A randomised controlled trial and cost analysis of problem-solving treatment for emotional disorders given by community nurses in primary care

LAURENCE MYNORS-WALLIS, IOANA DAVIES, ALASTAIR GRAY, FAITH BARBOUR and DENNIS GATH

Background We set out to investigate whether community nurses could be trained in problem-solving therapy and, once trained, how effective they would be in treating emotional disorders in primary care.

Method Seventy patients with an emotional disorder in primary care were randomly allocated to receive either problem-solving therapy from a trained community nurse or treatment as usual from their general practitioner. Interview and self-rated assessments of clinical and economic outcome were made pre-treatment, at eight weeks and at 26 weeks after treatment.

Results There was no difference in clinical outcome between patients who received problem-solving treatment and patients who received the general practitioner's usual treatment. However, patients who received problem-solving treatment had fewer disability days and fewer days off work. The health care cost of problem-solving was greater than that of the general practitioner's usual treatment but this was more than offset by savings in the cost of days off work.

Conclusions Problem-solving treatment can be given by trained community nurses. The clinical effectiveness and cost–benefit of the treatment will depend on the selection of appropriate patients.

Psychiatric morbidity is common in primary care, and is mainly treated without specialist referral. Most of this morbidity consists of emotional disorders, in which the main symptoms are anxiety and depression (Goldberg & Huxley, 1992). Many of these disorders are brief, but at least one-third last for six months or longer (Goldberg & Blackwell, 1970; Mann *et al* 1981; Catalan *et al*, 1984). In primary care emotional disorders often are treated with anxiolytic or antidepressant drugs, which can be effective but have several disadvantages including risk of dependency, undesirable side-effects and poor patient compliance. There is clearly a role, therefore, for psychological treatments and this is backed up by patient preference (Priest *et al*, 1996). In Oxford we have been evaluating a brief psychological treatment (problem-solving) for use in primary care. The problem-solving approach is based on the common observation that emotional symptoms are generally induced by problems of living. The treatment encourages patients to formulate practical ways of dealing with such problems. Problem-solving consists of seven stages which can be summarised as follows:

(a) explanation of the treatment and its rationale;

(b) clarification and definition of the problems;

(c) choice of achievable goals;

(d) generation of alternative solutions;

(e) selection of a preferred solution;

(f) clarification of the necessary steps to implement the solution;

(g) evaluation of progress.

Problem-solving treatment has been evaluated in two earlier studies in primary care. In the first, problem-solving treatment given by a psychiatrist was more effective than general practitioner's (GP's) usual treatment for emotional disorders of poor prognosis (Catalan *et al*, 1991). In the second study, problem-solving treatment was as effective as amitriptyline and more effective than a combined drug and psychological placebo treatment for major depressive disorders (Mynors-Wallis *et al*, 1995). In that study, problem-solving treatment was as effective when given by GPs trained in the technique as when given by a psychiatrist. Although interested GPs can be trained to use problem-solving techniques effectively, it is difficult for them to find time to provide this treatment for all their patients in need. Problem-solving treatment could be made more widely available, however, if non-medical members of the primary care team (for example, community nurses) could be trained to use the technique effectively. There is evidence that nurses can be trained to provide psychological treatments effectively. For example, in primary care nurses have successfully used behavioural methods to treat obsessional and phobic patients (Ginsberg *et al*, 1984). Also, nurses have been used in primary care to try to improve compliance with antidepressant medication (Wilkinson *et al*, 1993). Hospital nurses have been trained to use problem-solving techniques in the counselling of patients who have attempted deliberate self-harm (Hawton & Kirk, 1989; Salkovskis *et al*, 1990). In the present study, community nurses were first trained in the techniques of problem-solving. These nurses were then used as problem-solving therapists in a randomised controlled trial in which patients with emotional disorders were randomly allocated either to problem-solving treatment from the trained nurse, or to the GP's usual treatment. The study was designed to answer three questions:

(a) Can community nurses be successfully trained in the techniques of problem-solving treatment?

(b) After training, how effectively can community nurses give problem-solving treatment to primary care patients with emotional disorders, in comparison with GPs' usual treatment?

(c) How do the costs of the problem-solving treatment compare with the costs of treatment as usual?

METHODS

Recruitment of the community nurses

The study was carried out in four health centres in or near Oxford, where the research team had established good working relationships. A research psychiatrist (L. M.-W.) visited the four health centres to explain

https://doi.org/10.1192/bjp.170.2.113 Published online by Cambridge University Press

the study to the staff, and to invite nurses to take part. In two practices one nurse was interested, and in the other two practices two nurses were interested. These six nurses worked with the research team. Four were practice nurses, one was a district nurse and one a health visitor. No specific skills were required of the nurses before training. Only one nurse had received any previous psychiatric training, which had been in learning disabilities.

The training programme

The training programme for the nurses was in two parts. The first part consisted of four half-day workshops led by L. M.-W. and by I. D., a clinical nurse specialist in behavioural psychotherapy. In the second part of the training programme the nurses treated 8–10 patients each, with close supervision from I. D.

The four workshops focused on the features of emotional disorders in primary care, the theory and rationale of problem-solving, and providing practical experience of problem-solving treatment in role-play exercises. The nurses then treated patients referred by GPs from the health centres in which the nurses worked. The GPs were asked to refer patients who were likely to benefit from problem-solving treatment. Each patient was offered four or five sessions of problem-solving treatment, as specified in a detailed training manual. Video-taped recordings were made in each treatment session, and were then used in supervision sessions to give the nurses detailed feedback about their problem-solving skills.

The video-tapes served a second useful purpose: the evaluation of each nurse's problem-solving skills. For this purpose, video-tapes of treatment sessions given by the nurses were rated for general therapeutic skills and for problem-solving skills.

Clinical trial

Patients with emotional disorders were referred by their GPs, and allocated randomly, by means of sealed envelopes, either to problem-solving treatment given by a trained nurse therapist, or to treatment as usual from the GP. A separate randomisation schedule was used for each of the four health centres.

Patient selection

Patients aged 18–65 with emotional disorders of at least a month's duration were identified by their GP. The patients selected could have complaints of anxiety, tension, depressed mood, irritability and sleep disturbance, as well as somatic symptoms not apparently due to a physical disorder. The GPs reassessed patients four weeks after the initial consultation, and only referred those with persistent symptoms. Earlier research had shown that patients with persistent symptoms four weeks after initial diagnosis were likely to remain unwell for six months or more (Catalan *et al*, 1984). The GP was asked to avoid starting psychotropic medication during the initial four-week waiting period. It is important to note that the GP decided whether or not the patient should enter the study. Patients did not have to meet additional severity criteria.

Assessments

Patients were assessed on three occasions: before treatment, at the end of treatment (eight weeks) and at 26 weeks. At the first assessment a detailed demographic, family and psychiatric history was taken, together with details of the present illness (duration of symptoms, treatment received, time off work). Assessments were made by an experienced research interviewer, blind to the treatment received. The following assessment instruments were used:

(a) The revised Clinical Interview Schedule (CIS; Lewis & Pelosi, 1992). This semi-structured interview is widely used for psychological assessment in primary care. It covers 14 main symptom areas. Total symptom scores and a diagnosis can be determined.

(b) The 28-item General Health Questionnaire (GHQ; Goldberg & Hillier, 1979).

(c) The modified Social Adjustment Scale (Cooper *et al*, 1982). This 45-item scale measures functioning in seven role areas: work outside the home; household tasks; social and leisure activities; the extended family; marriage; children; and the family unit.

(d) The Euroqol Scale (Euroqol Copyright Group, 1990). This scale provides a unitary outcome measure of quality of life.

Other measures included a self-report measure of patient satisfaction; the number of disability days (days when the patient was unable to continue with normal duties); and for patients in paid employment, the number of days off work were recorded. Frequency of consultation with the GP, and medication prescribed by the GP, were obtained from the general practice case notes.

Cost analysis

In the cost analysis, the cost of problem-solving treatment given by trained nurse therapists was compared with treatment as usual from the patient's GP. All resources associated with problem-solving, or that would be affected by it, were identified, counted and costed. These costs are shown in Table 1. The cost of a GP consultation is given net of medications, which are entered separately. Nurse sessions are costed on the assumption that annual pay (including employers' costs) is spread across a 37.5-hour week and a 44-week year. Medication costs are the net prices used in pricing National Health Service prescriptions. In addition to health sector resources, information was collected on the employment characteristics of patients and on time off work during the study period. The following costs were calculated for each patient in the trial:

(a) All medications that were being prescribed at trial entry, during the eight-week treatment period, and during the four months after the end of treatment.

(b) All GP consultations in the three months before entry to trial, during the eight-week treatment period, and during the four months after the end of the treatment period.

Table 1 Unit costs of resources used

Item	Cost in 1995 (£)
GP consultation	12.77[1]
One-hour session with practice nurse at top of Grade F	12.05[2]
One-hour shared supervision session with nurse at top of Grade I	8.13[2]
One month's amitriptyline 50 mg	0.52[2]
One month's diazepam 5 mg	0.10[3]
One month's dothiepin 25 mg	1.31[3]
One month's fluoxetine 20 mg	20.77[3]
One month's imipramine 25 mg	0.94[3]
One month's lofepramine 70 mg	5.50[3]
One month's paroxetine 30 mg	41.19[3]
One month's temazepam 10 mg	0.87[3]

1. Source: Department of Health, 1995. Cost relates to the financial year 1993/4.
2. Source: Nursing and Midwifery Pay scales, with 13% employer cost, 44-week year and 37.5-hour week.
3. Source: *British National Formulary*, 1995.

https://doi.org/10.1192/bjp.170.2.113 Published online by Cambridge University Press

(c) Resources associated with the problem-solving treatment, the sessions of problem-solving therapy together with the supervision of the therapists.

RESULTS

Training

The first part of the study examined whether the community nurses could be trained to a satisfactory level of skill in problem-solving treatment. The details of this training programme will be reported separately. Two main findings are reported here. First, all six nurses showed improvement in their problem-solving skills, although at the end of training some therapists were more skilled than others in using problem-solving techniques. Ratings were defined on a six-point scale: very good; good; satisfactory; borderline; poor; very poor. The overall ratings at the end of training were: good, two nurses; satisfactory, two nurses; borderline, two nurses. Problem-solving skills were improved by video-taping the nurses' treatment sessions and by providing appropriate feedback. This finding is consistent with the findings of Goldberg *et al* (1980), who used video-taped feedback to improve the consultation skills of primary care physicians.

The second main finding was that the four half-day training sessions were not sufficient to train the nurse therapists to the required standard of problem-solving treatment. The four half-day workshops had focused on the practical skills of problem-solving treatment, and had included much interactive role-play. After completing the workshops all the nurses reported that they had understood the techniques of problem-solving treatment. It was clear, however, from their early training video-tapes that the nurses were not immediately able to put these skills into practice. In the event, nurses were able to achieve a satisfactory degree of competence only after they had completed a closely supervised course, treating a series of patients.

Clinical trial

Seventy-five patients were identified by their GP as being suitable for the study. Of those patients, 70 agreed to accept random allocation to either problem-solving treatment from the nurse therapist, or treatment as usual from the GP. Thirty patients were allocated to GPs' usual treatment, and 40 were allocated to problem-solving treatment.

The mean age of the patient group was 38 (range 18–65). There were 16 men and 54 women. Forty-five patients were married, 16 were single, and nine were divorced or separated. The median duration of symptoms before entering the study was 18 weeks. Eleven patients reported symptoms that had lasted for two years or more before entering the study. No patient had received previous psychological treatment other than from their GP. Thirty-seven patients had received medication in the course of their present illness; of those patients, five had received benzodiazepines, 30 had received antidepressants and two had received neuroleptics. Forty-five patients (64%) had a past history of emotional symptoms. Thirteen (19%) had been referred to a psychiatric out-patient clinic in the past, and one patient had been admitted to a psychiatric hospital. Twenty-four patients (34%) had a family history of psychiatric disorder requiring treatment.

The CIS ratings were used to make an ICD–10 diagnosis (World Health Organization, 1992) based on the algorithm devised by Meltzer *et al* (1984). The distributions of the diagnoses were: mild depression, 12 (17%); moderate depression, 28 (40%); severe depression, six (9%); generalised anxiety disorder, two (3%); mixed anxiety–depression, eight (11%); no psychiatric diagnosis, 14 (20%).

Treatment received

Problem-solving treatment

Among patients allocated to problem-solving treatment, the numbers of treatment sessions per patient were: no sessions, two patients; one session, four patients; two sessions, four patients; three sessions, one patient; four sessions, 18 patients; five sessions, 11 patients. Five of the nurses treated seven patients each, and the other one treated five patients. The nurses kept to the recommended duration of treatment, that is, one hour for the initial session, and half an hour for subsequent treatment sessions.

For patients allocated to problem-solving treatment, the average number of consultations with a GP was 2.1 in the eight weeks after the pre-treatment assessment (range 0–8). While receiving problem-solving, three patients were started on antidepressant drugs prescribed by their GP (fluoxetine 20 mg; dothiepin 150 mg; imipramine 25 mg). Six patients continued with antidepressant drugs that they had started before their problem-solving treatment began. Two patients were allocated to problem-solving treatment and then declined treatment; these patients were on no medication. One consulted the GP once, and one not at all.

Treatment as usual

Among patients who received treatment as usual, the average number of consultations with the GP was 2.2 during the eight weeks after initial assessment (range 0–6). During this period three patients were started on antidepressant medication: paroxetine 20 mg (one patient), fluoxetine 20 mg (two patients). Ten patients continued to take antidepressant medication prescribed before their entry to the study.

Outcome

Clinical outcome

The outcome measures can be considered in terms of clinical outcome, economic outcome and patient satisfaction. Table 2 shows the results on the four outcome measures for the two treatment groups on three occasions; pre-treatment, after eight weeks (completion of problem-solving treatment) and at the 26-week follow-up. The two patients who were allocated to problem-solving but then declined treatment did not wish to take part in the follow-up; they are not included in the analysis. Interview information was available for 63 patients at eight weeks (34 problem-solving, 29 treatment as usual) and for 58 patients at 26 weeks (22 problem-solving, 26 treatment as usual). There were no significant differences on any of the four measures between the two groups at either follow-up assessment. When results were excluded for patients who had received two or fewer problem-solving treatment sessions, there was no change in the findings. Similarly, when results were excluded for the patients who had been treated by the two less-skilled therapists, there was no significant change in the findings.

One measure did show a difference in outcome between the two groups – the number of disability days. At the pre-treatment assessment the average number of disability days in the preceding month was 5.3 in the problem-solving group and 6.1 in the treatment as usual group. At the eight-week assessment the corresponding numbers were 2.4 (95% CI 0.6–4.3) in the problem-solving group and 5.4 (95% CI 2.6–8.3) in the treatment as usual group (P=0.07). At the 26-week assessment the numbers were 0.9 (95% CI 0.4–1.5) days in the problem-solving group and 2.9 (95% CI 0.9–4.9) in the treatment as usual group (P=0.04).

https://doi.org/10.1192/bjp.170.2.113 Published online by Cambridge University Press

Table 2 Clinical outcome for patients who received problem-solving treatment or GPs' usual treatment

	n	Problem-solving			Treatment as usual		
		Mean	s.d.	95% CI	Mean	s.d.	95% CI
Clinical Interview Schedule							
Pre-treatment	68	19.8	10.8	16.3–23.3	19.0	10.9	15.0–23.1
Eight weeks	63	12.4	10.3	8.8–16.0	11.9	10.5	7.9–15.9
Twenty-six weeks	58	9.3	7.9	6.4–12.1	9.2	7.2	6.3–12.1
General Health Questionnaire							
Pre-treatment	64	10.5	7.2	8.0–12.9	11.0	9.5	7.4–14.7
Eight week	58	6.1	7.2	3.5–8.6	6.2	8.2	2.9–9.6
Twenty-six weeks	55	4.4	5.6	2.4–6.5	2.8	3.8	1.2–4.4
Social Adjustment Scale							
Pre-treatment	64	2.5	0.48	2.3–2.6	2.4	0.60	2.2–2.6
Eight weeks	58	2.2	0.5	2.0–2.4	2.3	0.7	2.0–2.5
Twenty-six weeks	55	2.1	0.4	2.0–2.3	2.0	0.4	1.9–2.2
Euroqol Scale							
Pre-treatment	60	0.59	0.21	0.52–0.67	0.61	0.25	0.51–0.71
Eight weeks	57	0.85	0.2	0.77–0.93	0.75	0.24	0.66–0.85
Twenty-six weeks	56	0.86	0.19	0.79–0.93	0.81	0.23	0.72–0.91

Economic outcome

The costs of the intervention, of GP consultations and of medication were calculated separately and combined for the treatment period, for the four-month period after the end of treatment, and for the treatment and four-month follow-up period combined. No baseline differences were found between the two patient groups, as measured by the number of GP consultations over the three months before entry into the trial. Similarly, there was no evidence of baseline differences in the number of patients in each group receiving medication, or in the types of medication used.

Table 3 summarises the results of the cost analysis, showing resources used and costs during the eight-week treatment period, at four months, and over the entire period from trial entry to the four-month follow-up point.

During the eight-week treatment period, patients in the problem-solving group received on average 3.7 problem-solving sessions at a mean cost of £28.50. In addition the mean cost of supervision sessions was £32.50, giving a total cost of the intervention of £61 per patient. There was no significant difference between the two arms of the trial in the number or cost of

Table 3 Summary of resources used and costs (in £) in the problem-solving and treatment as usual groups, during the treatment period and at four-month follow-up

Item	Problem-solving group (mean (s.d.))	Treatment as usual group (mean (s.d.))	Between group difference (mean (95% confidence limits) and *P* value)
During eight-week treatment period			
No. of problem-solving sessions	3.7 (1.3)		
Cost of problem-solving sessions	28.5 (7.7)		
Cost of supervision sessions	32.5 (0)		
Total problem-solving costs	61.1 (7.7)		
No. of GP consultations	2.2 (1.8)	2.3 (1.5)	0.1 (−0.8, 0.9) 0.844
Cost of GP consultations	28.1 (22.9)	29.3 (19.2)	1.1 (−9.7, 11.9) 0.844
Cost of medications	3.8 (9.0)	6.8 (11.9)	2.9 (−2.1, 8.0) 0.251
Total costs over period	93.2 (28.5)	35.9 (22.3)	−57.3(−70.0, −44.6) <0.001
During four months after end of treatment			
No. of GP consultations	2.8 (2.9)	2.9 (2.9)	−0.02 (−1.5, 1.5) 0.975
Cost of GP consultations	36.2 (37.7)	36.5 (37.5)	0.30 (−18.7, 19.3) 0.975
Cost of medications	2.5 (6.6)	13.3 (23.3)	10.7 (2.9, 18.7) 0.008
Total costs over period	38.9 (38.1)	50.7 (44.2)	11.9 (−8.7, 32.5) 0.254
Over 26 weeks from trial entry			
No. of GP consultations	5.0 (4.1)	5.1 (3.7)	0.1 (−1.9, 2.1) 0.914
Cost of GP consultations	63.9 (52.0)	65.2 (46.9)	1.4 (−23.7, 26.5) 0.914
Cost of medications	6.4 (12.8)	20.1 (31.7)	13.7 (2.5, 28.9) 0.018
Total costs over period	132.0 (55.3)	86.6 (54.9)	−45.5 (−73.2, −6.7) 0.002

https://doi.org/10.1192/bjp.170.2.113 Published online by Cambridge University Press

Table 4 Summary of time off work in the problem-solving and treatment as usual groups, at baseline, eight weeks and at 26 weeks

Item	Problem-solving group (mean (s.d.))	Treatment as usual group (mean (s.d.))	Between-group difference (mean (95% CI) and *P* value)
Days off work in past month at pre-treatment	2.71 (5.73)	1.94 (3.92)	−0.76 (−3.94–2.41) 0.296
Days off work in past month at eight-week assessment	2.00 (6.36)	3.28 (6.87)	1.28 (−2.96–5.52) 0.382
Days off work in past month at 26-week assessment	0.40 (0.88)	1.25 (3.77)	0.85 (−0.91–2.61) 0.059
Sum of days off work over 26 weeks of trial	4.35 (10.35)	16.23 (23.82)	11.88 (−0.20–23.97) 0.054

all GP consultations, or in the cost of medications received. The sum of all costs was £93.20 in the group receiving problem-solving therapy, and £35.90 in the treatment as usual group, a difference of £57.30 in favour of the treatment as usual group (95% CI £70.00 to −44.6; $P<0.001$).

During the four months following the end of treatment there was also no difference between the two patient groups in the number of GP consultations. The cost of medications was £2.50 in the problem-solving group, as against £13.30 in the treatment as usual group, a difference of £10.70 in favour of the problem-solving group (95% CI £2.90–18.70; $P=0.008$). Even so, when consultation and medication costs are combined, there was no significant difference between the two groups over this period.

Finally, when all costs were combined from trial entry to the 26-week assessment, there was no difference in GP consultations, but the group receiving problem-solving therapy incurred fewer costs for medications used: £6.40 *v.* £20.10 per patient, a difference of £13.70 (95% CI £2.50–28.90, $P=0.018$). Even so, this cost difference in favour of the problem-solving group did not cancel out the costs of the problem-solving therapy. At the end of the four-month follow-up period the mean cost per patient including all costs was £132 in the group receiving problem-solving therapy, and £86.60 in the treatment as usual group, a difference of £45.50 per patient (95% CI £73.20–17.70, $P=0.002$).

Patient employment

Data were collected on the socio-economic groups of patients, and on sickness days off work among those in employment over one-month periods before treatment, at the end of the eight-week treatment period, and at 26 weeks.

Table 4 summarises information on days off work in the preceding month at three time-points: pre-treatment (baseline); at eight weeks; and at 26 weeks. As the table shows, at baseline the mean number of days off work was somewhat higher in the problem-solving group than in the treatment as usual group, although this difference was not significant. By 26 weeks, however, the number of sick days off work in the problem-solving group was lower than in the treatment as usual group. The total number of sick days off work during the entire follow-up period can be estimated assuming straight-line changes between each observational point. Using this method, the total number of sick days off work was 16.2 in the treatment as usual group and 4.3 in the problem-solving group, a mean difference of 11.9 days (95% CI −0.202–23.97, $P=0.054$). Thus, there is some evidence that problem-solving therapy can reduce sickness-related days off work in comparison with treatment as usual.

Sick days off work were costed by classifying all trial participants as male or female, part-time or full-time (on the basis of the reported normal daily hours of work of each patient, where 29 or less was taken to be part-time and 30 or more taken to be full-time), and manual or non-manual (on the basis of the reported socio-economic grouping, where non-manual was taken as equivalent to socio-economic groups A, B and C1, and manual as socio-economic groups C2, D and E). Gross weekly earnings data for each group were taken from the most recent *New Earnings Survey* (Department of Employment, 1994). For full-time manual workers, gross weekly earnings in 1994 were £280.7 and £181.9 for men and women, respectively; for full-time non-manual workers the corresponding figures were £428.2 and £278.4 (Department of Employment, 1994).

When days off work as a result of sickness were costed on this basis, the total pay lost as a result of sickness over the treatment period and the four-month follow-up period was estimated at £81 in the problem-solving group and £932 in the treatment as usual group, a mean difference in favour of the problem-solving group of £851 (95% CI £67–1635, $P=0.034$), a substantial and significant difference in favour of the problem-solving group.

Patient satisfaction

Sixty-one patients completed a questionnaire about satisfaction with their treatment. Of 32 patients who had received problem-solving treatment, 29 (91%) described the treatment as helpful or very helpful. Of the 29 patients who had received the GP's treatment as usual, 18 (62%) reported the treatment as helpful or very helpful. Similarly, among the 32 patients who had received the problem-solving treatment, 29 (91%) would recommend it to a friend. By contrast, among the 29 patients who had received the GP's treatment as usual, 18 (62%) would recommend this treatment to a friend. In both treatment groups about half of the patients said that they would have liked to have received more treatment.

DISCUSSION

Training

The results show that community nurses can be trained in the techniques of problem-solving treatment, although their skills will vary at the end of training. However, the theoretical workshops in themselves did not produce therapists skilled in problem-solving. It is clear that training should include not only theoretical training and role-play, but also direct supervised experience of working with patients.

Outcome

Several issues are raised by the finding that the clinical outcome did not differ significantly between patients who had received problem-solving treatment and those who

https://doi.org/10.1192/bjp.170.2.113 Published online by Cambridge University Press

were treated as usual by their GP. The simplest conclusion from this result would be that problem-solving treatment given by trained community nurses is no more effective than treatment as usual from the patient's GP.

Conversely, there may have been a real but undetected difference between the two treatments, that is, a type II error. On the measures of psychological symptoms, however, not only was there no *statistically significant* difference in outcome, but there was *almost no difference at all*, and certainly no difference of any clinical importance. It is therefore unlikely that a type II error was made.

However, there are two reasons for supposing that patients may have received less than adequate problem-solving treatment. First, the therapists may not have been sufficiently skilled in the technique; second, the number of therapy sessions may have been too small. On the question of treatment skills, four of the six therapists were judged to be satisfactory (or more than satisfactory) by an experienced supervisor and by two blind raters. Two of the six therapists, however, were judged to be of only borderline competence. Yet exclusion of the two less-skilled therapists led to no difference in the results because the outcomes were similar for these two therapists and for the other four therapists. The small number of treatment sessions is also inadequate to explain a hypothesis of inadequate problem-solving treatment, because there were no significant differences in outcome for patients who did or did not receive three or more sessions of problem-solving. In short, the outcome did not seem to be related to either therapeutic skills or duration of treatment.

Alternatively, the outcome may have been affected by the quality of the GPs' care. The patients were recruited from four health centres which had cooperated with the research team in earlier studies and which had shown enthusiasm for psychiatric research. It may well be that the psychiatric experience of these GPs was above the average standard.

The question must also be considered as to whether the patients referred to the study were either too unwell to benefit from brief treatment or too well to require treatment. Of these two alternatives, the most likely is that some patients were too well to benefit demonstrably from problem-solving. In the selection of patients, steps were taken to exclude those who were likely to improve irrespective of treatment. Thus, patients were admitted to the study only if they remained unwell, as determined by the referring GP, four weeks after a first clinical assessment. Despite this exclusion criterion some of the patients had very mild symptoms. Before treatment, 20 patients scored three or less on the GHQ and seven patients scored five or less on the CIS. These scores are low and unlikely to change significantly, whatever the treatment. Problem-solving is most likely to be effective if it is targeted to those patients likely to benefit. Earlier research in Oxford has shown problem-solving to be more effective than treatment as usual for emotional disorders of poor prognosis, and more effective than placebo for patients with major depression (Mynors-Wallis *et al*, 1995). In these earlier studies, the problem-solving treatment was used for a more closely defined populations. The present study was designed to reflect real practice and the selection of patients was left to GPs. It might also be that because GPs knew they would have to manage about half the patients themselves, they selected less-severely ill patients for the study. Clearly, GPs should be given more guidance on the selection of potentially suitable patients.

One important positive finding was that the number of disability days (days on which the patients were unable to continue with their usual activities) were significantly fewer for patients who had received problem-solving treatment than for patients who had received the usual treatment from their GP. Essentially, there was a significant difference in functional recovery. The explanation may be that problem-solving treatment encourages patients to increase activity, whether or not they feel disposed to do so. Similarly, in the treatment of chronic pain or chronic fatigue, treatment may focus less on symptoms and more on improving function.

Cost analysis

The results of the cost analysis showed that patients receiving problem-solving therapy did not consult their GPs less often than patients receiving treatment as usual, but they did incur significantly fewer costs for medication. These reduced costs, however, were outweighed by the costs of the problem-solving therapy itself. If higher costs are incurred, but better outcomes are obtained, it is necessary to calculate the appropriate cost-effectiveness ratios. However, none of the measures showed any significant difference in outcome between patients receiving problem-solving treatment and those who continued to receive treatment as usual. Consequently, from the perspective of the health sector alone, these results indicate that problem-solving treatment from trained nurse therapists cannot be considered a cost-effective intervention. However, when the perspective of the study is widened to include indirect costs, this conclusion may have to be modified. Thus, patients receiving problem-solving therapy lost fewer sickness-related days from work than patients in the treatment as usual group did. This finding is in keeping with the reduced number of disability days experienced by the problem-solving group. The difference in sickness-related days between the two groups amounted to an average of almost 12 days per patient over the six months of the trial, or approximately £850 per patient. Thus, the gains in the problem-solving group from this reduction in sickness-related days off work would considerably exceed the net health care cost difference of £45.50 per patient in favour of the treatment as usual group.

CONCLUSIONS

Problem-solving treatment can be given by trained nurses in primary care, with appropriate training and supervision. Problem-solving treatment is valued by patients and there is some evidence that it reduces functional disability. The problem-solving treatment was not shown to be of benefit over and above the GPs' usual treatment in reducing symptom scores. The use of problem-solving treatment in primary care will require therapists meeting a recognised standard, and then treating patients with defined morbidity. The cost analysis showed that problem-solving treatment was more costly in terms of direct healthcare costs but may be considerably less costly when considering costs to society as a whole, in terms of lost production.

ACKNOWLEDGEMENTS

We are grateful to the Department of Health for funding this project, to the Wellcome Trust for supporting L. M.-W. with a Wellcome Training Fellowship, to all the general practitioners who collaborated with us, to the community nurses, to Ann Richardson (the Department of Health research manager) and to Ann Day for administrative support.

REFERENCES

British National Formulary, March (1995) British Federal Association and the Royal Pharmaceutical Society of Great Britain.

Catalan, J., Gath, D., Edmonds, G., et al (1984) The effects of non-prescribing of anxiolytics in general practice. I: Controlled evaluation of psychiatric and social outcome. *British Journal of Psychiatry*, **144**, 593–602.

—, Gath, D. H., Bond, A., et al (1991) Evaluation of a brief psychological treatment for emotional disorders in primary care. *Psychological Medicine*, **21**, 1013–1018.

Cooper, P., Osborn, M., Gath, D., et al (1982) Evaluation of a modified self-report measure of social adjustment. *British Journal of Psychiatry*, **141**, 68–75.

Department of Employment (1994) *New Earnings Survey*. London: Her Majesty's Stationery Office.

— (1995) *Departmental Report, CM 2812*. London: Her Majesty's Stationery Office.

Euroqol Copyright Group (1990) Euroqol – a new facility for the measurement of health related quality of life. *Health Policy*, **16**, 199–208.

Ginsberg, G., Marks, I. & Waters, H. (1984) Cost–benefit analysis of a controlled trial of nurse therapy for neurosis in primary care. *Psychological Medicine*, **14**, 683–690.

Goldberg, D. P. & Blackwell, B. (1970) Psychiatric illness in general practice: A detailed study using a new method of case identification. *British Medical Journal*, *ii*, 439–443.

— & Hillier, V. F. (1979) A scaled version of the General Health Questionnaire. *Psychological Medicine*, **9**, 139–145.

— & Huxley, P. (1992) *Common Mental Disorders: A Bio-Social Model*. London: Routledge.

—, Steele, J. J., Smith, C., et al (1980) Training family doctors to recognise psychiatric illness with increased accuracy. *Lancet*, *ii*, 521–523.

Hawton, K. & Kirk, J. (1989) Problem-solving. In *Cognitive Behaviour Therapy for Psychiatric Problems* (eds K. Hawton, P. Salkovskis, J. Kirk, et al), pp. 406–426. Oxford: Oxford University Press.

Lewis, G. & Pelosi, A. J. (1992) Measuring psychiatric disorder in the community: A standardised assessment for use by lay interviewers. *Psychological Medicine*, **22**, 465–486.

Mann, A. H., Jenkins, R. & Belsey, E. (1981) The 12 month outcome of patients with neurotic illness in general practice. *Psychological Medicine*, **2**, 535–550.

CLINICAL IMPLICATIONS

- Community nurses can be trained to use a simple psychological treatment.
- Patients with emotional disorders may benefit from problem-solving given by a community nurse.
- Problem-solving treatment was more costly than GPs' usual treatment in terms of direct health care costs, but consideraly less costly when considering costs to society as a whole.

LIMITATIONS

- Patients in the study had a range of diagnoses from no psychiatric disorder to severe depressive disorder.
- GPs were not given guidelines as to which patients might benefit from problem-solving.
- The number of patients in the study was too small to select out subgroups of patients who might have benefited from problem-solving treatment.

LAURENCE MYNORS-WALLIS, MRCPsych, IOANA DAVIES, RGN, ALASTAIR GRAY, PhD, FAITH BARBOUR, RGN, DENNIS GATH, FRCPsych, Oxford University Press, University Department of Psychiatry, Oxford

Correspondence: Dr L. Mynors-Wallis, Oxford University Department of Psychiatry, Warneford Hospital, Oxford OX3 7JX

(First received 16 April 1996, final revision 17 July 1996, accepted 9 August 1996)

Meltzer, H., Gill, B. & Petticrew, M. (1984) *The Prevalence of Psychiatric Morbidity Among Adults Aged 16–64, Living in Private Households in Great Britain*. London: Office of Population Censuses and Surveys.

Mynors-Wallis, L. M., Gath, D. H., Lloyd-Thomas, A. R., et al (1995) Randomised controlled trial comparing problem-solving treatment with amitriptyline and placebo for major depression in primary care. *British Medical Journal*, **310**, 441–445.

Priest, R. G., Vize, C., Roberts, A., et al (1996) Lay people's attitudes to treatment of depression: results of opinion poll for Defeat Depression Campaign just before its launch. *British Medical Journal*, **313**, 858–860.

Salkovskis, P. M., Atha, C. & Storer, D. (1990) Cognitive–behavioural problem-solving in the treatment of patients who repeatedly attempt suicide: A controlled trial. *British Journal of Psychiatry*, **157**, 871–876.

Wilkinson, G., Allen, P., Marshall, G., et al (1993) The role of the practice nurse in the management of depression in general practice: treatment adherence to antidepressant medication. *Psychological Medicine*, **23**, 229–239.

https://doi.org/10.1192/bjp.170.2.113 Published online by Cambridge University Press