Randomized controlled trial of an educational booklet for patients presenting with back pain in general practice

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SUMMARY. A randomized controlled trial was used to evaluate an educational booklet on back pain for patients presenting to five group practices during one calendar year. The booklet had no immediate effect on consultations for back pain, but in the period from two weeks to one year after presentation significantly fewer patients in the group receiving the booklet consulted with back pain (35.6%) than in the control group (42.2%) (P<0.05). There were no significant differences between the booklet and control groups in certified absence from work owing to back pain. Referral to hospital, referral to physiotherapy, admissions to hospital and laminectomies were all less common in the booklet group. The reduction in the combined referral rate to physiotherapy and hospital, and the reduction in laminectomy rate almost reached statistical significance at the 5% level. In replying to a questionnaire sent one year after entry to the study 94.1% of respondents in the booklet group said that they had read the book, 84.0% said that they found it useful, and 68.0% said that they still had a copy. Scores on a 15-item test of knowledge about back pain were significantly higher in the group of patients who had received the booklet than in the control group.

The results suggest that the booklet had some effect in altering both the knowledge and behaviour of patients with back pain. The provision of an educational booklet was a method of giving information which was appreciated by both patients and doctors.

Introduction

THERE is little evidence for the effectiveness of many of the treatments available to general practitioners for low back pain. Often, the general practitioner's role is limited to reassurance, advice about analgesics and instructions about rest, posture and exercises. In industrial settings and in physiotherapy departments, educational programmes have been devised for patients with back pain, and have been shown to be effective.[1,2] However, in general practice, the time available to educate patients is limited, as is the ability of patients to recall detailed information given during a brief consultation. It was thought that an educational booklet would be an effective method of educating patients with back pain within the context of a general practice consultation.

A 21-page booklet called the *Back book,* was written for patients with back pain. It contained information on the basic anatomy and biomechanics of the back, advice on the management of acute episodes of back pain, advice on long-term prevention, descriptions of five exercises, and suggestions on when to seek medical advice. The booklet was evaluated using a randomized controlled trial which aimed to determine whether patients receiving the booklet would consult their doctor less frequently with back pain over the following year; have less certified absence from work owing to back pain in the following year; be referred to hospital less frequently; and have improved knowledge of back problems compared with patients in a control group.

Method

The sample consisted of all patients aged 16–64 years presenting with low back pain to five group practices (two in Cambridge, three in London) in the year from September 1985. Patients were only included if back pain was the main reason for the consultation, but the pain could be acute or chronic. Low back pain was defined as pain in an area bounded by the lowest palpable ribs, the buttock creases, and the posterior axillary lines. Patients who were pregnant, who had influenza like illnesses, who were known to be illiterate or who moved from their practice during the study year were excluded from the analysis.

Patients were randomized into two groups according to their date of birth. Patients whose date of birth was an odd number (for example, 7 August 1952) formed the intervention group and were given the booklet, while those whose date of birth was an even number (for example, 8 August 1952) formed the control group. Randomization could therefore be made at the initial consultation whether in the surgery or at home. The general practitioner's management of the patient's back problem was not constrained in any other way.

Information extracted from the patient's medical records one year after entry into the study included the number of consultations for back pain recorded in the two years prior to entry into the study, consultations for back pain during the one-year follow-up period and the amount of certified sickness absence for back pain during the follow-up year. Data on consultations in the first few weeks after the patient had entered the study were collected separately from those in later parts of the follow-up year as it was thought that a high proportion of consultations in the initial period would be initiated by the doctor or related to certification, and might therefore not be affected by the booklet. A referral to hospital was recorded if there was a copy of the referral letter in the records or a reply from a hospital department. Referrals to physiotherapy were recorded and checked against the physiotherapist's records. Admissions to hospital and laminectomies carried out were also recorded.

A questionnaire was sent by post to patients one year after they were entered into the study. The questionnaire was designed to test knowledge about back pain and included 15 questions which could have been answered on the basis of information contained in the *Back book.* These questions all required a yes or no response to statements such as 'Knees should be bent when lifting' or 'Tummy muscles help support your back'. The patients' employment status and age at leaving full time education were also determined. Patients in the booklet group were

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asked additional questions about the acceptability of the booklet. The repeatability of the questionnaire was measured by retesting 10 patients who had been given the booklet in a pilot study.

Statistical analysis was carried out using the SPSSX statistical package.[3] Analyses of variance on knowledge scores were carried out on the transformed function log (16 − knowledge score) in order to normalize the distribution of knowledge scores.

Results

A total of 1096 patients were entered into the study of whom 114 moved away from the practice with which they were registered during the study year. Thirty one patients were found to have been incorrectly entered into the study, and the notes of 15 patients could not be found. Therefore, 936 patients were included in the final analysis, 483 in the booklet group and 453 in the control group. The London practices entered 559 patients and the Cambridge practices 377. The mean age of the sample at entry into the study was 38 years.

At the end of the follow-up year 777 patients (83.0%) returned their questionnaire — 388 in the booklet group and 389 in the control group. Of patients in the booklet group who returned their questionnaire, 94.1% said that they had read the book, 84.0% that they found it useful and 68.0% that they still had their copy at the time of filling in the questionnaire. Several patients commented that doctors should make more use of educational material, while only one thought this was an inappropriate thing for general practitioners to do.

Consultations, referrals and sickness absence

As expected the effect of the booklet on consulting behaviour varied at different times of the follow up year. The booklet had no significant effect on the percentage of patients consulting in the first two weeks after entry to the study (booklet group 23.0%, control group 25.0%). However, in the rest of the follow up year, there was a reduction in the number of consultations for back pain in patients in the booklet group (Table 1). The main difference between the groups was the smaller proportion of patients in the booklet group who consulted at all during this period (booklet group 35.6%, control group 42.2%; $\chi^2 = 3.96$, df = 1, $P < 0.05$). Separate analysis of the four quarters of the study year suggested that the effect of the booklet on consulting behaviour was sustained throughout the study year. The effect of the booklet on consulting behaviour was independent of whether the patient was registered with a Cambridge or a London practice.

No significant differences were found in certified sickness absence between the two groups — the mean number of days absence was 10.3 in the booklet group and 10.1 in the control group. No differences between the groups were evident after controlling for past history of back pain consultations. Similarly no differences were found after controlling for employment status, age at leaving full time education, or score on the test of knowledge about back pain for the two groups completing the questionnaire.

Comparing the booklet group with the control group, there were reductions in the percentage of patients referred to physiotherapy (booklet group 10.4% versus control group 13.5%), referred to hospital (9.5% versus 11.3%), admitted to hospital (2.3% versus 4.2%), and undergoing laminectomy (0.4% versus 1.8%). When referrals to hospital and physiotherapy were combined the percentage of patients in the booklet group who were referred was a fifth lower than in the control group (19.9% versus 24.7%). The reduction in combined referrals to hospital and physiotherapy, and the reduction in laminectomies nearly reached statistical significance at the 5% level.

Knowledge scores

When patients' knowledge about back pain was determined patients in the booklet group were found to have significantly higher scores than patients in the control group (median score in booklet group 12, control group 11; Mann-Whitney test, z = 4.1, $P<0.001$). The principal reason for the difference in knowledge scores between the two groups was the higher proportion of patients in the booklet group who had very high scores (Table 2) ($\chi^2 = 11.6$, df = 3, $P<0.001$). In addition to the effect of the booklet, knowledge scores were significantly related to age and to age at leaving full time education. Patients aged less than 20 years or more than 60 years had lower scores than the rest of the sample. Those leaving full time education when aged over 20 years had higher scores than those leaving aged 17–20 years and their scores were in turn higher than those leaving aged 15–16 years. A significant difference between knowledge scores in the booklet and control groups was still evident after controlling for age, age at leaving full time education, and whether the patient was registered with a Cambridge or a London practice ($P<0.01$).

Table 1. Frequency distribution of numbers of consultations for back pain in the booklet and control groups (excluding first two weeks of study period).

Number of consultations	Number (%) of patients: Booklet group (*n* = 483)		Control group (*n* = 453)	
0	311	*(64.4)*	262	*(57.8)*
1	82	*(17.0)*	86	*(19.0)*
2	22	*(4.6)*	34	*(7.5)*
3	18	*(3.7)*	27	*(6.0)*
4	17	*(3.5)*	14	*(3.1)*
>4	33	*(6.8)*	30	*(6.6)*

n = total number of patients.

Table 2. Effect of the booklet on scores of knowledge about back pain (maximum score 15).

Knowledge score	Number (%) of respondents: Booklet group (*n* = 388)		Control group (*n* = 389)	
0–3	3	*(0.8)*	7	*(1.8)*
4–7	33	*(8.5)*	38	*(9.8)*
8–11	146	*(37.6)*	183	*(47.0)*
12–15	206	*(53.1)*	161	*(41.4)*

n = total number of respondents.

Discussion

Health promotion and health education are increasingly recognized as important aspects of a general practitioner's work. However, formal evaluation of written health education material has been relatively disappointing. In a comprehensive review of health education methods Gatherer and colleagues[4] commented that 'written instructions appear to be inferior to most other sorts of instruction'. They suggested that written material often produced limited change in patients' knowledge or behaviour and that effects which had been demonstrated were often short lived. However, most studies of health education leaflets have been on unsolicited material sent to patients. One might expect that written material given to an individual patient by his or her general practitioner would be more effective.

There have been three previous controlled trials of health

education booklets in general practice. In a trial of a booklet giving instructions about the management of minor illness, Anderson and colleagues[5] showed that the receipt of the booklet was associated with a reduction in consultations for symptoms described in the booklet. There was, however, no detectable increase in knowledge about minor illness among patients receiving the booklet. In the second trial, which was of a booklet for patients with hypertension, receipt of the booklet was associated with a small increase in understanding about hypertension, but not with improved blood pressure control.[6] In the third trial, a booklet on smoking was coupled with a warning about follow up by the general practitioner, and this combination was associated with a significant increase in the proportion of patients who stopped smoking.[7]

In this study, the *Back book* appeared acceptable to patients, and indeed it was remarkable that more than two thirds of respondents claimed that they still had their booklet one year after they had been given it by their general practitioner. No formal analysis was carried out of the acceptability of the booklet to the doctors, but comments were almost universally favourable. Doctors often feel that they have little to offer patients with back pain, but when talking about the *Back book* one doctor commented 'You actually felt you were doing something useful'. Others commented that it was easier and sometimes quicker to give the patient the booklet, as time available for giving advice in surgeries is limited.

When consultations with the general practitioner for back pain were analysed, it was found that the booklet had a different effect at different times of the study year. In the first two weeks after receiving the booklet, the booklet had no effect on consultations for back pain. However, when the first two weeks of the study year were excluded, receipt of the booklet was associated with a reduction in the proportion of patients consulting with back pain, an effect which was maintained throughout the remainder of the study year.

There are a number of possible explanations for the booklet apparently having different effects in different parts of the study. In the first two weeks after entry to the study, some patients may have needed a certificate to return to work or have been asked by the doctor to return in order to assess their progress or the effect of a treatment. Consultations later in the study year would for many patients have been related to a separate episode of back pain. The decision about whether to consult for a new episode of pain rests to a greater extent with the patient, and it was then that the booklet had a greater effect on consulting behaviour. However, the booklet had no effect on absence from work owing to back pain. This suggests that the observed reduction in consultations for back pain in the booklet group may have been in patients whose back pain was relatively less disabling.

There were fewer referrals to hospital and physiotherapy and fewer laminectomies in the booklet group. These two differences almost reached statistical significance at the 5% level. When the sample size of 1000 patients was chosen for this study, it was accepted that this would not be sufficient to detect reliably an effect of the booklet on referrals and that there would be about a 50% chance of missing a 20% reduction in the number of referrals (type 2 error). There are a number of ways in which the booklet could have affected referral and admission rates. Referrals of patients with back pain to hospital are often made as a result of pressure from the patient even though the general practitioner may think that there is little that the specialist will do. Equally, a decision about laminectomy may be influenced by pressure from the patient. The booklet provided reassurance about the natural history of back pain coupled with clear instructions on pain management. This information could have enhanced patients' perception of back pain as a symptom that could be managed without professional help, and reduced the demands of some patients for something to be done. A larger study is needed to explore these hypotheses further.

In the test of knowledge about back pain, patients in the booklet group scored significantly higher than controls. Although the difference between the groups was small, it was quite surprising that a difference in knowledge could be detected as long as a year after receipt of the booklet. One possible explanation for the difference is that patients in the booklet group consulted the *Back book* when filling in the knowledge questionnaire. Even if this was the case, it should be regarded as a positive outcome of the study as it was intended that patients receiving the booklet should keep it for reference in case they developed back pain in the future.

The results of this study demonstrate that an educational booklet is a useful resource for the general practitioner in his management of patients with back pain. The booklet was valued both by doctors and by patients. Receipt of the booklet was associated with a small reduction in the number of patients consulting with back pain and an increase in patients' knowledge about back pain.

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