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Research report

Are effects of depression management training for General Practitioners on patient outcomes mediated by improvements in the process of care?

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Abstract

Background: Depression treatment by General Practitioners (GPs) and patient outcomes improved significantly after a comprehensive 20-h training program of GPs. This study examines whether the effects on patient outcomes are caused by the improvements in the process of care. **Methods:** Seventeen GPs participated in the training program. A pre-test–post-test design was used. A total of 174 patients (85 pre-test, 89 post-test) aged 18–65 met ICD-10 criteria for recent onset major depression. The main indicator of mediation was a drop in training effect size (η^2) on patient outcome after adjustment for individual and combined process of care variables. We evaluated depression-specific (recognition, accurate diagnosis, prescription of antidepressant, adequate antidepressant treatment) and a non-specific process of care variable (communicative skillfulness of the GP) as well as the combination of adequate antidepressant treatment and communicative skillfulness. Patient outcomes were assessed at 3 months and consisted of change in severity of symptomatology, level of daily functioning and activity limitation days from baseline. **Results:** Depression-specific interventions mediated up to one third of the observed improvement in patient outcome. ‘Adequate dosage and duration of an antidepressant’ explained 36% of the training effect on patient outcome (η^2 from 0.044 to 0.028). ‘Communicative skillfulness of the GP’ only was a weak mediator (18% explained; η^2 from 0.044 to 0.036). However, the combination of both, that is adequate antidepressant treatment by a communicative skillful GP, proved to be the strongest mediator of the observed training effect on patient outcomes (59% explained; η^2 from 0.044 to 0.018). **Limitations:** The training effects on patient outcomes in this sample were small. Hence, the scope for mediation was limited. **Conclusion:** GP communication skills are important to enhance depression-specific interventions in bringing about improvements in patient outcomes and should be addressed in GP training programs for the treatment of depression.

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Keywords: Depression; Primary care; Training; Communicative skills

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1. Introduction

Recent reviews point out significant shortcomings in the management of depression in primary care settings. A significant proportion of patients with active depression seen by General Practitioners (GPs) remain undiagnosed (Ormel et al., 1991; Eisenberg, 1992; Üstün and Sartorius, 1995; Tiemens et al., 1996) and even when depression is accurately diagnosed, many do not receive adequate dosage and duration of antidepressant treatment (Thompson and Thompson, 1989; Katon et al., 1992, 1995; Maddox et al., 1994; Donoghue and Tylee, 1996; Johnson et al., 1996; Gregor et al., 1998; Lawrenson et al., 2000). This suggests the need for training programs for GPs targeting the process of care for depression.

We developed an active hands-on training program that offered both specific diagnostic and management guidelines for depression and training in general clinical approaches to mental illness, including communication skills (Jenner et al., 1995). Ormel et al. (1998), van Os et al. (1999, 2002) and Tiemens et al. (1999) reported the effects of this training program. GP treatment regimens improved in accordance with treatment guidelines. Antidepressant treatment increased significantly from 24% to 40%. Adequate dosage and duration increased from 47% to 84% of all patients prescribed an antidepressant for depression. Communicative skillfulness of GPs improved from 37% to 72%.

Regarding patient outcomes, Tiemens et al. (1999) found positive but small effects for depressed patients. At the 3-months follow-up, the depressed patients of trained physicians had less symptomatology than depressed patients of the same physicians prior to the training. For a subgroup of depressed patients, however, stronger effects were found. This subgroup consisted of patients with an episode duration less than 12 months at the time of the index visit ('recent onset') who were also recognised by their physician as having a mental health problem. At the 3-months follow-up, the post-training patients from this subgroup had less severe symptomatology, better daily functioning and less activity limitation days than the pre-training group had at the 3-months follow-up. In addition, the median duration of the episode was 5 weeks shorter for the post-training group than for the pre-training group.

The present study examines whether the observed training effects on 3-months patient outcomes were caused by the observed improvements in process of care, and if so, which process of care variables were responsible for these better patient outcomes. Both depression-specific aspects (recognition; accuracy of depression diagnosis; prescription of antidepressant; adequate dosage and duration of antidepressant treatment) and a non-specific one (communicative skillfulness of the GP) as well as a combination of adequate antidepressant treatment and communicative skillfulness were examined. Our analysis targets all patients with a recent onset ICD-10 depression, irrespective of whether the depressed patient was recognised by the GP as having a mental health problem, because firstly, recognition by the GP is one of the potential mediators of improvement in patient outcomes, and secondly, as a result of the training, the case mix of the patient groups recognised by the GPs before and after the training may differ. For example, after the training GPs may recognise more patients with mild symptomatology or disability who are known to have a better prognosis (van den Brink et al., 2002). Because we did not find a training effect on episode duration for the current sample of all recent onset depression cases, we restricted our analyses to the changes over the 3-months follow-up period in severity of symptomatology, level of daily functioning and activity limitation days.

2. Methods

2.1. Patient and data collection

The present study was carried out in the context of an intervention study designed to evaluate the effects of a post-academic training program (Jenner et al., 1995) on the process of care for depression and patient outcomes in primary care (Ormel et al., 1998; van Os et al., 1999, 2002; Tiemens et al., 1999). Although the study has been described extensively in earlier publications, we present an outline of the recruitment and data collection procedures.

Independent samples of consecutive patients attending their GP at randomly selected days were collected both before and after the training. Seventeen

GPs participated in the study. After providing patients with a complete description of the study, we obtained written informed consent. Patients aged 18 to 65 years answered the GHQ-12, a screening questionnaire for mental health problems (Goldberg and Williams, 1988), while waiting to see their GP. Based on the results of screening, a stratified random sample—oversampling patients with a high probability of the presence of mental health problems—was invited for a psychiatric interview within 2 weeks of the visit to the GP. The interview included the depression section of the Composite International Diagnostic Interview—Primary Health Care Version (CIDI–PHC) (World Health Organization, 1990; Von Korff and Üstün, 1995). A trained research assistant carried out the interview. All patients with a current depressive episode according to ICD-10 criteria on the CIDI–PHC, were asked to participate in a 3-months follow-up assessment. Only patients with a recent onset ICD-depression were included in the present study. Onset of the current ICD-depressive episode was assessed in the interview. Onset was coded ‘recent’ if the ICD-depressive episode started within the last 12 months prior to the index visit.

2.2. Measures

2.2.1. Process of care

Both for the pre-training and the post-training cohort, the GPs documented the process of care at baseline on a Physician Encounter Form (PEF). The GPs recorded: (a) the presence of any psychopathology; (b) their diagnosis of the psychopathology; and (c) any treatment provided, including drug prescription and counselling. To record the presence of a mental health problem, the GP used a 5-point scale: 0, completely normal, not disturbed; 1, some symptoms, but not amounting to illness (subclinical disturbance); 2, mild case, just clinically significant emotional distress; 3, moderate case; 4, severe case, severe emotional distress. A patient receiving a rating of 2 or more was considered a GP mental health case. For each patient meeting this criterion, the GP was also asked to specify the diagnosis. Patients receiving the diagnosis of depression were classified as GP-depression cases. Patients who had an ICD-10 current depression according to the CIDI–PHC were classified as ICD-depression cases. Recognised cases

were ICD-depression cases that were also a GP mental health case. Accurately diagnosed cases were ICD-depression cases that were also GP-depression cases.

Duration and dose of antidepressive medication for patients who received an antidepressant were assessed at a 1-year follow-up interview with the GP and by examining medical records. Patients, aged 18 to 60, were considered to have received adequate dosage if they were prescribed a minimum daily dose of 100 mg imipramine, clomipramine, desipramine or maprotiline, 75 mg nortriptyline, 60 mg mianserine, 150 mg fluvoxamine, or 20 mg paroxetine or fluoxetine (van der Kuy, 1995). Patients aged 60 to 65 were considered to have received adequate dosage if they were prescribed a minimum of 50% of the dosages described above. Duration of the treatment was considered adequate if the patient was prescribed antidepressant medication during at least 3 months.

Two aspects of the process of care, namely empathy of the GP and support of patient coping by the GP, were assessed at baseline by patient questionnaire. Being empathic and supportive are central, facilitative characteristics of therapists who are better than others at contributing to positive patient outcome (Roter et al., 1995; Ablon and Jones, 1999; Norcross, 2002). Empathy was assessed by five questions about the contact with the physician during the index visit. These questions were: (1) Did your doctor show interest in you personally? (2) Did your doctor let you tell your story, and did (s)he listen carefully? (3) Did your doctor ask useful questions? (4) Did your doctor show understanding for your situation? (5) Did you have the impression that your doctor understood exactly your feelings during the consultation? On each question the patient was asked to rate the doctor behaviour on a 10-point scale. The five questions were combined to a mean score, ranging from 0 to 10 (mean inter-item correlation 0.69; range 0.59–0.83; $\alpha=0.91$). GP support of patient coping was assessed by four questions about the contact with the physician during the index consultation. These questions were: (1) Did your doctor ask about the ways you cope with your problems? (2) Did your doctor ask about moments you felt better in the last weeks? (3) Did your doctor show appreciation about your coping with your

problems? (4) Did your doctor show appreciation of your readiness to cope with your problems? On each question the patient was asked to rate the doctor behaviour on a 10-point scale. The four questions were combined to a mean score, ranging from 0 to 10 (mean item correlation 0.54; range 0.42–0.69; $\alpha=0.82$). The empathy and support scores were considerably correlated ($r=0.45$). We therefore standardized and combined the two scores to a single ‘communicative skillfulness score’ for the GP. Communicative skillfulness was considered a characteristic of the physician and not of the individual physician–patient interaction. Moreover, assessment of the skillfulness by individual patients was considered too unreliable, open to bias and potentially affected by the course of the disorder, to examine as a process of care influence on patient outcome. Therefore we calculated the mean communicative skillfulness score for each GP based on the scores from his/her patients and separately for the pre-training period and post-training period. We divided the GPs into two equally sized groups: a group of skillful and a group of less skillful GPs, based on the median score. It should be noted that, contrary to the other process of care variables, the skillfulness score is a variable on the GP level, instead of the patient level.

2.2.2. Patient outcomes

Patient outcomes were based on assessments at baseline and the 3-months follow-up. Three aspects of patient outcome were assessed, namely symptomatology, disability and activity limitation days. To measure symptomatology, we used 51 items of the SCL-90 (Derogatis et al., 1974), consisting of the items of the depression, anxiety, sleeping problems and somatic complaints subscales. Disability and activity limitation days were assessed with the Brief Disability Questionnaire (BDQ) (Von Korff and Üstün, 1995). The BDQ is a self-reported questionnaire including five items on, respectively, daily functioning, daily responsibilities, motivation for work, personal efficiency and deterioration in social relations, giving the BDQDIS score (range 0–10) and one on the number of activity limitation days in the prior month (BDQALD score). Change scores over the 3-months follow-up period were calculated for these three measures. These change scores were correlated (mean

correlation 0.37, range 0.31 to 0.48). To reduce the risk of chance findings, we combined these three measures to a single ‘Patient Outcome’ score by standardizing and summing the three change scores.

2.3. Analysis

Mediation of the training effect on patient outcome by GP process of care was examined by multiple regression analysis. We examined whether the training effect on patient outcome disappeared after adjustment for a process of care variable. More precisely, we examined whether the contribution of the dichotomous pre–post training variable to the prediction of the change in patient outcome, as expressed by η^2 , was substantially reduced by adjustment for a process of care variable. Mediation by each and every process of care variable was examined separately. We examined mediation by the depression-specific variables: recognition, accuracy of depression diagnosis, prescription of an antidepressant, adequate dosage and duration of antidepressant treatment and the non-specific variable, communication skillfulness of the GP, as well as the combination of adequate antidepressant treatment and communicative skillfulness.

All analyses were adjusted for possible confounding by the following patient characteristics: gender, age, number of years of education and the illness characteristics: severity of depression at baseline and comorbidity of anxiety. These patient and illness characteristics were found to predict the course of depression in primary care (van den Brink et al., 2002).

3. Results

3.1. Patient, illness and process of care characteristics

A total of 174 patients with a recent onset ICD-10 depression were identified in the pre- and post-training samples (N pre=85; N post=89). Of these, 76 patients were missing one of the patient outcome variables. The dropouts did not show significant differences from the study sample on patient characteristics, illness characteristics or process of care variables.

Table 1

Pre- and post-training differences in process of care for patients with a recent onset ICD-depression (N pre=85; N post=89)

Process of care variable	Pre-training	Post-training	P
Recognition (%)	72%	72%	0.98
Accuracy of diagnosis depression (%)	40%	49%	0.21
Antidepressant (%)	20%	34%	<0.05
Adequate dosage and duration of antidepressant treatment (%)	8%	26%	<0.01
Communicative skillfulness (%)	27%	71%	<0.01
Communicative skillfulness and adequate antidepressant treatment (%)	3%	24%	<0.01

3.2. Pre and post differences in process of care

Table 1 shows the pre- and post-training recognition rates and accuracy of diagnosis as well as the treatment of all recent onset ICD-depression cases. Improvements are seen in prescription of an antidepressant, adequacy of antidepressant treatment, GP communicative skillfulness, and the combination of adequate antidepressant treatment and GP communicative skillfulness. It should be noted that more than half of the patients were not diagnosed by their GP as having a depression, and hence received no specific depression treatment.

3.3. Mediation in recent onset cases

Table 2 presents the data on mediation of the training effect on patient outcome by process of care. Mediation is examined by comparing the strength of the training effect (η^2) unadjusted for a process of care variable (first row of Table 2) to the strength of the effect after adjustment for a process of care variable (subsequent rows in Table 2) and the combination of adequate antidepressant treatment and communication skillfulness (last row of Table 2). We did not find mediation by recognition or accuracy of diagnosis. Some mediation was found by antidepressant treat-

ment and by GP communicative skillfulness. Treatment according to depression guidelines, that is the provision of an antidepressant treatment of adequate dosage and duration, proved to be a strong mediator (η^2 from 0.044 to 0.028, a drop of 36%). The mediating effect of this depression-specific treatment, however, was again substantially increased, when the treatment was provided by a communicative skillful GP (η^2 from 0.044 to 0.018, a drop of 59%).

4. Discussion

The present study aimed to examine whether observed improvements in patient outcomes were caused by improvements in process of care. We examined the patients with a recent onset depression. What did we find? Recognition and accuracy of diagnosis did not mediate the patient outcome, probably because these process of care variables did not improve by the training. The provision of an antidepressant did improve, but this improvement was not responsible for the observed training effect on patient outcome. Antidepressant treatment with adequate dosage and adequate duration, however, was a strong mediator of the training effect with an explained variance of 36%. The training also managed to in-

Table 2

Training effect on patient outcome, unadjusted and adjusted for process of care variables (N pre=48; N post=50)

	η^2	F	P
Effect of training without adjustment for process of care variables	0.044	4.15	0.04
Effect of training with adjustment for a process of care variable			
Recognition	0.043	4.06	0.05
Accuracy of diagnosis depression	0.044	4.16	0.04
Antidepressant	0.038	3.51	0.06
Adequate dosage and duration of antidepressant treatment	0.028	2.53	0.12
Communicative skillfulness	0.036	3.32	0.07
Communicative skillfulness and adequate antidepressant treatment	0.018	1.60	0.21

crease communicative skillfulness of the GP. But again this improvement was immaterial for the training effect on patient outcome. Only in combination with adequate antidepressant treatment, the communicative skillfulness proved a potent mediator of the training effect with 59% explained variance. The major explanation for our training effect on patient outcomes therefore turned out to be the increase in number of patients not only adequately treated from the perspective of the clinical guidelines but also from the perspective of the physician–patient relationship. This number of adequately treated patients increased from 3% before the training to 24% after the training.

Some limitations of the study should be mentioned. Firstly, the training effects on patient outcomes were small and restricted to specific outcomes. There was no effect, for example, on episode duration. Secondly, not all process of care variables had improved significantly by the training. Hence, the scope for mediation was limited.

Why did we not find improvements in patient outcomes for patients with an episode duration of 12 months or more ('distant onset')? One explanation could be that the training program did not succeed in improving the process of care for this group. However, adequate antidepressant treatment actually improved from 8% to 27% ($P < 0.01$), communicative skillfulness from 46% to 72% ($P < 0.01$) and the combination of adequate antidepressant treatment and communicative skillfulness from 4% to 23% ($P < 0.01$), and these changes were comparable to the recent onset group. This means that adequate antidepressant treatment in the hands of a communicatively skillful GP is not enough to improve the outcomes of patients with a depression of longer duration. For this patient group other interventions are necessary. Like most protocols for management of depression, the protocol in our training program was basically focused on acute treatment. The protocol contained some chronic care aspects, but was not embedded in a general chronic care model for depression. Interventions for patients with persistent symptoms of depression suggested by such a model would include: responsibility for active follow-up, monitoring of adherence to treatment and patient outcomes, adjustment of treatment plans when patients do not improve and consulting and referring to a psychiatrist when necessary (Katon et al., 2001). If implementation of

these interventions is considered too time-consuming by an already overtaxed GP, case management in combination with either specialist support or psychotherapy proved valuable options (Katon et al., 1999; Schulberg et al., 2002).

What are the implications of the findings of this study? Firstly, GP communication skills turn out to be important to enhance depression-specific interventions in bringing about improvements in patient outcomes. These skills should be addressed in GP training programs for the treatment of depression alongside specific depression interventions. Secondly, there remains scope for the improvement of depression treatment in primary care. Prior to our training only 8% of the depression received treatment in accordance with the clinical guidelines and for 3% of the patients this treatment was provided by a communicatively skillful GP. After the training these numbers were higher—26% and 24%, respectively—but the vast majority of depression patients did not receive adequate treatment either in terms of the clinical guidelines or of the doctor–patient relationship. Finally, the current clinical guidelines for treatment of depression in primary care are in need of additional guidelines for the treatment of persistent depression.

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