Evaluation of a controlled drinking minimal intervention for problem drinkers in general practice (the DRAMS scheme)

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SUMMARY. Sixteen general practitioners participated in a controlled trial of the Scottish Health Education Group's DRAMS (drinking reasonably and moderately with self-control) scheme. The scheme was evaluated by randomly assigning 104 heavy or problem drinkers to three groups — a group participating in the DRAMS scheme (n = 34), a group given simple advice only (n = 32) and a non-intervention control group (n = 38). Six month follow-up information was obtained for 91 subjects (87.5% of initial sample). There were no significant differences between the groups in reduction in alcohol consumption, but patients in the DRAMS group showed a significantly greater reduction in a logarithmic measure of serum gamma-glutamyl-transpeptidase than patients in the group receiving advice only. Only 14 patients in the DRAMS group completed the full DRAMS procedure. For the sample as a whole, there was a significant reduction in alcohol consumption, a significant improvement on a measure of physical health and well-being, and significant reductions in the logarithmic measure of serum gamma-glutamyl transpeptidase and in mean corpuscular volume. The implications of these findings for future research into controlled drinking minimal interventions in general practice are discussed.

Introduction

FOLLOWING the pioneering work of Wilkins[1] and the report of the Department of Health and Social Security Advisory Committee on Alcoholism,[2] increasing attention has been paid to expanding the role of primary care professionals in their response to alcohol problems and, in particular, to encouraging general practitioners to become involved in the identification and treatment of such problems.[3-15] At the same time, the goal of controlled drinking for low-dependence problem drinkers, as an alternative to total abstinence, has attracted some interest.[16] This goal has been used in combination with 'minimal interventions' that involve lower costs and less professional time than conventional, hospital-based treatments.[17] A controlled drinking minimal intervention appears especially appropriate for the purposes of early intervention and secondary prevention at the primary care level and this is emphasized in the recent report on alcohol problems by the Royal College of General Practitioners.[18]

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The DRAMS scheme

The DRAMS (drinking reasonably and moderately with self-control) scheme was developed by the Scottish Health Education Group as a simple, interactive method for use by general practitioners with heavy drinkers or low-dependence problem drinkers in their practices. The DRAMS kit consists of: (1) a four-page introductory leaflet for general practitioners; (2) a medical record card for use by the doctor for patient details, results of blood tests (blood alcohol concentration, mean corpuscular volume and gamma-glutamyl transpeptidase levels), weekly self-monitored alcohol consumption, and a medical questionaire with a checklist of 10 medical complications, adverse social consequences and signs of physical dependence; (3) a two-week self-monitoring drinking diary card for use by the patient; (4) a 59-page self-help book, a pocket-sized and abbreviated version of a self-help manual for controlled drinking[19] also produced by the Scottish Health Education Group.

If the doctor suspects that a patient has a drinking problem the 10 items of the medical questionnaire should be checked and responses entered on the medical record card. Any positive response suggests the existence of a drinking problem and the doctor should consider raising this with the patient. If the patient agrees, a blood sample is taken, the patient is handed the drinking diary card and asked to fill it in as honestly as possible, and a follow-up consultation in two weeks time is arranged. At the follow-up consultation, the results of blood tests and the drinking diary card are reviewed with the patient and, if the existence of a drinking problem is confirmed, the doctor advises him or her to try to control the amount consumed. The patient is then introduced to the self-help book and encouraged to decide on a realistic plan of action based on the measures suggested in the book and using further diary sheets. Additional appointments are made at which the patient's medical condition and progress at cutting down are reviewed, using the results of further blood tests.

The value of feedback on gamma-glutamyl transpeptidase levels in the treatment of alcohol problems has been shown by the results of the Malmo study of middle-aged, male, heavy drinkers — an intervention group given feedback showed significantly reduced levels compared with a control group at two-year follow-up[20] and over a period of 60 months.[21]

The feasibility of the DRAMS scheme and its acceptability to general practitioners and patients has been examined in a pilot project in the Highlands and Islands region of Scotland.[22] This paper concerns the results of a controlled evaluation of the DRAMS scheme by comparing it with simple advice and a non-intervention control. The intention was to evaluate the scheme in conditions approximating to its anticipated routine use by general practitioners. Because previous evidence suggests the effectiveness of a controlled drinking, minimal intervention for problem drinkers recruited by advertisements in the media,[23] it was hypothesized that the DRAMS scheme would be superior to simple advice and to no intervention in enabling heavy and

problem drinkers to reduce consumption and improve their general heath.

Method

Sixteen general practitioner principals from eight urban teaching practices associated with the University of Dundee Department of General Practice participated in the trial. A group briefing session for these general practitioners was followed by individual briefings as necessary. Meetings to review the project were held at regular intervals throughout the study period.

Screening

The design of the study called for the screening of all patients aged 18–65 years attending their doctor during a period between March and December 1985 which varied from five to nine months, depending on the practice involved. The one-page screening instrument used was a health questionnaire, adapted from one used by Anderson in Oxford (Anderson P. Personal communication). The questionnaire asks about dieting, exercising, cigarette smoking and drinking during the previous month and allows the calculation of mean units of alcohol consumed per week (1 unit is approximately equal to 8 g pure ethanol). The questionnaire was handed out by the practice receptionist and the patient was asked to fill it in before seeing the doctor. The confidential nature of the information requested was stressed but all refusals were accepted without comment.

Criteria for entry to the trial

At the beginning of the consultation the doctor ensured that the health questionnaire had been correctly completed and then after dealing with the presenting problem, calculated the weekly consumption of alcohol. If this was above 35 units per week for men and 20 units per week for women, the patient was eligible for the trial and was asked the 10 questions from the medical questionnaire. When consumption was below these levels, general practitioners were requested to consider other evidence of an alcohol-related problem from the patient's notes or a clinical impression. If such clinical suspicion were present, the patient was then asked the 10 questions from the medical questionnaire and any positive response was grounds for eligibility to the trial.

The general practitioner then asked all eligible patients further questions from the 'late dependence' section of the Brief Edinburgh Alcohol Dependence Schedule[24] and if any evidence of late dependence were obtained, the patient was excluded from the trial. General practitioners were advised to consider referral of such patients to specialist psychiatric services. Patients were also excluded if they had known liver disease or severe mental illness, were receiving antidepressant medication, were of subnormal intelligence, were dependent on opiate drugs or were pregnant.

All patients not excluded were then asked to take part in a research project to study 'the way people's drinking changes over time'. The doctor stressed that all information gathered would be kept in the strictest confidence and that the project had nothing to do with alcoholism. Patients who agreed to take part then signed a consent form.

Study groups

Patients were randomly allocated to one of the three study groups. Patients allocated to the DRAMS group followed the scheme as described. Patients in the group receiving advice only were informed that their drinking could be harmful and were given strong advice, in the doctor's own words, to 'cut down', but no precise quantities of consumption were recommended and no follow-up consultations regarding their alcohol problem were arranged. The doctor explained to the patients in the control group that the research study would involve a blood test and an assessment interview, but made no specific reference to treatment or drinking and arranged no follow-up consultations in connection with their alcohol problem.

Following allocation to a study group, a blood sample was taken and the patient was then asked to see a research interviewer for an initial assessment. If this was not possible immediately after the consultation, it took place within one or two days. Patients who did not return or respond to attempts at contact were excluded from further study.

Initial assessment interview

This interview covered the following areas: (1) Demographic, employment and other personal information. (2) Drinking history. (3) Self-definition as a problem drinker or alcoholic. (4) A detailed measure of monthly level of consumption using the method of Robertson and colleagues.[25] (5) Heaviest month's consumption during the last six months, in cases where the last month's drinking was not typical. (6) The Michigan alcoholism screening test,[26] together with a measure of severity of physical dependence on alcohol (Ph score).[27] (7) A self-completion questionnaire giving standardized, scaled scores on factors related to outcome of treatment for alcohol problems, including physical health and well-being (general health status, comparison of health with others of same age, feeling tired or exhausted, whether sleeping at night, ill with colds, influenza and so on, current medical problems, receiving medical assistance, number of current health problems) and control of drinking problems (health problems due to drinking, diminished control over consumption, neglect of responsibilities, being drunk in public, salience of alcohol, recognition of problem). For both factors, higher scores indicate better adjustment.

Follow-up assessment interview

Six months after the initial consultation, patients were sent a letter asking them to choose a suitable time for a further interview. The majority of the interviews took place at the practices but a few patients were seen at home. Subjects who refused or who could not be contacted were given or sent a short self-completion follow-up questionnaire to record alcohol consumption during the last month and factor score items and asked to return it by post. The full follow-up interview covered the same areas as the initial interview with the exception of drinking history, the Michigan alcoholism screening test and the Ph score. The interviewers were blind to the patient's study group and patients were requested not to reveal details of the treatment they had received. The study group to which the patient belonged was established in a debriefing procedure and patients were asked how useful they had found the advice and materials they had received. Patients in the DRAMS group were asked whether or not they had complied with the various parts of the procedure. Finally, a further blood sample was requested.

Collateral interview

Patients seen for the follow-up interview were asked to name a person who knew them well and who could be approached for an opinion as to how they were progressing. They were either seen in person or interviewed by telephone and asked about their knowledge of the patient and his or her drinking, whether the patient had ever had any problems with drinking, and whether drinking, drinking problems or their relationship with the patient had changed over the last six months. Collaterals were not asked about precise quantities of consumption.

Record of patient attendance

When the patient's follow-up interview had been completed, the general practitioner was sent a form requesting information on whether the procedure had been successfully followed, including information on consultation patterns and attendance.

Results

Characteristics of patients

A total of 104 patients were admitted to the trial and completed initial assessment interviews — 26 were admitted on the basis of weekly consumption above the previously defined limits, nine because of at least one positive response on the medical questionnaire, and 64 were eligible under both these criteria. Five subjects were admitted to the trial, presumably on the clinical suspicion of their doctor, although they were not eligible under either of the entry criteria.

The mean age of the patients was 36.4 years (standard deviation 12.2 years, range 18–64 years). There were 78 men and 26 women.

Twenty-one patients admitted to a current problem with drinking (mean duration 5.9 years, range 0–27), but only one of these defined himself as an alcoholic. Only three patients had come to see their doctor to complain about an alcohol problem.

The mean score for the group on the Michigan alcoholism screening test was 7.2 (SD 5.9). According to categorization guidelines for scores on this test[27] 13 patients had no problems with alcohol (score 0), 25 had mild problems (score 1–4), 38 had moderate problems (score 5–10), 24 had significant problems (score 11–20) and four had severe problems (score > 20).

The mean Ph score for the group was 4.6 (SD 3.0). According to guidelines for categorizing these scores,[27] three patients had no symptoms of dependence on alcohol (score 0), 55 had mild symptoms (score 1–4), 42 had definite and significant symptoms (score 5–10), three had substantial dependence (score 11–14), and one had severe dependence (score > 15).

After the initial assessment interviews there were 34 patients in the DRAMS scheme group, 32 in the group receiving advice only and 38 in the control group.

Follow-up rates

Follow-up information was obtained for 91 patients (88% of original group): 29 patients in the DRAMS group (85%), 30 in the group receiving advice only (94%) and 32 in the control group (84%). Of the 13 patients lost to follow-up six had moved away, four could not be contacted, two refused an interview and one had died (pancreatic carcinoma). There were no significant differences between patients followed up and those not followed up on initial measures and no significant differences in follow-up rates between groups. Of the 91 patients followed up, 76 completed a full interview (73% of the original sample). Collateral information was available for 46 of these patients and blood test results for 56. Blood test results were usually unavailable because no qualified personnel were available at time of the interview; only three patients refused a blood test at follow-up.

Analysis of change

There were no significant differences between the three groups on initial drinking measures but all three groups had decreased alcohol consumption at follow up (Table 1). In an analysis of covariance, using initial consumption scores as the covariate, there were no significant differences between groups for either the last month's or the heaviest month's consumption. For the total sample, the reduction in last month's consumption from initial assessment to follow-up was significant ($P<0.01$, two-tailed test) (Table 1). Table 1 shows that there was little change in factor scores measuring control of drinking problems.

There was a wide variation in changes in consumption among the patients. In all three groups, the majority of patients showed modest decreases in consumption (<100 units) but some increased their consumption.

Clinically important changes in consumption can only be defined as a change from above the recommended drinking levels, that is, 140 units per month for men and 80 units per month for women, to below these levels. In the DRAMS group, 21 (72%) of the patients followed up were drinking above these levels at the initial assessment but this had dropped to 15 (52%) at follow-up. In the advice group, the numbers fell from 19 (63%) to 16 (53%) while in the control group, the numbers fell from 22 (69%) to 19 (59%). Thus there were reductions in the proportions of those drinking above recommended levels in all three groups but these reductions were not statistically significant.

Table 2 shows changes in gamma-glutamyl transpeptidase levels, mean corpuscular volume and scores for physical health and well-being from initial assessment to follow-up for subjects with data at both assessments. To correct for the skewed distribution of gamma-glutamyl transpeptidase levels, logarithms were calculated and an analysis of convariance then showed that there were significant differences between the study groups ($P<0.05$, one-tailed test). Using t-tests showed that the difference between the DRAMS and advice groups for this measure was significant ($P<0.05$, one-tailed test); the differences between the DRAMS and control groups and the advice and control groups were not significant. For the overall sample there was a significant reduction in this measure ($P<0.05$, two-tailed test) (Table 2).

Although the DRAMS group showed a greater mean improvement in physical health and well-being than the other two groups (Table 2), there were no significant differences between groups for this variable or for mean corpuscular volume. However, for the follow-up sample as a whole, there was a significant reduction in mean corpuscular volume ($P<0.05$, two-tailed test) and a significant improvement in physical health and well-being ($P<0.01$).

Table 1. Means of drinking measures at initial and follow-up assessments for the three study groups and complete follow-up sample (standard deviations in parentheses).

	Last month's consumption (units)		Heaviest month's consumption in last six (units)		Control of drinking problems (factor scores)	
	Initial	Follow-up	Initial	Follow-up	Initial	Follow-up
DRAMS group [$n=29$][a]	170.3 (88.6)	136.8 (84.7)	215.7 (125.4)	184.6 (91.6)	420.0 (133.6)	419.7 (149.8)
Advice group [$n=30$][b]	178.0 (96.1)	147.5 (123.3)	224.0 (92.0)	213.3 (160.3)	457.4 (99.2)	448.0 (111.5)
Control group [$n=32$][c]	231.7 (156.6)	195.2 (144.6)	243.4 (185.2)	220.0 (160.0)	420.3 (122.8)	394.4 (143.7)
All patients [$n=91$][d]	194.4 (121.0)	160.9** (122.4)	227.5 (140.1)	205.9 (139.5)	432.4 (119.3)	420.1 (136.3)

**$P<0.01$ follow-up versus initial. [a]$n=26$, [b]$n=23$, [c]$n=27$, [d]$n=76$ for heaviest month's consumption in last six as this was not included in the self-completion postal questionnaire.

Table 2. Means of health-related measures at initial and follow-up assessments for the three study groups and complete follow-up sample (standard deviations in parentheses).

	GGT Level (IU l^{-1})		Log GGT level		MCV (fl)		Physical health and well-being (factor scores)	
	Initial	Follow-up	Initial	Follow-up	Initial	Follow-up	Initial	Follow-up
DRAMS group	51.6 (53.9) [n=16]	30.1 (23.5)	3.5 (0.9) [n=16]	3.2 (0.6)	91.9 (4.4) [n=14]	91.8 (4.4) †	357.1 (136.7) [n=29]	410.8 (127.1)
Advice group	29.1 (21.0) [n=14]	26.1 (18.7)	3.1 (0.9) [n=14]	3.0 (0.8)	92.5 (4.5) [n=13]	90.9 (3.5)	387.6 (94.5) [n=29]	418.3 (136.5)
Control group	40.0 (23.0) [n=14]	41.9 (31.4)	3.6 (0.6) [n=14]	3.5 (0.6)	93.1 (4.5) [n=10]	91.2 (3.5)	341.7 (140.5) [n=32]	378.1 (109.9)
All patients	40.8 (37.4) [n=44]	32.6 (25.3)	3.4 (0.8) [n=44]	3.3 (0.7)*	92.4 (4.3) [n=37]	91.3 (3.8)*	361.4 (126.2) [n=90]	401.6 (124.3)**

GGT = gamma-glutamyl transpeptidase. MCV = mean corpuscular volume.
*$P<0.05$, **$P<0.01$ follow-up versus initial. † $P<0.05$ DRAMS versus advice group.

Corroboration of changes in self-reported consumption

Table 3 shows the relationship between the collaterals' reports of changes in drinking from initial consultation to follow-up and changes in the 46 subjects' own reports of last month's consumption. The contingency coefficient derived from Table 3 was 0.44 ($P < 0.001$). Table 3 shows that there was generally good agreement between the collateral's and the patient's own reports. In particular, there was only one case in which a self-reported decrease in consumption by 25% or over was accompanied by a collateral report of increased drinking, and only two cases in which a self-reported increase in drinking by 25% or over was accompanied by a collateral report of drinking less. Essentially the same picture emerged when self-reported consumption was compared with collateral estimates of changes in the extent to which drinking was a problem for the patient and when self-reported heaviest month's consumption was compared with collateral estimates of changes in consumption.

Table 3. Relationship between collaterals' reports of changes in consumption during follow-up period and changes in patients' self-reported last month's consumption. Number of patients shown (total $n=46$).

Change in self-reported consumption	Collaterals' report of change in consumption			
	Somewhat more	About the same	Somewhat less	Much less
Greater than 25% increase	3	6	2	0
Between 25% increase and 25% decrease	3	5	2	1
Greater than 25% decrease	1	7	9	7

Table 4. Number of further consultations in the six-month follow-up period for each group and overall sample.

	Total no. of consultations			No. of consultations at which drinking discussed		
	Mean	(SD)	Range	Mean	(SD)	Range
DRAMS group [n=29]	4.4	(3.5)	0–10	1.5	(1.3)	0–5
Advice group [n=30]	3.0	(3.1)	0–11	0.8	(1.0)	0–3
Control group [n=32]	3.6	(3.3)	0–11	0.7	(1.3)	0–5
All patients [n=91]	3.6	(3.3)	0–11	1.0	(1.3)	0–5

SD = standard deviation.

Further consultations

From inspection of patient attendance records and data from the debriefing session at the end of the follow-up interview, it emerged that only 14 patients in the DRAMS follow-up group had returned for the consultation at two weeks and received the self-help book. Of the remaining 15 patients, 10 had not returned for the consultation at two weeks, three had been given the book incorrectly at the initial consultation and had not returned, and a further two did not recall having received a book and did not recognize it.

Table 4 shows the mean number of further consultations attended by patients in each of the three groups during the follow-up period. Table 4 distinguishes between further consultations of all kinds and the number at which drinking was discussed, treating consultations connected with the DRAMS scheme as equivalent to consultations at which drinking was discussed for the other two groups. There was no significant difference between groups in the number of further consultations of all kinds or in the number of drink-related consultations. However, when the advice and control groups were combined on the grounds that no further drink-related consultations should have occurred for these groups, there was a significantly higher number of drink-related consultations in the DRAMS group ($P < 0.05$, two-tailed test) than in the other two groups combined. In the DRAMS group, the mean number of further consultations at which a blood sample was taken for measurement and feedback of gamma-glutamyl transpeptidase level was 0.39 (SD 0.58, range 0–2). Only eight DRAMS patients gave a further blood sample beyond the one taken at initial assessment and only one of these gave a second. There were no significant correlations between changes in consumption or log gamma-glutamyl transpeptidase level and any measure of types of further consultation, and the general level of correlation was low.

Discussion

The results of this study provide little support for the hypothesis that the DRAMS scheme is superior to simple advice and to no intervention in helping problem drinkers seen in general practice to reduce alcohol consumption. The majority of patients in all three groups showed modest reductions in drinking but there was no evidence that those on the DRAMS scheme reduced consumption more than patients in the other two study groups.

Moreover, there was no evidence of any difference between the groups in changes on measures of alcohol-related problems.

The only finding suggesting any superiority for the DRAMS scheme was a significantly greater mean reduction in a log measure of gamma-glutamyl transpeptidase level in the DRAMS group than in the group receiving advice only. However, this difference between the DRAMS group and the control group was not significant. The use of one-tailed tests in this analysis is justified by earlier findings[21] and by the fact that, in view of previous evidence showing the effectiveness of minimal interventions for alcohol problems in various settings,[23,28] there are no grounds for predicting that the DRAMS scheme would lead to an inferior outcome to no intervention. However, it is not clear why there was no evidence of a greater reduction in self-reported consumption in the DRAMS group. One possibility is that change in gamma-glutamyl transpeptidase level in the individual is a more valid measure of changes in recent alcohol consumption than self-reports of drinking.[29,30] Against this, others have argued that self-reports are sufficiently valid for research purposes[31] and, indeed, in this study there was generally good agreement between self-reports of consumption and collateral estimates of changes in drinking behaviour. It is therefore possible that the greater reduction in gamma-glutamyl transpeptidase level among DRAMS subjects found here is of little clinical significance.

There are several reasons why this study may have failed to demonstrate any effectiveness of the DRAMS scheme. First, only 14 patients in the DRAMS group completed the full procedure and the remainder were given an incorrect procedure or did not comply. The former is no doubt due to to the difficulties encountered in conducting research in service general practice where patient care takes top priority.[32] The DRAMS procedure may need to be revised in order to encourage greater compliance and to enable patients who are ready to change their drinking behaviour to be distinguished from those who are not. Even among those patients who did complete the full DRAMS procedure, however, it is clear that little use was made of feedback on gamma-glutamyl transpeptidase levels by participating doctors.[22] Although patients in the DRAMS group experienced twice as many consultations in which drinking was discussed, patients in the advice and control groups, contrary to the design of the study, did receive some discussion of their drinking during the follow-up period. It could perhaps be argued that the effectiveness of the DRAMS scheme was not properly tested in this study.

Secondly, the drinking levels and problems of the subjects in all three groups received some attention. Even in the non-intervention control group, the issue of drinking was raised by the doctor, and this was followed by an extensive research interview dealing mostly with drinking behaviour and a specially arranged blood test. It might thus be argued that all subjects received some form of minimal intervention directed towards their drinking and that the difference between the DRAMS scheme and the two control conditions was relatively slight. It is therefore interesting that for the sample as a whole there was a significant reduction in the last month's alcohol consumption, accompanied by a significant improvement in a measure of physical health and well-being and a significant mean reduction in log gamma-glutamyl transpeptidase level during the follow-up period. Although the difference in absolute terms was small, there was also a significant mean reduction in mean corpuscular volume. In view of the slower return to normal of mean corpuscular volume compared with gamma-glutamyl transpeptidase level[33] this reduction may possibly have been more marked with an extended follow-up period. In the absence of a non-assessment control group, it cannot be concluded that these changes are attributable to participation in the study but this is a possibility.

Thirdly, although there was evidence of alcohol-related impairment in the sample under study, the majority of patients had not attended their general practitioner to complain about an alcohol problem and, when asked, only a minority (20%) considered that their drinking was causing problems. The DRAMS intervention was purely opportunistic and this is a very different situation from one in which individuals request treatment for a drinking problem or, for example, respond to newspaper advertisements offering help to cut down drinking.[23] In this context, it may be unrealistic to expect large and consistent changes in drinking behaviour, especially in view of the large differences between individuals in drinking levels and changes in consumption over time. The most appropriate comparison is with a study of the effects of general practitioners' advice about smoking[34] in which a large sample was needed to show the small but significant superiority of advice and leaflets over various controls. Only 5% of patients receiving this advice stopped smoking. However, if this effect were multiplied for all general practitioners in the UK, the results would be highly cost-effective compared with specialist clinics. The same may be true of the DRAMS scheme with respect to the population of early and low dependence problem drinkers.

On the basis of the experience gained in this evaluation and also in Glen and colleagues' pilot study,[22] the Scottish Health Education Group now intends to develop a revised DRAMS scheme. It will be more responsive to the stage reached by the patient in the process of change described by Prochaska and DiClemente,[35] it will contain more structure for and emphasis on the provision of feedback on gamma-glutamyl transpeptidase levels, and it will be accompanied by more intensive training for general practitioners who wish to use the scheme. Furthermore, in any future evaluation of a revised DRAMS scheme, it will be necessary to collect a much larger sample of patients than studied here.

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