Effectiveness of problem-solving treatment by general practice registrars for patients with emotional symptoms

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ABSTRACT

INTRODUCTION: In general practice many patients present with emotional symptoms. Both patients and physicians desire effective non-pharmacological treatments.

AIM: To study the effectiveness of problem-solving treatment (PST) delivered by trained general practice registrars (GP registrars) for patients with emotional symptoms.

METHODS: In a controlled clinical trial we compared the effectiveness of PST versus usual care for patients with emotional symptoms. Dutch GP registrars provided either PST or usual care, according to their own preference. Patients were included if they (a) had presented for three or more consultations with emotional symptoms in the past six months; and (b) scored four or more on the 12-item General Health Questionnaire. Outcomes at three- and nine-month follow-up were standard measures of depression, anxiety and quality of life.

RESULTS: Thirty-eight GP registrars provided PST and included 98 patients; 43 provided usual care and included 104 patients. PST patients improved significantly more than usual care patients: at nine-month follow-up, recovery rates for somatoform disorder and anxiety were higher in the PST group (OR 6.50, p=0.01 respectively OR 11.25, p=0.03). PST patients had improved significantly more on the domains social functioning, role limitation due to emotional problems and general health perception.

DISCUSSION: Patients with emotional symptoms improved significantly more after PST delivered by motivated GP registrars than after usual care by GP registrars. Further research, with randomisation of interested registrars or interested GPs, is needed.

KEYWORDS: Problem-solving treatment; emotional symptoms; mental health; general practice; GP registrars

J PRIM HEALTH CARE 2011;3(3):181–189.

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Introduction

In general practice, many patients have emotional symptoms and/or psychosocial problems.[1,2] Most patients are treated adequately, but in a minority of cases a pattern of recurrent or chronic symptoms develops with a negative impact on quality of life[3] and frequent consultations.[4] This makes diagnosis and treatment of emotional symptoms an important task in general practice. General practitioners (GPs) often prescribe medication, usually benzodiazepines or antidepressants,[2] but medication is not always appropriate. It has important side effects,[5,6] patient adherence is low[7] and the effectiveness of antidepressants is being disputed.[8] Alternative approaches have to be considered. This looks attractive as most patients prefer non-pharmacological treatments.[9] Counselling is nearly always part of the treatment in general practice[10] and has the potential to strengthen patients' self-management. However,

its content often varies and evidence for its long-term effectiveness is weak.[11]

Problem-solving treatment (PST) might be an attractive option because of its structured approach with a focus on patient empowerment.[12] PST is a brief psychological intervention suitable for primary care, focusing on how to deal with everyday problems. PST is effective in anxiety and depression, especially in major depression,[12–16] and there are indications that it is effective for unexplained physical symptoms[17] and in palliative care.[18] A recent Cochrane review recommended further research on the effectiveness of PST in patients with emotional symptoms, irrespective of whether these fulfil the criteria for DSM-IV disorders.[19]

GPs and general practice registrars (GP registrars) have both expressed the need for an effective psychological treatment they can deliver themselves to manage patients with emotional symptoms.[20–22] Training GP registrars in PST could meet GPs' need in an early career stage. A pilot study with 11 GP registrars showed that registrars can be trained successfully in PST, but the authors recommended further investigation with a larger sample of registrars and evaluation of patient outcomes.[23] We aimed to study the effectiveness of PST delivered by trained GP registrars for patients with emotional symptoms.

Methods

Design

We compared, in a pragmatic, controlled clinical trial, the effectiveness of PST versus usual care for patients with emotional symptoms. PST and usual care were applied by GP registrars.

Setting

The study took place in a Dutch three-year GP residency programme. From 2003 to 2005 the residency programme scheduled the participation of all third-year registrars (81) in this study as part of the core programme. Registrars participated in two groups, PST and 'usual care'. Initially, we assigned registrars randomly to PST or usual care. We had to change this selection as registrars who were uncomfortable with PST did not include any patients. We allowed the next year group (2004–2005) to choose the strategy they were most comfortable with: PST (including training) or usual care. Our study received ethical approval from the Medical Ethical Committee of the Radboud University Nijmegen Medical Centre (reference number 2003/178).

Recruitment and selection criteria

We asked registrars to recruit adult patients who presented emotional symptoms during their regular clinical work in their training practice. We asked each registrar to recruit four to six patients because this was regarded as the maximum feasible number within one year of residency. We defined emotional symptoms as subthreshold as well as formal disorders of depressed mood, anxiety or stress, and psychosocial problems. Patients were included in the study if they (a) had presented emotional symptoms during three or more consultations in the past six months, and (b) had a score of four or more on the 12-item General Health Questionnaire (GHQ-12).[24] Exclusion criteria were (a) severe physical disease, (b) severe mental morbidity (organic psychiatric disorder, substance misuse, active suicidal ideas), (c) current or recent (past year) psychiatric or psychological treatment or cognitive behavioural therapy, (d) insufficient mastery of the Dutch language.

Figure 1. Problem-solving treatment (PST)

A brief psychological treatment with seven stages:

1. Explanation and rationale
2. Clarification and definition of the problems
3. Establishing achievable goals
4. Generating solutions
5. Selecting preferred solution
6. Implementing solution
7. Evaluation of progress

Registrars received the support of a research assistant in the selection of suitable patients. All participating patients signed informed consent.

Treatment and training

PST is a brief psychological treatment, derived from cognitive behavioural therapy, teaching patients how to use their own skills to cope with everyday life problems in a systematic way. It is assumed that symptoms reduce if control over problems is (re)gained.[12] PST comprises seven stages (Figure 1). The treatment consists of four to six consultations over a period of approximately eight to 12 weeks with a duration of no more than 30 minutes, except for the first session which may last 60 minutes.

The registrars were trained by experienced PST trainers in a two-day course, followed by supervised treatment and feedback meetings. Trainers assessed the quality of PST through registrars' PST worksheets. Details about the feasibility of this training programme during residency were published before.[25] The exact nature of 'usual care' was retrieved from patient records after the trial. Both treatment groups were allowed to prescribe medication.

Follow-up and outcomes

Primary outcomes were the proportion of patients who remitted, the reduction of symptoms, and improvement of quality of life. We used the Primary Health Questionnaire (PHQ) assessing the presence of five DSM-IV disorders,[26] the Hospital Anxiety and Depression Scale (HADS),[27] the 36-item MOS short form (SF-36)[28] and the 5-dimension EuroQol measuring quality of life (EQ-5D),[29] and the Social Problem-Solving (skills) Inventory—Revised measuring problem-solving skills (SPSI–R).[30] Secondary outcomes were: patient satisfaction (a self-developed questionnaire based on the Consultation Satisfaction Questionnaire[31] with nine items measuring satisfaction with the doctor and seven items measuring satisfaction with the treatment); number of disability days;[32] and health care utilisation. Health care utilisation data were collected from the patients' records: data on referrals and medication, and numbers of contacts with the GP. Higher scale scores indicate better patient outcomes, except for the PHQ and HADS, where lower scores indicate better outcomes.

Participants received self-completing questionnaires at baseline (T0), after treatment (at three months, T1) and at nine-month follow-up (T2). Record data of the six-month period before treatment were compared to data of the six-month period after treatment.

Sample size

We aimed to detect a clinically relevant difference of 30% between interventions with the primary outcome measure PHQ. To provide a power of 80% at a two-sided 5% level of significance, we needed 42 patients with full data in each group.

Analysis of effectiveness

We conducted statistical analyses using the statistical software SPSS version 16.0, according to the intention-to-treat principle. We analysed all cases with data at baseline and data at T1 and/or T2. We compared differences within the treatment groups with McNemar tests and paired *t*-tests to assess changes over time. In order to investigate the effect of the intervention, we used univariate general linear models and binary logistic regression using gender, age and baseline values as covariates to correct for baseline differences between treatment groups. We separately analysed the effect of treatment at T1 and T2. The effect of the intervention was the difference in outcome between the PST group and the usual care group (level of significance $p<0.05$).

WHAT GAP THIS FILLS

What we already know: In general practice many patients have emotional symptoms and/or psychosocial problems. Both patients and general practice registrars (GP registrars) desire effective psychological treatments within primary care.

What this study adds: Patients with emotional symptoms improved significantly more after problem-solving treatment (PST) delivered by motivated GP registrars than after usual care by GP registrars. PST might be a practical vehicle for registrars to incorporate non-specific treatment skills more manifestly in their patient contacts.

Results

Recruitment and follow-up

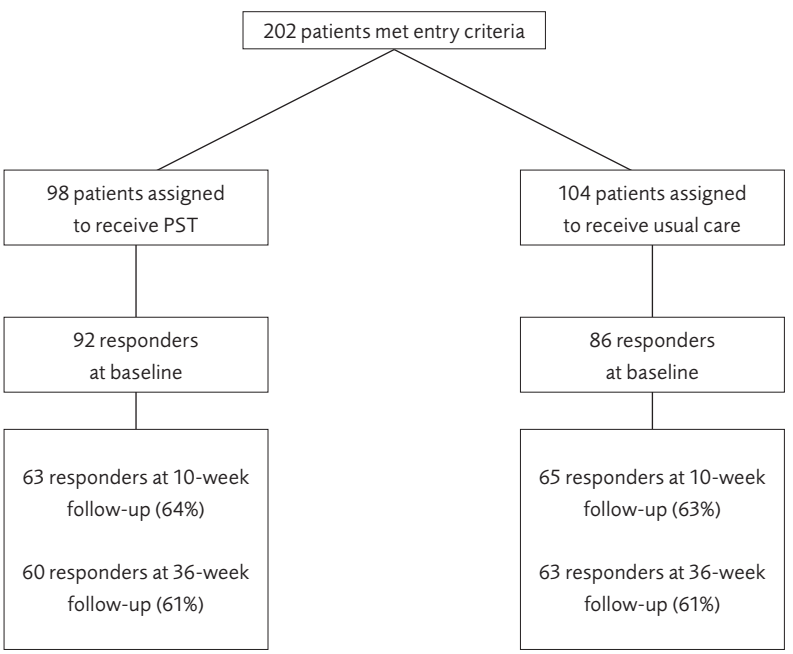
Thirty-eight registrars (28 women) provided PST and 43 (29 women) provided usual care. They included 202 patients: 98 in the PST group and 104 in the usual care group (Figure 2). Patients in the PST group were significantly younger and more often female, had, at baseline, significantly higher symptom severity and significantly worse SPSI-scores than patients in the control group (Table 1). Overall, 128 (63%) participants returned follow-up questionnaires at T1 and 123 (61%) at T2. Patients lost to follow-up did not differ significantly from those who completed the study with regard to age, gender, PST or usual care, or baseline values. Medical records were retrieved for 96 PST patients and 99 control group patients (one patient died and six patients moved).

Clinical outcome and quality of life

Both treatment groups improved significantly over time. Tables 2 and 3 show the results at T1 and T2 compared to T0. From the PHQ we analysed the three most prevalent disorders: major depression (n=62), somatoform disorder (n=68), and other anxiety syndrome (n=50) (Table 1). The PST group showed significantly better recovery rates for somatoform disorder at T1 and T2 and for anxiety at T2, but not for major depression (Table 2). The HADS depression score improved significantly more in the PST group than in the usual care group at T1; the HADS anxiety score did so at T1 and T2. In the PST group general health perception improved significantly more at T1 and T2. In Table 3 we present the three SF-36 domains most relevant to a mental health–oriented intervention: social function and mental role limitation improved significantly more in the PST group at T2; mental health improved in both groups but did not differ significantly between groups at T1 nor T2. The EQ-5D scale improved more in the PST group at T1. Regarding problem-solving skills, the SPSI–R total scores did not show significant differences in change between groups.

There were no significant differences between patients recruited during the first year and the second year when the randomisation was released.

Figure 2. Flow chart PST-trial



Health care utilisation and disability days

The numbers of patients being referred or using psychotropic medication during treatment did not differ significantly between groups. The changes in consultation rate and numbers of patients being referred or using psychotropic medication in the six months before versus the six months after treatment were not significantly different from usual care, but all in favour of PST. Absence from work did not differ significantly.

Patient satisfaction

No significant differences in patient satisfaction were found. At T1, PST patients scored 25.7 (SD 5.0) and usual care patients 24.8 (SD 5.8) on the 45-point 'satisfaction with physician' scale and 20.5 (SD 4.3) and 19.4 (SD 4.6) respectively on the 35-point 'satisfaction with treatment' scale.

Treatment received

Patients in the intervention group received on average 4.3 PST sessions (range 1–7), including the consultation of study inclusion accompanied by the intake of PST. Fifty-three patients com-

Table 1. Baseline characteristics

	PST	Usual care	p-value
Patient characteristics	**(n=98)**	**(n=104)**	
Mean age, years (SD)	40.3 (13.3)	46.0 (16.3)	**0.01**
Female, No. (%)	79/98 (81%)	63/104 (61%)	**<0.001**
Married or living with partner, No. (%)	62/92 (67%)	51/79 (65%)	0.98
Ethnicity, European, No. (%)	83/91 (91%)	95/98 (97%)	0.09
Paid employment, No. (%)	61/92 (66%)	51/86 (59%)	0.33
Clinical characteristics	**(n=92)**	**(n=86)**	
GHQ-12, mean (SD)	9.30 (2.37)	7.58 (2.56)	**<0.001**
PHQ somatoform disorder, No. (%)	37 (40%)	31 (36%)	0.57
PHQ major depressive syndrome, No. (%)	37 (40%)	25 (29%)	0.12
PHQ other anxiety syndrome, No. (%)	32 (35%)	18 (21%)	**0.04**
HADS depression score, mean (SD)	9.26 (4.25)	8.09 (4.60)	**0.05**
HADS anxiety score, mean (SD)	10.41 (3.28)	9.14 (4.81)	0.08
SF-36 social functioning, mean (SD)	47.64 (19.20)	51.49 (23.85)	0.29
SF-36 mental health, mean (SD)	43.51 (13.56)	49.18 (20.28)	0.05
SF-36 role limitation due to emotional problems, mean (SD)	24.20 (30.05)	46.48 (41.59)	**<0.001**
SF-36 general health perception, mean (SD)	55.12 (19.45)	55.68 (19.94)	0.87
EQ-5D score, mean (SD)	0.69 (0.16)	0.71 (0.19)	0.60
SPSI-R total score, mean (SD)	9.07 (2.64)	9.91 (2.72)	**0.04**

Table 2. Numbers of cases at Patient Health Questionnaire (PHQ) at three-month follow-up (T1) and nine-month follow-up (T2) and binary logistic regression for differences in effects between PST and usual care at T1 and T2 compared to baseline (with gender, age and baseline values as covariates)

Outcome	No of cases (%)		Odds ratio (95% CI) for achievement of remission
	PST	Usual care	
PHQ somatoform disorder			
T0	37/92 (40.2%)	31/86 (36.0%)	ref
T1	6/63 (9.5%)	20/65 (30.8%)	**6.52 (1.94 to 21.91)***
T2	4/60 (6.7%)	16/63 (25.4%)	**6.50 (1.74 to 24.31)***
PHQ major depressive syndrome			
T0	37/92 (40.2%)	25/86 (29.1%)	ref
T1	8/63 (12.7%)	11/65 (16.9%)	1.90 (0.61 to 5.92)*
T2	5/60 (8.3%)	4/63 (6.3%)	0.62 (0.14 to 2.76)*
PHQ other anxiety syndrome			
T0	32/92 (34.8%)	18/86 (20.9%)	ref
T1	6/63 (9.5%)	8/65 (12.3%)	2.02 (0.56 to 7.31)*
T2	1/60 (1.7%)	7/63 (11.1%)	**11.25 (1.21 to 104.26)***

PST = problem-solving treatment

CI = confidence interval

ref = reference group

* adjusted for gender, age and baseline values

Table 3. Mean scores on main outcome scales at three-month follow-up (T1) and nine-month follow-up (T2) and ANCOVA for differences in effects over time between PST and usual care (with gender, age and baseline values as covariates)

Outcome*	Mean score (SD)		Mean difference (95% CI) between PST and usual care
	PST†	Usual care†	B-coefficient
HADS			
Depression score			
T0	9.26 (4.25)	8.09 (4.60)	ref
T1	4.97 (4.12)	6.73 (4.40)	**-1.88 (-3.11 to -0.64)‡**
T2	4.55 (4.45)	5.47 (3.65)	-1.23 (-2.49 to 0.02)‡
Anxiety score			
T0	10.41 (3.28)	9.14 (4.81)	ref
T1	6.98 (3.94)	8.33 (4.80)	**-2.17 (-3.44 to -0.90)‡**
T2	6.65 (3.25)	7.05 (4.93)	**-1.33 (-2.50 to -0.15)‡**
SF-36			
Social functioning			
T0	47.64 (19.20)	51.49 (23.85)	ref
T1	65.97 (23.42)	57.33 (25.73)	5.81 (-3.73 to 15.36)‡
T2	73.23 (18.30)	62.80 (23.45)	**9.83 (1.27 to 18.39)‡**
Mental health			
T0	43.51 (13.56)	49.18 (20.28)	ref
T1	64.25 (18.16)	61.36 (21.37)	3.69 (-3.13 to 10.51)‡
T2	68.00 (17.06)	66.26 (18.64)	4.49 (-2.13 to 11.12)‡
Role limitation due to emotional problems			
T0	24.20 (30.05)	46.48 (41.59)	ref
T1	63.89 (42.85)	56.67 (44.80)	9.58 (-8.44 to 27.60)‡
T2	80.30 (36.17)	70.29 (42.30)	**17.18 (0.69 to 33.67)‡**
General health perception			
T0	55.12 (19.45)	55.68 (19.94)	ref
T1	64.69 (22.99)	57.94 (19.98)	**8.00 (1.81 to 14.20)‡**
T2	70.39 (19.48)	61.48 (20.27)	**10.48 (3.66 to 17.30)‡**
EQ-5D			
T0	0.69 (0.16)	0.71 (0.19)	ref
T1	0.81 (0.17)	0.71 (0.16)	**0.09 (0.03 to 0.14)‡**
T2	0.82 (0.18)	0.79 (0.14)	0.02 (-0.03 to 0.07)‡
SPSI–R			
T0	9.07 (2.64)	9.91 (2.72)	ref
T1	9.98 (2.68)	10.57 (2.49)	-0.49 (-1.20 to 0.21)‡
T2	10.13 (2.58)	10.86 (2.52)	-0.13 (-0.87 to 0.60)‡

PST = problem-solving treatment
SD = standard deviation
CI = confidence interval
* HADS = 21-point scales
SF-36 = 100-point scales
EQ-5D = 1-point scale
SPSI-R = 20-point scale
† PST group: at T0 n=92; at T1 n=63 ; at T2 n=60. Usual care group: at T0 n=86; at T1 n=65; at T2 n=63.
‡ Adjusted for gender, age and baseline values

pleted treatment (≥ 4 sessions) with on average 5.3 sessions (range 4–7). The mean number of consultations in addition to PST sessions during the three-month treatment period was 0.7 (range 0–5). Based on worksheets of PST sessions the PST supervisor reported good quality performance of PST.

In the usual care group, the average number of consultations—for any reason—during the three-month treatment period was 3.3 (range 1–12). Most registrars used counselling in most consultations, but content and duration were not described in the records.

Discussion

Both PST and usual care patients with emotional symptoms improved significantly over time. However, patients who were treated by GP registrars providing PST had significant better outcomes than patients who were treated by registrars providing usual care. PST patients reported significantly fewer symptoms of depression and anxiety, and a significantly higher general health perception than usual care patients did, both short- and long-term. PST patients had a significantly higher chance of recovery from somatoform disorder short-term. Long-term this was also the case for anxiety. Long-term they reported significantly better scores of social function and role limitation due to emotional problems, corresponding with a relevantly better subjective function in daily life. This fits in with earlier research that found significantly better improvements of quality of life after PST than after usual care.[14]

The PHQ did not show significant differences in recoveries of major depressive disorder, but significant differences in favour of PST were found on the HADS concerning the severity of anxiety and depressive symptoms. Thus, PST did not diminish the number of cases of depression, but reduced symptom severity. Strikingly, SPSI scores did not differ significantly between groups. This could be due to the fact that actual problem-solving performance is not necessarily a function of cognitive-behavioural skills in generating solutions.[33]

Strengths and limitations of the study

Notwithstanding these positive findings, this study has limitations. Firstly, the lack of randomisation of registrars providing PST. The registrars who were initially randomised to PST and were uncomfortable with it, did not recruit patients, not allowing any comparison. Changing the selection of registrars by offering the choice between PST and usual care may have resulted in potentially overestimating the impact of PST, because PST registrars were probably more motivated to deliver mental health care than their usual care colleagues. However, there were no differences in outcome between patients of registrars randomly allocated to PST and patients of registrars who made a choice for it. Also, registrars in the usual care group were not necessarily unmotivated for mental health care: probably they did not perceive the need for more training, because they felt at ease using the prevailing Dutch College guidelines of depression and anxiety.[34,35] Furthermore, patient satisfaction with their GP registrar treatment was not significantly different between treatment groups.

The second limitation was the limited completion of follow-up measures, although this is common in trials with psychological interven-

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tions.[36] The third limitation was the selection of patients, with registrars in the intervention group selecting patients mainly themselves. Registrars in the usual care group partly did so, but to reach the numbers planned in advance, had to be assisted by a research assistant. PST registrars enrolled patients they thought would benefit from PST. Although this reflected daily practice in the sense that GPs offer only treatments to patients when they expect a positive effect, it resulted in a biased selection of patients: all patients met the eligibility criteria of 'emotional symptoms', a consultation rate of three or more, and a GHQ-12 score of four or more, but PST patients were more often female, younger and had more severe psychological symptoms. Patients in the PST group might have been more suitable and more motivated for treatment than usual care patients. This limitation also might have overestimated treatment effects of PST. Although we corrected for the baseline differences in our analyses and still found significant advantages of PST above usual care, this limitation—together with the lack of randomisation of registrars—compromises the internal validity. Also, through the lack of randomisation of both registrars and patients, this study—originally designed and started as a randomised controlled trial—could in the end be regarded as two case series with one series of patients treated with PST and another with usual care.

Due to the compromised internal validity, it remains unclear whether the effects were the results of (a) specific PST techniques, (b) motivated registrars, (c) more open attitudes of PST patients towards treatment, or (d) a treatment like PST as a vehicle for registrars to incorporate non-specific skills—such as empathy, warmth and the doctor–patient relationship—better into their consultations with patients with emotional problems. The last option might be realistic, because a focus group study showed that registrars expressed that they implemented many new skills during PST.[37] The registrars mentioned, for instance, that they appreciated the patient-centred and patient-empowering character, including the activation of patients to implement their own solutions in daily life. In earlier research, Australian GPs mentioned these elements too.[38] Therefore, we think that a treatment like PST might be a practical vehicle for registrars to incorporate non-specific treatment skills more manifestly in their patient contacts.

A strength of our study is that, to our knowledge, this was the first study with PST being provided by physicians from the patients' own general practice. All other PST studies involved PST therapists who were unknown to the patient whereas usual care was delivered by the patient's own GP. This probably overestimated usual care effects in earlier studies because the doctor–patient relationship influences patient outcome importantly.[39] Another strength is that this study was one of the very few studies with GP registrars providing a specific psychological treatment for emotional symptoms, including measurement of patient outcomes. Recent Chinese research with registrars providing PST voluntarily did not show significant benefit of PST over placebo group intervention. These registrars, however, only provided three sessions of PST.[40]

We recommend a trial with randomisation of registrars who are interested in providing PST. In this trial, measurement of motivation must be part of the design. Furthermore, we suggest investigating the effectiveness of PST when provided by the patient's own GP, because effects build upon the more longstanding relationship with the patient.

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ACKNOWLEDGEMENTS
We kindly thank all GP registrars who participated.

FUNDING
This study was supported by a grant (No. 4200.0002) from ZonMw (Netherlands Organization for Health Research and Development).

COMPETING INTERESTS
None declared.