher among women and older patients who had lower levels of alcohol consumption. Nine hundred and nine patients were found to be eligible to enter the trial. Considerable administration was required to derive the study sample, which represented 1.5% of the questionnaires returned and 22% of the patients who were eligible for the study.

Such difficulties in deriving the study sample indicate that caution should be used in extrapolating results to the entire population of general practice patients.²⁴ In order to generalize in this

way it is necessary to know if the characteristics of the non-participating eligible patients are the same as those of the eligible and participating patients. Anderson and Scott reported a 48% recruitment rate among eligible patients — they found that non-participants were heavier drinkers than recruited subjects.^{16,17}

Compliance with research protocols

General practitioners. When interpreting the evidence from trials, it is important to ascertain compliance with the research protocols and intervention requirements. It is impossible to know exactly what goes on behind closed doors unless doctor-patient consultations are taped. Two of the studies reviewed here have reported marked discrepancies between what was designed and the actual intervention provided.^{10,11,16,17} Contamination was a problem in the study of the DRAMS scheme where some subjects in the control group inadvertently received some discussion of their drinking and were given a self-help manual, whereas some of the intervention group denied receiving either advice or the manual.^{10,11} When the results were re-analysed to include only those subjects who followed the correct procedure, there was evidence of greater success rates in the intervention group than in the group receiving brief advice, and the change in the proportion drinking over the inclusion criteria in the intervention group between initial and follow-up assessment was found to be significant.^{10,11}

Contamination was also a problem among the women subjects in the study of excessive drinkers in Oxford,¹⁶ but not among the men.¹⁷ When the results were analysed according to the research design, there was no evidence of a superior effect of general practitioner advice among women heavy drinkers. However, when the results were reanalysed on the basis of what had actually happened, as recorded in the medical notes, there was evidence of an independent effect of advice.¹⁶

Patients. In one study the research protocol was breached by patients: in the study of the DRAMS scheme, 10 out of 34 subjects in the intervention group did not return for the recommended consultation two weeks into the intervention.^{10,11}

Follow up and outcome

When identifying the key components of successful interventions in general practice, it is difficult to make direct comparisons between studies. Follow-up intervals of six or 12 months have been used. Follow up for longer than one year has not been used, probably owing to the costs involved in conducting long-term studies. There were also different criteria for evaluating success and a variety of cut-off points for acceptable controlled drinking levels were used. Studies presented outcome in terms of mean changes in consumption of alcohol and/or changes in the proportions of study samples consuming below recommended safe levels according to national guidelines. Mean changes in gamma-glutamyl transpeptidase levels have been used as a corroborative measure of mean changes in self-reported alcohol consumption, although at an individual level, gamma-glutamyl transpeptidase level has not been used to validate self-reported alcohol consumption. This is probably due to the poor sensitivity and specificity of gamma-glutamyl transpeptidase levels in relation to excessive drinking.⁹ Generally, subjects lost to follow up were regarded as treatment failures rather than excluded from the analysis.

Successful interventions in general practice

The first decade of trials in general practice has focused on outcome.¹⁰⁻¹⁷ Two studies have found general practitioner's advice to be superior to non-intervention and other control conditions.^{12,16,17} In both studies, greater effects were found for men

than for women. In the Medical Research Council study, a greater investment of the general practitioner's time through repeat visits led to improved outcomes.¹² This 'dose-response' effect may be due to a synergistic effect of repeated visits as well as greater motivation on the part of the patients who chose to return to the general practitioner.

Of the three studies which failed to demonstrate an effect two had small sample sizes,^{10,11,14} and in two of them there was a significant reduction of alcohol consumption in the control and intervention groups combined.^{10,11,13} In two studies the control group was a comparison group which received minimal advice to reduce alcohol consumption.^{13,14}

The Royal Prince Alfred Hospital which recruited from three sites, found that the outcome of the intervention groups was superior to that of the control group.¹⁵ There was no difference between men and women and no evidence for an improved outcome from a greater intensity of intervention. Patients recruited from general practice demonstrated a smaller change in alcohol consumption than patients recruited from the medicheck or hospital sites.

The World Health Organization study of brief interventions in primary health care reported that advice had an impact for men, but not for women.²⁰ The results also showed that five minutes of advice was as effective as brief counselling that included a self-help manual.

The results of the studies reviewed here with adequate sample sizes suggest that very brief advice leads to reductions in alcohol consumption of 25–35%^{12,15–17} and reductions in the proportions of excessive drinkers of around 45%.¹²

The studies provide for some understanding of the effective components of brief interventions. First, the target of brief intervention should be a reduction in the consumption of alcohol itself. Very brief interventions can be defined as those which include between five and 10 minutes of simple advice plus a leaflet, and brief interventions as those which include condensed cognitive behavioural therapy, the use of self-help manuals and follow-up visits.²³ At present, there is little evidence to suggest that brief interventions are superior to very brief interventions. The incorporation of the principles of the process of change model²⁵ and the techniques of motivational interviewing^{26,27} may lead to improved outcomes.

Secondly, age, socioeconomic status and marital status do not appear to predict outcome.^{16,17,20} Thirdly, initial level of consumption predicted outcome, with heavier drinkers in the World Health Organization study reducing their alcohol consumption by a significantly greater amount at follow up than lighter drinkers,²⁰ but this finding was not repeated in the Oxford study.^{16,17}

Fourthly, in the World Health Organization study, among those with a long-term alcohol problem, brief counselling worked best while among those with a recent problem, simple advice worked best. This suggests that the effect of minimal intervention is enhanced when the patient has experienced a recent problem caused by alcohol.

Finally, there is greater evidence of a treatment effect among men than women; in two studies the alcohol consumption of women in the control groups changed as much as those in the treatment groups.^{16,17,20} Further work is needed in this area, and it may be that sex-specific intervention strategies should be evaluated.

References

1. World Health Organization. *Problems related to alcohol consumption. Report of a WHO expert committee. Technical report series 650*. Geneva, Switzerland: WHO, 1980.

2. Babor T, Ritson B, Hogson R. Alcohol related problems in the primary health care setting: a review of early intervention strategies. *Br J Addict* 1986; **81**: 23-46.
3. Kottke T, Battista R, de Friese G, Brekke M. Attributes of successful smoking interventions in medical practice: a meta-analysis of 39 controlled trials. *JAMA* 1988; **259**: 2883-2988.
4. Institute of Medicine. *Broadening the base of treatment for alcohol problems*. Washington, DC: National Academy Press, 1990.
5. Krietman N. Alcohol consumption and the preventive paradox. *Br J Addict* 1986; **81**: 353-363.
6. Royal College of General Practitioners. *Alcohol — a balanced view. Report from general practice 24*. London: RCGP, 1986.
7. Saunders JB, Aasland OG. *WHO collaborative project on identification and treatment of persons with harmful alcohol consumption. Report on phase 1. Development of a screening instrument*. Geneva, Switzerland: World Health Organization, 1987.
8. Babor TF, de la Fuente JM, Saunders J, Grant M. *The alcohol use disorders identification test*. Geneva, Switzerland: World Health Organization, 1989.
9. Anderson P. Self-administered questionnaires for diagnosis of alcohol abuse. In: Watson RR (ed). *Diagnosis of alcohol abuse*. Boca Raton, FL: CRC Press, 1989.
10. Heather N, Campion PD, Neville RG, MacCabe D. Evaluation of a controlled drinking minimal intervention for problem drinkers in general practice (the DRAMS scheme). *J R Coll Gen Pract* 1987; **37**: 358-363.
11. Heather N. Lessons from a controlled evaluation of a general practice minimal intervention for problem drinking. *Aust Drug Alcohol Rev* 1988; **7**: 317-328.
12. Wallace PG, Cutler S, Brennan PJ, Haines A. Randomised controlled trial of general practitioner intervention in patients with excessive alcohol consumption. *BMJ* 1988; **297**: 663-668.
13. Svokas A, Roine RP, Ylikahri R, et al. *Hämeenlinna study — early intervention of heavy drinking in a primary health care setting*. Paper presented at 35th International Congress on Alcoholism and Drug Dependence, Oslo, Norway, 1988.
14. Romelsjo A, Andersson L, Barnner, et al. A randomized study of secondary prevention of early stage problem drinkers in primary health care. *Br J Addict* 1989; **84**: 1319-1327.
15. Saunders JB, Reznik RB, Hanratty S, et al. *Early intervention for harmful alcohol consumption*. Canberra, Australia: Department of Community Services and Health, 1991.
16. Scott E, Anderson P. Randomised controlled trial of general practitioner intervention in women with excessive alcohol consumption. *Drug Alcohol Rev* 1990; **10**: 313-321.
17. Anderson P, Scott E. The effect of general practitioners' advice to heavy drinking men. *Br J Addict* 1992; **87**: 891-900.
18. Wodak AD, Richmond RL, Webster IW, et al. Alcohol screen: detection, assessment and minimal intervention for problem drinkers in general practice. *Drug Alcohol Rev* 1993 (in press).
19. Flemming M, Barry K, Brown R, Manwell L. *Trial for early alcohol treatment*. University of Wisconsin, Madison Medical School, 1991.
20. Babor T, Grant M (eds). *Project on identification and management of alcohol-related problems, report on phase II: a randomized clinical trial of brief interventions in primary health care*. Geneva, Switzerland: World Health Organization, 1992.
21. Richmond R, Anderson P. Research in general practice for smokers and drinkers in Australia and the UK. II. Representativeness of the results. *Addict* 1993 (in press).
22. Rollnick S, Hodgson RJ, Smail S. Cardiff, United Kingdom. In: Babor T, Grant M (eds). *Project on identification and management of alcohol-related problems, report on phase II: a randomized clinical trial of brief interventions in primary health care*. Geneva, Switzerland: World Health Organization, 1992.
23. Richmond R, Anderson P. Research in general practice for smokers and drinkers in Australia and the UK. I. Interpretation of the results. *Addict* 1993 (in press).
24. Richmond R, Anderson P. Research in general practice for smokers and drinkers in Australia and the UK. III. Dissemination of interventions. *Addict* 1993 (in press).
25. Prochaska JO, DiClemente CO. Towards a comprehensive model of change. In: Miller WR, Heather N (eds). *Treating addictive behaviours: process of change*. New York, NY: Plenum Press, 1986.
26. Miller W, Rollnick S. *Motivational interviewing*. New York, NY: Guilford Press, 1991.
27. Rollnick S, Heather N, Bell A. Negotiating behaviour change in medical settings: the development of brief motivational interviewing. *J Ment Health* 1992; **1**: 25-37.

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