

CHAPTER

1

## General introduction



## Anxiety and depressive disorders: the most common mental disorders in general practice

It is estimated that the most prevalent mental disorders in Europe are anxiety disorders (12 month prevalence 14%, in the Netherlands 10.1%) followed by depressive disorders (6.9%, in the Netherlands 5.2%) (1,2). The burden of these diseases is high, mainly due to disability owing to their negative impact on daily functioning (1,3). Additionally, anxiety and depressive disorders are frequently comorbid. Both disorders incur healthcare costs and indirect costs associated with production losses (4,5). The average cost per person per year for anxiety disorders in the Netherlands was estimated to be €1077 (of which €405 are indirect costs) and for mood disorders €3406 (of which €2161 are indirect costs) (4). The relatively low healthcare costs and high indirect costs may be the result of unmet treatment needs. Results from the European Study of the Epidemiology of Mental Disorders (ESEMED) showed that of the people who were considered in need of mental health care nearly half did not receive such care (6). Reasons for patients not using care for mental health problems were, for example, that previous treatment was not perceived as effective (7) or that patients wanted to solve the problem themselves (8).

In the Netherlands it is estimated that about one third of people aged between 18 and 64 years with an anxiety disorder and about half of people with a depressive disorder receive treatment (2), mostly from their general practitioner (GP) (2,9). A GP's role in managing anxiety and depression, involves recognition, diagnosis, treatment and referral. With approximately 75% of their adult patients visiting their GP at least once a year, the GP is in a good position to detect anxiety and depression (10). Adequate recognition and subsequent treatment, could improve patient outcomes.

Studies have demonstrated a wide range of recognition rates for depression and anxiety in primary care, dependent on the method of case ascertainment and the time allowed for GPs to recognise these disorders (11,12). In addition, previous studies showed that patient and GP characteristics are associated with the recognition of depression and anxiety. Patient characteristics associated with better recognition are, for example, being a woman, single, of older age, having severe depression, comorbid anxiety or depression, chronic somatic co-morbidity, having disclosed mental health symptoms to the GP and positive attitudes towards seeking help (13-17).

Many patients do not recognise or acknowledge that they suffer from anxiety or depressive symptoms. They may present in general practice with somatic symptoms and interpret these symptoms as the consequence of an as yet undiagnosed somatic disorder instead of a mental health problem (9,18,19). When the general practitioner diagnoses them with a psychiatric disorder, they may not perceive a need for treatment (8,20). Primary care physician characteristics associated with better recognition may be practice experience, knowledge and skills in differentiating between 'normal'

distress and anxiety or depressive disorders, and attitudes towards these disorders (13,21-24).

Although studies have demonstrated a wide range of recognition rates for depression and anxiety in primary care, it is assumed that recognition, diagnosis and treatment can be improved in the Netherlands (25,26).

## Guidelines for the identification and management of anxiety and depression in general practice

In order to provide the best evidence-based mental health care and improve uniformity in the performance of primary care, standards for the identification and management of anxiety and depression have been developed in recent decades in different countries (27-30). These standards are guidelines that GPs can use during clinical decision making. The Institute of Medicine (IOM) defines guidelines as: "... statements that include recommendations, which are intended to optimise patient care, that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options" (31). There is evidence that adherence to treatment guidelines would produce better outcomes (32,33).

In the Netherlands clinical guidelines for the management of anxiety and depression are available in general practice, and there are multidisciplinary guidelines for primary and specialised care (34-37). The guidelines for GPs are issued by the Dutch College of General Practitioners (NHG). The NHG is the scientific society of Dutch general practitioners with the mission "to improve and to support evidence-based general practice". The Dutch standards give recommendations for the identification and management of anxiety and depressive disorders. The main recommendations are: (i) recognition of anxiety and depression in high risk groups, (ii) diagnosis of patients using the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (38), (iii) assessment of the severity of anxiety and depression, and (iv) start of a treatment appropriate to the diagnosis and severity, in shared decision making with the patient.

Once treatment has begun, patients have to be monitored, and if they do not respond, more intensive treatment has to be initiated. The guidelines thus advocate a 'stepped care' approach and offer a range of evidence-based treatments. Depending on the type and severity of anxiety or depression, a treatment is allocated, initially the least intensive treatment that is still expected to generate effects. Patients with sub-threshold and mild anxiety or depression are offered interventions of low intensity, such as psycho-education, self-help or problem solving treatment. More intensive treatment options such as psychotherapy or pharmacotherapy, are appropriate for patients who do not successfully respond to low-intensity interventions, or for patients who have more severe symptoms.

## Adherence to guideline recommendations in general practice

Treatment starts with the recognition and diagnosis of anxiety and depression. Previous studies have showed that about half of patients with an anxiety or depressive disorder were identified by their GP (11,12,39).

Several studies have reported rates of guideline adherence for anxiety and depression in primary care. One study was conducted in Europe and used data from ESEMeD (40). This study indicated that less than one third (23.3%) of people with a depressive disorder or an anxiety disorder (social phobia, generalised anxiety disorder and panic disorder) received guideline-concordant mental health care in the general medical setting. Indicators for minimally adequate treatment were: receiving an antidepressant for depression or an antidepressant or anxiolytic drug for anxiety for at least two months, plus at least four visits to a psychiatrist, a GP or any other doctor; or at least eight sessions with a psychologist or a psychiatrist, each lasting an average of 30 minutes.

In the Netherlands one study examined the degree to which GPs adhere to the guidelines for anxiety and depression (25). Results showed that 42% of patients with a depressive disorder, 27% of patients with an anxiety disorder, and 50% of patients with a comorbid depressive and anxiety disorder received guideline-adherent treatment. In patients with a moderate to severe disorder, 47% received care according guidelines for depression and 37% for anxiety. The indicators used for adequate guideline adherence in this study were: psychological support (including at least five consultations in the fifteen weeks after documentation of diagnosis), counselling (only for depression), prescription of antidepressant medication (including evaluation after six weeks of prescription and a minimal duration of five months or cessation in the case of no response) or referral to a mental health specialist. Smolders et al. (2009) found that recognition of anxiety and depression (i.e. GPs making the diagnosis and recording it) was associated with receiving guideline-adherent treatment.

## Strategies to improve the uptake of guidelines and outcomes for patients with anxiety and depression in primary care

Previous studies have shown that despite the existence of the guideline recommendations for patients with anxiety and depression, recognition, diagnosis and treatment can still be improved in general practice. Guidelines to improve the care of patients with anxiety and depression have been widely disseminated, however, simple dissemination of these guidelines may have little positive effect on professional practice outcomes (41). Different approaches to planning and evaluating implementation strategies in clinical practice may be used. The approaches can focus on the impact of the interventions or process of the implementation activities (42). Process theories

describe how the different activities for the implementation of change should be planned and organised in order to be effective, and how the target group is influenced by the activities. Theories can be focused on individuals (e.g. motivational theories), may pertain to social interaction (e.g. social learning theory) or refer to the organisational context (e.g. theory of the total quality management), however, scientific evidence about which approach yields superior results in which type of setting is limited.

Several systematic reviews have assessed the effectiveness of methods intended to change professional practice and patient outcomes in healthcare (43-46). These reviews generally show relatively modest effects, and wide variations between studies that have been performed in different settings. Several systematic reviews have focussed on the effectiveness of implementation strategies for psychiatric guidelines on provider performance and patient outcomes in primary care (47-50). Gilbody et al. (2003) included 36 studies of primary care regarding the effectiveness of organisational and educational interventions to improve the management of depression. The results indicated that so-called 'multifaceted strategies' were effective in improving patient outcomes in the short term. These 'multifaceted strategies' included educational and organisational approaches such as the appointment of a nurse care manager, the integration of primary and specialised care, and telephone medication counselling. Heideman et al. (2005) included eight studies aimed at improving the recognition, diagnosis, and management of patients with an anxiety disorder in general practice through the introduction of quality improvement interventions. Their review suggested that professional and organisational interventions increased professional performance and patient outcomes. The introduction of an external expert for the provision of education or active participation in patient care seems particularly promising for the improvement of the quality of care for patients with anxiety disorders. Finally, Weinmann et al. (2007) reviewed eighteen studies, of which twelve were in primary care, one in a general hospital and five within specialised mental healthcare settings. Eight studies addressed depressive disorders. The results indicated that the effects on provider performance or patient outcomes were modest and of limited duration in most cases. Studies in which complex multifaceted interventions or specific psychological methods to overcome barriers for the implementation of the guidelines were used, showed positive outcomes.

In summary, the most promising implementation strategies for guideline recommendations for anxiety and depression seem to be interventions focusing on professionals and on the organisation of care, and tailored to the local setting.

## The Quality Improvement Collaborative

Quality Improvement Collaboratives (QICs) emerged in health care to improve care processes in the 1990s. These collaboratives were based on continuous quality improvement (CQI) methods, which were developed for the industry (51). Probably the most widely used Quality Improvement Collaborative (QIC) approach is the Breakthrough Series Collaborative (BSC) developed by the Institute for Healthcare Improvement (IHI) (52). The BSC is a short term (6-15 month) learning system, designed to help organisations close the gap between what they know and what they do, by learning from other organisations and from experts in areas where organisations want to make improvements. The most common components of the QIC are in-person learning sessions, plan-do-study-act (PDSA) cycles, multidisciplinary quality improvement teams, and data collection for quality improvement (53). The effectiveness of QIC in improving the quality of care seems positive but limited (54). Further knowledge of the components, (cost)effectiveness and the influencing factors is of importance to determine the value of the QICs (54). BSCs have been carried out to improve mental health in primary care, addressing the implementation of evidence-based guidelines for depression. These BSCs have been moderately successful in improving the diagnosis and treatment of depression in primary care (55-57), however, evidence of the effectiveness of BSCs on professional performance and patient outcomes is limited, nor are there studies about BSCs in improving the quality of primary care for patients with anxiety disorders.

## Tailoring interventions to prospectively identified barriers

The limited effectiveness of the BSC may be due to the provision of only one set of implementation strategies, which may be insufficiently aligned with specific barriers in the local context. Facilitators and barriers to providing guideline concordant care might be related to professional and patient characteristics (e.g. cognitions, such as knowledge or understanding of own performance, motivations, routines), the social context (e.g. professionals in teams and networks), the organisation (e.g. structure, culture, resources), or the societal context (e.g. professionalisation, financial incentives, laws and regulations) (58). Knowledge about the facilitators and barriers to adherence to guidelines for identification and treatment of anxiety and depression in general practice is increasing.

As previously mentioned, patients may not acknowledge that they suffer from anxiety or depressive symptoms, or may not perceive a need for treatment (8,9,18-20). GP characteristics such as knowledge, skills and attitudes towards anxiety and depression may also affect adherence to guidelines (13,21-24). Possible barriers at the organisational level include insufficient collaboration between GPs and mental health professionals, waiting lists for specialised mental health services and limited financial incentives (59-61). In addition, some recommendations in the guidelines are not

evidence-based or may be perceived by GPs as less relevant and applicable to general practice (62).

It is assumed that implementation strategies may be most effective if they address important barriers for improvement in a targeted setting (63). Before implementation is carried out, barriers to behaviour change must therefore be identified. Subsequently, 'tailored' interventions are developed to overcome these barriers to improving professional practice.

Several Randomised Controlled Trials (RCTs) have investigated the impact of tailored interventions on improving the quality of care (63). Of these, two addressed depression and were carried out in primary care (64,65). Callahan et al. (1994) assessed the effectiveness of an intervention to reduce barriers to GP adherence to recommended standards for the recognition and management of late-life depression in an RCT. All participating GPs in the intervention condition received identical patient-specific treatment recommendations and feedback in three special visits. GPs in the control condition received no intervention. Results showed that GPs in the intervention condition were more likely to diagnose depression and prescribe antidepressants, but no effect on health outcomes was detected (64). Baker et al. (2001) examined the effectiveness of tailored interventions based on psychological theories in the implementation of guidelines for depression in general practice. The tailored interventions were provided once and compared to simple dissemination of the guidelines. Results showed that tailored interventions improved suicide risk assessment and patient depressive symptoms decreased at 16 weeks, however, the tailored interventions did not increase adherence to all guideline recommendations (65).

These studies notwithstanding, there is insufficient evidence of the most effective and efficient approaches to tailoring, including how barriers should be identified and how interventions should be selected to address these barriers. Research is also required to assess the (cost)effectiveness of tailored interventions in comparison with other interventions to change professional practice (63).

## This thesis

The main aim of this thesis is to investigate interventions to improve the implementation of guideline recommendations for patients with anxiety and depression in general practice. Furthermore, GP performance regarding stepped care and the factors associated with the recognition of anxiety and depression in general practice will be examined. The central research questions that will be addressed are:

- 1) What is the actual performance of GPs regarding elements of the stepped care approach (i.e. identification, severity assessment, stepped care treatment allocation)?
- 2) What is the impact of a Breakthrough Series Collaborative on the implementation of guideline recommendations for patients with anxiety in primary care?

- 3) What is the effectiveness of tailored interventions, additional to training and feedback on the recognition, diagnostics and treatment of patients with anxiety and depression in general practice, compared to training and feedback alone?
- 4) What are the barriers perceived by GP affecting the uptake of guideline recommendations for patients with anxiety and depression, and the perceived usefulness of tailored interventions to overcome these barriers?
- 5) Which patient and GP characteristics are associated with the recognition of anxiety and depression in general practice?

The thesis starts with a survey of 500 randomly selected GPs, using a self-administered questionnaire assessing their actual performance in daily practice regarding depression identification and screening, the severity assessment of newly diagnosed depression and stepped care allocation (*Chapter 2*). Factors affecting the provision of depression care were studied. *Chapter 3* reports on the impact, facilitators and barriers to the Anxiety Disorders Breakthrough Series Collaborative in the implementation of the guidelines for anxiety disorders in primary care. An uncontrolled observational study was carried out in eight multidisciplinary primary care teams, in which professional performance was monitored in three consecutive four month periods. *Chapter 4* describes the methods and design of a Cluster Randomised Controlled Trial (RCT) to determine the effectiveness of tailored interventions on the implementation of guideline recommendations for patients with anxiety and depression in general practice. The tailored interventions were supplemented by training and feedback for GPs and compared to training and feedback alone. *Chapter 5* presents the results of the RCT described in Chapter 4. *Chapter 6* presents the barriers affecting the uptake of guideline recommendations for patients with anxiety and depressive disorders, as perceived by GPs. In addition, the GPs' perceived usefulness of the tailored interventions to these prospectively identified barriers is described. A qualitative research design was used. The study was conducted parallel to the RCT on tailored interventions. *Chapter 7* examines which patient and GP characteristics are associated with the recognition of anxiety and depression in general practice. An observational cohort study was conducted, using the data of patients included in the RCT of tailored interventions. Finally, *Chapter 8* discusses the main findings of the studies, the methodological issues, and provides some suggestions for future research and implications for clinical practice. This thesis ends with summaries in English and Dutch.

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## Delivering stepped care for depression in general practice: results of a survey amongst general practitioners in the Netherlands

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## ABSTRACT

**Background:** Revised guidelines for depression recommend a stepped care approach. Little is known about the implementation of the stepped care model by general practitioners (GPs) in daily practice.

**Objectives:** To evaluate the performance of Dutch GPs in their general practice regarding important elements of the stepped care model (identification, severity assessment and stepped care treatment allocation) shortly before the revised Dutch multidisciplinary guideline for Depressive Disorders was published.

**Methods:** Data was collected through a self-report questionnaire sent to 500 randomly selected GPs. Multivariate logistic regression analyses were employed to investigate whether GP-related characteristics were associated with GPs' self-reported performance.

**Results:** The study involved 194 GPs (response rate: 39%). Responses indicated that 37% paid systematic attention to depression identification, 33% used a screening instrument, and 63% determined the severity of newly diagnosed depression, generally without using an instrument. Most GPs (72%) indicated to allocate stepped care treatment to the majority of their patients newly diagnosed with depression. However, more than 40% indicated to start with antidepressants, either alone or in combination with psychotherapy. Assessing the severity of newly diagnosed depression and clinical experience were positively associated with allocating stepped care treatment. Structural collaboration with mental health professionals was positively associated with assessing severity.

**Conclusion:** Delivering stepped care for depression in daily general practice could be further improved. Collaboration with mental health professionals and routine severity assessment of diagnosed depression are positively associated with allocating stepped care.

## INTRODUCTION

Depression is a common mental disorder that has a negative impact on everyday functioning, causes great suffering, and incurs both high care costs and costs associated with production losses (1–3). Most adults who seek help for their depression are treated in general practice (4). From 2008 up to 2010 the Dutch College of General Practitioners (NHG) collaborated with allied health professionals, patient organizations and specialty care colleges, to revise the overarching multidisciplinary guideline for Depressive Disorders (5). The revised multidisciplinary guideline was published in 2010 and differed from previous guidelines by explicitly recommending a stepped care model for the delivery of evidence based interventions for depression (6). The NHG authorised the primary care part. The recently revised NHG guideline on depression corresponds largely with the multidisciplinary guideline (7). These stepped care recommendations are in line with recommendations from published guidelines in other countries (8–10).

The stepped care model offers a range of several effective treatments. Depending on the severity of the depression, a treatment is allocated, starting with the least intensive treatment that is still expected to generate effects. Patients with sub-threshold and mild depression are offered interventions of low intensity. More intensive treatment options are appropriate for patients who do not successfully respond to low-intensity interventions, or for patients whose symptoms are more severe. To allocate stepped care adequately, patients have to be identified timely, and the severity of depressive symptoms has to be assessed and monitored. Instruments can be helpful for the recognition of depression and the determination of severity (6,7). Although, main principles underlying stepped care models are rather similar in different European countries, there is variation in the specific focus and content of various stepped care models (11–13).

Little is known about the implementation of the stepped care model by general practitioners (GPs) in daily practice. However, previous research suggests that GPs' actual performance might not fully comply with the stepped care model. Under-recognition and consequently under-treatment of depression have been reported, whereas more severe depression is more likely to be recognized (14). When treatment is initiated, one quarter to half of the patients do not receive optimal treatment for a depression in general practice (15). The aims of this study were to describe the performance of Dutch GPs in daily practice regarding depression identification and screening, severity assessment of newly diagnosed depression and stepped care allocation; in addition, to identify factors influencing the provision of these elements of depression care.

## METHODS

### **Design and variables measured**

A survey was conducted among GPs at the end of 2009, using a self-administered questionnaire, developed by our research team and professionals in psychiatry and primary mental healthcare.

GPs were asked questions about the actual performance in their general practice concerning: (1) depression identification and screening; (2) assessment of severity of newly diagnosed depression; and (3) delivering stepped care to patients with a newly diagnosed depression. Apart from being asked about allocating stepped care in general, GPs were asked how often specific interventions recommended by the multidisciplinary guideline were used in their practice, ranging from low-intensity (watchful waiting) to high-intensity (combination of antidepressant treatment and psychotherapy) interventions (6). These questions had two (yes/no) or four ('rarely/less than 50%/more than 50%/(almost) always') response categories. GPs who indicated not to use a screening instrument, not to assess depression severity or not to use an instrument for assessing severity, respectively, were asked to point out the three most important reasons for not doing so (e.g. perceived patient characteristics, lack of time, unfamiliarity with instruments, insufficient knowledge and skills). Additionally, all GPs were asked to indicate the three most important reasons why they sometimes would not treat a patient according to a stepped care approach. All questions about reasons had also an open response category, giving a GP the possibility to report other reasons. These reasons were assessed by two independent raters and subsumed under the closed response categories.

Moreover, questions about GP-related characteristics were part of the survey, to investigate whether they were associated with the self-reported performance of GPs. These characteristics were selected based on literature and included gender, age, clinical experience, having special interest in patients with depression, having followed training in depression care, having participated in any improvement project for depression care (i.e. breakthrough series, a collaborative model for achieving improvement; pharmaceutical therapeutic audit meetings to improve GPs' prescription behaviour, or other projects) and having structural collaboration with mental health professionals in primary and/or specialized mental health care (16,17). In the Netherlands, structural collaboration between mental health professionals (i.e. nurse, psychologist, psychiatrist) and GPs can be organized in different ways. Either a mental health professional is part-time employed by the GP, or a private primary care mental health professional collaborates with the GP, or consultation by a mental health professional from specialized mental health care is given in general practice.

### **Participants**

A sample of 500 GPs was randomly selected from the total population of approximately 8500 Dutch GPs (except for GPs who were not willing to participate and

GPs who have been selected frequently during the past several years) by NIVEL, the Netherlands Institute for Health Services Research. Recruitment took place by sending information about the study, including the paper questionnaire and a link and login code to the internet, in case a GP preferred to complete the questionnaire online. After three weeks, one reminder was sent to those GPs who did not respond initially.

### Statistical analysis

Descriptive statistics were used to describe GPs' performance regarding depression identification and screening, severity assessment and stepped care treatment as well as the most frequent reasons for not using a screening instrument, not assessing depression severity, not using an instrument for assessing severity, or not allocating stepped care, respectively. Multivariate logistic regression analyses were used to investigate whether GP-related characteristics were associated with depression identification, using a screening instrument, assessment of severity, stepped care treatment, and use of specific interventions, respectively. Dependent variables concerning stepped care allocation and specific interventions were dichotomized (<50% and ≥50% of patients). The independent variables age (30–40; 41–50; 51–64) and years of clinical experience with depression care (1–5; 6–15; 16–38) were categorized into three categories. Whether or not GPs indicated to assess depression severity was used as an additional independent variable in regression models for stepped care treatment and specific interventions, because severity assessment is a possible important factor in choosing treatment intensity. Data was analysed using SPSS version 15.0.

### Ethical approval

The study was carried out according to Dutch privacy legislation. Approval by a medical ethics committee was not required for this study.

**Table 1.** Descriptive characteristics of GPs (n=194, unless stated otherwise)

	Mean (SD) or percentage of GPs
Demographic characteristics	
- Age, mean age in years (SD)	46.0 (8.7)
- Gender (% Female)	43%
- Clinical experience with depression, mean no. of years (SD)	14.9 (8.9)
Interest, training and quality improvement in depression care	
- Having special interest in patients with a depression	43%
- Followed a training in depression care in the last three years (n=193)	68%
- Participated in an improvement project for depression care (n=193)	36%
Collaboration	
- Structural collaboration with mental health professionals	32%
- Structural collaboration with mental health professionals in primary care	24%
- Structural collaboration with professionals in specialized mental health care	12%

## RESULTS

### **Study population**

A total of 198 GPs (40%) completed the questionnaire. Four GPs were excluded because demographic information was missing and/or one or more sections of the questionnaire were filled out poorly. Consequently, 194 GPs (39%) participated in the study. Table 1 outlines their characteristics.

### **Depression identification and screening**

Descriptive and logistic regression results are depicted in Table 2 and 3, respectively. Over one third of the GPs indicated to pay systematic attention to depression identification in their practice. GPs with special interest in depression and those having structural collaboration with professionals in primary or specialized mental health care were significantly more inclined to do so. One third of the GPs indicated to using a screening instrument, mostly the four-dimensional symptom questionnaire (4DSQ) (18). 'Lack of time' was by far the most frequently indicated reason for not using a screening instrument. GPs who participated in an improvement project were significantly more inclined to use a screening instrument.

### **Severity assessment of depression**

Descriptive and logistic regression results are depicted in Table 2 and 3, respectively. Almost two-thirds of the GPs indicated to assess the severity of a newly diagnosed depression in their practice. Unfamiliarity with instruments and insufficient knowledge and skills were the most frequently indicated reasons for not assessing severity. GPs having structural collaboration with professionals in primary or specialized mental health care were more likely to assess severity. Having followed training in depression care was nearly statistically significant associated with severity assessment ( $P=0.052$ ). Among the GPs who assessed depression severity, less than one quarter used an instrument, mostly the Beck depression inventory (19). The most frequently reported reasons for not using an instrument were insufficient time and having no instrument available. GPs who participated in an improvement project more frequently used instruments for screening as well as severity assessment, respectively.

### **Stepped care allocation and specific interventions**

Almost three quarters of the GPs indicated to allocate stepped care in their practice to more than half of patients with a newly diagnosed depression (Table 2). Patients' preference and having insufficient knowledge and skills were the most frequently indicated reasons to deviate from stepped care. GPs who indicated to determine the severity of depression (as compared to those who did not) and GPs with 6–15 years of working experience with patients with depression (as compared to those with fewer years of working experience) were significantly more inclined to allocate stepped care treatment (Table 3).

**Table 2.** Performance of GPs (n=194, unless stated otherwise) in their practice regarding depression identification and screening, severity assessment and stepped care treatment

Elements of depression care	Percentage of all GPs		Reasons for not performing a specific element <sup>a</sup>	Percentage of GPs who did not perform a specific element
	Yes	No		
<b>Identification and screening</b>				
- Systematic identification of depression	37%	63%		
- Using a screening instrument (n=192)	33%	67%	Reasons for not using a screening instrument - Insufficient time - Unfamiliarity with screening instruments - Not necessary for recognition of depression - No or a lack of reimbursement - Insufficient knowledge and skills	63% 39% 33% 29% 26%
<b>Severity assessment</b>				
- Severity assessment of newly diagnosed depression (n=193)	63%	37%	Reasons for not assessing depression severity (n=66) - Unfamiliarity with tools for determining severity - Insufficient knowledge and skills - Insufficient time - Determination of severity does not affect treatment policy	58% 53% 27% 21%
- Severity assessment and using an instrument (n=122)	22%	78%	Reasons for not using an instrument (n=94) - Insufficient time - No instrument available - The use of an instrument is not necessary - Insufficient knowledge and skills	50% 48% 40% 35%
<b>Stepped care treatment</b>				
- Allocating stepped care to $\geq$ 50% of patients newly diagnosed with depression (n=187)	72%	28%	Reasons to sometimes deviate from stepped care (n=159)** - Perceived patients' preferences - Insufficient knowledge and skills - Insufficient time	49% 45% 33%

\* Only reasons mentioned by  $\geq$  20% of GPs are shown.

\*\* This question was presented to all 194 GPs, of which 18% did not fill out a response.

**Table 3.** Results of multivariate logistic regression analyses to assess associations between GP-related characteristics and GPs' performance in their practice regarding depression identification, depression screening, severity assessment and stepped care treatment allocation

GP-related characteristics	GPs' performance			
	Systematic identification of depression	Using a screening instrument	Assessing severity of newly diagnosed depression	Using an instrument for severity assessment
	OR (95% CI) <sup>a</sup>	OR (95% CI) <sup>a</sup>	OR (95% CI) <sup>a</sup>	OR (95% CI) <sup>a</sup>
Allocating stepped care treatment to ≥ 50% of patients newly diagnosed with depression				reference
				OR (95% CI) <sup>a</sup>
Age				
- 30-40 years	reference	reference	reference	reference
- 41-50 years	0.53 (0.21-1.34)	0.62 (0.24-1.61)	0.99 (0.41-2.40)	0.27 (0.04-1.72)
- 51-64 years	0.47 (0.16-1.34)	0.70 (0.24-2.10)	0.92 (0.30-2.80)	0.55 (0.14-2.11)
Being male	1.05 (0.54-2.05)	1.09 (0.54-2.19)	0.65 (0.32-1.31)	2.18 (0.69-6.83)
Clinical experience				
- 1-5 years	reference	reference	reference	reference
- 6-15 years	0.74 (0.19-2.89)	0.74 (0.18-3.08)	2.90 (0.72-11.60)	1.99 (0.14-28.83)
- 16-38 years	0.41 (0.15-1.15)	0.59 (0.21-1.70)	0.98 (0.38-2.55)	0.91 (0.08-10.50)
Having structural collaboration with mental health professionals	2.05 (1.01-4.14) <sup>b</sup>	1.71 (0.83-3.50)	2.45 (1.12-5.37) <sup>b</sup>	2.09 (0.79-5.56)
Having special interest in depression	2.35 (1.24-4.43) <sup>c</sup>	1.00 (0.51-1.94)	1.88 (0.97-3.63)	0.95 (0.35-2.61)
Followed a training in depression care	1.70 (0.84-3.44)	0.84 (0.42-1.69)	1.95 (0.99-3.84)	1.32 (0.41-4.22)
Participated in an improvement project for depression care	1.21 (0.62-2.38)	3.62 (1.86-7.05) <sup>c</sup>	1.61 (0.81-3.21)	3.67 (1.34-10.04) <sup>c</sup>
Assessing severity of newly diagnosed depression <sup>d</sup>	-	-	-	-
				2.36 (1.13-4.93) <sup>b</sup>

<sup>a</sup> OR, odds ratio; 95% CI, 95% confidence interval<sup>b</sup>  $P \leq 0.05$ <sup>c</sup>  $P \leq 0.01$ <sup>d</sup> Used as an additional independent variable in the regression models for stepped care treatment; reference category: GPs who indicated not to assess severity of newly diagnosed depression

**Table 4.** Allocated interventions for newly diagnosed depression as indicated by GPs

Type of intervention, in order of intensity according to the 'stepped care model' *	Percentage of GPs providing the intervention to $\geq 50\%$ of patients newly diagnosed with depression
Watchful waiting approach (n=181)	29%
Psycho education (n=185)	69%
(Online) self-help (n=176)	10%
Brief therapy (n=183)	50%
Psychotherapy (n=182)	40%
Antidepressants (n=190)	42%
Combination of antidepressants and psychotherapy (n=183)	45%

\* The intervention categories were not mutually exclusive

Regarding specific interventions, GPs mostly offered a psycho-education, brief therapy, antidepressants or psychotherapy to patients with newly diagnosed depression (Table 4). Watchful waiting and (online) self-help were less frequently provided. Of note, the frequency with which watchful waiting or antidepressant therapy was offered did not differ between the GPs who indicated to allocate stepped care in most cases and those who did not. GPs with special interest in depression were more inclined to provide psycho-education and male GPs provided brief therapy half as often as female colleagues (Table 5).

## DISCUSSION

### Main findings

This survey among GPs found that about one third of the GPs indicated that systematic identification of depression and using a screening instrument for depression was part of routine work in their practice. Two thirds of GPs indicated to assess the severity of a newly diagnosed depression, generally without using an instrument. Almost three quarters of GPs indicated to allocate stepped care to more than half of patients with a newly diagnosed depression. Nevertheless, a minority indicated to start with a watchful waiting approach (29%) or (online) self-help interventions (10%) in more than half of these cases, while four out of ten GPs indicated to start with antidepressants or psychotherapy.

GPs indicated several barriers to the provision of the studied elements of depression care: insufficient time, knowledge and skills (impede the use of a screening instrument, assessing severity and allocating stepped care); unfamiliarity with screening instruments and lack of reimbursement (impede the use of a screening instrument); being not convinced of necessity (impedes the use of instruments for screening and assessing severity); unfamiliarity with tools for severity assessment and the opinion that determination of severity does not affect treatment policy (impede severity assessment); perceived patients' preference (impedes stepped care allocation). Addi-

**Table 5.** Results of multivariate logistic regression analyses to assess associations between GP-related characteristics and the allocation of interventions by GPs to  $\geq 50\%$  of patients newly diagnosed with depression

GP-related characteristics	Allocation to $\geq 50\%$ of patients newly diagnosed with depression						
	Watchful waiting approach OR [95% CI] <sup>a</sup>	Psycho education OR [95% CI] <sup>a</sup>	(Online) self-help OR [95% CI] <sup>a</sup>	Brief therapy OR [95% CI] <sup>a</sup>	Psychotherapy OR [95% CI] <sup>a</sup>	Antidepressants OR [95% CI] <sup>a</sup>	Combination of antidepressants and psychotherapy OR [95% CI] <sup>a</sup>
Age	reference	reference	reference	reference	reference	reference	reference
- 30-40 years	0.59 (0.23-1.53)	1.29 (0.48-3.42)	0.85 (0.22-3.25)	1.61 (0.65-3.99)	1.59 (0.66-3.85)	1.48 (0.62-3.50)	1.31 (0.55-3.14)
- 41-50 years	1.41 (0.45-4.46)	0.52 (0.17-1.60)	1.78 (0.28-11.39)	0.86 (0.31-2.43)	0.87 (0.31-2.48)	1.21 (0.45-3.31)	0.89 (0.32-2.47)
- 51-64 years	1.05 (0.51-2.13)	0.99 (0.48-2.06)	0.85 (0.30-2.45)	0.47 (0.24-0.91) <sup>b</sup>	0.58 (0.30-1.12)	1.20 (0.63-2.30)	0.65 (0.34-1.25)
Clinical experience	reference	reference	reference	reference	reference	reference	reference
- 1-5 years	0.40 (0.09-1.67)	1.98 (0.47-8.31)	0.73 (0.08-7.06)	2.46 (0.63-9.62)	1.01 (0.26-3.84)	0.58 (0.16-2.14)	1.48 (0.39-5.63)
- 6-15 years	0.86 (0.30-2.44)	1.24 (0.45-3.44)	1.69 (0.30-9.39)	1.00 (0.37-2.65)	0.89 (0.34-2.31)	0.62 (0.25-1.56)	1.41 (0.54-3.67)
- 16-38 years	1.01 (0.48-2.13)	1.65 (0.75-3.63)	1.72 (0.59-5.05)	1.67 (0.83-3.37)	0.84 (0.42-1.71)	0.76 (0.37-1.53)	0.67 (0.33-1.36)
Having structural collaboration with mental health professionals	0.85 (0.43-1.67)	2.67 (1.31-5.46) <sup>c</sup>	1.78 (0.62-5.09)	1.70 (0.90-3.20)	1.51 (0.80-2.85)	1.12 (0.60-2.07)	1.19 (0.63-2.24)
Having special interest in depression	0.90 (0.44-1.84)	1.38 (0.68-2.80)	2.27 (0.61-8.49)	1.22 (0.62-2.42)	1.44 (0.72-2.88)	0.69 (0.36-1.33)	0.64 (0.33-1.24)
Followed a training in depression care	1.09 (0.55-2.18)	0.82 (0.40-1.67)	1.24 (0.42-3.63)	0.95 (0.49-1.83)	0.67 (0.35-1.32)	0.69 (0.36-1.31)	0.64 (0.33-1.21)
Participated in an improvement project for depression care	1.16 (0.57-2.40)	1.09 (0.53-2.22)	0.67 (0.22-2.03)	0.68 (0.34-1.36)	1.51 (0.76-3.01)	1.17 (0.60-2.27)	0.69 (0.35-1.34)
Assessing severity of newly diagnosed depression							

<sup>a</sup> OR, odds ratio; 95% CI, 95% confidence interval<sup>b</sup>  $P \leq 0.05$ <sup>c</sup>  $P \leq 0.01$

tionally, several GP-related factors were positively associated with the provision of the studied care elements: having participated in an improvement project regarding depression (with the use of instruments for screening and assessing severity), having a structural collaboration with mental health professionals (with systematic identification of depression and severity assessment), assessing depression severity and having an average number of years of working experience (with stepped care treatment), having special interest in depression (with provision of psychoeducation) and being female (with provision of brief therapy).

### **Study limitations**

First, although a random sample of GPs was approached, the response rate of 39% may limit the generalizability of the results. This potential limitation is commonly encountered in survey studies among general practitioners (20). Participating GPs were representative for all Dutch GPs regarding age. However, the percentage of women in the study population was somewhat higher than average (43% versus 38%), and respondents may have differed regarding other notmeasured variables. Given the high percentages observed (see Table 1), it is likely that more respondents had a special interest in depression care, followed training in depression care or participated in an improvement project for depression care compared to the total Dutch GP population. Consequently, it is probable that the results of the present study give a too optimistic view of the provided depression care.

Second, a self-report questionnaire was used with the possible consequence that GPs may have given socially desirable answers and that questions and terminology used could be interpreted in a different way than intended. Another limitation was the cross-sectional design of the study. As a consequence, analysis of predictors of allocating stepped care over time was not possible to conduct. Finally, as the survey was confined to GPs actual performance in their general practice, other factors that may influence stepped care provision were not investigated. For example, patient-related factors but also access and availability of interventions can influence the allocation of stepped care (21,22).

### **Interpretation of findings**

The result that 72% of the GPs indicated to deliver stepped care in the most newly diagnosed cases of depression, points out that most GPs already apply a stepped care approach. Correspondingly, a recent Dutch trial in general practice did not find an effect of stepped care for depression and anxiety compared with usual care (23). A well-developed usual care was put forward as a possible explanation for this finding. Another possible explanation was the inclusion of a chronic group of patients for whom a stepped care approach may be less suitable (23). Other patient groups may benefit more from stepped care. For instance, a stepped care model in elderly patients with depressive or anxiety symptoms was effective in reducing the risk of onset of depressive and anxiety disorders (24).

Although most GPs indicated to allocate commonly stepped care, other findings of this study indicate that there still is room for improvement. First, assessing the severity of a newly diagnosed depression was not routinely performed by more than a third of the GPs, whereas severity assessment is an essential element of a stepped care approach. Second, most GPs who mentioned assessing the severity did not use an instrument. Instruments may be helpful to determine and monitor depression severity, and patients see them as an objective adjunct to medical judgment and as evidence that the GP is taking their mental health seriously (25). Third, 42% of the GPs indicated that antidepressants were offered to 50% or more of the patients newly diagnosed with depression, and 45% of the GPs indicated to do so in combination with psychotherapy. This finding could be interpreted as indicating that GPs offer antidepressants too frequently as a first step in treatment because of the commonness of subthreshold and mild depression in general practice, the lack of evidence for the effectiveness of antidepressants in mild depression, and the preference of patients with depression for counselling above medication (26,27). Correspondingly, register-based studies have found high antidepressant prescription rates in general practice (4).

Other findings are more difficult to interpret. The relatively infrequent use of (on-line) self-help interventions may be because these interventions were relatively new. Moreover, there is still inadequate evidence that guided self-help is effective in patients with depression in general practice (28).

The finding that only about a third of the GPs indicated to pay systematic attention to depression identification or use a screening instrument may not be surprising given the serious doubts about the effectiveness of standard screening for depression in general practice, even in high-risk populations (29,30). However, from the perspective that a screening instrument can be used to support the communication with patients and the diagnostic process, one may consider 33% of GPs using a screening instrument a low percentage (7).

### **Implications for clinical practice and research**

Delivering stepped care for depression in daily general practice could be further improved by stimulating routine assessment of severity of diagnosed depression. Findings indicate that structural collaboration with mental health professionals is associated with the implementation of routine severity assessment. In the Netherlands, structural collaboration between mental health professionals and GPs can be organized in different ways. Future research could be focused on which types of collaboration are (most) effective at facilitating stepped care allocation, including routine severity assessment.

Apart from assessing severity, no modifiable GP-related factors were associated with allocating stepped care. This holds true also for specific interventions. Furthermore, GPs themselves indicated that perceived patients' preferences and personal lack of knowledge and skills were the most common reasons to deviate from stepped care treatment allocation. Further research among both GPs and patients is needed, to

explore the influence of GP-related and patient-related factors on applying stepped care treatment allocation for depression in daily practice.

### Conclusion

This survey indicated that delivering stepped care for depression in daily general practice could be further improved. Collaboration with mental health professionals and routine severity assessment of diagnosed depression is positively associated with allocating stepped care.

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# How to improve recognition, diagnosis and treatment of anxiety disorders in primary care: Results of the Dutch Breakthrough Collaborative

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## ABSTRACT

**Background:** A guideline for patients with anxiety disorders is available in primary care. Providing care according to guidelines can be improved. The aim was to describe the results of a quality improvement method known as an Anxiety Breakthrough Collaborative, aiming at improving the uptake of the anxiety disorders guideline in primary care.

**Methods:** A stepped care model was implemented in an uncontrolled prospective implementation study. The study involved eight multidisciplinary primary care teams, consisting of 59 healthcare professionals. Implementation was measured by means of a set of process indicators. In addition, qualitative data were collected.

**Results:** Screening patients who met high-risk criteria with the anxiety subscale of the Four-Dimensional Symptom Questionnaire was new for all teams. General practitioners succeeded in diagnosing the complexity of the anxiety disorder in 179 patients (98%). The proportion of patients with a non-complex disorder that received self-help or brief therapy increased from 44% to 67%. Against expectations, the proportion of patients with a complex anxiety disorder that received cognitive behavioural therapy and/or an antidepressant decreased slightly from 24% to 18%. Monitoring anxiety symptoms was rare. Collaboration between professionals improved in all teams.

**Conclusions:** This study indicates that the Anxiety Disorders Breakthrough Collaborative may improve adherence to the anxiety disorders guideline. To sustain improvement, long-term Collaboratives, financial support and computerized decision support systems tailored to the work setting, including simple tools for monitoring patients, may be helpful. More insight and knowledge is required about which improvement strategies really contribute to the improvement of the quality of anxiety care. More robust study designs, including process evaluations, should be used to determine the impact of such strategies.

## BACKGROUND

Anxiety disorders are common mental disorders that have a negative impact on everyday functioning, cause great suffering, and incur both high care costs and costs associated with production losses (1,2). The lifetime prevalence of anxiety disorders is about 14,5% and the 12-Month prevalence is 8,4% (3). In the Netherlands, about a quarter of patients aged 18–64 years with an anxiety disorder use care of a General Practitioner (4). The recognition of anxiety disorders by General Practitioners is rather low. Only about one third of the patients are diagnosed by their General Practitioner (GP) with an anxiety disorder (5). Besides, only about 25% receive adequate treatment for their anxiety disorder in primary care (6,7). In addition to undertreatment, patients can be overtreated with psychopharmacological drugs (8,9). Utilization of effective early interventions for mild problems based on cognitive behavioural techniques, such as self-help, is more the exception than the rule (10). Patients do not always receive adequate information about their diagnosis and treatment. Besides, support in choosing between treatment options can be improved. A well-informed patient who consciously chooses for a treatment has a decreased risk of premature cessation (11,12).

Implementation of clinical guidelines will improve the quality of care for patients with anxiety disorders. This can lead to significant reduction of the disease burden experienced, significantly greater symptom reduction and improvement of social functioning (13-16). Usually, adherence to guideline recommendations is low because of a variety of barriers, such as a lack of knowledge, time, skills and lack of effective communication between disciplines (17-19). These barriers can be categorised as barriers related to the guideline itself, the professional, the patient, the social context, the organisation and to society. There is evidence that alongside professionally-directed strategies like education, organizational strategies such as collaboration between primary care professionals and mental health specialists are required to overcome barriers and improve the management of anxiety disorders and depression in primary care (20,21).

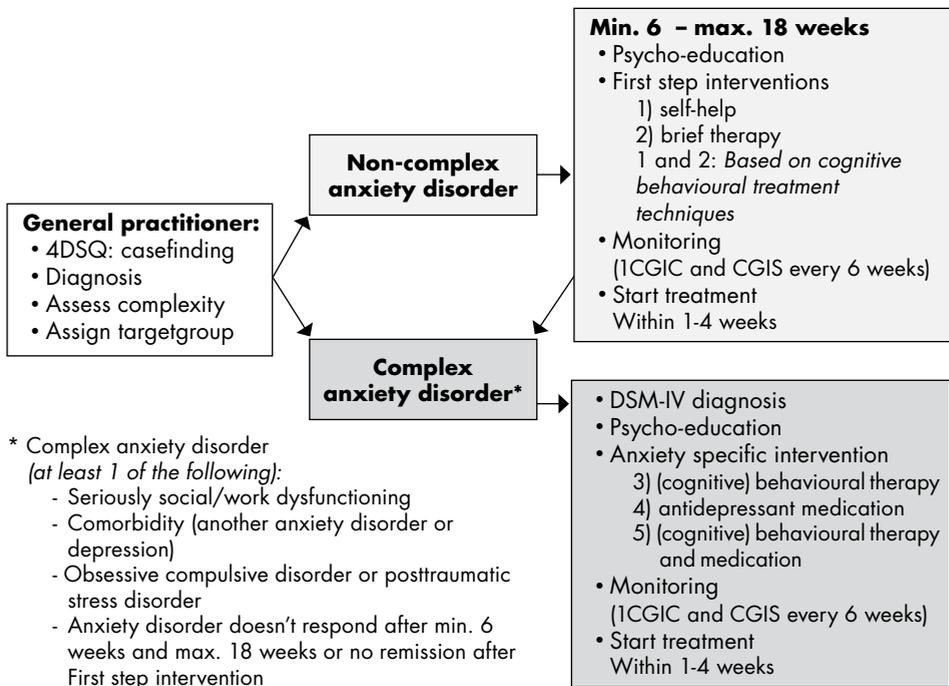
One of the methods for improving the organisation of care and overcome professional related barriers in guideline adherence is the Breakthrough Series Collaborative (22,23). The Breakthrough Series Collaborative (BSC) has been moderately successful in improving diagnosis and treatment of depression in primary care (24-26). As far as we know, there are no studies about BSC in improving quality of primary care for anxiety disorders. This study reports on the results, facilitators and barriers of the implementation of the Anxiety Disorders 'Standard' (27), the national Dutch guideline for anxiety disorders in primary care, with the Anxiety Disorders Breakthrough Collaborative.

## METHODS

### Intervention for improvement

The goal of the Anxiety Disorders Breakthrough Collaborative was to implement the key recommendations of the Anxiety Disorders ‘Standard’: screening in high-risk groups (Box 1), diagnosis, severity assessment of the anxiety disorder, treatment, and monitoring of treatment response. The guideline recommends a stepped care approach. Depending on the severity of the anxiety disorder a treatment is allocated, starting with the least intensive treatment that is still expected to generate effect. Based on the Anxiety Disorders 'Standard' the anxiety disorders stepped care model was developed by a national panel of experts (Figure 1).

The stepped care model implies that healthcare professionals had to identify patients who met high-risk criteria, described in the Anxiety Disorders 'Standard' (Box 1) (27).



**Figure 1.** Anxiety Disorders Stepped care model

The Anxiety Disorders Stepped care model is a model which shows the anxiety disorders healthcare process from casefinding to stepped care treatment: a first step treatment level for patients with a non-complex anxiety disorder and a second step for patients with a complex anxiety disorder.

Abbreviations: 4DSQ = Four-Dimensional Symptom Questionnaire ; CGIC = Clinical Global Impression scale of improvement; CGIS = Clinical Global Impression scale of severity

**Box 1.** High-risk criteria for anxiety disorders

- Frequent visits to the GP for a variety of symptoms
- Ongoing aspecific symptoms, such as tension, irritability, lability, concentration problems, apathy or sleeping problems, tiredness not caused by hard work
- Hyperventilation symptoms
- Ongoing functional physical symptoms
- Request for sleeping pills or tranquillizers
- Alcohol or drug problems
- Depression

Once identified, they needed to screen these patients with the anxiety subscale of the Four-Dimensional Symptom Questionnaire (4DSQ) (28). The 4DSQ is a self-rating questionnaire measuring four dimensions of common psychopathology: distress, depression, anxiety and somatization. The 4DSQ was developed in general practice. The principal aim of the 4DSQ is to distinguish between stress-related syndromes (denoted as 'stress', 'burnout', 'nervous breakdown') and psychiatric disorders (i.e. depression and anxiety disorders). The anxiety subscale ranges from 0-24. If the total score on the anxiety subscale was between four and eight, indicating the possible presence of an anxiety disorder, the healthcare professional had to plan a follow-up visit within six weeks. If the anxiety subscale score was nine or higher, indicating the probable presence of an anxiety disorder, the GP had to diagnose the patient according to the Anxiety Disorders 'Standard' and determine the complexity of the anxiety disorder (Figure 1). Criteria for a complex anxiety disorder were: seriously social/work dysfunctioning, comorbidity (another anxiety disorder or depression), obsessive compulsive disorder or posttraumatic stress disorder, the anxiety disorder doesn't respond after min. 6 weeks and max. 18 weeks or no remission after a first step intervention.

Next, the GP had to inform the patient about the diagnosis and discuss treatment options. For this, a protocol for psycho-education was available. In addition, the patient had to be supported to make a decision for an evidence-based treatment.

According to the stepped care model, patients with a non-complex anxiety disorder had to receive first step brief interventions based on cognitive behavioral treatment techniques, such as selfhelp or brief therapy. Patients with a complex anxiety disorder had to receive cognitive behavioral therapy, an antidepressant or a combination of both.

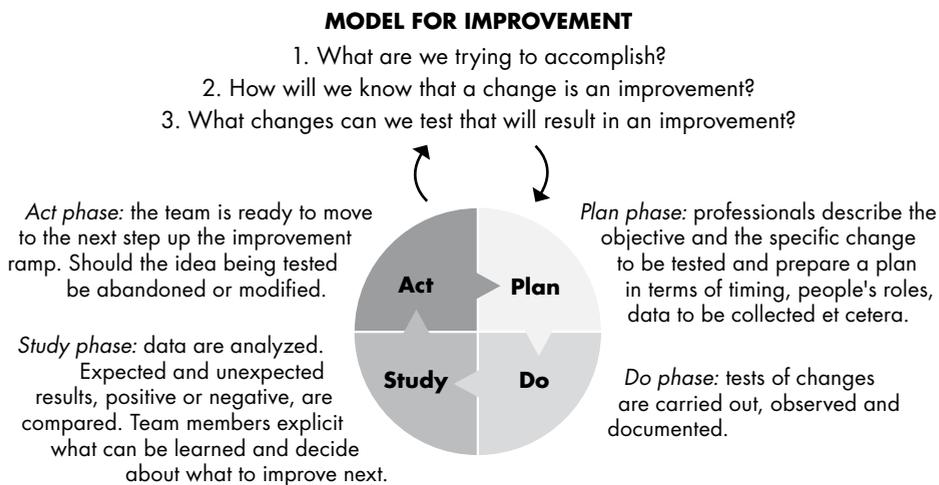
The GP could decide to start treatment or, when needed, to refer the patient to mental healthcare professionals in primary or specialty care. All patients had to be monitored every six weeks using the Clinical Global Impression scale of Severity (CGIS) and the Clinical Global Impression scale of Change (CGIC). The CGI is a 3-item observer-rated scale that measures illness severity (CGIS), and global improvement or change (CGIC) and therapeutic response (29). The CGI is rated on a 7-point scale,

with the severity of illness scale using a range of responses from 1 (normal) through to 7 (amongst the most severely ill patients). CGIC scores range from 1 (very much improved) through to 7 (very much worse). Each component of the CGI is rated separately. The aim of the CGI was to follow-up on the patients' wellbeing and step up to a next treatment level when the patient does not respond to the treatment.

### The Anxiety Disorders Breakthrough Collaborative

The Anxiety Disorders Breakthrough Collaborative used the Breakthrough Series to implement the anxiety disorders stepped care model for patients aged between 18 and 65 years. A Breakthrough Series Collaborative is a short-term (12 months) learning system that brings together a number of local multidisciplinary teams to seek improvement in a focused topic area with continuous feedback loops according to the Model for Improvement (22,30). The model consists of two elements (Figure 2): three questions to focus the improvement work and a Plan-Do-Study-Act (PDSA) cycle. Improvement requires setting aims. In the Anxiety Disorders Breakthrough Collaborative the key recommendations in the Anxiety Disorders 'Standard' were the aims.

The inclusion criteria for participating in the Anxiety Disorders Breakthrough Collaborative were: working in a multidisciplinary team including (i) a general practitioner and (ii) if possible a specialty mental healthcare professional for consultation in primary care. It was recommended that each multidisciplinary team would have a project manager, responsible for supporting the professionals in the improvement process and managing communications within the national Anxiety Disorders Break-



**Figure 2.** The Model for Improvement

The Model for Improvement is a simple powerful tool for accelerating improvement and has been used successfully by healthcare organizations in many countries to improve many different healthcare processes and outcomes

**Box 2.** Improvement strategies offered during the Anxiety Disorders Breakthrough Collaborative

- A network of multidisciplinary teams
- An expert panel, developing and teaching the stepped care model
- Specific, measurable, achievable, realistic and timely (SMART) goal setting, a set of process indicators to monitor results
- Two learning sessions about the Model for Improvement, stepped care model and associated interventions
- A toolkit for first step interventions in self-help and brief treatment and a protocol for psycho-education
- Six meetings for project managers about the Model for Improvement; data collection; exchange progress; sustaining and spreading changes
- Feedback based on the analysis of four-monthly data
- One or two on-site supervision visits, depending on the teams' needs
- Calls with project managers of the teams
- Online dialogue for exchange of best-practices and discussions
- A national conference at the end of the Breakthrough Collaborative to share results

through Collaborative. The multidisciplinary teams were supported by a national panel of experts consisting of specialist in anxiety disorders and others who could help teams implement changes. In the Anxiety Disorders Breakthrough Collaborative a specific mix of improvement strategies were carried out (Box 2). The project was carried out from April 2007 until May 2008.

**Measurements and analysis**

To monitor improvement results, a set of process indicators were derived from the anxiety disorders stepped care model and developed from both results from scientific research (evidence based guideline anxiety disorders) and the consensus procedure, where the panel of experts determined in consultation which indicators were appropriate (Tables 1 and 2). Based on the indicators two formats were developed in Excel. One format for a cohort of patients which are screened with the 4DSQ (Cohort 1) and one format for a cohort of patients which were diagnosed with an anxiety disorder (Cohort 2). Project managers registered professionals performance, which they gathered from the patient files, in Excel. All data were aggregated and the analyses were performed using the Statistical Package for the Social Sciences (SPSS) 14, using descriptive statistics. In addition, qualitative data were collected to monitor the progress and experiences with the implementation of the stepped care model for diagnosis and treatment of anxiety disorders. These data were collected from the project managers during the meetings and calls, and during on-site team supervision visits and reported in a logbook. Furthermore, to get insight in the improvement in the last stage of the project a survey was conducted among project managers, using a self-administered questionnaire. This questionnaire included the following themes: participants in the team, performance according the anxiety disorders stepped care model, strengths and weaknesses of the improvement method, facilitators and bar-

riers of implementation, spread and consolidation of results. The survey consisted largely of a structured response format using multi options with also an open response category. To get insight in the facilitators and barriers of implementation “open-ended” or “qualitative” questions (an unstructured response format) were used. The qualitative data was categorized following the themes of the semi-structured questionnaire and summarized.

## RESULTS

### **Participating teams**

Eight multidisciplinary primary care teams, involving 59 healthcare professionals including 42 professionals from primary care of which 29 GPs and 17 professionals from specialized mental healthcare, participated in the Dutch Anxiety Disorders Breakthrough Collaborative. The teams consisted of 1 to 7 GPs and 1 or 2 primary care psychologists. In addition, in five teams also social workers and/or specialty mental healthcare nurses participated. Some teams collaborated with a psychiatrist, psychotherapist or physiotherapist. Each team had a project manager, responsible for supporting the professionals in the improvement process and managing communications within the national Anxiety Disorders Breakthrough Collaborative. Each team made a plan in which the intended changes and activities were described. During the project period, teams followed the Model for Improvement to achieve and maintain their goals. Professionals had monthly meetings in the team where they discussed the patients' treatment. Also included in these monthly discussions were questions such as who is competent to do what, why, where and when, and the state of the art with respect to professional performance concerning the anxiety disorders stepped care model.

One of the eight teams had to stop after four months because the GP experienced insufficient time to work on the goals. The results described are therefore drawn from the seven teams who completed the project. Results are shown in Tables 1 and 2.

### **Screening for anxiety disorders**

During the course of the project in totally, 727 patients (cohort 1) were screened with the anxiety subscale of the Four-Dimensional Symptom Questionnaire (4DSQ). Of these patients 25% ( $n=183$ ) had a score between 4 and 8 on the anxiety subscale of the 4DSQ of which 7% ( $n=13$ ) were reassessed by the GP with the anxiety subscale of the 4DSQ within 6 weeks. Of the 727 screened patients 46% ( $n=335$ ) had a score of 9 or higher on the anxiety subscale of the 4DSQ. Table 1 shows the scores of the Anxiety Disorders Breakthrough Collaborative in three consecutive 4-month periods for cohort 1. In addition to these data results from the semi-structured questionnaire showed that before the start of the Breakthrough Collaborative, none of the teams screened patients. Professionals experienced that anxiety disorders were more effectively identified with the use of the 4DSQ. The 4DSQ offered a means for pro-

**Table 1.** Process indicators for screening and scores of the Anxiety Disorders Breakthrough Collaborative in three consecutive 4-month periods for cohort 1

Indicator	Period 1 May – Aug 2007	Period 2 Sep – Dec 2007	Period 3 Jan – Apr 2008
Number of patients screened with the 4DSQ* by the GP	185	305	237
Number of patients with a score between 4 and 8 on the anxiety subscale of the 4DSQ (%)	42 (23%)	91 (30%)	50 (21%)
- Reassessed by the GP with the anxiety subscale of the 4DSQ within 6 weeks (%)	1 (2%)	10 (11%)	2 (4%)
Number of patients who have a score of 9 or higher on the anxiety subscale of the 4DSQ (%)	100 (54%)	135 (44%)	100 (42%)

\*4DSQ: Four-dimensional Symptom Questionnaire

**Table 2.** Process indicators for diagnosing, complexity assessment and treatment and scores of the Anxiety Disorders Breakthrough Collaborative in three consecutive 4-month periods for cohort 2

Indicator	Period 1 May – Aug 2007	Period 2 Sep – Dec 2007	Period 3 Jan – Apr 2008
Number of patients who are diagnosed with an anxiety disorder	55	95	33
Assessing complexity of the anxiety disorder by the GP			
- Number of patients who are diagnosed with an anxiety disorder and of which complexity is assessed (%)	53 (96%)	94 (99%)	32 (97%)
Psycho education: providing information about diagnosis and treatment options			
- Number of patients who are diagnosed with an anxiety disorder and have received psycho-education within two weeks (%)	38 (69%)	57 (60%)	25 (76%)
Stepped care			
- Number of patients of which complexity is assessed and who have a non-complex anxiety disorder (%)	16 (30%)	47 (50%)	21 (66%)
· Number of patients who have a non-complex anxiety disorder and have received first step interventions (%)	7 (44%)	20 (43%)	14 (67%)
- Number of patients of which complexity is assessed and who have a complex anxiety disorder (%)	37 (70%)	47 (50%)	11 (34%)
· Number of patients who have a complex anxiety disorder and have received second step interventions (%)	9 (24%)	10 (21%)	2 (18%)

professionals to start talking with patients with unexplained somatic symptoms about possible psychological or psychiatric disorders. In contrast with the enthusiasm of administering the first 4DSQ, the result of administration of the second 4DSQ, intended to monitor those patients with borderline elevated scores, was poor. Results of the semi-structured questionnaire showed that six out of seven teams found it difficult to organize the follow-up appointments.

### **Diagnosing anxiety disorders and providing psycho-education**

A total of 183 patients (cohort 2) were diagnosed with an anxiety disorder. Of these, 51 patients (35%) were male, with a mean age of 44 years, versus 95 (65%) females, with a mean age of 46 years. The most common anxiety disorders were respectively the generalized anxiety disorder (30%), the anxiety disorder not otherwise specified (16%) and the panic disorder without agoraphobia (15%). Results of the semi-structured questionnaire showed that 5 out of 7 teams did not or rarely diagnose the patient according to the Anxiety Disorders 'Standard' before the start of the Breakthrough Collaborative. In addition to diagnosing an anxiety disorder, of all patients the complexity of the anxiety disorder was established in 179 patients (98%). Table 2 shows the scores of the Anxiety Disorders Breakthrough Collaborative in three consecutive 4-month periods for cohort 2. The proportion of patients who received psycho-education within two weeks after diagnosis was made increased from 69% to 76%. Results of the semi-structured questionnaire showed that 5 out of 7 teams did not or rarely provide psycho-education before the start of the Breakthrough Collaborative.

### **Stepped care treatment**

Of the total of 179 patients of which the complexity was assessed, 84 (46%) were assessed with a non-complex anxiety disorder and 41 patients (49%) received brief therapy or selfhelp. In the three consecutive 4-month periods, the proportion of patients who received brief therapy or selfhelp increased from 44% to 67% (Table 2). Results of the semi-structured questionnaire showed that 6 out of 7 teams did not provide selfhelp before the start of the Breakthrough Collaborative, and 2 out of 7 did not provide brief therapy. Of the total of 95 (52%) patients assessed with a complex anxiety disorder, 21 patients (22%) received cognitive behavioral therapy and/or an antidepressant according to the guideline recommendations. In the three consecutive 4-month periods, the proportion of patients who received cognitive behavioral therapy and/or an antidepressant decreased slightly during the project period from 24% to 18% (Table 2). All teams provided cognitive behavioral therapy and/or an antidepressant before the start of the Breakthrough Collaborative.

### **Monitoring**

Of the 183 patients with an anxiety disorder, a total of 164 patients (90%) received an initial CGIS measurement. Of these, 60 patients (33%) received a second CGIS measurement. The percentage of patients monitored dropped dramatically every

further point of assessment. The first CGIC was 6 weeks after start of treatment measured in 11 patients (6%), the second in 57 patients (31%). Similar to the CGIS measurement the percentage of patients monitored dropped further. Results from the semi-structured questionnaire showed that professionals experienced difficulties in monitoring once in six weeks. Reasons were forgetting to administer the questionnaire during their consult, not planning follow-up appointments every six weeks or not making appointments with the patient to self-administer the questionnaire, and no show of patients. None of the teams monitored their patients before the start of the Breakthrough Collaborative.

### **Collaboration**

Results from the semi-structured questionnaire showed that the project had a positive impact on collaboration between primary care professionals. Collaboration between primary and specialized mental healthcare professionals improved in four teams. The improved collaboration was shown by (a) structural meetings between professionals at which patients' treatment was discussed and (b) easier referral, since there was more clarity about the competence of professionals working in different areas.

### **Influencing factors**

Results from the semi-structured questionnaire and the logbooks showed that factors facilitating the project were: 1. Professionals being in favor of the 4DSQ, a plastic card with the anxiety disorders stepped care model (Figure 1), because this card offers in a glance what to do, clear instructions about the anxiety disorders stepped model and associated interventions during the learning sessions, the toolkit for first step interventions, on-site supervision visits and support from the experts. 2. Structural meetings to evaluate progress on the chosen goals with all team members, choosing the patients as starting point for discussions about professionals' performance, clarity about the tasks of the professionals in recognition and treatment, implemented logistical procedures about administering the 4DSQ and CGI, and financial support for participation from a health insurance company. The facilitating factors might be an answer to the needs of professionals: e.g. need for knowledge and skills, discussing mental health problems with patients, organization of care: who does what when. New for the teams was to measure their performance, patient outcomes and reflect on treatment results. These activities were hard to implement because additional administration for professionals was needed to fill in patient data for the Breakthrough Collaborative apart from the medical file and logistical procedures were not yet implemented. In addition, in the final period of the study when most temporarily appointed project managers were no longer available to register the performance of all professionals in Excel, fewer patients were included and almost all scores on the process indicators decreased. Furthermore, the multidisciplinary team meetings to reflect on results were not easy to plan because of the workload of each individual. Other barriers for implementation were that the expert panel obliged the teams to work on all key recommendations of the Anxiety Disorders 'Standard', which proved

too much for most teams, and the focus of the teams on the project period instead of continuous improvement.

## DISCUSSION

### **Main findings**

The Anxiety Disorders Breakthrough Collaborative was partly successful in the implementation of guideline recommendations for anxiety disorders in primary care. Successful was overall screening in patients who met high-risk criteria with the anxiety subscale of the Four-Dimensional Symptom Questionnaire (4DSQ). Professionals experienced that the 4DSQ offered a means to start talking with patients with unexplained somatic symptoms about possible psychological or psychiatric disorders. In addition, for almost all patients with an anxiety disorder, complexity was assessed. Assessment of complexity led to more stepped care treatment according to the standard for patients with a non-complex anxiety disorder. Project managers reported that during the project period multidisciplinary teams developed first step brief interventions based on the toolkit for first step brief interventions in self-help and brief treatment, whereby the availability of first step brief interventions increased. Furthermore, the proportion of patients who received psycho-education increased. Regarding the collaboration, professionals organized structural meetings more often and indicated that they referred patients more easily and earlier.

Improvement of the treatment for patients with a complex anxiety disorder did not succeed. A reason might be that teams focused on the first step brief interventions and less on the interventions for patients with a complex anxiety disorder. In addition, structured implementation of repeated measurements with the 4DSQ and monitoring with the CGI failed. These new tasks were difficult to implement because of problems with organization of the logistic process of planning and rating the questionnaires and organizing the follow-up appointments.

### **Comparison with existing literature**

The results of this study are in accordance with the results of other studies measuring the effect of Breakthrough Series Collaborative in depression care. In these studies, the collaboration improved and results were moderately positive as well (24-26,31). A recent review of learning collaboratives in mental health care showed that learning collaboratives are being used widely although the evidence of their effectiveness is minimal (32). Main findings of the review were that most studies that reported on provider performance reported positive trends for example with respect to improvement of the uptake of new practices. Studies that reported on patient outcomes showed mixed results. However, the strength of the outcomes was difficult to judge because the studies, except one cluster randomized trial (RCT), did not use a control condition and studies used different designs and methods.

The review indicated that studies evaluating the Breakthrough Series Collaborative used different components and most commonly: (i) learning sessions, (ii) plan-do-study-act cycles, (iii) multidisciplinary quality improvement teams, and (iv) data collection for quality improvement (32). In our study the data collection for quality improvement was not sustained, because in the final period of the study most temporarily appointed project managers were no longer available. Therefore, few patients were included in the final period and almost all scores on the process indicators decreased.

Facilitators for implementation of the guideline recommendations were the use of the 4DSQ, a flash card with brief summarized instructions about the anxiety disorders stepped care model, clear instructions about the anxiety disorders stepped model and associated interventions during the learning sessions, the toolkit for first step interventions and on-site supervision visits. Probably these tools were helpful to overcome their perceived barriers. Results from a qualitative study on facilitators and barriers in a stepped collaborative care for depression showed “a need for more skills, support and time for GPs to assess symptoms adequately and initiate psychosocial management accordingly” (33).

The Anxiety Disorders Breakthrough Collaborative had a positive impact on the collaboration between primary care professionals. In a review the facilitators and barriers in interprofessional collaboration in primary health care were studied (34). From the forty-four included studies, eleven were related to GPs' collaboration with mental health professionals. Facilitators were among other the support of regular and structured meetings and coordination by a local project manager. Attitudinal barriers were that: “professionals were worried about the ownership of their role, due to their attachment to maintaining continuous relationships with patients and to the lack of clear rules for choosing the right professional to be consulted”. Other mentioned barriers were financial, geographical and time constraints. The results correspond to our findings that show that facilitators were the structural meetings, choosing the patients as starting point for discussions about professionals' performance, clarity about the tasks of the professionals and financial support for quality improvement. One of the barriers was the temporarily appointed project manager, whereby probably the improvement results were not sustained.

### **Strengths and limitations**

A strength is that this study is one of the first documented projects on the implementation of an anxiety stepped care model. The study also had some limitations. First, the participating teams were motivated to implement the stepped care model and as a consequence the results may be less generalizable to other teams. Second, no comparison group of teams that did not participate in the a Breakthrough Series Collaborative was included. Third, measuring whether both assessing complexity and receiving psycho-education was done according to the criteria the expert panel prepared was not possible, because we did not develop 'auxiliary indicators', which

give supplementary information about whether interventions are carried out well. Finally, the effect of the intervention on patient outcomes is unclear, because the study focused on professionals' performance.

### **Practical implications and further research**

In most teams a temporarily appointed project manager was responsible for supporting the professionals in the improvement process. In the final period of the study most project managers were no longer available. To achieve a sustainable quality improvement of care, project managers employed by 'care groups' or collaborative health centres in primary care might have a role in the uptake of guideline recommendations. Furthermore, professionals may be supported by tailor-made computerized decision support systems (CDSS). There is evidence that CDSS may improve healthcare providers' adherence to guideline recommendations (35-37). These systems may include guidance messages for treatment and reminders. Such systems could be developed by involvement of healthcare professionals and implementation experts and tailored to the work setting. Further, financial support from health insurance companies for continued improvement seems necessary to realize structural improvements in primary care.

To improve both clinical performance and patient outcome, quality improvement strategies are required. With the Breakthrough Series Collaborative all teams received the same improvement strategies independent of the local facilitators and barriers. The quality of primary care might be improved by designing implementation strategies which are tailored to selected identified barriers (19,38,39). To determine the effectiveness of such strategies robust designs should be used. Qualitative methods can be used alongside randomized controlled trials to develop and refine the strategies and to explore the perceived usefulness of the implementation strategies (40).

### **Conclusions**

The results indicate that the Anxiety Disorders Breakthrough Collaborative had a small positive effect on the implementation of the anxiety disorders stepped care model. Given the uncontrolled evaluation design used, results need to be interpreted with caution. More rigorous evaluations of improvement strategies are needed, including process evaluations, to determine the impact of such strategies.

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CHAPTER

# 4

## Study protocol of a Randomised Controlled Trial of tailored interventions to improve the management of anxiety and depressive disorders in primary care

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## ABSTRACT

**Background:** Anxiety and depressive disorders are highly prevalent disorders and are mostly treated in primary care. The management of these disorders by general practitioners is not always consistent with prevailing guidelines because of a variety of factors. Designing implementation strategies tailored to prospectively identified barriers could lead to more guideline-recommended care. Although tailoring of implementation strategies is promoted in practice, little is known about the effect on improving the quality of care for the early recognition, diagnosis, and stepped care treatment allocation in patients with anxiety or depressive disorders in general practice. This study examines whether the tailored strategy supplemented with training and feedback is more effective than providing training and feedback alone.

**Methods:** In this cluster randomised controlled trial, a total of 22 general practices will be assigned to one of two conditions: (1) training, feedback, and tailored interventions and (2) training and feedback. The primary outcome measure is the proportion of patients who have been recognised to have anxiety and/or depressive disorder. The secondary outcome measures in patients are severity of anxiety and depressive symptoms, level of functioning, expectation towards and experience with care, quality of life, and economic costs. Measures are taken after the start of the intervention at baseline and at three- and six-month follow-ups. Secondary outcome measures in general practitioners are adherence to guideline-recommended care in care that has been delivered, the proportion of antidepressant prescriptions, and number of referrals to specialised mental healthcare facilities. Data will be gathered from the electronic medical patient records from the patients included in the study. In a process evaluation, the identification of barriers to change and the relations between prospectively identified barriers and improvement interventions selected for use will be described, as well as the factors that influence the provision of guideline-recommended care.

**Discussion:** It is hypothesised that the adherence to guideline recommendations will be improved by designing implementation interventions that are tailored to prospectively identified barriers in the local context of general practitioners. Currently, there is insufficient evidence on the most effective and efficient approaches to tailoring, including how barriers should be identified and how interventions should be selected to address the barriers.

## BACKGROUND

Anxiety and depressive disorders are common mental disorders that have a negative impact on everyday functioning, cause great suffering, and incur both high health-care costs and additional costs associated with production losses (1-3). The lifetime prevalence of anxiety and depressive disorders in Dutch adults is about 20%, and the 12-month prevalence is 10% and 5% (4), respectively. Most adults who seek help for their anxiety or depressive disorder are treated in general practice (5,6).

In the Netherlands, clinical guidelines are available for both anxiety and depressive disorders for general practice (7-10). Enhancing guideline adherence is expected to lead to reduction of the burden of disease and improvement of social functioning (11,12). The management of anxiety and depressive disorders by general practitioners (GPs) is not always consistent with prevailing guidelines. Under-recognition and consequently under-treatment of anxiety and depressive disorders have been reported, where threshold disorders are more likely to be recognised than are sub-threshold disorders (5,13-15). About a quarter and a half of patients, respectively, receive optimal treatment for an anxiety disorder and a depressive disorder in primary care (16,17). Besides under-diagnosis and under-treatment in some patients, other patients are over-treated with psychopharmacological drugs, while these are not indicated (5,18,19). Use of effective early interventions in patients with mild problems, which are often based on cognitive behavioural techniques, is more the exception than the rule (20). The adherence to guideline recommendations is suboptimal because of a variety of factors influencing GPs' recognition and management of anxiety and depressive disorders. These factors are related to (a) patients, such as lack of recognition of having a psychological problem, presentation of physical symptoms, absence of a perceived need for care; (b) GPs, for example, lack of knowledge and skills, attitudes, time, self-efficacy, patient-physician communication; and (c) organisation of care, such as insufficient collaboration with mental health professionals and waiting lists for specialty mental healthcare (21-26). In addition, some recommendations in the guidelines have less support from research evidence or may be perceived as less attractive.

To improve adherence to guideline recommendations, various implementation strategies can be effective for improving professional performance in healthcare professionals (27). Many quality-improvement interventions in anxiety and depression care target provider knowledge through education on treatment guidelines and continuous performance feedback or they contain a fixed package of multiple strategies, such as in the Quality Improvement Collaboratives (28,29). Other interventions in anxiety and depression care target organisation of healthcare delivery, for instance, by involving mental health consultants (22,30). The strategies show mixed and overall moderate effects on clinical management of depression and outcomes in primary care.

Our hypothesis is that adherence to guideline recommendations, and consequently patient outcomes, will be improved by designing implementation interventions that are tailored to prospectively identified barriers in the local context of GPs (23,25,31-33). The choice of a study in tailored implementation is based on the assumption that implementation is affected by impeding local factors related to care professionals, the organisation of care, and social factors. Successful implementation is only possible when these barriers are dealt with through an implementation plan tailored to the situation (34). Different studies have investigated the impact of tailored interventions for behaviour change in GPs, to improve the quality of care, in randomised controlled trials (RCTs) (32). Because the tailoring methods used in these studies are heterogeneous, there is insufficient evidence on the most effective and efficient approaches to tailoring, including how barriers should be identified and how interventions should be selected to address the barriers. Therefore, we used a pragmatic and flexible approach of tailoring implementation to barriers to change.

This article describes the aims and methods of an RCT to determine the effectiveness of tailored interventions in the implementation of guideline recommendations for the early recognition, diagnosis, and stepped-care treatment allocation in patients with anxiety or depressive disorders in general practice in the Netherlands.

## METHODS/DESIGN

### **Objectives**

The primary aim of this RCT is to determine the effectiveness of tailored interventions to improve the implementation of guideline recommendations for the early recognition, diagnosis, and stepped-care treatment allocation for anxiety and depressive disorders in general practice. Secondary aims are to describe the identification of barriers for improving professional performance, the relationship between prospectively identified barriers and improvement interventions selected for use, and the influencing factors and experiences with the strategy. The final aim is to examine the efficiency of the tailored intervention compared to usual care from a societal perspective with a time horizon of six months.

### **Time frame**

This study was initiated in 2009 and is planned to take 3.5 years.

### **Study design**

A cluster RCT with two arms has been chosen for this study. Cluster randomisation was applied at the level of the general practice organisation. The general practice organisations were allocated to the intervention or the control group. The allocation was generated by an independent statistician.

The chosen implementation strategies are

1. an educational intervention targeted at GPs, comprising of one day of training at the start and one feedback at six months (in both study arms);
2. one or more interventions tailored to prospectively identified barriers in the local context of GPs (only in the intervention arm).

#### **Recruitment of general practitioners**

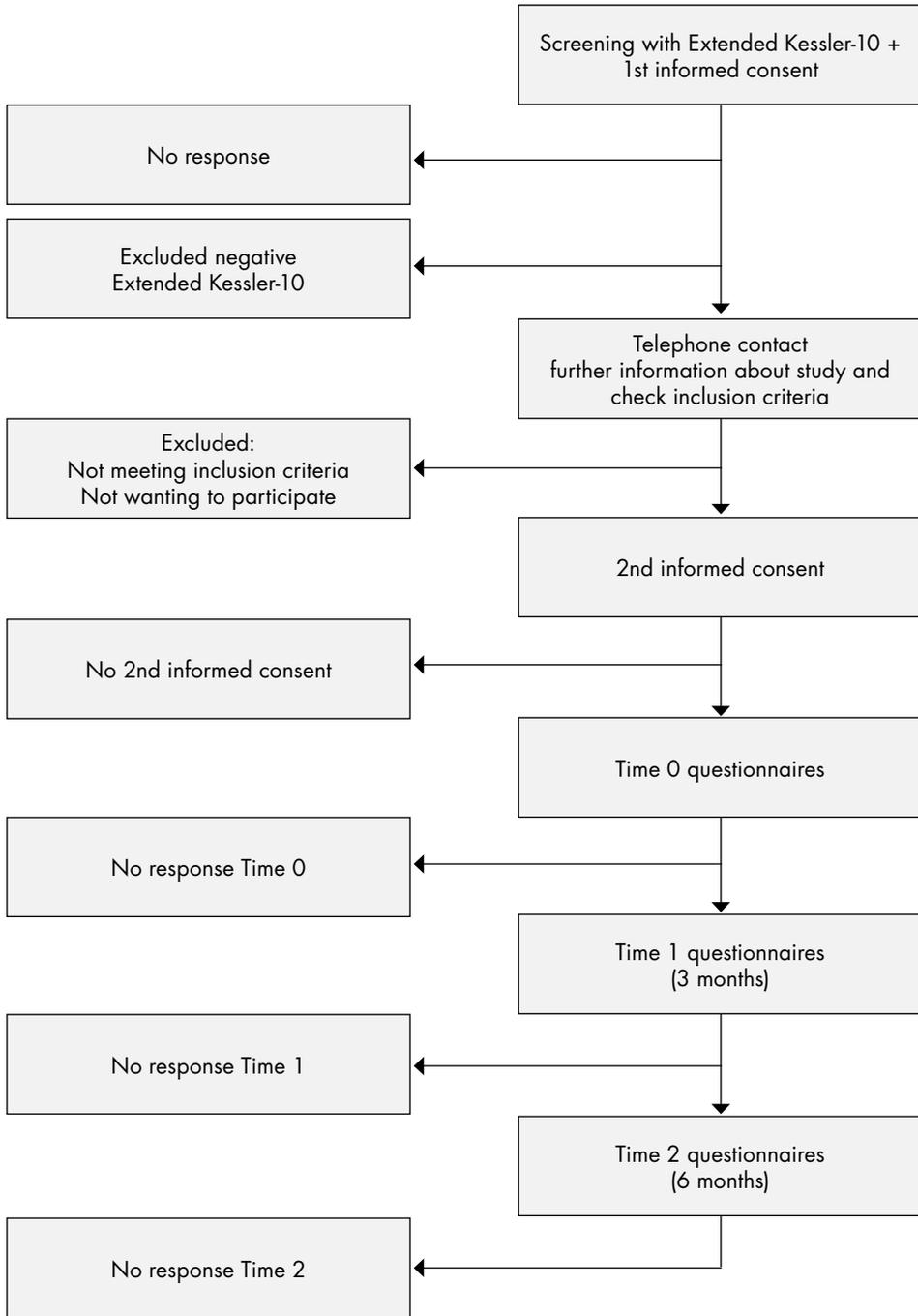
We aimed at recruiting patients and GPs in 22 general practices into our trial. Therefore, we prepared a newsletter for GPs with information about the goals of the study; the activities; and the accreditation they would receive if they followed the one-day training in guideline recommendations for the early recognition, diagnosis, and stepped-care treatment allocation of patients with anxiety or depressive disorders. Several recruitment strategies were carried out: (a) the newsletter was published at the website of the Dutch GPs association and the website of the Trimbos Institute, a centre of expertise on mental health and addiction and (b) the newsletter was sent to a sample of 500 GPs, provided by the Netherlands Institute for Health Services Research (NIVEL) and to all GPs who had a contract with a specific health insurance company that gives financial support. Subsequently, a researcher contacted all practices by phone to recommend participation. Finally, 23 general practices were included.

#### **Recruitment of patients**

We aimed at including patients with symptoms that might indicate anxiety or depressive disorders. A sample of patients who visit their GP from September 2010 will receive an information letter with an invitation to participate and will be asked to fill out a short screening instrument: the extended Kessler-10 (EK-10). The Dutch EK-10 is a validated screening instrument for anxiety and depressive disorders in primary care (35). Of those patients who return the EK-10 and give informed consent to call for the provision of further information about the study, the score on the EK-10 will be calculated. Patients are considered screen-positive if the score is 20 or higher and/or they ticked at least once a 'yes' on the added questions 11 through 16. Screen-positive patients will be called and given further information about the study. Patients who do not meet the exclusion criteria will receive a second information letter, the baseline questionnaire, and a second informed consent form. Patients will be given the option to complete the questionnaire in writing or digitally. Inclusion in the study will be definite if the patient returns the baseline questionnaire and gives informed consent for participation in the study. GPs are not informed about the inclusion of their patient. Figure 1 shows a flowchart of participating patients.

#### **Patient inclusion and exclusion criteria**

Inclusion criteria are an age of 18 years and older, a score on the Dutch version of the EK-10 of 20 or higher, and/or at least one yes on the added questions 11 through 16. Exclusion criteria are an age under 18 years, suicidal ideations, dementia or other



**Figure 1.** Flowchart of participating patients

severe cognitive disorders, psychotic disorder, bipolar disorder, dependence on alcohol or drugs, unstable severe medical condition as diagnosed by their GP, insufficient knowledge of the Dutch language to fill out the questionnaires, or having received psychological treatment in the six months before the start of the study or recognised with anxiety or depressive symptoms by their GPs in this period.

### **Sample size**

The primary outcome measure for the evaluation of the effectiveness of tailored interventions is the recognition of anxiety or depressive disorders by GPs in patients with symptoms that might indicate these conditions. The rate of recognition was reported at about 45% (14,36). Studies showed that interventions focused on professionals' adherence to guidelines can increase adherence by 10% (27). With tailored interventions, we suppose the recognition can improve by 15%. To get an accurate estimate ( $\alpha = 0.05$ ; power = 0.80) of a 15% difference (45% vs. 60%) in recognition between both groups, assuming that 5% of participants will drop out (loss to follow-up will be minimal because we will perform a retrospective medical record search to get insight in rate of recognition) and considering an intracluster correlation of 0.01 (37), 396 patients in 22 practices have to be included.

### **Intervention group**

#### *Tailored strategies*

GPs from the general practices randomised to the intervention group will receive interventions that are tailored to prospectively identified barriers in their local context over the course of one year. Methods for tailoring implementation interventions to local barriers vary widely and are often poorly documented (31). To get insight in the experienced barriers in the early recognition, appropriate diagnosis, stepped-care treatment allocation, and providing of information on the diagnosis and stepped-care treatment options for anxiety and depressive disorders, a semistructured face-to-face interview was carried out with each of the participating GPs by a trained interviewer. For this interview, we developed a checklist based on the main types of barriers to adherence to evidence-based guidelines on anxiety and depressive disorders by GPs (25,28,38). Based on these main types of barriers, we developed interventions that could solve the barriers. Each interview was documented in a report. Based on this report, experts suggest interventions that may resolve the barriers. These interventions are fed back by telephone to the GP by the same interviewer.

The interviewer calls the GP once every two months to map the implementation process and links this back to the experts. Again, experts suggest interventions or give advice to the interviewer for the next contact with the GP. With a continuous feedback loop between the experts, the interviewer, and the GP, we optimise the tailoring process. All contacts between the experts, the GP visitor, and the GP are reported.

### *Training*

GPs in both conditions received one day of training by experts in (a) the early recognition of high-risk patients with the Four-Dimensional Symptom Questionnaire (4DSQ), (b) appropriate diagnosis, (c) stepped-care treatment allocation, and (d) the providing of information to patients with anxiety and depressive disorders. The 4DSQ is a self-rating questionnaire measuring four dimensions of common psychopathology: distress, depression, anxiety, and somatization. The 4DSQ was developed in general practice. The principal aim of the 4DSQ is to distinguish between stress-related syndromes (denoted as 'stress', 'burnout', 'nervous breakdown') and psychiatric disorders (i.e., depression and anxiety disorders) (39). The 4DSQ can be used in recognising highrisk patients for anxiety or depressive disorders and is recommended by the multidisciplinary guidelines on anxiety and depressive disorders. Criteria for high-risk patients are described in the clinical guidelines for anxiety and depressive disorders for general practice. In a former quality-improvement project, GPs showed positive experiences with the use of the 4DSQ in detecting anxiety disorders. The 4DSQ offers GPs a means to start talking with patients with unexplained somatic symptoms about possible psychological or psychiatric disorders.

Adequate diagnosis is based on the recommendations of clinical guidelines for general practice. Stepped-care treatment allocation is based on the multidisciplinary guidelines. According to the stepped-care model, patients with a noncomplex anxiety disorder or a nonsevere depressive disorder have to receive as a first step brief interventions, such as guided self-help or brief therapy. Patients with a complex anxiety disorder or a severe depressive disorder have to receive effective psychotherapeutic interventions, an antidepressant, or a combination of both. Determination of the complexity of an anxiety disorder is based on at least one of the following criteria: serious social/functional dysfunction, comorbidity (patient has another anxiety disorder or depression), obsessive compulsive disorder or posttraumatic stress disorder, no response after a minimum of six weeks and maximum 18 weeks, or no remission after a first-step brief intervention. Determination of the severity of a depressive disorder is based on at least one of the following criteria: high level of distress, serious social/functional dysfunction, minimum eight symptoms of the depressive disorder according to the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (40), psychotic features, suicidal ideation.

### *Feedback*

GPs in both conditions were asked to fill out a consultation registration form for each patient who completed the 4DSQ. On this form, GPs need to register the score on the 4DSQ, the diagnosis, the indicated treatment, and if they informed the patient about the diagnosis and stepped-care treatment options. GPs received individual feedback on the number of registered 4DSQs, appropriate diagnosis, stepped-care treatment allocation, and information on the diagnosis and stepped-care treatment options in a report after six months, based on the consultation registration forms.

### *Control group*

GPs from the general practices randomised to the control group only received training and feedback (see intervention group).

## **Outcome measures**

### *Primary outcome*

The primary outcome for both conditions is the proportion of patients who have been appropriately recognised to have anxiety and/or depressive disorder. This proportion is calculated by dividing the amount of patients recognised by the GP by the total amount of patients included in the study. Recognition is measured by the registration of (a) anxiety or depressive complaints; (b) psychological complaints (anxiety, worrying, sorrow/grief, stress, feeling down and sleeping disorder, unexplainable somatic complaints); (c) the International Classification of Primary Care-1 (ICPC-1) codes (41) for anxiety and/or depression and/or related psychological problems, the same ICPC codes that were used in previous work by Smolders (17); and (d) the 4DSQ score.

## **Secondary outcomes**

### *In patients*

The secondary outcome measures in patients are severity of anxiety and depressive symptoms measured with the 4DSQ; level of functioning, measured with the World Health Organization's Disability Assessment Scale II (42); expectation towards and experience with care, measured with the QUality Of care Through the Eyes of the patient (QUOTE) (43); care utilisation, illness, and work, measured with the Trimbo/institute Medical Technology Assessment questionnaire for Costs associated with Psychiatric Illness (TiC-P) (44); and quality of life, measured with the EuroQol (EQ-5D) (45). Measurement will take place every three months: at baseline (T<sub>0</sub>) and at three (T<sub>1</sub>) and six months (T<sub>2</sub>) after inclusion.

### *In general practice*

The secondary outcome measures for both conditions are proportion of patients for whom tricyclic antidepressants (TCAs) or selective serotonin reuptake inhibitors were prescribed and number of referrals to specialised mental healthcare. We gather data to calculate the secondary outcomes by performing a retrospective patient medical record search, after the last patient's follow-up measure.

### *Process evaluation*

In a process evaluation, we describe the identification of barriers to change and the relationships between prospectively identified barriers and improvement interventions selected for use in the intervention group. We evaluate the experiences of GPs in the intervention group, the GP visitors and the experts with the tailoring proc-

ess, the implemented changes in practice, and the factors influencing the tailoring process. To measure the experiences, semistructured interviews are conducted, and reports of the interviews are made.

To get an insight into the factors that influence the provision of guideline-recommended care in both groups, all GPs are asked to fill out an individual self-administered questionnaire about the general practice and GP characteristics. The practice characteristics include practice type, number of GPs in the practice, collaboration with other healthcare professionals working in the practice, and size of practice population. The GP characteristics include demographic data, interest and attitudes towards depressive and anxiety disorders, and questions to assess barriers to healthcare provision to patients with depressive or anxiety disorders and, for implementation of the depression and anxiety guidelines, collaboration with professionals and institutions specialised in mental healthcare and GPs' levels of burnout. This questionnaire is developed and used in the Netherlands Study of Depression and Anxiety, an eight-year longitudinal cohort study designed to be representative of persons with depressive and anxiety disorders in different healthcare settings and in different stages of the disorders (24,46). The questionnaire is filled out twice: before the start of the tailoring process and when the tailoring process is finished.

#### *Economic evaluation*

An economic evaluation will be conducted to estimate the cost effectiveness of the tailored intervention from a societal perspective. The between-group difference in costs will be related to the difference in benefits in terms of health-related utilities. This economic evaluation uses the EQ-5D. The cost-utility analysis measures health in quality-adjusted life years (QALYs), derived using the EQ-5D questionnaire (47). The EQ-5D characterises five health dimensions (mobility, self-care, usual activities, pain, and anxiety/depression), each rated using three levels (no problems, moderate, and severe problems). Responses will be transformed into a health utility score that ranges between 0 = dead and 1 = full health. Health utilities will then be used to calculate the QALYs. This gives a comparison of how many QALYs individuals in each group gained on average as a result of the tailored intervention. Results can statistically be compared to see if there are any differences. The final step of the cost-utility analysis will be to compare the cost of the QALY gains in each group.

The costs of the implementation strategy used will be studied for each practice. These costs are (a) the costs per hour of the GP visitor and experts for the activities during the tailoring process and the one-day training and feedback, (b) material costs for the one-day training, and (c) the costs per hour of the GP related to the implemented interventions. In addition, the difference in healthcare costs related to the diagnostic process will be included, including number of consultations, diagnostic tests, and referrals with diagnostic aims. Healthcare costs will be measured by the TiC-P. The costs will be estimated in line with the Dutch guidelines for cost calculations in healthcare (48).

Apart from costs of the tailored strategy, healthcare costs, and costs of production losses, indirect costs will be measured for both groups related to the severity of anxiety and depressive symptoms, level of functioning, experience with care, and quality of life.

**Statistical analyses**

The adequacy of randomisation is assessed comparing characteristics of the general practice and GPs that might influence the outcomes (see process evaluation). Recognition of anxiety or depressive disorders in eligible patients in the study period is compared between the intervention and control groups, taking into account clustering of data in a multilevel regression model. We will also calculate and compare the percentages of patients who have been appropriately recognised and diagnosed, prescribed antidepressants, and referred and the number of consultations, determined by the registration in patients' medical records.

Descriptive statistics will be used to outline the characteristics of practices and GPs. Finally, bivariate and multivariate multilevel regression analyses will be performed to identify factors associated with better adherence to specific guideline recommendations. All analyses will be performed on an intention-to-treat basis. Possible confounding characteristics (e.g., age, gender) will be included in the statistical models. In addition, we will describe the barriers for change that were identified and the relationships between prospectively identified barriers and improvement interventions selected for use, based on an analysis of the records from the contacts between the GP and the interviewer. Data about the experiences of participants in the tailoring process, the implemented changes in practice, and their ideas about influencing factors will be structured, interpreted, and described in a qualitative way.

Direct and indirect costs of the interventions will be reported. The results of the cost will be presented as mean values with standard errors. Cost effectiveness will be presented in incremental cost-effectiveness ratios. The uncertainty will be assessed using bootstrapping, and acceptability curves will be presented (49). A principled method for dealing with missing data will be applied to the economic evaluation (50).

**Ethical principles**

The study protocol has been approved by the Medical Ethical Committee of the Institutions for Mental Health (METiGG; Utrecht, the Netherlands) in 2009.

## DISCUSSION

Early recognition, diagnosis, and stepped-care treatment allocation in patients with anxiety or depressive disorders in general practice is dependent on a variety of factors influencing GP performance. The study gives information about the relevant barriers for improvement and whether they differ between GPs. Designing implementation interventions that are tailored to prospectively identified barriers for improve-

ment in the local context of GPs could lead to more guideline-recommended care. Different studies have investigated the impact of tailored interventions for behaviour change in GPs, to improve the quality of care, in an RCT, but little is known about what methods and models of tailoring are effective and efficient (31,32). The aim of this RCT is to determine the effectiveness of tailored interventions to improve the implementation of guideline recommendations for the early recognition, diagnosis, and stepped-care treatment allocation for anxiety and depressive disorders in primary care and describe the methods used in the process of tailoring. Because the performance of GPs during the tailoring process may be influenced by policy developments, personal attention, or even external financial incentives, the relationships between prospectively identified barriers and improvement interventions selected for use will be described, as well as the factors that influence the provision of guideline-recommended care.

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# Effectiveness of a tailored implementation programme to improve recognition, diagnosis and treatment of anxiety and depression in general practice: a cluster randomised controlled trial

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## ABSTRACT

**Background:** Anxiety and depression are not always diagnosed and treated in primary care as has been recommended. A tailored implementation programme, which addresses key barriers for change by targeted interventions, may help to remedy this.

**Methods:** The effectiveness of an individually tailored implementation programme, additional to standardised training and feedback on the recognition and treatment of patients with anxiety or depression in general practice was examined in a cluster randomised controlled trial. Participants were 46 general practitioners (GPs) from 23 general practices (12 intervention, 11 control) and 444 patients aged 18 years or older (198 intervention, 246 control) who screened positive on the extended Kessler 10. In the control group, GPs received a 1-day training in guidelines for recognition and stepped treatment for anxiety and depression. Ten months after the training session, GPs received feedback on their performance over the preceding 6 months. In the intervention group, GPs received the same training and feedback as those in the control condition; in addition, they were offered support, tailored to perceived local barriers to change. The support was delivered in the format of peer group supervisions and personalised telephone consultations. Data were based on an audit of patient records and patient surveys at baseline and after 3 and 6 months.

**Results:** The tailored implementation programme led to recognition of a higher proportion of patients presenting with anxiety and depression (42% versus 31%; odds ratio (OR) = 1.60; 95% CI: 1.01–2.53), more consultations after recognition (IRR = 1.78; 95% CI: 1.14–2.78) and did not lead to more prescription of antidepressants (OR = 1.07; 95% CI: 0.52–2.19) or referral to specialist mental health services (OR = 1.62; 95% CI: 0.72–3.64). Patients in the intervention group reported better accessibility of care (effect size (ES) = 0.4;  $p < 0.05$ ) and provision of information and advice (ES = 0.5;  $p < 0.05$ ).

**Conclusions:** A tailored implementation programme may enhance the recognition and treatment of patients with anxiety or depression. Further development and evaluation of the programme is warranted to determine its cost-effectiveness.

## BACKGROUND

Anxiety and depression are highly prevalent and have a negative impact on everyday functioning, cause great suffering and incur high healthcare costs and costs associated with reduced productivity (1-3). In the Netherlands, most adults who seek help for anxiety or depression are treated in general practice (4). Although clinical guidelines are available (5,6), the management of these disorders in general practice is often suboptimal. Under-recognition of anxiety and depression has been reported, although more severe symptoms may be more easily recognised (7,8). Only half the patients presenting with anxiety and depression receive care which is in accordance with the guidelines for treatment in general practice (9-11). There is evidence that adhering to treatment guidelines would produce better patient outcomes (12,13), so improving adherence to the guidelines is an important objective.

A variety of factors may negatively affect adherence to guidelines for the treatment of anxiety and depression. There are barriers related to patients, professionals (i.e. the physicians) and organisations. Many patients do not acknowledge that they suffer from anxiety or depressive symptoms, although they may present in general practice with somatic symptoms instead of mental health symptoms (14-16). Even when a psychiatric diagnosis is made, the patient or general practitioner (GP) may not perceive treatment as necessary (11). Barriers to GPs adhering to the guidelines may include problems differentiating between 'normal' distress and anxiety or depressive disorders. Some GPs find it difficult to discuss the factors relevant to diagnosis with patients (17). Possible barriers at the organisational level include insufficient collaboration between GPs and mental health professionals, waiting lists for specialised mental health services and limited financial incentives (18,19).

Adherence to guidelines may be improved by interventions which are tailored to prospectively identified local barriers (20). Only a few studies have assessed the effectiveness of tailored interventions in improving adherence to guidelines for the management of patients with depression in primary care (21,22). In one study, all participating GPs received an identical intervention, this study found that GPs in the intervention group were more likely to diagnose depression and prescribe antidepressants, but no effect on health outcomes was detected (21). Another study showed that a one-off tailored intervention based on psychological theories improved some outcomes, more specifically suicide risk assessment improved and patients' depressive symptoms decreased (22). These studies notwithstanding, there is insufficient data to determine the most effective and efficient approach to tailoring this type of intervention. Tailoring an intervention may increase or decrease costs, but we were unable to find reports of economic evaluations of such interventions.

Our hypothesis was that adherence to guidelines for anxiety and depression – and in consequence patient outcomes – would be improved by interventions that are

tailored to prospectively identified local barriers affecting GPs. The identification of barriers to implementation of guidelines, the development of interventions targeting these barriers and the application and perceived usefulness of the resulting tailored interventions have been described in detail elsewhere (23). This is the first study to determine the effectiveness of tailored interventions to improve adherence to guidelines for the recognition of anxiety and depression in general practice. We compared training and feedback for GPs with training and feedback supplemented by a tailored intervention. Training and feedback was provided to both groups. Educational meetings and in less degree feedback are common strategies used with the aim of improving professional practice and patient outcomes. However, the effect is most likely to be small and depending on baseline performance and how they are provided (24,25). The rationale to provide the training was that the GP needs knowledge of the guideline recommendations in order to be able to adhere to these guidelines. Feedback was chosen to give the GP the opportunity to adjust their performance. Besides, the provision of training and feedback would probably motivate GPs to participate in the study.

## METHODS

### **Study design**

This study was a pragmatic, two-arm, general practice-level cluster randomised controlled trial (RCT) (26). Clusters were general practices (solo practices, group practices or health centres) in the Netherlands. The study was approved by the Medical Ethics Committee of the Institutions for Mental Health (METiGG; Utrecht, The Netherlands) in 2009, number NL28350.097.09.

The researchers were independent of the funder ZonMw.

### **Randomisation of clusters**

The general practices were randomly assigned to the intervention group or the control group. GPs in both groups received 1 day of training in recognition, diagnosis, stepped treatment and patient education about anxiety and depression after which randomisation was performed by an independent statistician. GPs were not blind to group assignment. Patients were informed about the project, but did not receive information whether their GP had been allocated to the intervention group or to the control group.

### **Eligibility criteria for clusters and participants**

#### *Setting*

The study involved 46 GPs in 23 general practices, who were recruited over a 5-month period from September 2009 onwards. Several recruitment strategies were used: a random sample of 500 GPs derived from a national register and all 225 GPs con-

tracted to a particular health insurance company that made additional payments (€ 0.60 for each practice-listed patient in 2010 and 2011) received a newsletter containing information about the goals of the study and the accreditation they would receive if they followed the 1-day training on the use of the guidelines. Subsequently, a researcher contacted these practices by telephone to recommend participation. In addition, information about the study was published on the website of the Dutch College of General Practitioners. The inclusion criterion was a willingness to participate in a 1-day training programme.

### *Patient sample*

All patients aged 18 years or older attending the participating general practices between September 2010 and June 2011 received an information letter and an invitation to participate and were asked to complete the extended Kessler 10 (EK-10).

Patients who screened positive on the EK-10 were included in the study. The Dutch EK-10 is a validated instrument for screening for anxiety and depressive disorders in primary care (27). A screening is considered positive if the patient scores at least 20 on the K10 or gives at least one positive response to the five additional questions about anxiety. Exclusion criteria as assessed by the GP were suicidal ideation and behaviour, dementia and other severe cognitive disorders, psychotic disorder, bipolar disorder, dependence on alcohol or drugs, a severe, unstable somatic condition diagnosed by their GP, insufficient knowledge of the Dutch language to enable accurate completion of the questionnaires, having received psychological treatment in the 6 months before the start of the study and having been diagnosed with anxiety or depression by a GP in the 6 months before the start of the study. Patients with a positive screening on the EK-10 who had consented to being contacted were contacted by telephone and given further information about the study. Patients who met the inclusion criteria received an information letter, the baseline questionnaire and a second informed consent form. Inclusion in the study was confirmed when a patient returned the baseline questionnaire and gave informed consent for participation in the study. GPs were not informed which patients had been included. After the baseline assessment, patients might have consulted their GP, but it is also possible that they did not.

## **Interventions**

### *Control group and intervention group*

*Training* – GPs in both groups received the same set of guidelines and, in February 2010, received a 1-day training session on implementation given by experts in the treatment of anxiety and depression in primary care and in the use of clinical guidelines (28–30). The intervention focused on four important guideline recommendations relating to recognition, diagnosis, treatment and patient education.

*Feedback* – GPs in both groups were asked to complete a consultation registration form for each patient who completed the Four-Dimensional Symptom Questionnaire (4DSQ). The form included questions on 4DSQ score, diagnosis, the treatment indicated and whether the GP had informed the patient about the diagnosis and stepped treatment options. The consultation registration forms were used to provide GPs with feedback about the number of registered 4DSQs, appropriate diagnoses, treatment allocation and patient education. The feedback was an evaluative assessment of whether patients had been appropriately diagnosed, treated and educated and was provided 6 months after the start of the tailored intervention (December 2010).

1. *Recognition of patients with anxiety or depressive disorders.* The 4DSQ may be used to help recognise anxiety and depressive disorders. This self-report instrument can be used to distinguish between stress-related syndromes (termed ‘stress’, ‘burnout’ and ‘nervous breakdown’) and psychiatric disorders (i.e. anxiety and depressive disorders) (31).
2. *Diagnosis of anxiety disorder or a depressive disorder in patients scoring above a certain threshold on the 4DSQ.* An appropriate diagnosis includes an assessment of the severity of the disorder: ‘simple’ or ‘complex’ for anxiety disorder and ‘mild’ or ‘severe’ for depressive disorder.
3. *Treatment should be determined by reference to a stepped care approach (32-34).* Treatment should be based on the severity of the disorder and should begin with the least intensive treatment that may be expected to prove effective. Patients with a simple or mild disorder should be offered less intensive intervention; more intensive treatment options are appropriate for patients who have failed to respond to low-intensity interventions and for patients with a complex or severe disorder.
4. *Patient education on anxiety and depression.* GPs should provide patients with information about their diagnosis and the stepped treatment options for anxiety and depression.

#### *Intervention group only*

*Tailored intervention* – Between June 2010 and June 2011, GPs from general practices randomised to the intervention group received, in addition to the training and feedback, interventions that were tailored to prospectively identified local barriers. To provide insight into the perceived barriers to early recognition of anxiety and depression, appropriate diagnosis, appropriate treatment allocation and patient education, a trained interviewer carried out a semi-structured face-to-face interview with all participating GPs. The interview protocol was developed from a review of studies on barriers to compliance with guidelines for anxiety and depression (18,35-37). Interviews were conducted; at the time, the baseline for the RCT was taken and yielded a list of barriers relevant to each GP. Different barriers were perceived by the GPs to the uptake of guideline recommendations. GPs (n = 19) indicated

a total of 84 barriers. Most GPs indicated barriers in (i) using the 4DSQ ( $n = 15$ ), (ii) diagnosing anxiety and depressive disorders ( $n = 13$ ) and (iii) allocating patients correctly to care, according to the severity of the disorder diagnosed ( $n = 15$ ). Only some GPs perceived barriers in providing patient information ( $n = 5$ ). The various barriers were classified according to the themes: knowledge and skills, attitude, time, patient's opinion and behaviour, collaboration with mental health professionals and the availability of treatment. To address the barriers of each GP, various specific tailored interventions were delivered using two different formats, 'peer group supervision' and 'personalised telephone consultation'. Two peer group supervisions, led by a GP of the research team, were attended by GP participants. The sessions lasted 2.5 h each. The supervisions focused on barriers relating to GPs' knowledge and skills and perceptions of patient opinions and behaviours regarding diagnosis and treatment. Telephone consultations targeted the barriers relevant to individual GPs and covered GP knowledge and skills, perceptions of patient opinions and behaviours, time, attitude, collaboration with mental health professionals and local availability of evidence-based treatment options. Telephone consultations lasted 15 min and were provided once every 2 months by the interviewers for 1 year. Interviewers documented local implementation processes by making notes and offered advice to the GPs during the follow-up call. When GPs indicated that strategies for overcoming barriers were not successful, potential solutions were proposed to the GP during the next session. This dynamic feedback loop involving the interviewer and the GP was used in an attempt to maximise the effectiveness of the support offered. The identification of barriers to the implementation of guidelines, the development of interventions targeting these barriers and the application of the resulting tailored interventions has been described in detail (23).

## Outcomes

### *Clinical outcomes on practice level*

To examine the effectiveness of tailored interventions to improve adherence to guidelines for anxiety and depression in general practice, the primary outcome was the proportion of recognised patients having anxiety or depression by the GP. Recognition was operationalised as the registration in the patients' medical records, during 6 months preceding and after the EK-10 of terms describing (i) psychological complaints: anxiety, depression, worrying, sorrow or grief, stress, feeling down, disordered sleeping and unexplained somatic symptoms; (ii) the International Classification of Primary Care-1 (ICPC-1) codes (38) for anxiety, depression and related psychological problems, i.e. acute stress, feeling anger or irritation, behaving irritably or angrily, neurasthenia; or (iii) a completed 4DSQ.

In the preparation of the study in February 2010, before the data collection started, the primary outcome was changed (with approval of the funder ZonMw in March 2010), from an outcome on patient level (change in symptoms of anxiety and depression measured with the 4DSQ) to an outcome on the level of the cluster (recognition

of anxiety and depression). The reason for this change was that the primary study aim focused on the performance of GP's in the recognition of anxiety and depression.

Secondary outcomes at the cluster level were (i) number of consultations related to anxiety and depressive symptoms after recognition, (ii) prescription of antidepressants and (iii) referral to specialist mental healthcare. Data on cluster level outcomes were gathered by searching the patient medical records, from 6 months before until 6 months after completion of the EK-10. The search was performed by two researchers. To achieve a high inter-rater reliability, two researchers who were blind to the group assignment independently assessed 50 medical records, and weighted kappa statistics were calculated. A 5% sampling would be sufficient for a quality control (39). The kappa for the primary outcome yielded an inter-rater agreement of 96% (weighted kappa = 0.91; 95% CI: 0.79–1.00). The kappas for the secondary outcomes yielded inter-rater agreements between 92% and 98% (weighted kappas were between 0.66 and 0.89).

#### *Clinical outcomes on patient level*

Secondary outcomes at the patient level were gathered using self-report questionnaires that were sent to the participants (via the Internet or by post) at baseline (T<sub>0</sub>), and 3 (T<sub>1</sub>) and 6 (T<sub>2</sub>) months later. These secondary outcome measures were used to evaluate the impact of clinical management.

Severity of anxiety and depressive symptoms was measured with the 4DSQ. The 4DSQ has four subscales relating to common psychopathology: distress, depression, anxiety and somatisation; high scores correspond to high symptom levels, and mean scores were calculated for all four subscales. The distress scale comprises 16 items; scores range from 0 to 32, a score  $\geq 21$  indicates a serious problem, such as clinically significant psychiatric disorder. The depression scale comprises six items; scores range from 0 to 12, a score  $\geq 6$  indicates probable depressive disorder. The anxiety scale comprises 12 items; scores range from 0 to 24, a score  $\geq 9$  indicates probable anxiety disorder. The somatisation scale comprises 16 items; scores range from 0 to 32, a score  $\geq 21$  indicates a somatic fixation.

Functional status was measured using the World Health Organisation's Disability Assessment Scale II (WHODAS II) which covers functional impairments in six domains over the previous 30 days. The standardised total score, based on 32 or 36 items (36 only if work items are applicable), corrected for missing values was calculated (40,41). The domains are communication and understanding, getting around, self-care, getting along with people, life activities (household and work) and participation in society. Scores range from 0 to 100; high scores indicated functional impairment. Patients' experience of GP provision of care for mental health problems was measured with the QUality Of care Through the Eyes (QUOTE) of the patient scale (42). The QUOTE consists of six subscales measuring accessibility of care, providers' emotional support, degree to which care is patient-centred, quality of care, provision of

information and advice and guidance on self-help. Responses to items are measured on a four-point scale; high scores correspond to positive experiences.

### **Sample size**

The rate of recognition of anxiety or depression (primary outcome measure) was used for the power calculation and estimated at 45% (7,43). Previous studies have shown that interventions targeting medical professionals' adherence to guidelines can increase adherence by up to 10% (44). Based on a review, we assumed that an intensive, tailored intervention of the type used in this study would improve recognition of anxiety and depression by as much as 15% (20). To detect a 15% difference (60% versus 45%) ( $\alpha = 0.05$ ; power = 0.80) in recognition of anxiety and depression between the groups, assuming a 5% attrition rate (loss to follow-up was minimal because recognition was based on medical record review) and an intra-cluster correlation of 0.01 (45), we estimated that a sample size of 396 patients from 23 practices would be necessary. In Additional file 1 (see page 87), the covariates in the analyses are described.

### **Statistical methods**

Descriptive statistics were used to characterise the practices, GPs and patients. Comparisons between the intervention and control groups were made using *t* tests for continuous measures and  $\chi^2$  tests for categorical variables (without imputation for missing values). These analyses were performed using the Statistical Package for the Social Sciences (SPSS) 19.0. Outcome variables were analysed with multilevel regression analyses taking into account the three-level clustering of observations (patients within GPs and GPs within practices) (46). A fourth level of measurement, within-patients, was added as the lowest level for the analysis of the longitudinal data from self-report questionnaires at baseline and 3 and 6 months later. The type of regression model was matched to the outcome variable: logistic regression was used for dichotomous outcomes, linear regression for continuous outcomes and Poisson regression for number of consultations after recognition of symptoms of anxiety and depression.

Stata (version 12) was used for the multilevel regression analyses. The analyses were assessed according to intention to treat principles. Multiple imputation with chained equations (ICE) was used, creating 20 imputed datasets to compensate for missing values (47). The imputation models included the primary and secondary outcome variables, group (intervention or control) and covariates according to the four-step strategy to select predictor variables described in van Buuren et al. (48), namely patient gender and the following GP characteristics: gender, trainer status, psychologists working in the practice, attitude towards anxiety and depression, collaboration with a mental health nurse in primary care and level of burnout. Effect sizes were assessed for pretest and posttest effects using a control group design and standardised by pooled pretest standard deviations (49). All analyses were prespecified.

## RESULTS

### **Participant flow and numbers analysed**

Of 23 general practices recruited, 12 practices (23 GPs) were randomised to the intervention group and 11 practices (23 GPs) to the control group. Given the several recruitment strategies, it is not possible to present the exact recruitment rate. In the intervention group, 8 of 12 were rural practices, 4 practices were located in urban areas. In the control group four were rural practices and seven were located in urban areas. Compared to the Dutch distribution of GPs, it seems that rural practices are overrepresented (50). All practices in both groups participated in the 1-day training session. Of all GPs, six GPs (26%) from three practices in the intervention group and four GPs (17%) from two practices in the control group did not participate. In all these cases, GPs working at the same practice promised to pass the information on to their absent colleagues. The consultation registration form was administered by 9 GPs (39%) from eight practices in the intervention group and 13 GPs (57%) from six practices in the control group; these GPs received individual feedback. GPs from 13 practices (7 in the intervention group) were contracted to a particular health insurance company and received the extra fee for each practice-listed patient in 2010 and 2011.

Five of seven GPs from one practice in the intervention group did not receive the tailored intervention; one became ill and the others state that they had insufficient time. In another practice, one of three GPs did not receive the tailored interventions because of a reported lack of time. Under the 'intention to treat' principle patients of all GPs were included in the study, except the patients of the GP who became ill because this GP saw no patients. One solo general practice was lost after 10 months because the GP emigrated; the patients of this GP were not excluded from the study.

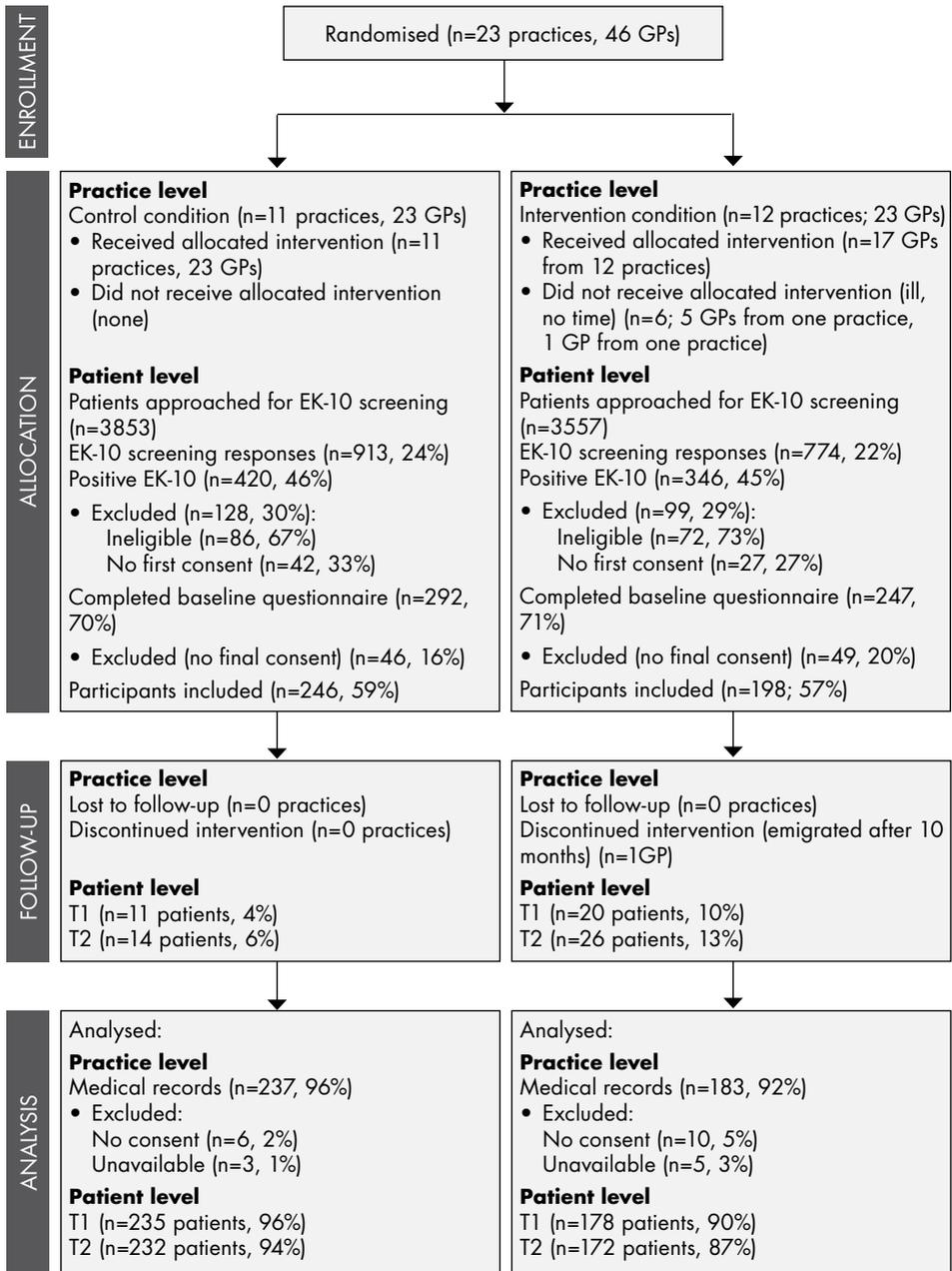
A total of 444 patients were included, 198 in the intervention group and 246 in the control group. Primary outcome data were obtained from 420 of 444 (95%) of the patients. Secondary outcome data were obtained from 413 of 444 (93%) of the patients at the 3-month follow-up (T1) and 404 of 444 (91%) at the 6-month follow-up (T2). Figure 1 shows the flow of general practices and patients. Regarding patients, the amount of missing information does not exceed 10%.

### **Characteristics at baseline for clusters and individuals**

Baseline characteristics for general practices, GPs and patients are given in Tables 1, 2 and 3, respectively.

### **Primary outcome measure**

The proportion of patients with adequately recognised and documented anxiety or depression was significantly higher in the intervention group than the control group



**Figure 1.** Flow diagram of progress of clusters and individuals through the phases of the randomised trial.

(42% versus 31%). In the intervention group, it was more likely that anxiety and depression would be recognised (odds ratio = 1.60; 95% CI: 1.01–2.53;  $p = 0.047$ ; see Table 4). The intra-cluster correlation for the combined level of general practitioners

**Table 1.** Baseline characteristics of the intervention and control group given at cluster level

Variables Practices	Intervention group n = 12	Control group n = 11	p value
Practice type (%)			0.387
- Solo	26.1	17.4	
- Group	60.9	78.3	
- Health centre	13.0	4.4	
Mean (SD) number of GPs in the practice	4.1 (2.9)	4.3 (2.4)	0.825
Disciplines working in the practice (%)			
- Practice assistants	100	100	1.000
- Practice nurses: somatic health services	95.7	100	0.312
- Practice nurses: mental health services	65.2	39.1	0.007*
- Physician assistants	0	13.0	0.073
- Psychologists	0	4.4	0.312
- Social workers	13.0	0	0.073
- Physiotherapists	13.0	4.4	0.295
- Others <sup>a</sup>	21.7	39.1	0.200
Mean (SD) number of patients per practice	5,476.3 (4,589.8)	5,393.5 (3,391.4)	0.945

\*p value <0.05.

<sup>a</sup>Others: district nurse, assistant in training, dietician, pharmacist, speech therapist, podiatrist and psychologist specialising in mental health.

and practices was 0.02. In Additional file 2 (see page 89), the cost per one additional recognised patient is described.

### Secondary outcome measures

There were no significant differences between the groups for most of the secondary outcome variables (proportion of patients who were prescribed antidepressants: odds ratio (OR) = 1.07, 95% CI: 0.52–2.19; proportion of patients who were referred to specialist mental health services: OR = 1.62, 95% CI: 0.72–3.64). In contrast, patients whose symptoms of depression and anxiety were recognised received significantly more frequent consultations if their GP was in the intervention group (mean number of consultations 1.06) than if their GP was in the control group (mean number of consultations 0.64) (incidence rate ratio 1.78, 95% CI: 1.14–2.78). Table 4 provides a detailed description of these data.

Table 5 shows the secondary outcome data at patient level: scores on the 4DSQ and WHODAS II. There were no significant differences between the groups on the 4DSQ distress, anxiety and somatisation subscales; however, patients in the intervention group showed a significant additional reduction in depressive symptoms at the 3-month posttest (T1, effect size (ES) = 0.2;  $p < 0.05$ ).

**Table 2.** Baseline characteristics for GPs in the intervention and control group

Variables	Intervention group n = 23	Control group n = 23	p value
General practitioners			
Demographic characteristics			
- Mean (SD) age (years)	49.5 (9.6)	47.7 (9.1)	0.511
- Male (%)	65.2	43.5	0.139
- Clinical experience, mean no. of years (SD)	18.4 (10.2)	16.4 (9.3)	0.500
- Employment status (% ≥0.5 FTE)	95.7	100	0.312
- Trainer status (% yes)	60.9	34.8	0.077
Interest and attitudes towards depressive and anxiety disorders			
- Special interest in patients with anxiety and depressive disorders (% yes)	47.8	52.2	0.768
- DAQ mean score (SD)			
· Treatment attitudes	42.9 (5.6)	45.8 (8.3)	0.173
· Professional unease	45.4 (8.2)	44.5 (7.4)	0.708
· Depression malleability	38.4 (10.8)	41.8 (11.1)	0.302
· Depression identification	47.6 (8.8)	45.7 (13.1)	0.560
- REASON <sup>a</sup> mean score (SD)			
· Professional comfort with and competence in care of mental health problems	3.1 (0.4)	3.2 (0.5)	0.432
· GPs' concerns about problems with the health care system for treatment of anxiety and depression	4.5 (0.8)	4.3 (0.8)	0.641
Mean (SD) number of hours professional training on depression last year	2.8 (2.2)	3.4 (2.1)	0.408
Mean (SD) number of hours professional training on anxiety last year	2.0 (1.5)	2.5 (1.9)	0.290
Barriers to provision of health care <sup>b</sup> (% score 4, 5 or 6)			
- Perceived time limitations	65.2	60.9	0.760
- Perceived lack of knowledge and skills for the recognition of anxiety and depressive disorders	13.0	13.0	1.000
- Perceived lack of knowledge and skills for treatment of anxiety and depressive disorders	8.7	17.4	0.381
Barriers to implementation of guidelines <sup>c</sup>			
- Barriers for implementation of depression and anxiety guidelines, mean score (SD)	34.0 (4.3)	33.8 (4.0)	0.859
Collaboration with professionals in mental health services (% yes)			
- Mental health nurse in primary care	56.5	59.1	0.862
- Primary care psychologist	13.0	21.7	0.437
- Social workers	21.7	43.5	0.116
- Specialist mental health worker	4.4	9.1	0.524
Levels of burnout (UBOS-C, %)			
- Emotional exhaustion			0.038*
· Low level	39.1	69.6	
· Moderate level	61	30	
· High level	-	-	
- Depersonalisation			0.361
· Low level	17.4	21.7	
· Moderate level	65.2	73.9	
· High level	17.4	4.4	
- Personal accomplishment			0.741
· Low level	17.4	26.1	
· Moderate level	47.8	39.1	
· High level	34.8	34.8	

FTE full-time equivalent, DAQ Depression Attitude Questionnaire, UBOS-C Utrecht Burn-Out Scale for the Contractual professions.

\*p value <0.05; <sup>a</sup> REASON questionnaire: GPs' attitudes to their role in the management of anxiety and depressive disorders; <sup>b</sup> Based on a questionnaire developed at the Scientific Institute for Quality of Health Care; <sup>c</sup> The barriers and facilitators assessment instrument.

**Table 3.** Baseline characteristics of the intervention and control group given at patient level.

Variables Patients	Intervention group n = 198 <sup>b</sup>	Control group n = 246 <sup>c</sup>	p value
Sociodemographic characteristics			
- Mean (SD) age (years)	53.4 (15.6)	55.0 (16)	0.294
- Female	128 (64.7)	179 (72.8)	0.066
- Born in the Netherlands	185 (95.4), n = 194	233 (95.5), n = 244	0.948
- Married or living together	133 (68.6), n = 194	161 (65.7), n = 245	0.529
- In paid employment	77 (42.3), n = 182	83 (34.7), n = 239	0.112
- Level of education	n = 196	n = 244	0.647
· Low	102 (52.0)	123 (50.4)	
· Medium	48 (24.5)	69 (28.3)	
· High	46 (23.5)	52 (21.3)	
Clinical characteristics			
- Number of chronic medical conditions <sup>a</sup> (range: 0–28), mean (SD)	3.1 (2.1)	3.0 (2.2)	0.723
4DSQ distress score (range: 0–32), mean (SD)	12.4 (8.1), n = 193	11.9 (7.1), n = 240	0.431
4DSQ depression score (range: 0–12), mean (SD)	1.8 (2.8), n = 194	1.6 (2.7), n = 239	0.480
4DSQ anxiety score (range: 0–24), mean (SD)	3.2 (4.0), n = 194	2.8 (3.5), n = 238	0.273
4DSQ somatisation score (range: 0–32), mean (SD)	8.5 (5.9), n = 186	8.3 (5.9), n = 228	0.760

Values are numbers (percentages) unless stated otherwise.

4DSQ Four-Dimensional Symptom Questionnaire.

<sup>a</sup> Chronic medical condition was measured with the Dutch Central Bureau of Statistics (CBS) list;

<sup>b</sup> n = 198 unless stated otherwise; <sup>c</sup> n = 246 unless stated otherwise.

**Table 4.** Odds ratios for the variable recognition (primary outcome), prescribing antidepressants, referral to specialist mental health services and number of consultations after recognition (secondary outcomes), using mixed effects (logistic or Poisson) regression models on multiple imputed data

Outcome variable	Odds ratio	95% confidence interval	Test statistics and p value	Estimated proportion in control group	Estimated proportion in intervention group
Recognition (primary outcome)	1.60*	(1.01, 2.53)	z = 1.99, p = 0.047	0.31	0.42
Number of consultations	1.78*	(1.14, 2.78)	z = 2.52, p = 0.012	0.57 <sup>a</sup>	1.01 <sup>a</sup>
Prescribing antidepressants	1.07	(0.52, 2.19)	z = 0.19, p = 0.849	0.12	0.13
Referral to specialist mental health services	1.62	(0.72, 3.64)	z = 1.16, p = 0.247	0.05	0.08

All mixed effects models were estimated on multiple imputed data (20 datasets) having a multilevel data structure of 444 patients (lowest level) of 40 general practitioners (second level) of 23 practices (highest level).

\*p value <0.05; <sup>a</sup> For 'number of consultations', the incidence rate ratio (IRR) and incidence rates from the Poisson regression are displayed instead of an odds ratio (OR) and probabilities.

**Table 5.** Predicted mean of the 4DSQ and WHODAS II scores and effect size of patients from GPs receiving training, feedback and tailored interventions (intervention group, N = 198) or training and feedback (control group, N = 246) based on multilevel linear regression analysis on imputed data, from baseline to 3 and 6 months

Group	Baseline			3 months			6 months				
	Mean	95% CI	Mean	95% CI	ES	p value	Mean	95% CI	ES	p value	
Distress	Intervention	12.37	(11.08, 13.66)	11.16	(9.77, 12.56)	-0.0	0.912	10.49	(9.10, 11.87)	-0.1	0.235
	Control	11.86	(10.63, 13.09)	10.72	(9.48, 11.96)			10.76	(9.50, 12.01)		
Depression	Intervention	1.80	(1.40, 2.21)	1.27	(0.85, 1.69)	-0.2*	0.027	1.48	(1.04, 1.91)	-0.1	0.445
	Control	1.58	(1.20, 1.97)	1.52	(1.14, 1.91)			1.42	(1.03, 1.81)		
Anxiety	Intervention	3.14	(2.51, 3.78)	2.65	(2.01, 3.30)	-0.0	0.847	2.38	(1.73, 3.03)	-0.1	0.141
	Control	2.77	(2.15, 3.40)	2.33	(1.71, 2.96)			2.40	(1.78, 3.03)		
Somatisation	Intervention	8.51	(7.61, 9.41)	8.58	(7.65, 9.52)	+0.1	0.284	8.74	(7.78, 9.69)	-0.1	0.065
	Control	8.25	(7.41, 9.09)	7.85	(7.00, 8.70)			7.61	(6.75, 8.48)		
WHODAS II	Intervention	25.82	(23.59, 28.06)	24.32	(22.01, 26.63)	+0.1	0.245	21.41	(19.07, 23.75)	-0.1	0.293
	Control	23.57	(21.57, 25.57)	20.68	(18.65, 22.71)			20.39	(18.36, 22.42)		

4DSQ Four-Dimensional Symptom Questionnaire, WHODAS II World Health Organisation's Disability Assessment Scale II, ES effect size of pretest-posttest-control group design using pooled pretest standard deviation.

\*p < 0.05, where p is the significance level of the group x time interaction term.

**Table 6.** Predicted mean QUOTE scores and effect size of patients from GPs receiving training, feedback and tailored interventions (intervention group, N = 198) or training and feedback (control group, N = 246) based on multilevel linear regression analysis on imputed data, from baseline to 3 and 6 months

Group	Baseline			3 months			6 months				
	Mean	95% CI	Mean	95% CI	ES	p value	Mean	95% CI	ES	p value	
Accessibility of care	Intervention	3.68	(3.45, 3.92)	3.61	(3.35, 3.87)	+0.2	0.263	3.72	(3.44, 4.00)	+0.4*	0.038
	Control	3.49	(3.25, 3.73)	3.25	(2.98, 3.51)			3.19	(2.92, 3.46)		
Emotional support	Intervention	3.04	(2.86, 3.22)	3.05	(2.84, 3.25)	+0.2	0.341	3.21	(2.99, 3.44)	+0.3	0.143
	Control	3.10	(2.93, 3.27)	2.96	(2.76, 3.16)			3.04	(2.83, 3.24)		
Patient-centred care	Intervention	3.29	(3.14, 3.44)	3.21	(3.04, 3.38)	+0.2	0.294	3.31	(3.12, 3.50)	+0.1	0.642
	Control	3.28	(3.14, 3.42)	3.07	(2.91, 3.23)			3.23	(3.07, 3.40)		
Quality of care	Intervention	2.84	(2.66, 3.02)	2.85	(2.64, 3.06)	+0.1	0.599	3.03	(2.81, 3.26)	+0.1	0.525
	Control	2.86	(2.68, 3.04)	2.80	(2.60, 3.00)			2.96	(2.75, 3.16)		
Information and advice	Intervention	3.21	(3.03, 3.38)	3.12	(2.92, 3.32)	+0.0	0.842	3.48	(3.26, 3.70)	+0.5*	0.013
	Control	3.29	(3.12, 3.45)	3.17	(2.98, 3.37)			3.18	(2.98, 3.38)		
Self-help advice	Intervention	2.77	(2.57, 2.97)	2.85	(2.62, 3.09)	+0.1	0.649	2.99	(2.73, 3.24)	+0.2	0.311
	Control	2.86	(2.67, 3.06)	2.87	(2.64, 3.09)			2.89	(2.66, 3.12)		

QUOTE Quality Of care Through the Eyes of the patient, ES effect size of pretest-posttest-control group design using pooled pretest standard deviation.  
\*p < 0.05, where p is the significance level of the group x time interaction term.

Table 6 shows the data on patients' perceptions of the care they received from their GP for mental health problems. Patients in the intervention group reported significantly more positive experiences of the accessibility of care (ES = 0.4;  $p < 0.05$ ) and better provision of information and advice (ES = 0.5;  $p < 0.05$ ) at 6 months than patients in the control group. There were no significant differences between the intervention group and control group in the other four domains (providers' emotional support, degree to which care is patient-centred, quality of care, guidance on self-help).

## DISCUSSION

### Statement of principal findings

The results of this study indicate that a tailored intervention was significantly more effective in improving recognition of anxiety and depression in general practice than training and feedback alone. GPs in the intervention group had more frequent consultations with patients whose anxiety and depression had been recognised than GPs in the control group, although this did not lead to more frequent prescription of antidepressants or referral to specialist mental health services. In addition, patients of GPs in the intervention group showed an additional reduction in depressive symptoms at 3 months compared with patients in the control group. However, no significant difference in depressive symptoms was found at 6 months. Patients of GPs in the intervention group also reported significantly more positive experiences of the accessibility of care and better provision of information and advice than patients of GPs in the control group. No significant differences between the groups were found on the other secondary outcomes.

### Strengths and limitations

The use of a systematic intensive tailored intervention to improve the recognition diagnosis and treatment of anxiety and depression in general practice was an important strength of this study. The study also had some limitations. Firstly, the primary outcome was the recognition by GPs of anxiety or depression in patients who had screened positive on the EK-10. The EK-10 is the preferred instrument for screening for anxiety and depressive disorders in general practice; however, about one third of all patients who screened positive on the EK-10 had low 4DSQ scores, indicating that they had few symptoms and were in fact not suffering from anxiety or depression. The EK-10 has a specificity of 0.75 for detecting any depressive and/or anxiety disorder. As a consequence, patients may be included while they did not have an anxiety or depressive disorder. Given the recruitment strategy used in our study (all adult patients from the included general practices who visited their GP) and a low mean score on the 4DSQ for patients screening positive on EK-10, the subgroup of patients with mild symptoms might have affected the rate of GP recognition of anxiety and depression and the impact of clinical management. Besides, assuming that the population only included positive screens, it is not clear whether the intervention

led to over recognition and false positives. Besides, the relatively small number of patients who could be screened (compared to the large numbers who were approached for screening) and that almost half of these patients screened positive might indicate selection bias. Secondly, patients started to enter the study about 4 months after the start of the tailored intervention. The intervention may have been more effective for patients when they were included after the tailored intervention was finished, because at this point, GPs would have been exposed to the intervention for longer and would have had opportunity to change their professional practice. Thirdly, six GPs in the intervention group who did not receive the tailored intervention were included due to the intention to treat principle; the patients of these GPs received 'treatment as usual', i.e. the same treatment as the control group, diluting potential differences between the conditions.

Finally, the effect of the intervention on patient outcomes is unclear, because the study focused on GP performance.

#### **Comparison with existing literature**

A previous RCT compared the effectiveness in overcoming obstacles to change in the implementation of guidelines for depression in general practice of a tailored intervention based on psychological theories and simple dissemination of the guidelines (22). The tailored intervention was delivered once and results showed that it increased adherence to some of the guideline recommendations. In our study, the tailored intervention included provision of one-to-one telephone consultations every 2 months for 1 year. This enabled the provision of dynamic feedback; whenever strategies for overcoming barriers did not appear to be succeeding, new solutions were developed and discussed with the GP during the next consultation. It was hoped that this dynamic feedback loop would maximise the effectiveness of the tailoring process. In another RCT, the effectiveness of an intervention to reduce barriers to GPs' adherence to recommended standards for recognition and management of late-life depression was assessed (21). GPs in the intervention group received patient-specific treatment recommendations in three special visits; GPs in the control group received no intervention. The results showed that GPs in the intervention group were more likely to diagnose depression and prescribe antidepressants, but no effect on patient outcomes was detected. In this study, all GPs received the same intervention, unlike our study where the specific content of the intervention was tailored to the individual GP.

A systematic review of tailored interventions targeting identified barriers to change concluded that tailored interventions are more likely to improve professional practice than no intervention or simple dissemination of guidelines. Our study indicates that training, feedback and a tailored intervention are more effective than training and feedback. However, reviews have shown that educational meetings and feedback can also improve professional practice (24,25).

### Interpretation of the findings and implications for future research

Tailored interventions have been suggested to be a promising approach to improve adherence to guidelines relating to recognition and management of anxiety and depression in general practice. Our study adds to the evidence supporting the use of such interventions. However, despite the increased recognition and the provision of more consultations by GPs in the intervention group, no effect was seen on the reduction of symptoms and improvement of functional status. Possible explanations can be the following: the effect of treatment is too small to establish, GPs' treatment cannot improve the natural course and the treatment is not effective.

In our study, patients with minor symptoms of anxiety and depression were included. Future research could focus on determining the effectiveness of the tailored intervention for patients presenting with more severe symptoms of anxiety and depression in primary care.

Tailored interventions may be a solution to improve the uptake of guideline recommendations for anxiety and depression in general practice, but more research is needed before large-scale tailored implementation can be recommended. Also, the cost-effectiveness of the tailored intervention should be studied.

### Conclusions

We described the effect of a tailored intervention on adherence to recommended diagnostic procedures and treatment for patients with suspected anxiety and depression. Our study showed that a tailored implementation programme may enhance the recognition of patients with anxiety or depression. Further development of the programme is advisable and to determine the cost-effectiveness.

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**Additional file 1****COVARIATES IN THE ANALYSES**

Owing to the small number of clusters it was possible that the randomisation procedure would produce systematic group differences, we therefore collected data on a range of GP and patient characteristics (Tables 1, 2, 3) that might be related to reported outcomes. All these data were self-reported.

GPs' attitudes to anxiety and depression were measured with the Depression Attitude Questionnaire (DAQ) (1) and with the REASON questionnaire (2). The DAQ measures GPs' interest in and attitudes to depressive and anxiety disorders; respondents are asked to indicate the degree to which they agree or disagree with statements based on their day-to-day clinical experience. The DAQ consists of subscales: treatment attitude (high scores indicate a preference for antidepressant drugs, low scores for psychotherapy); professional unease (high scores indicate discomfort in dealing with depressed patients, perception that treating depression is unrewarding and that patients would be better off being managed by a specialist); depression malleability (high scores indicate pessimism about one's ability to modify the course of depression) and depression identification (high scores indicate difficulty in differentiating depression from unhappiness and that there is likely to be little additional benefit beyond a GP's own treatment). The REASON measures GPs' attitudes to their role in the management of patients with depressive and anxiety disorders, and comprises two subscales: (i) professional comfort with and competence in care of mental health disorders (low scores indicate comfort and competence) and (ii) GPs' concerns about problems with the health care system for management of anxiety and depression (low scores indicate concerns about difficulties).

Barriers to providing effective healthcare for patients with depressive or anxiety disorders were assessed by three items based on a previously developed questionnaire (3). Responses were measured on a six-point Likert scale ranging from 1 (not at all) to 6 (to a very great extent). Perceived barriers to implementation of the depression and anxiety guidelines were measured with a barriers and facilitators assessment instrument (4) which asks respondents to rate items on a five-point Likert scale, ranging from 1 (completely disagree) to 5 (completely agree); a total score was calculated by summing the scores for individual items. GPs' levels of burnout were measured using the Utrecht Burn-Out Scale for the Contactual professions (UBOS-C) (5). The UBOS-C comprises 20 items divided into three subscales: emotional exhaustion; depersonalisation and personal accomplishment.

We used four criteria to estimate possible differences between the groups in terms of GP characteristics (cluster level) and patient characteristics (individual level): (1) the variable is a possible confounder based on previous research or theory; (2) the

intervention group and the control group demonstrated substantial differences at baseline with regard to this variable, regardless of the p-value of the difference; (3) the variable was substantially associated with the outcome measurement at follow-up (high predictive value); (4) the effect size of the intervention changed substantially (Cohen's  $d > 0.2$ , corresponding to an odds ratio  $> 1.44$ ) (6) after inclusion of the variable in the regression model, regardless of the p-value. Any variable which fulfilled all four criteria would be defined as a covariate. No covariates were identified using this procedure.

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**Additional file 2****THE COST PER ONE ADDITIONAL RECOGNISED PATIENT****Costs**

An economic evaluation was conducted to estimate the cost effectiveness of the tailored intervention from a societal perspective. Cost-effectiveness was determined by calculating the cost of medical treatment, costs associated loss of productivity using the Trimbos institute Medical Technology Assessment questionnaire for Costs associated with Psychiatric Illness (TiC-P) (1). Data were collected at baseline (T<sub>0</sub>), and 3 (T<sub>1</sub>) and 6 (T<sub>2</sub>) months later. An incremental cost effectiveness ratio was calculated to determine the cost per one additional recognised patient.

The TiC-P covers 3 cost categories: direct medical costs, direct non-medical costs, and indirect non-medical costs. Direct medical costs relate to the utilisation of health care services. To calculate these costs, health service units were multiplied by the standard full economic cost given in the Dutch guidelines for economic evaluations of healthcare for 2010 (2). Costs for prescription of psychotropic drugs (e.g. antidepressants, benzodiazepines and antipsychotics) were calculated from price per standard daily dose given in the Dutch Pharmacotherapeutic Compass, the number of prescription days and pharmacists' dispensing costs (assumed to be €14 per prescription) (3).

Direct non-medical costs encompassed the cost of patient travel to receive professional help and loss of leisure time (valued at €12.66 per hour) (2) and informal caregivers' time e.g. friends, neighbours, family running errands for participants (valued at €12.66 per hour) (Table 1). The cost of loss of productivity (indirect non-medical costs) was calculated based on days of absence from paid work (absenteeism) and an estimate of days working with reduced efficiency (presenteeism) (2).

The incremental cost effectiveness ratio was calculated by dividing incremental costs by incremental effects. Cost-utility and the per-participant intervention cost were estimated. Intervention costs comprised: fees for the interviewers and researchers' activities during the tailoring process, the one-day training session and provision of feedback; material costs for the one-day training session and cost of GP time for the one-day training session, interviews, peer group supervisions and telephone consultations. Researchers activities were added because when the tailored intervention is implemented in practice, these costs will be incurred by the person who will identify barriers and tailor interventions. The intervention costs were different for the intervention and control groups.

**Cost effectiveness analyses**

The cost-effectiveness analyses were conducted using Stata version 11 (StataCorp LP, College Station, Texas, USA) and Excel. Missing values for medical costs and quality of life scores were imputed using multiple imputation. Twenty imputed datasets

**Table 1.** Direct medical and direct non-medical costs by health service type

Health service type	Direct medical costs		Direct non-medical costs		
	Unit	Unit cost price <sup>a</sup> (€)	Distance (km) <sup>b</sup>	Time (h) <sup>b</sup>	Unit cost price <sup>c</sup> (€)
General practitioner	Contact	28.35	1.1	1	15.69
Company doctor <sup>d</sup>	Contact	28.35	17.6	0.5	9.89
POH-GGZ General practitioner	Contact	57.72	5	2	29.36
Social worker	Contact	65.80	5	2	29.36
Private practice psychotherapist, psychiatrist	Contact	91.14 <sup>e</sup>	7	2	29.77
Alcohol and drug consultant (CAD)	Contact	173.12	10 <sup>f</sup>	3	42.73
Regional mental health service	Contact	173.12	5	3	41.72
Physiotherapist	Contact	36.45	2.2	2	28.80
Mental hospital	Contact	175.19	7	3	42.43
Medical specialist general hospital	Contact	64.79	7	3	42.43
Medical specialist academic hospital	Contact	130.59	7	3	42.43
Alternative treatment <sup>g</sup>	Contact	51.44	5	1	16.70
Social Psychiatric Nurse	Contact	81.01	1.1	1	15.91
Home care	Hour	35.44	NA	NA	NA
Informal care (family, friends) <sup>h</sup>	Hour	12.66	NA	NA	NA

<sup>a</sup> Integral unit cost prices (Hakkart-van Roijen et al. 2010) presented in 2010 € (with 1€ 2009 = 1.0127€ 2010).

<sup>b</sup> Based on average distances (in special tariff taxi and public transport zones) and travel + waiting + treatment times (in hours) for receiving treatment (Hakkart-van Roijen et al. 2010).

<sup>c</sup> Costs =  $(0.2 \times \text{km}) + 3 + (12.66 \times \text{hrs})$ . With €0.20 = cost per km; €3 = 1 h parking time; €12.66 = 1 h time (Hakkart-van Roijen et al. 2010) presented in 2010 €.

<sup>d</sup> No parking costs assumed.

<sup>e</sup> Own calculation, valued as average of private practice psychotherapist and psychiatrist (Hakkart-van Roijen et al. 2010).

<sup>f</sup> Assumed as CAD were more dispersed than regional mental health services.

<sup>g</sup> Own calculation, valued as average of homoeopath and acupuncturist (Hakkart-van Roijen et al. 2010).

<sup>h</sup> Valued as domestic help (Hakkart-van Roijen et al. 2010).

were created with SPSS version 20 using fully a conditional specification and predictive mean matching. The mean total costs per participant per month for each of the groups were calculated at baseline (T<sub>0</sub>), after 3 months (T<sub>1</sub>) and at the 6-month follow-up (T<sub>2</sub>). Incremental costs were calculated as the between-group difference at follow-up (6 months).

Both incremental costs and incremental effects were used to calculate the ICER. The ICER was calculated as  $(C_i - C_o)/(E_i - E_o)$ , where  $C$  is the average per patient cost over a 6-month time frame,  $E$  is the proportion of patients who were recognised by the GP having anxiety or depression and the subscript indicates the group ( $o$  = control group). The ICER gives the incremental cost of recognising depression or anxiety in one extra patient.

Non-parametric bootstrapping in Excel was used to simulate 2500 ICERs that were plotted on the cost-effectiveness plane. In this way, the degree of uncertainty associated with the ICER was captured.

### Sensitivity Analysis

The accuracy of the estimated per-participant costs is uncertain. To ascertain the robustness of the overall findings the analyses were repeated for four alternative scenarios: (i) excluding the patients with extreme values (outliers) for monthly total cost at baseline groups (exploratory, not pre-specified); (ii) the highest mean total cost (pre-specified), (iii) the lowest mean total cost (pre-specified), and (iv) excluding patients' from the 6 GPs in the intervention group who did not receive the tailored intervention (not pre-specified). These scenarios were selected because substantial differences between them might affect the final conclusion.

### Economic evaluation

Table 2 shows the costs associated with the various components of the control and intervention groups at baseline and at the 6-month follow-up. At baseline, the mean

**Table 2.** Cost distribution by groups at baseline and 6-month follow-up

Group	Test time costs <sup>1</sup>	
	Baseline, € (SD) (95%CI)	6-month follow-up, € (SD) (95%CI)
Control group (n=246)		
- Direct medical costs (incl. medication costs)	270.34 (431.70) (216.13-324.56)	192.16 (286.56) (156.17-228.14)
- Direct non-medical costs	112.08 (131.95) (95.51-128.65)	76.12 (111.87) (62.07-90.17)
- Productivity losses <sup>2</sup>	348.43 (975.66) (225.90-470.96)	237.99 (905.51) (124.27-351.70)
- Intervention costs	NA <sup>4</sup>	215.22
- Total costs <sup>3</sup>	730.85 (1147.07) (586.80-874.90)	721.49 (1057.87) (588.63-854.33)
Intervention group (n=198)		
- Direct medical costs (incl. medication costs)	282.88 (311.05) (239.29-326.48)	248.93 (334.66) (202.03-295.83)
- Direct non-medical costs	115.56 (124.33) (98.13-132.98)	93.11 (118.80) (76.47-109.77)
- Productivity losses <sup>2</sup>	588.64 (1459.73) (384.06-793.22)	312.20 (894.49) (186.84-437.56)
- Intervention costs	NA <sup>4</sup>	500.72
- Total costs <sup>3</sup>	987.08 (1596.15) (763.38-1210.78)	1154.96 (1076.10) (1004.15-1305.78)

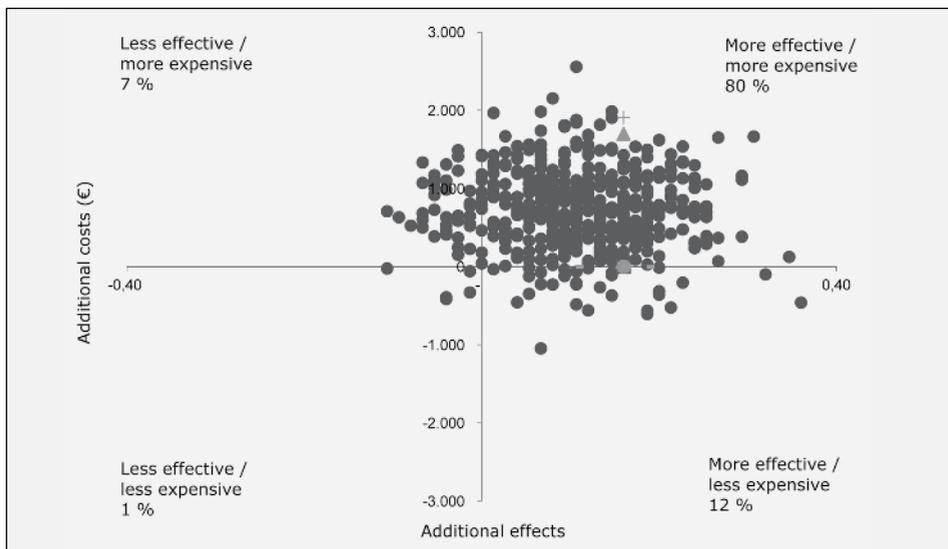
<sup>1</sup> Mean costs on monthly basis presented in 2010 values; <sup>2</sup> Presenteeism, absenteeism, all relate to productivity losses; <sup>3</sup> Total costs are the sum of the other cost components. Differences in the totals are due to rounding; <sup>4</sup> NA: not applicable

total cost per participant per month was €730.85 (SD 1147.07) in the control group and €987.08 (SD 1596.15) in the intervention group;  $p=0.06$ . The main difference between the groups at baseline was in costs associated with loss of productivity.

The mean total cost per participant over a 6-month time frame was estimated to be €1,734 in the control group and €2,463.45 in the intervention group, giving an incremental cost per participant per 6-months of €729=€2,463.45-€1,734 (rounded to the nearest Euro).

The difference in effectiveness was  $0.42 - 0.31 = 0.11$  (incremental effectiveness), where 42% of the patients were recognized in the intervention group compared to 31% in the control group. Giving an estimated mean ICER of €6,807=€729/0.11 (after rounding) for recognition of anxiety or depression in one additional patient (95% CI: €-273,002 - €336,608). Using the 2500 bootstraps, the median ICER was estimated to be €5,725, an essentially similar finding.

On the incremental cost-effectiveness plane (Figure 1), each data point represents one simulated ICER. Eighty percent of the simulated ICERs fall in the northeast quadrant, indicating that there is a 80% chance that GPs who receive the tailored intervention will recognise patients with anxiety or depression more often, but at additional cost. Twelve percent of simulated ICERs fall in the southeast quadrant, indicating a 12% chance that GPs who received the one-day training session and feedback will recognise patients with anxiety or depression more often, with less additional cost. The remainder of the simulated ICERs fall on the western side of the plane, indicating reduced effectiveness and lower costs (1%), or reduced effectiveness and higher costs (7%).



**Figure 1.** Distribution of bootstrapped incremental cost effectiveness ratios (ICERs) ( $n=2500$ ) on the cost effectiveness plane, primary analysis

**Table 3.** Sensitivity analysis of the incremental cost-effectiveness for different scenarios over a 6-month time frame

	Tailored implementation programme € (95%CI)		Alternative Scenarios <sup>1</sup> € (95%CI)			
	A	B	C	D		
Incremental cost-effectiveness ratio (ICER) <sup>2</sup>	6,807 (-273,002-336,608)	5,001 (-293,358-361,275)	7,732 (-305,208-384,448)	6,369 (-297,616-370,617)	6,681 (-314,555-395,198)	
Incremental Effectiveness	0.11	0.11	0.11	0.11	0.10	
Incremental cost-effectiveness ratio (ICER), median € <sup>3</sup>	5,725	4,492	6,739	5,596	5,560	
Distribution on the cost-effectiveness plane (percent of the simulated ICER)						
	Tailored implementation programme		Alternative Scenarios <sup>1</sup>			
	A	B	C	D		
1st quadrant (northeast)	0.80	0.77	0.84	0.80	0.80	
2nd quadrant (inferior: northwest)	0.07	0.06	0.06	0.07	0.07	
3rd quadrant (southwest)	0.01	0.01	0.01	0.01	0.01	
4th quadrant (dominant: southeast)	0.12	0.16	0.09	0.12	0.13	

<sup>1</sup> Intervention costs included in the estimation are respectively: (A) excluding outliers (B) the highest average per patient cost over a 6-month time frame; (C) the lowest average per patient cost over a 6-month time frame; (D) without the inclusion of patients' from the 6 GPs in the intervention group who did not receive the tailored intervention.

<sup>2</sup> Mean cost for an additional recognition at 2010 prices.

<sup>3</sup> Median is 50th percentile of 2500 bootstrap replications of the ICER.

The difference between the control group and intervention group at baseline was caused by a few respondents with extreme values for monthly total cost ( $n=5$ :  $n=4$  in the intervention condition and  $n=1$  in the control condition). When these outliers were dropped from the analysis the mean total cost per participant per month was €702.14 in the control group and €840.26 in the intervention group;  $p=0.207$ . The mean ICER was estimated to be €5,001=€542/0.11 (after rounding) per additional recognised patient. Using the 2500 bootstraps, the median ICER was €4,492, an essentially similar finding to the primary analysis. A sensitivity analysis, encompassing the highest total cost per participant over a 6-month time, the lowest mean total cost per participant over a 6-month time frame, and the exclusion of patients' from 6 GPs who did not receive the tailored intervention did not affect the overall conclusion that GPs who receive the intervention are more likely to recognise patients with anxiety or depression; but this incurs additional costs (Table 3).

### **Statement of principal findings**

Cost effectiveness analysis showed that the incremental cost was €6,807 for each additional recognised patient in the intervention group. Sensitivity analyses confirmed the robustness of these findings.

Regarding the economic evaluation our study illustrates the importance of considering cost-effectiveness: tailoring requires additional resources, which should be offset by additional effects. Because of the relatively short duration of the data collection phase (6 months), it is unknown how the cost-effectiveness of the tailored intervention changed over longer periods. Tailored interventions may be a solution to improve the uptake of guideline recommendations for anxiety and depression in general practice but more research is needed before large scale tailored implementation can be recommended. Also the cost-effectiveness of the tailored intervention should be studied.

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## CHAPTER 6

# Systematic tailoring for the implementation of guideline recommendations for anxiety and depressive disorders in general practice: perceived usefulness of tailored interventions

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## ABSTRACT

**Background:** The uptake of guideline recommendations in general practice can potentially be improved by designing implementation interventions that are tailored to prospectively identify barriers. However, there is insufficient evidence regarding the most effective and efficient approaches to tailoring. Our study provides an insight into the usefulness of tailored interventions to prospectively identified barriers affecting the uptake of guideline recommendations for anxiety and depressive disorders experienced by general practitioners (GPs) in their local context.

**Methods:** A qualitative study was conducted, in which 23 GPs gave informed consent and 14 finally participated. To explore the barriers affecting the uptake of guideline recommendations, a face-to-face interview was conducted with each GP to generate a personalised list. In response to this list, interventions were tailored to remove the barriers experienced by the GPs. To examine the perceived usefulness of the tailored interventions, telephone interviews were conducted after one year and coded through thematic coding. The analysis was descriptive in nature.

**Results:** The most frequently perceived barriers were: a lack of knowledge and skills, no agreement on guideline recommendations, negative outcome expectancy, low self-efficacy, no consensus with patients, and a lack of information about treatments provided by mental health professionals, together with waiting lists. The tailored interventions 'peer group supervision' and 'individualised telephone consultations' were perceived as useful by most GPs. Besides the tailored interventions, a perceived benefit of using a self-rating scale, measuring depressive and anxiety symptoms, and the idea of delivering better patient care, were supportive in the uptake of guideline recommendations.

**Conclusions:** Our findings suggest that tailoring interventions to prospectively identified barriers, affecting the uptake of guideline recommendations for anxiety and depressive disorders, as perceived by GPs, may enhance the implementation of these guideline recommendations.

## BACKGROUND

In different countries, clinical practice guidelines for anxiety and depressive disorders are available in primary and secondary care (1-5). These guidelines provide recommendations on the recognition, diagnosis and the treatment of anxiety and depressive disorders. The management of anxiety and depressive disorders by General Practitioners (GPs) is not always consistent with prevailing guidelines. A variety of factors can affect the uptake of guideline recommendations. These factors are related to four levels: the patient level, the professional (GP) level, the organisational level and the social level (6-13). Patients do not always recognize themselves that they have a psychological problem and present mainly somatic symptoms. In addition, despite their psychological symptoms or diagnosis, patients may not perceive need for care. With respect to the level of the GPs, barriers may be for example, struggle to distinguish between 'normal' distress and depression requiring treatment and no agreement on making a diagnosis. With respect to the organisation level identified barriers may be insufficient collaboration with mental health professionals, and waiting lists for specialty mental health care. Finally, with respect to the social level barriers may be for example limited financial incentives. In addition, some recommendations in the guidelines have less support from research evidence, or may be perceived as being less attractive. It is important to overcome these factors, because enhancing guideline adherence yields to superior outcomes, is cost-effective, and leads to the reduction of the burden of the disease and to improved social functioning (14-16). Several theories and models are available which explain the factors that may influence the implementation of change in health care: namely, those related to individual professionals, the social environment and the healthcare system. Most theories propose that implementation interventions are most effective, if they address the most important barriers for improvement in the targeted setting (17).

At the start of our study, we hypothesised that the uptake of guideline recommendations, and consequently the improvement of patient outcomes, can be achieved by designing implementation interventions that are tailored to identifiable barriers affecting the uptake of guideline recommendations in the local context of GPs (17,18). Several randomised controlled studies have investigated the impact of tailored interventions to improve the quality of care (18). Because the tailoring methods used in these studies are heterogeneous, there is insufficient evidence of the most effective and efficient approaches to tailoring, including how barriers should be identified and how interventions should be selected to address these barriers (17).

In the present qualitative study, we provide an insight into the local barriers associated with the uptake of guideline recommendations for anxiety and depressive disorders experienced by GPs, and the usefulness of tailored interventions to these prospectively identified barriers. We focused on the guideline recommendations for the recognition and diagnosis of the disorders, for stepped care treatment allocation,

and for the provision of information to patients. The research questions were: i) What were the barriers affecting the uptake of guideline recommendations for patients with anxiety and depressive disorders as perceived by GPs? and, ii), What was the perceived usefulness of the offered tailored interventions, peer group supervision and telephone consultation, to implement the guideline recommendations?

## METHODS

### Study design

The study was conducted parallel to a cluster randomised controlled trial (RCT) of tailored interventions, to improve the management of anxiety and depressive disorders in primary care (NTR1912) (19). For the selection of participants, we refer to the study protocol. Cluster randomisation was applied at the level of the general practice organisation. A total of 23 general practices were included; 11 practices (23 GPs) were allocated to the control group and 12 practices (23 GPs) to the intervention group. All GPs received an educational intervention; including one day of training, written information and a flowchart for the recognition and treatment of anxiety and depressive disorders, according to the stepped care approach, at the start, and with feedback at six months. Only GPs who were randomised to the intervention group participated in the present study. All GPs gave informed consent, after anonymity and confidentiality was assured. A qualitative evaluation design was used to explore the perceived barriers associated with the uptake of guideline recommendations, and the perceived usefulness of the tailored interventions offered in response to the barriers.

### Clinical guidelines

The focus was on the uptake of the following four key guideline recommendations for anxiety and depressive disorders:

1. *The recognition of high-risk patients for anxiety or depressive disorders with the Four-Dimensional Symptom Questionnaire (4DSQ).* The principal aim of the 4DSQ is to distinguish between stress-related syndromes (denoted as ‘stress’, ‘burnout’, ‘nervous breakdown’) and psychiatric disorders (i.e. depression and anxiety disorders) (20). The 4DSQ is a self-rating questionnaire measuring the four dimensions of common psychopathology: distress, depression, anxiety and somatisation. The Anxiety Scale contains 12 items and has a range of 0–24; a score  $\geq 9$  on the anxiety subscale is an indication of a probable anxiety disorder diagnosis. The Depression Scale contains 6 items and has a range of 0–12; a score  $\geq 6$  on the depression subscale is an indication of a probable depressive disorder diagnosis.
2. *To diagnose an anxiety disorder or a depressive disorder in the case scores on the 4DSQ subscales indicate this.* An appropriate diagnosis included an assessment of the severity of the disorder, registered as simple or complex in the case of an anxiety

- disorder, and mild or severe in the case of a depressive disorder. The severity of the disorder is assessed on the basis of the number and the nature of symptoms, general functioning, the course of the illness, the risk of relapse and comorbidity.
3. *Stepped care allocation.* Based on the severity of the disorder, treatment was to be offered according to a stepped care algorithm; starting with the least intensive treatment that was still expected to generate effects. Patients with a simple or mild disorder were to be offered interventions of low intensity. More intensive treatment options would be appropriate for patients who do not successfully respond to low-intensity interventions and for patients with a complex or severe disorder.
  4. *Proper psycho-education on anxiety and depressive disorders.* GPs had to provide information to patients on diagnosis and stepped care treatment options for anxiety and depressive disorders.

### **The tailoring process**

The tailored intervention consisted of two parts. First, barriers associated with the uptake of guideline recommendations experienced by the GPs were identified during face-to-face interviews. For this purpose, an interview guide was developed by four researchers (DV, MW, GF, and HS). The interview was based on previously published barriers associated with the uptake of guideline recommendations for depressive and anxiety related disorders (8,10,21,22). The interview guide contained the following categories of barriers: i) an attitude regarding the guideline recommendations; ii) knowledge and skills; iii) time constraints; iv) the patients opinion and behaviour as perceived by the GPs, and v) the collaboration with mental health professionals. Beside, one open-ended question was included to gain insight in other barriers.

The interviews were held at the baseline of the RCT and yielded a barrier list for each GP. The second part of the tailored intervention was aimed at overcoming the identified barriers, during the implementation process of the guideline recommendations. The tailored interventions consisted of 'peer group supervision' and 'individualised telephone consultation' tailored to the local barriers. Peer group supervision was provided by a GP on two instances and focused on the barriers as experienced concerning knowledge and skills, and the opinion and the behaviour of patients as perceived by the GPs. The content of the telephone consultation was developed by the researchers (BT, MW, AB, GF, and HS) and provided by the interviewers, every two months, for 15 minutes, throughout one year (from June 2010 until June 2011). In the phone call, the interviewers mapped the local implementation processes, fed this information back to the researchers, and offered advice to the GPs in return during the follow-up call. Whenever solutions to barriers did not appear to be successful, new solutions were developed and discussed with the GP during the next contact. With this 'continuous' feedback loop between the researchers, the interviewers, and the GPs, we tried to optimise the tailoring process.

**The interview team**

The interviews were carried out by three female interviewers, two with a nursing background and one with a psychology background, and working as non medical quality improvement professionals in general practice. In the Netherlands it is common that non medical professionals support the GPs in general practice to improve the quality of care. Each interviewer was assigned to four general practices and had two principle tasks: to interview the GP and feed back the advice provided by the research team to the GP. Prior to the study, the interviewers were trained by the research team to execute the aforementioned tasks. First, to obtain insight in the experienced barriers associated with the uptake of guideline recommendations the interviewers were trained by conducting one interview each under life-supervision of BT with a GP who did not participate in the study. Second, to feed back the tailored interventions we had two meetings with the interviewers (one with AB and HS and one with BT and HS) to discuss how tailored interventions should be fed back. Third, to optimize the telephone interviews, to obtain insight in the usefulness of the tailored interventions, two meetings were held with the interviewers (one with JL and HS and one with JL). The interviewers and researchers discussed the findings and the interviewers received feedback to conduct the next interviews. In the first meeting the interviewers indicated difficulty in performing two tasks. GPs were open in how they experienced the tailored interventions and particularly the negative comments felt as a condemnation, because the interviewers had offered the interventions and support. Accordingly, in the next interviews the interviewer interviewed the GPs which she had not offered tailored interventions. As a consequence, the interviewers felt more open to ask questions to experiences.

**Data collection**

Data collection consisted of in-depth face-to-face interviews and in-depth telephone interviews with GPs. The face-to-face interviews were conducted in the general practice, prior to the tailoring of interventions, to get an insight into the barriers associated with the uptake of guideline recommendations (from May 2010 till August 2010). The interviews lasted for about 45 minutes, were digitally recorded, and then summarised in writing by the interviewers. To check the quality of the reports, three recorded interviews, from three different interviewers, were transcribed verbatim, and compared with the written reports by the principal investigator (HS). The reports appeared to be a good and satisfactory reflection of the conversation; therefore, the other digitally recorded interviews were not transcribed verbatim.

In-depth telephone interviews, to get insights of the perceived usefulness of the offered tailored interventions, followed a year after the delivery of the tailored interventions (from May 2011 till August 2011). For these telephone interviews, a topic list was developed for each GP (BT, HS) that consisted of questions related to barriers indicated previously by the GP, to the tailored interventions offered in response to the barriers, to the factors that might have influenced the implementation process,

and finally, to the impact of the changes on patient care as perceived by the GPs. All of the telephone interviews lasted 30 minutes and were digitally recorded and transcribed verbatim.

### **Data analysis**

Data from the face to face interviews was categorised, following the barriers listed in the interview guide: attitude; knowledge and skills; time constraints; patient's opinion and behaviour, and collaboration with mental health professionals. From these categories, sub-categories were derived. For example, 'a lack of agreement about the diagnosis' and 'a lack of self-efficacy', were gained as the sub-categories from 'attitude'. New themes mentioned by the GPs such as 'availability of treatment' were added to our analysis. Others, such as 'financial structures' were not, since tailoring interventions to financial barriers was beyond the scope of our study. A mid-term analysis was conducted after four and after eight interviews, to generate an in-depth understanding that could be used in future interviews.

Data from the telephone interviews was coded through thematic coding, using the qualitative data analysis software programme MAXQDA 2007 (23). The interview transcriptions were coded independently by two raters (HS and JL) and reflective notes were written to gain distance from the data. Constant comparative techniques were used to ascribe text extracts to the themes (24). After the first eight interviews, similarities and differences between the researchers' interpretations were discussed. Based upon agreements, a code-tree was developed and used for the analysis of the remaining interviews. The main categories in the code-tree were 'supportive' and 'not supportive' in the uptake of guideline recommendations. Text was coded to the category 'supportive' when the GPs mentioned that the offered tailored interventions were supportive, and when factors positively influenced the change process. New categories, derived from the data, were 'the perceived benefit of using the 4DSQ' and 'the idea of delivering better patient care'. The analysis was descriptive in nature.

## **RESULTS**

### **Participant characteristics**

The sample consisted of 23 GPs, 8 women and 15 men. The mean age for women was 45 years with a standard deviation of 10 (range 36–59 years). The mean age for men was 52 years with a standard deviation of 9 (range 29–63 years). Six GPs had solo practices and the others worked with other GPs in the same practice, with a maximum of eight GPs participating in one practice. Eight of 12 were rural practices, 4 practices were located in urban areas. From the 23 GPs, 19 were interviewed to establish the barriers. Four GPs did not participate, because 3 GPs from one practice had doubts about their participation in the study, and one GP had a lack of time (colleagues represented her). After one year, of the 19 included GPs, 14 GPs

(three women), were interviewed to get an insight into the perceived usefulness of the tailored interventions. Five GPs were not interviewed; one was represented by a colleague due to limited time (they indicated having similar experiences with the tailored interventions), two had insufficient time, one became ill and one migrated.

## BARRIERS AFFECTING THE UPTAKE OF GUIDELINE RECOMMENDATIONS BEFORE TAILORING

Different barriers were perceived by the GPs to the uptake of guideline recommendations. GPs (n=19) indicated a total of 84 barriers. The mean number was 4.4 barriers with a median of 4 barriers. Most GPs indicated barriers in i) using the 4DSQ (n=15), ii) diagnosing anxiety and depressive disorders (n=13) and iii) allocating patients correctly to care, according to the severity of the disorder diagnosed (n=15). Only some GPs perceived barriers in providing patient information (n=5). The various barriers were classified according to the themes: knowledge and skills, attitude, time, patient's opinion and behaviour, collaboration with mental health professionals, and the availability of treatment.

### **Lack of knowledge and skills**

Most of the GPs (n=16) perceived barriers related to a lack of knowledge and skills: in using the 4DSQ and in the interpretation of its scores (n=8), to diagnose depression and anxiety, and as a part of the diagnostic process, to determine the complexity of anxiety disorders and to determine the severity of depression (n=10), and in stepped care allocation to treatments (n=7). Others indicated barriers such as an insufficient knowledge of: patient information (n=3), e-mental health (n=2) and how to motivate patients to change their behaviour (n=4).

### **Attitudinal barriers toward using the 4DSQ, diagnosing, providing psycho-education and allocating stepped care**

Almost one third of the GPs (n=9) experienced attitudinal barriers, such as a lack of agreement, of outcome expectancy and of self-efficacy. Two GPs did not use the 4DSQ. One, because he thought that 'using the 4DSQ was not proper in patients who have experienced traumatic life events', and the other GP mentioned that 'he knew his patients and he hardly met patients with new psychiatric disorders'. A few GPs (n=2) preferred not to diagnose patients, because they did not want to 'label' them with a 'disorder'. For this same reason, written psycho-educational brochures about depression or anxiety disorders were not handed-out. One GP expressed a lack of self-efficacy in structuring the diagnostic, whereas two other GPs perceived stepped care allocation as standardised care, and rather provided care in accordance with the patient's preference.

**Lack of time**

Only a few GPs ( $n=3$ ) indicated barriers related to time. Two GPs indicated that informing patients with psychological complaints was time consuming and another had no time to provide brief interventions.

**Patient's opinion and behaviour according to GPs**

Almost one third of the GPs ( $n=8$ ) mentioned several barriers related to the patient's opinion and behaviour. Some patients were not willing to complete the 4DSQ, or to schedule a next consultation to discuss the 4DSQ scores. Other patients disagreed with the diagnosis; especially those patients with a depressive disorder or unexplained physical complaints. Besides, some patients resisted prescribed treatment with an antidepressant.

**Collaboration with mental health professionals**

Almost one third of the GPs ( $n=11$ ) perceived barriers related to collaboration with mental health professionals. First, the GPs missed information regarding which treatments mental health professionals in primary care provide. Second, the workload of the mental health nurse in primary care was too onerous or the GPs lacked a mental health nurse in their practice. Third, waiting lists for the primary care psychologist or specialised mental healthcare.

**Lack of availability of treatment**

A few of the GPs ( $n=3$ ) indicated a lack of availability of brief interventions in primary care, and treatment opportunities for patients with severe mental health problems in the region.

## USEFULNESS OF THE TAILORED INTERVENTIONS

In general, the 'peer group supervision' and the 'individualised telephone consultation' were perceived as being useful for most of the GPs. The repeated calls worked out as useful reminders to perform according the guideline recommendations. In addition, the perceived benefit of using the 4DSQ, and the idea delivering better patient care, were supportive to the uptake of guideline recommendations. The perceived usefulness of the different tailored interventions and the factors that positively influenced the uptake of guideline recommendations are described below.

**Peer group supervision**

Supervision was focused on the barriers related to knowledge, skills, patient's opinion and behaviour. In total, more than half ( $n=8$ ) of the GPs participated in the peer group supervision. For all of the GPs, supervision was supportive in solving barriers in using the 4DSQ because the GPs: i) experienced time to focus on the 4DSQ; ii) heard from other GPs about how to handle the 4DSQ and iii) the GPs developed

skills in how to interpret the 4DSQ scores. The GPs indicated that the interaction between colleagues in a small group was supportive.

*“The understanding of the 4DSQ scores gives a better picture of the anxiety, depression or somatisation complaints; the 4DSQ differentiates and gives direction to which treatment is indicated. Before the supervision, I often thought in terms of depressive complaints only”* – (GP 9).

For all of the GPs, except one, supervision was also supportive in solving barriers in diagnosing mental disorders and stepped care allocation. The GPs acquired more insight into finding an agreement with the patient on the diagnosis, in diagnosing different types of anxiety disorders by asking practical basic questions, and in determining the complexity and severity of the disorders.

*“I have more knowledge of the different subtypes of anxiety disorders and, as a consequence, I have identified more patients with an anxiety disorder and provided treatment. And, because I have more knowledge myself, I can explain the anxiety disorder to the patient with more confidence”* – (GP 11).

*“Now, I am better aware of the complexity of anxiety disorders and what kind of treatment is necessary”* – (GP 3).

One GP was less positive about the supervision, having expected more attention being paid to the principles of stepped care treatment. He experienced that the training, provided before the start of the project to all participating GPs, was more helpful in this respect, just like the flowchart for recognising, diagnosing and stepped care treatment allocation for anxiety and depressive disorders.

Less than half of the GPs (n=6) did not participate in the supervision offered as part of the tailoring process, mostly for practical reasons such as lack of time. These GPs perceived this lack of supervision as a barrier for gaining sufficient knowledge about working with the 4DSQ. They somewhat compensated for this by seeking advice from colleagues, from the mental health nurse working in their practices, and by telephone consultation.

### **Telephone consultation**

All of the GPs received personalised telephone consultations to remove the implementation barriers perceived by them. More than half of the GPs (n=9) indicated that the consultation was supportive, and most of them (n=6) found that the calls worked out as useful reminders. For less than half of the GPs (n=5), the consultations were not supportive.

*“The telephone contact had an added value in addition to the supervision. I was not always happy with the reminders, but they ensured that the issue remained under my attention, and made clear what I still had to figure out and that is important for the implementation. The use of the 4DSQ has become a part of my work, because I was called back every time” – (GP 2).*

### **Consultation related to a lack of knowledge and a lack of time**

The GPs who perceived barriers in diagnosis, stepped care allocation and having insufficient knowledge of brief interventions, were reminded to use the previously offered flowchart for recognising, diagnosing, and stepped care treatment allocation for anxiety and depressive disorders. Most of the GPs indicated that the flowchart was helpful.

*“The flowcharts lie on my desk and they provide support in determining the severity of the condition and the appropriate treatment step to allocate, especially when I see a patient with an anxiety or a depressive disorder” – (GP 12).*

Some of the GPs indicated that the flowchart added a little.

*“Stepped care is in my head. Occasionally, I look afterwards to the flowchart to check if I forgot something” – (GP 10).*

Besides the use of the flowchart, the GPs who indicated having insufficient knowledge of brief interventions and a lack of time were also given advice about the treatment interventions that they could provide: for example, psychoeducation, including written or online information, watchful waiting, e-health interventions and a referral to social work. One GP perceived the advice on psycho-education as being only a little supportive, because most patients were not self-sufficient individuals. Most of the GPs experienced that this helped them to improve their care. Their provision of information and their referral opportunities were improved and they did not prescribe antidepressants when these were not indicated.

*“I developed a brochure for myself with information about anxiety and depression, adding also the psycho-education for patients” – (GP 3).*

*“Because I gained a better insight into the diagnosis and associated treatment options, I now succeed more often to motivate patients for treatment. Also, I am more relaxed towards patients, because I have more knowledge of the different treatment options, including watchful waiting. I used to refer quickly or gave an antidepressant” – (GP 10).*

The GPs were also informed about the possibility of following a course in problem solving therapy at the Dutch College of General Practitioners. However, none of the GPs followed such a course, due to a lack of time.

#### **Consultation related to attitudinal barriers**

The telephone consultations were also helpful in addressing some of the attitudinal barriers experienced by the GPs. Explanation on the use of the 4DSQ, the need to diagnose, to allocate stepped care, and to inform patients about the diagnosis and treatment options were supportive.

*“I am less hesitant to label patients with a diagnosis. Both the 4DSQ, the flowchart and subsequently the dialogue with the patient help me to come to an agreement about the diagnosis and the severity of the depressive disorder and about the treatment options” – (GP 4).*

One GP though, was convinced that patients give socially desirable answers on rating scales and, therefore, he did not trust the 4DSQ and only relied on his own clinical assessment.

*“I am faithful to my own intuition. I look to the scores, but listen more to my inner voice. The 4DSQ apparently provides a grip where I am not looking for. I listen to what I find” – (GP 14).*

#### **Consultation related to patient’s opinion and behaviour**

Advice about how to solve barriers in using the 4DSQ consisted of asking patients why they did not want to fill out the 4DSQ; respect for their refusal and the use of intervention watchful waiting; and to make clear which patients should be approached actively to discuss the 4DSQ score and to make an appointment for a follow-up consultation. The advice was supportive, albeit not always in patients with a complex personality.

*“This woman is always difficult to motivate for things other than those she has in mind. In my opinion, she is a difficult woman. Most patients accept to fill out the 4DSQ” – (GP 4).*

The GPs who mentioned barriers in finding agreement about the diagnosis were advised to give patients an active role by referring patients to written or online psycho-education and different treatment options; and to ‘act as an advisor’ so that the patient could make his/her own decisions. The GPs indicated that these pieces of advice were less supportive in solving the barriers.

**Consultation related to collaboration with mental health professionals**

The GPs who had insufficient information about who can do what in primary care, or who had to deal with a waiting list, or those who missed a mental health nurse in general practice, were given the advice to make a social map and to organise a meeting with mental health professionals in primary care to discuss who can provide what. Some of the GPs, or their mental healthcare nurse (n=4), made a social map of mental health professionals to whom they could be referred, to create more treatment opportunities.

*“I made a list of psychologists in this neighbourhood and had a meeting with social workers. Thereafter, I refer more to social workers” – (GP 5).*

The GPs indicated that the opportunity to refer to a mental health nurse or psychologist in general practice facilitates stepped care allocation. Because the professional is located in the practice, consultation is easy to organise. Besides, the mental health professionals can provide care quickly, the lines are short.

*“A mental health nurse has come in my practice and by discussing patients, my knowledge has increased about what I can do and what others can do” – (GP 7).*

**Consultation related to a lack of availability of treatment**

The GPs who had a lack of availability of interventions received information on which other interventions could be provided and to which other professionals they could be referred. The advice was supportive, but so also was the reduction of the waiting list for specialised mental health care.

*Benefit of using the 4DSQ*

Almost all GPs experienced the 4DSQ as a useful tool (n=13). They indicated that the 4DSQ structured the dialogue with the patient. The 4DSQ scores gave the GP and the patient information about present complaints, and the severity, which was useful when coming to an agreement about whether or not psychological complaints were part of patient’s problem. The scores gave a direction to the diagnosis and treatment. The GPs indicated that they had something to offer patients and that patients felt understood.

*“A patient with a chronic obstructive pulmonary disease, who was a frequently consulter, experienced I as a whiner. After administering the 4DSQ, I discovered he was anxious. When I discussed this with the patient, he finally felt understood. With the 4DSQ, I get a grip on the problem and the feeling that I have something to offer the patient” – (GP 2).*

*Delivering better care*

Most of the GPs (n=10) indicated that, in their opinion, patients received better care because the GPs had more insight into diagnosis and associated treatment options. Therefore their motivation to diagnose increased.

*“I diagnose more often, so I can explain why which treatment options are indicated. I inform patients more than before participation in the project” – (GP 8).*

## DISCUSSION

### Summary of main findings

The present research involved a qualitative evaluation of GPs' experience with tailoring interventions, to prospectively identified barriers, affecting the uptake of four key guideline recommendations for anxiety and depressive disorders. Barriers were mostly related to knowledge and skills, attitude, patient's opinion and behaviour according to the GPs, and the collaboration with mental health professionals. Based upon the barriers, peer group supervision and individualised telephone consultations, tailored to the experienced barriers of each GP, were chosen as implementation strategies to improve the uptake of the guideline recommendations. For most of the GPs, peer group supervision was supportive in teaching them how to use the 4DSQ in their consultations with patients, how to diagnose different types of anxiety disorders, to determine the complexity and severity of the disorders, and how to share experiences with other GPs. More than half of the GPs indicated that individualised telephone consultations were supportive, and worked out as useful reminders and as incentives, to change fixed patterns. The perceived benefit of using the 4DSQ, and the idea of delivering better care, were essential factors to overcome the identified barriers and were supportive in the uptake of guideline recommendations.

### Strengths and limitations

There is a lack of knowledge about effective ways to identify implementation barriers and how to select interventions likely to overcome them (18). A strength of this study is the use of a systematic tailored approach to this problem, consisting of: i) identification of the barriers affecting the uptake of guideline recommendations, ii) designing implementation interventions appropriate for these barriers, and iii) the application and evaluation of implementation interventions that are tailored to the identified barriers. The qualitative approach, incorporating two interview moments, provided a deeper understanding of the barriers, and solutions affecting GPs uptake of guideline recommendations, before and during the implementation process. Another strength is that all of the GPs were interviewed, thus providing the maximum insight into the perceived usefulness of the tailored interventions. The participating GPs were representative for all Dutch GPs regarding age. However, the percentage of GPs with a solo practice was somewhat higher than average (26% versus 18%),

and respondents may have differed regarding other not measured variables. GP and practice characteristics may have influenced the results. The study has a number of limitations. First, all of the GPs were more or less motivated to implement guideline recommendations by participating in the study, which hampers the study's generalisation to other GPs. Second, to provide an insight into the perceived barriers, we focused on a limited number of barriers derived from the literature. Obviously, more factors influence the uptake of guideline recommendations, such as financial structures, but these are more difficult to modify in the context of a clinical study. Finally, there was no validation by case record review to corroborate participants reports.

### **Comparison with existing literature**

The perceived benefit of using the 4DSQ and the idea delivering better care appeared to be essential factors associated with the uptake of guideline recommendations. It is widely known that a relative advantage is an important factor in the implementation of innovations, though a relative advantage alone does not guarantee wide spread adoption (25). In our study, it seemed that the GPs were interested in using the guideline recommendations, especially the 4DSQ, and during their use, the GPs developed a positive attitude. With the 4DSQ GPs received a tool to distinguish between stress-related syndromes and psychiatric disorders. Distinguish between 'normal' distress and depression requiring treatment was one of the barriers in recognising and diagnosing depression, Barley et. al. (2011) found in their metasynthesis of research to identify barriers and facilitators (12). Our finding that most GPs were interested, developed a positive attitude towards guideline recommendations and indicated that their performance had changed, is in line with the ten-stage model for planning change. This model is a synthesis of different stages of change models, which offer theoretical assumptions about the steps professionals must take to implement the intended changes (26). To maintain the achieved change, the ten-stage model suggests a reminder system. In our study, the telephone consultations were perceived as useful reminders and were supportive in changing the fixed patterns that the GPs indicated.

Different theories regarding a change in healthcare, such as the stages-of-change theories, can be used in planning and evaluating changes in clinical practice. Overall, there seem to be two approaches for tailoring in implementation science. The first approach, used by some implementation scientists, suggests a wider use of theory in implementation research; the second approach, used by others, represents a pragmatic and empirical approach to implementation science. Evidence to support any or either approach is limited (17). In our study, we adopted the second approach; studying the uptake of guideline recommendations pragmatically, by building on already known factors, instead of linking to theoretical perspectives.

An important assumption, underlying tailoring, is that implementation interventions are most helpful if these effectively address the most important determinants

of practice for improvement in the targeted setting (18). Although, most of the GPs in our study perceived that the tailored interventions of supervision and telephone consultation as being supportive, it does not mean that these interventions effectively addressed all of the prospectively identified barriers affecting the uptake of guideline recommendations. In a multiple case analysis, Bosch et al. (2007) suggested that there is often a mismatch between identified barriers for change and the implementation interventions chosen (27). Nevertheless, as the barriers largely differ within guidelines, we applied a tailored and barrier-driven implementation strategy, focusing on perceived barriers in daily practice, and adapting the strategy according to perceived success (28).

### Implications for future research

In our study, we used a qualitative research method for systematic tailoring. The systematic qualitative procedure is known to be more time consuming than surveys. Future research could be focused on the development of validated questionnaires for the uptake of mental health guideline recommendations in primary care.

## CONCLUSION

Tailoring supervision and telephone consultations to personally perceived implementation barriers may be supportive in the uptake of guideline recommendations by GPs. The perceived benefit of using the 4DSQ and the idea of delivering better care to patients appeared to be essential factors associated with the uptake of guideline recommendations.

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CHAPTER

7

# Factors contributing to the recognition of anxiety and depression in general practice

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Submitted

## ABSTRACT

**Background:** Adequate recognition of anxiety and depression by general practitioners (GPs) can be improved. Evidence on factors that are associated with recognition is limited and showed mixed results. The aim of this study was to explore which patient and GP characteristics are associated with recognition of anxiety and depression.

**Methods:** A secondary analysis was performed of data on 444 patients who were recruited for a randomized trial. Recognition of anxiety and depression was defined in terms of information in medical records, in patients who screened positive on the extended Kessler 10 (EK-10). A total of eight patient and GP characteristics, measured at baseline, were included in a multilevel regression model to examine their impact on recognition.

**Results:** Patients with higher 4DSQ distress scores (OR=1.03; 95% CI 1.00-1.07) and patients who reported a need for care (OR=2.54, 95% CI 1.60-4.03) were more likely to be recognized. In addition, patients' anxiety or depression was less likely to be recognized when GPs had less confidence in their abilities to identify depression (OR=0.97; 95% CI 0.95-0.99). Patients' age, chronic medical condition, somatisation, severity of anxiety and depression, and functional status were not associated with the recognition of anxiety and depression.

**Limitations:** Although the EK-10 is an instrument for screening for anxiety and depressive disorders in general practice, a more reliable instrument as reference standard for diagnosis would have been the Composite International Diagnostic Interview.

**Conclusions:** Recognition may be improved by quality improvement activities that focus on increasing GPs' confidence in the ability to identify symptoms of distress, anxiety and depression, as part of a stepped care approach according guidelines.

## INTRODUCTION

Anxiety and depression are highly prevalent and have a negative impact on everyday functioning, cause great suffering, and incur high healthcare costs and costs associated with reduced productivity (1-3). Adequate diagnosis and treatment of anxiety and depression may decrease the burden of disease (4). With approximately 75% of their adult patients visiting their general practitioner (GP) at least once per year in the Netherlands, the GP is in a good position to detect anxiety and depression (5). In the Netherlands more than 75% of patients diagnosed with psychological symptoms or disorder are treated in general practice (6). Studies showed a wide range of recognition rates of depression and anxiety in primary care, also depending on the method of case ascertainment and the time allowed for GPs to recognize (7-9). Recognition rates were higher when patient medical record extraction was used over an extended period compared to cross-sectional methods. Also, when a less specific definition of the diagnosis was given, recognition rates were higher. However, a disadvantage may be that more false positives will then be included (10).

Characteristics of both GPs and patients influence the recognition of anxiety and depression. Many patients do not recognize or acknowledge that they suffer from anxiety or depressive symptoms, and may present themselves in general practice with somatic symptoms (11-13). Even when a psychiatric diagnosis is made the patient or GP may not perceive a need for treatment (14). Some GPs find it difficult to distinguish between 'normal' distress and depression requiring treatment (15).

Adequate recognition, and subsequent treatment, could improve outcomes for patients. Previous studies have examined different patient and GP characteristics as possible factors associated with the recognition of depression and anxiety, but showed mixed results. Patients for example being a women, being single, of older age, having a severe depression, comorbid anxiety or depression, chronic somatic co-morbidity, having disclosed mental health symptoms to the GP and positive attitudes toward help seeking are more likely to be recognized (10,16-21). A few of these studies examined also whether primary care physician characteristics such as years of experience, education, special interest, knowledge and skills were associated with the recognition of depression (16,20) and anxiety (10). Wittchen et.al. (2001) found that physicians with a practice experience greater than 5 years were more likely to recognize patients with a depression. Janssen et al. (2012) and Piek et al. (2012) concluded that there were no GP characteristics associated with recognition (10,20) Also, the attitudes of GPs are likely to be an important factor influencing the recognition of anxiety and depression. (22-24).

Previous studies showed that some factors associated with recognition remain unclear and other factors are rarely studied. The factors include: (i) patient characteristics: age, married or living together, chronic medical condition, need for care, psychologi-

cal symptoms and functional status, and (ii) GP characteristics: attitudes to anxiety and depression for the management of anxiety and depression. The aim of the current study was to examine whether these factors are associated with the recognition of anxiety and depression in general practice.

## METHODS

### **Study design**

This study was a secondary analysis of data from the cluster randomized controlled trial (RCT) of tailored interventions, to improve the management of anxiety and depressive disorders in primary care (NTR1912) (25). The aim of the trial was to determine the clinical and cost effectiveness of tailored interventions to improve compliance with guidelines for the recognition of anxiety and depression in general practice (26-29). The trial compared training and feedback for GPs with training and feedback supplemented by a tailored intervention. The identification of barriers to implementation of guidelines, the development of interventions targeting these barriers, and the application and perceived usefulness of the resulting tailored interventions has been described in detail elsewhere (30). The trial was approved by the medical ethics committee of the Institutions for Mental Health (METiGG; Utrecht, the Netherlands) in 2009.

### **Study population**

The study population involved 46 GPs in 23 general practices (12 practices were randomised to the intervention condition and 11 practices to the control condition), and patients visiting the participating general practices. A total of 444 patients were included after giving informed consent. Inclusion criteria for patients were aged 18 years or older who screened positive on the extended Kessler 10 (EK-10). The Dutch EK-10 is a validated screening instrument for anxiety and depressive disorders in primary care (31). A screening is considered positive if the patient scores at least 20 on the K10 or gives at least one positive response to the 5 additional questions about anxiety. Exclusion criteria were suicidal ideation and behavior, dementia and other severe cognitive disorders, psychotic disorder, bipolar disorder, dependence on alcohol or drugs, a severe, unstable somatic condition diagnosed by their GP, insufficient knowledge of the Dutch language to enable accurate completion of the questionnaires, having received psychological treatment in the six months before the start of the study and having been diagnosed with anxiety or depression by a GP in the six months before the start of the study. For detailed information on recruitment methods we refer to the study protocol (25).

## Measures

### *Outcome measure*

The outcome measure in this study was the recognition by the GP of anxiety or depression in patients who had screened positive on the EK-10. Recognition was operationalised as the registration in the patients' medical records, during 6 months preceding and after the EK-10 of terms describing: (i) psychological complaints: anxiety, depression, worrying, sorrow or grief, stress, feeling down, disordered sleeping and unexplained somatic symptoms); (ii) the International Classification of Primary Care-1 (ICPC-1) codes (32) for anxiety, depression and related psychological problems i.e. acute stress, feeling anger or irritation, behaving irritably or angrily, neurasthenia or (iii) a completed the Four-Dimensional Symptom Questionnaire (4DSQ). The 4DSQ may be used to help recognize anxiety and depressive disorders. This self-report instrument can be used to distinguish between stress-related syndromes (termed 'stress', 'burnout' and 'nervous breakdown') and psychiatric disorders (i.e. anxiety and depressive disorders) (33). Recognition was operationalised this way because diagnostic coding alone is not an accurate measure of the diagnostic ability of depression and strongly underestimates the accuracy of the GP (34). We assume that the same applies for anxiety.

Data on recognition was gathered from a retrospective patient medical record search, which took place between 6 months before and 6 months after patients completed the EK-10. Two researchers who were blind to the group assignment independently assessed 50 medical records and weighted kappa statistics were calculated. The kappa yielded an inter-rater agreement of 96% (weighted kappa = 0.91; 95% CI: 0.79-1.00).

### *Patient and GP related factors*

The independent variables investigated included patient and GP characteristics that might be associated with the recognition of anxiety and depression. The data were collected at baseline and self-reported.

Characteristics of the patient in this study were age, married or living together, presence of a chronic medical condition, psychological symptoms, need for care and functional status. Chronic medical condition was measured with the Dutch Central Bureau of Statistics (CBS) list, a questionnaire containing 28 conditions (35). Psychological symptoms were measured with the Four-Dimensional Symptom Questionnaire (4DSQ). The 4DSQ can be used to distinguish between stress-related syndromes (termed 'stress', 'burnout' and 'nervous breakdown') and psychiatric disorders (i.e. anxiety and depressive disorders) (33). The 4DSQ has four subscales relating to common psychopathology: distress, depression, anxiety and somatisation; high scores correspond to high symptom levels and mean scores were calculated for all four subscales. Need for care was measured with two questions after the patient had completed the 4DSQ: "Do you have any help for these complaints" and "Do you want help to solve these complaints". Functional status was measured using the

World Health Organisation's Disability Assessment Scale II (WHODAS II) which covers functional impairments in six domains over the previous thirty days. The standardised total score, based on 32 items corrected for missing values was calculated (36,37). The domains are communication and understanding; getting around; self-care; getting along with people; life activities and participation in society. Scores range from 0 to 100; high scores indicated functional impairment.

GP characteristics were attitudes to anxiety and depression, measured with the Depression Attitude Questionnaire (DAQ) (38,39,39) and with the REASON questionnaire (40). The DAQ measures GPs' interest in and attitudes to depressive and anxiety disorders; respondents are asked to indicate the degree to which they agree or disagree with statements based on their day-to-day clinical experience. The DAQ consists of subscales: treatment attitude (high scores indicate a preference for antidepressant drugs, low scores for psychotherapy); professional unease (high scores indicate discomfort in dealing with depressed patients, perception that treating depression is unrewarding and that patients would be better off being managed by a specialist); depression malleability (high scores indicate pessimism about one's ability to modify the course of depression) and depression identification (high scores indicate difficulty in differentiating depression from unhappiness, believes that it originates from recent misfortunes, and that there is likely to be little additional benefit beyond a GP's own treatment). The REASON measures GPs' attitudes to their role in the management of patients with depressive and anxiety disorders, and comprises two subscales: (i) professional comfort with and competence in care of mental health disorders (low scores indicate comfort and competence) and (ii) GPs' concerns about problems with the health care system for management of anxiety and depression (low scores indicate concerns about difficulties).

### **Statistical methods**

The outcome variable was analysed with multilevel regression analyses taking into account the three-level clustering of observations (patients within GPs and GPs within practices) (41). The type of regression model was matched to the outcome variable: logistic regression was used for the dichotomous outcome recognized yes or no. Multiple imputation was used, creating 5 imputed datasets to compensate for missing values. The imputation model included recognition, condition (intervention or control), patient characteristics (gender, age, born in the Netherlands, married or living together, in paid employment, level of education, 4DSQ score, WHODAS II score, chronic medical condition, need for care, living conditions), and GP characteristics (attitude towards anxiety and depression). Missing values for recognition (n=24), born in the Netherlands (n=8), married or living together (n=5), level of education (n=4), living conditions (n=3), 4DSQ score (4DSQ Distress n=11, 4DSQ Depression n=11, 4DSQ Anxiety n=12, 4DSQ Somatization n=30), WHODAS II score (n=17), need for care (n=34) were imputed. The analyses were performed using the Statistical Package for the Social Sciences (SPSS) 22, the Generalized Linear Mixed Models. First, potential factors were selected through trivariate analyses for all variables,

the outcome recognition and condition. In the intervention condition, it was more likely that anxiety and depression would be recognised. Therefore the intervention was taken into account as a possible effect modifier. Factors and interaction terms that showed an association with the outcome measure with a p-value <0.20 were selected for the multivariate logistic regression. All analyses were conducted in the 5 imputed datasets and results of the multivariate logistic regression were pooled with Rubin's rules (42). Based on a stepwise backward selection procedure a final model was fitted consisting of only significant factors and interaction terms that constituted the associations for recognition of anxiety and depression. To measure the extent to which the factors retained in the final model could actually explain the variance in recognition, a receiver operating characteristic (ROC) analysis was conducted using the model-predicted probabilities as test variable and recognition as the outcome variable. The area under the ROC curve (AUC) ranges from 0.5 and 1.0 with larger values indicating more variance explained (43).

**Table 1.** Baseline characteristics of primary care participants (n=444\*) and general practitioners (n=46). Values are numbers (percentages) unless stated otherwise.

Patient characteristics	
Mean (SD) age (years)	54.3 (15.8)
Married or living together (n=439)	294 (67.0%)
Number of chronic medical conditions <sup>1</sup> (range: 0-28), mean (SD)	3 (2.1)
4DSQ <sup>2</sup> Distress score (range: 0-32), mean (SD) (n=433)	12.2 (7.6)
4DSQ Depression score (range: 0-12), mean (SD) (n=433)	1.7 (2.7)
4DSQ Anxiety score (range: 0-24), mean (SD) (n=432)	3.0 (3.7)
4DSQ Somatisation score (range: 0-32), mean (SD) (n=414)	8.4 (5.9)
Functional status <sup>3</sup> (n=427)	23.9 (15.7)
Need for care (n=410)	201 (49%)
General Practitioner characteristics	
DAQ <sup>4</sup> mean score (SD)	
- Treatment attitudes	44.3 (7.2)
- Professional unease	44.9 (7.8)
- Depression malleability	40.1 (11.0)
- Depression identification	46.6 (11.1)
REASON <sup>5</sup> mean score (SD)	
- Professional comfort with and competence in care of mental health problems	3.2 (0.4)
- GPs' concerns about problems with the health care system for treatment of anxiety and depression	4.4 (0.8)

\*n=444 unless stated otherwise. <sup>1</sup> Chronic medical condition was measured with the Dutch Central Bureau of Statistics (CBS) list, <sup>2</sup> 4DSQ = Four-Dimensional Symptom Questionnaire, <sup>3</sup> Functional status was measured with the WHODAS-II = World Health Organisation's Disability Assessment Scale II (excluding work), <sup>4</sup> DAQ: Depression Attitude Questionnaire, <sup>5</sup> REASON questionnaire: GPs' attitudes to their role in the management of anxiety and depressive disorders.

## RESULTS

### **Characteristics of the study population**

Baseline characteristics for patients and GPs are given in Table 1. The mean age of the 444 patients was 54 years, and 69% were female. The mean age of the 46 GPs was 49 years, and 54% were men.

### **The association of patient and GP characteristics with recognition**

Significant factors and interaction terms were entered in a multilevel logistic regression model. Table 2 shows the trivariate and multivariate associations of the patient and GP characteristics with the recognition of anxiety and depression. Patients with higher 4DSQ distress scores (OR=1.03; 95% CI 1.00-1.07) and patients who had reported a need for care (OR=2.54, 95% CI 1.60-4.03) were significantly more likely to be recognized. In addition, patients' anxiety or depression was less likely to be recognized when GPs had less confidence in their abilities to identify depression (DAQ subscale depression identification) (OR=0.97; 95% CI 0.95-0.99). Besides, recognition was lowered in patients who are married or living together in the intervention condition (OR=0.39; 95% CI 0.16-0.95). The ROC analysis showed an AUC of 0.698 (95% CI 0.645-0.751) suggesting that the amount of variance in recognition explained by the joint factors in the final model was "poor" to "fair" (43). Patients' age, chronic medical condition and 4DSQ score on the subscales somatisation, anxiety and depression, and functional status were not associated with the recognition of anxiety and depression. In addition the DAQ subscales treatment attitude, professional unease and depression malleability were not associated with recognition. As well as the REASON subscales professional comfort with and competence in care of mental health disorders and GPs' concerns about problems with the health care system for management of anxiety and depression.

## DISCUSSION

### **Main findings**

The results of this study indicated that both patient and GP characteristics were associated with the recognition of anxiety and depression. Patients with high 4DSQ distress scores and patients with a need for care were more likely to be recognized. Remarkably, high scores on the 4DSQ subscales depression and anxiety were not associated with recognition. It seems that the severity of psychological suffering is associated with recognition, rather than the severity of anxiety and depression. Also no association was found between the 4DSQ somatization and recognition. The 4DSQ somatization is an indicator of the presentation of somatic complaints unexplained by physical illness. Our study indicated that the GP may distinguish somatization adequately from anxiety and depression. In addition, GPs with confidence in their ability to identify depression were more inclined to recognize patients having anxi-

**Table 2.** Odds ratios for the associations of the patient and GP characteristics with recognition of anxiety and depression, using multilevel logistic regression analysis on multiple imputed data.

	Trivariate analysis			Multivariate analysis		
	OR	95% CI	P	OR	95% CI	P
Age	0.98	0.96-1.00	0.060			
Condition*Age	1.00	0.97-1.03	0.989			
Married or living together (ref. not married or living together)	1.40	0.77-2.52	0.268	1.25	0.67-2.35	0.478
Condition*Married or living together	0.33	0.14-0.79	0.013	0.39	0.16-0.95	0.039
Number of chronic medical conditions <sup>1</sup>	0.94	0.83-1.08	0.389			
Condition*Number of chronic medical conditions	1.03	0.85-1.25	0.784			
4DSQ <sup>2</sup> Distress	1.03	0.99-1.07	0.098	1.03	1.00-1.07	0.024
Condition*Distress	1.04	0.99-1.10	0.153			
Depression	1.04	0.95-1.15	0.393			
Condition*Depression	1.03	0.89-1.16	0.666			
Anxiety	1.02	0.94-1.10	0.615			
Condition*Anxiety	1.04	0.93-1.15	0.512			
Somatization	1.01	0.96-1.06	0.736			
Condition*Somatization	1.04	0.97-1.11	0.301			
Functional status <sup>3</sup>	1.00	0.98-1.02	0.662			
Condition*Functional status	1.03	1.00-1.05	0.055			
Need for care (ref. no need for care)	2.77	1.56-4.91	0.001	2.54	1.60-4.03	0.000
Condition*Need for care	1.18	0.49-2.85	0.719			
DAQ <sup>4</sup> Treatment Attitudes	1.02	0.97-1.06	0.508			
Condition*Treatment Attitudes	0.96	0.88-1.04	0.294			
Professional Unease	0.98	0.94-1.02	0.322			
Condition*Professional Unease	1.05	0.99-1.11	0.137			
Depression Malleability	0.98	0.95-1.00	0.084			
Condition*Depression Malleability	1.03	0.99-1.07	0.150			
Depression identification	0.96	0.94-0.99	0.003	0.97	0.95-0.99	0.018
Condition*Depression identification	1.04	0.99-1.10	0.089			
REASON <sup>5</sup> Comfort and competence with mental health care	0.52	0.27-1.03	0.060			
Condition*Comfort and competence with mental health care	2.52	0.90-7.07	0.079			
Concerns about difficulties with the health care system	1.26	0.85-1.88	0.253			
Condition*Concerns about difficulties with the health care system	0.67	0.38-1.18	0.170			

Reference category: no recognition. \*Interaction term. <sup>1</sup> Chronic medical condition was measured with the Dutch Central Bureau of Statistics (CBS) list, <sup>2</sup> 4DSQ = Four-Dimensional Symptom Questionnaire, <sup>3</sup> Functional status was measured with the WHODAS-II = World Health Organisation's Disability Assessment Scale II, <sup>4</sup> DAQ: Depression Attitude Questionnaire, <sup>5</sup> REASON questionnaire: GPs' attitudes to their role in the management of anxiety and depressive disorders.

ety or depression. Besides, GPs who were provided the tailored intervention were less likely to recognize patients who are married or living together. It might be that GPs in the intervention group were more focused on the recognition of anxiety and depression and in particular in high-risk groups, including having little or no social support.

### **Comparison with existing literature**

Previous studies have identified patient and GP characteristics which are associated with the recognition of or diagnosed as anxiety and depression. However, study findings are difficult to compare because different definitions of recognition were used, as well as different instruments for the assessment of symptoms.

In our study high 4DSQ distress scores were associated with the recognition of anxiety and depression. Previous research showed that the 4DSQ distress scale turned out to be effective in detecting any depressive or anxiety disorder (44). Remarkably, high 4DSQ scores on the subscales anxiety and depression were not associated with recognition. The finding is in line with the study of Marcus et al. (2011) (19). Patients in this study completed four symptom severity self-report questionnaires (i.e. Penn State Worry Questionnaire, Beck Depression Inventory II, Anxiety Sensitivity Index and Mini Social Phobia Inventory) and no association was found with the detection of anxiety and depression. In contrast with other studies which showed that patients with more anxiety or depressive symptoms were more likely to be recognized or diagnosed (10,16-18,20,45). Although instruments used in these studies were different compared to our study (respectively the Beck Anxiety Inventory, the Depression Screening questionnaire, General Health Questionnaire, Center for Epidemiological Studies – Depression Scale, the Composite International Diagnostic Interview and the Patient Health Questionnaire 9), research showed that correlations between the 4DSQ scales and other symptom questionnaires were positive (33). In addition, no association between the chronic medical condition and recognition was found, comparable with the study of Piek et al. (2012). Both studies assessed the chronic medical condition at baseline (20). In contrast to the studies that showed a positive association between physical illnesses and recognition, which identified the total number of physical illnesses during one year (17,19). It might be that their way of measuring was of influence on the outcome. Another explanation could be that in these studies more patients with chronic somatic diseases participated which visited their GP frequently and as a consequence were more likely to be recognized. Furthermore, comparable with other studies no association was found between age and recognition (18-20). This may have been the result that the average age of included patients in the studies was <55 years, expect the study of Pfaff et al. (2005) where patients of 60 years or over were included (18). In contrast a few studies found that patients of higher age were more likely to be recognized (10,16). In the study of Janssen et al. (2012) the mean age was comparable with the studies that found no association (10). An explanation for this finding might be that anxiety disorders are the most com-

mon in people aged between 25-44 years (46). In the study of Wittchen et al. (2001) most patients were older (16). Finally, the finding that patients' need for care was a significant factor for the recognition was confirmed by previous research (19).

With respect to the GP characteristics, GPs' attitudes towards anxiety and depression and their ability to detect these disorders were rarely studied. One study examined the associations between attitudes, measured with the DAQ, and clinical behaviour, including depression identification (22). GP visitors completed the General Health Questionnaire 12 (GHQ-12) before the consultation and the GP rated each patient on the severity of their psychological disturbance ranging from 'no disorder' to 'severe disorder' after the consultation. Dorwick et al. (2000) found no association between GPs' confidence in their identification of depression and the accuracy in identifying it among their patients. However, GPs who felt comfortable with depression were more likely to identify the disorder accurately. In contrast, our study showed that GPs having confidence in the ability to identify depression were more likely to recognize patients having anxiety or depression. It could be that Dorwick et al. (2000) found no association because they used a less specific measurement instrument for the identification of depression, the GHQ-12 which measures general emotional disturbance, and for the GP assessment. In our study we determined recognition in patient medical records and with several indicators.

### **Strengths and limitations**

A strength of this study was that for the determination of recognition in medical records several indicators were used. Using diagnostic codes alone may underestimate the accuracy of GPs recognizing anxiety and depression (10,34). In addition, data on recognition was gathered longitudinally, 6 months before and 6 months after patients completed the EK-10 and were included. Compared to cross-sectional methods when record extraction is used over an extended period accuracy of recognition may improve (8,9). For example, because patients may express their psychological complaints in following consultations or the GP indicates watchful waiting and registers the psychological complaints or diagnostic code in a later consultation. The study also had some limitations. First, we used the EK-10, a self-report questionnaire as reference standard for including the participants in this study. Although the EK-10 is an instrument for screening for anxiety and depressive disorders in general practice, a more reliable instrument as reference standard for diagnosis would have been the Composite International Diagnostic Interview (CIDI) (47). Second, we did not examine which factors are associated with the recognition of anxiety and which with depression. It might be that factors to a greater or lesser extent are associated with or anxiety or depression.

### **Practical implications and further research**

Recognition of anxiety and depression is of importance because recognized patients (i.e. GPs making the diagnosis and recording it) is highly associated with getting

treatment according guidelines (48). Recognition could improve when GPs have more insight in factors associated with the recognition of anxiety and depression. Quality improvement activities may focus at increasing the confidence of GPs in their ability to identify symptoms of distress, anxiety and depression. Smolders et al (2010) showed that GPs with a strong confidence in their abilities to identify depression, treated their patients more often in accordance with the guidelines than GPs who had difficulties with distinguishing depression from unhappiness (49). Certainly recognition alone is not effective, it has to be a part of a stepped care approach according guidelines (50,51). Patients have to be informed about their anxiety and depression, about evidence-based treatment options (including watchful waiting) and patients have to express their preferences. In case of major disorders patients have to be convinced to initiate and continue treatment (51).

In our study the amount of variance in recognition explained by the joint factors in the final model was “poor” to “fair”. Recognition seems determined largely by other, as yet unknown, factors. Future research may focus on which factors contribute to the determination of recognition.

### Conclusion

Patients with high distress scores and patients with a need for care were more likely to be recognized. In addition, GPs with confidence in their ability to identify depression were more likely to recognize patients having anxiety or depression. Educational efforts should concentrate on increasing GPs’ confidence in the ability to identify symptoms of distress, anxiety and depression, as part of a stepped care approach according guidelines.

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CHAPTER 8

General discussion



## INTRODUCTION

This thesis focused on the implementation of clinical guidelines for anxiety and depression in general practice. First, the actual performance of GPs regarding stepped care was reported. Second, the impact of the Breakthrough Series Collaborative and a tailored programme, which was used for the implementation of guideline recommendations, were described. Third, patient and GP characteristics associated with the recognition of anxiety and depression in general practice were reported. In this final chapter the main findings of the studies are presented and interpreted, and key methodological issues are discussed. Finally, suggestions for further research and implications for clinical practice are made.

## MAIN FINDINGS

The results of the various studies led to the following conclusions:

- Actual GP performance regarding depression identification and screening, severity assessment of newly diagnosed depression and stepped care allocation could be further improved (*Chapter 2*). Structural collaboration of GPs with mental health professionals was positively associated with assessing the severity of depression. Assessing the severity of newly diagnosed depression and clinical experience were positively associated with allocating stepped care.
- The Anxiety Disorders Breakthrough Collaborative may improve adherence to the anxiety disorders guideline and collaboration between professionals for patients with anxiety disorders (*Chapter 3*). More insight is required into which strategies really contribute to an improvement of the quality of anxiety care. Therefore studies are needed with a more robust research design.
- A tailored implementation programme may enhance the recognition and treatment of patients with anxiety or depression (*Chapter 5*). Further development of the programme is advisable and to determine the cost-effectiveness.
- Prospective barriers identified by GPs affecting the uptake of guideline recommendations for anxiety and depression were mostly related to knowledge and skills, attitude, patient opinions and behaviour, and collaboration with mental health professionals (*Chapter 6*). The interventions which were tailored to the perceived barriers for change, delivered in the format of 'peer group supervision' and 'individualised telephone consultations', were perceived as useful by most GPs. The use of the 4DSQ, and the delivery of stepped care allocation, were also perceived as supportive in the uptake of guideline recommendations.
- Patient characteristics positively associated with the recognition of anxiety and depression in general practice were higher 4DSQ distress scores and a need for care (*Chapter 7*). Patient anxiety or depression was less likely to be recognised when GPs had less confidence in their ability to identify depression. Recognition may be improved by quality improvement activities that focus on increasing GP confidence

in their ability to identify symptoms of distress, anxiety and depression, as part of a stepped care approach according to guidelines.

## INTERPRETATION OF FINDINGS

### **Treatment according to guidelines for anxiety and depression**

Although a stepped care approach is recommended by guidelines for anxiety and depression, little research has been done on the implementation of stepped care. A study in the United Kingdom showed differences in adherence and high levels of variation in stepped care models in clinical practice (1). In the Netherlands little is known about the implementation of stepped care for depression and anxiety in general practice. To allocate stepped care adequately, patients have to be identified in a timely manner, and the severity of symptoms has to be assessed. One of the studies in the present thesis evaluated the performance of Dutch GPs using the stepped care approach (*Chapter 2*). A survey was conducted among GPs at the end of 2009, shortly before the revised Dutch multidisciplinary guideline for depressive disorders was published (2) and before the revised Dutch College of General Practitioners (NHG) guideline for depression was published (2012) (3). The study showed that approximately one third of GPs paid systematic attention to depression identification, two thirds of GPs assessed the severity of newly diagnosed depression and about three quarters of GPs allocated stepped care. However, more than 40% indicated that they started with antidepressants, either alone or in combination with psychotherapy. Although it is not known whether the antidepressant prescription is correctly indicated, GPs may offer antidepressants too frequently as a first step in treatment because of the common occurrence of subthreshold and mild depression in general practice. Correspondingly, register-based studies have found high antidepressant prescription rates in general practice (4). A Dutch study suggested that most antidepressant treatment in primary care was justified (5). An important limitation of this study was that the degree of severity of the anxiety and depression (including the degree of suffering and dysfunction) was not assessed, while the severity assessment is part of GP consideration for antidepressant treatment according to the guideline recommendations. Prins et al. (2011), who determined the effectiveness of guideline concordant care on clinical outcomes in patients with anxiety and depression in general practice, also showed the complexity of determining whether GPs provide treatment according to guidelines (6). In this study a simple algorithm for guideline-concordant care was used, taking into account the available data registered by GPs in patient records.

In this thesis (*Chapter 5*) compliance to guidelines was measured with indicators which only provide a global indication of the allocation of stepped care (i.e. the number of consultations related to anxiety and depressive symptoms after recognition, prescription of antidepressants and referral to specialist mental healthcare). Nevertheless, the RCT indicated that GPs in the intervention condition may use

a stepped care approach. Compared to the control condition more patients were recognised and more consultations were provided after recognition. In contrast, neither the prescription rate of antidepressants nor the referral rate decreased in the intervention condition. Clinical outcomes showed that patients in the intervention group reported significantly better provision of information and advice, however, no significant differences were found between the intervention group and the control group in guidance on self-help.

In the study in which the performance of Dutch GPs using the stepped care approach was evaluated (*Chapter 2*), one of the reasons GPs reported deviating from stepped care was patient preference. Although most patients with anxiety or depression prefer information (7), and studies showed that a large part of medical consultations is spent on giving information, patient communication involves more than giving information (8). To allocate stepped care treatment in accordance with patient needs, preferences and problems, the six functions of medical consultations seems to be a useful instrument. The functions are: fostering the doctor-patient relationship, information gathering, information giving, shared decision-making, strengthening patient self-management and attending to emotions (8,9).

The study in which the performance of Dutch GPs using the stepped care approach was evaluated (*Chapter 2*) showed that structural collaboration between GPs and mental health care professionals in primary and specialised mental health care is positively associated with the provision of stepped care elements (i.e. systematic identification of depression and severity assessment). In the study which provides an insight into the usefulness of tailored interventions (*Chapter 6*), GPs who perceived barriers related to collaboration with mental health professionals indicated that the possibility to refer to a mental health nurse or psychologist in general practice facilitates stepped care allocation. GPs indicated that these professionals are located in the practice, consultation is easy to organise and the threshold for referral is low. In a Canadian qualitative study of the state of collaboration, factors that enable and hinder shared care, and GP perceptions of best practices in the management of mental disorders were assessed. The study showed that collaboration with psychologists, psychiatrists, nurses, social workers and pharmacists positively impacted GP practice (e.g. reducing frequency of patient follow-up, improving patient outcomes, extending GP caseloads overall to answer the increasing demand for care) (10). The results are in line with a Cochrane review which assessed the effectiveness of collaborative care for patients with anxiety and depression. Results showed that collaborative care was associated with significant improvement in depression and anxiety outcomes compared with the usual care (11). Collaborative stepped care for anxiety and depression in primary care seems promising in improving patient outcomes (12-14). Corresponding to our findings, recently performed Dutch qualitative studies showed that in order to improve collaborative stepped care for depression, instruments are

needed to support the recognition, assessment of severity and monitoring of symptoms (15,16).

### **Strategies for the implementation of guidelines for anxiety and depression**

In the present thesis the impact of two implementation strategies was studied: a quality improvement collaborative (QIC) (*Chapter 3*) and tailored interventions to prospectively identified barriers (*Chapter 5*). The difference between the two strategies is that in a QIC different components are used (e.g. learning sessions, plan-do-study-act cycles, multidisciplinary quality improvement teams) providing the same content to all participants, whereas the tailored interventions were provided for individually perceived barriers. Which strategy should be used for the implementation of guidelines for anxiety and depression in general practice?

The Anxiety Disorders Breakthrough Collaborative showed that professionals changed their performance regarding the implementation of guideline recommendations. Participants started using the 4DSQ and more patients with a non-complex anxiety disorder received first step brief interventions based on cognitive behavioural treatment techniques, such as self-help or brief therapy. The results are in line with Franx et al. (2014), who used a similar Quality Improvement Collaborative (QIC) to evaluate the implementation of guideline recommendations for depression for prescribing antidepressants in general practice (17). In a quasi-experimental study with a non-equivalent naturalistic control group, care provided by the QIC was compared to usual care. Results showed that as a first step treatment choice for patients with depression, antidepressant prescription rates decreased significantly over time within the intervention group compared to the reference group. In addition, a study of a QIC on the implementation of stepped collaborative depression care showed that as severity assessment increased, more patients were treated with minimal intervention, and monitoring of patients increased (18). Antidepressant prescription and referral rates did not change. In this study a comparison was made using electronic medical records data, retrospective before and after the QIC was carried out. A limitation of the study was that patient outcomes were not measured. To determine the effectiveness of QICs and their components on the uptake of guidelines and patient outcomes, more robust study designs are required to reduce the risk of bias.

A review of learning collaboratives in mental health care which assessed the state of the evidence for the use of collaboratives, showed that most studies included in the review reported positive trends on provider performance and mixed results regarding patient outcomes (19). The strength of the outcomes was difficult to assess, because the studies used different designs and methods, and, except one cluster RCT, did not use a control condition (20). Gustafson et al. (2013) examined the effectiveness of QIC components on mean days between first contact and first treatment (waiting-time), retention rates from first to fourth treatment session, and percentage increase in the annual number of new patients in addiction treatment clinics in five US states.

Although the study addressed addiction outpatients and other outcomes, the interventions used are of interest for comparison. Gustafson et al. (2013) compared the following components: i) interest circle calls (monthly teleconferences in which staff from different clinics learned from experts and discussed progress with one another), ii) clinic-level coaching (i.e. being assigned one of the QI experts to help clinic leaders and change teams to make improvements) involving one initial site visit, monthly telephone conferences and e-mail correspondence), iii) learning sessions (large face-to-face meetings), and iv) a combination of all three in addiction treatment services (20). The researchers concluded that coaching and the combination of collaborative components were almost equally effective in achieving a decreased waiting time and increasing the number of new patients, however coaching was substantially more cost-effective. Common in QICs is that all participants receive the same intervention. One of the interventions that Gustafson et al. (2013) investigated was clinic-level coaching, in which coaches tailor process improvement advice to leaders and change teams. In the tailored implementation programme the specific content of the intervention was tailored to the individual GP. Peer group supervision and individualised telephone consultation were the delivery formats for the tailored interventions and improved recognition of patients with anxiety and depression. The individual tailored interventions used in the tailored implementation programme seem comparable to the clinic-level coaching Gustafson et al. (2013) used. Both studies add to the evidence supporting the use of tailored interventions.

When tailoring is chosen as a component of an implementation strategy, it is important that the interventions match well to the prospectively identified barriers. As previously mentioned, peer group supervision and individualised telephone consultation were the delivery format for the tailored interventions in the present thesis. One might ask whether the interventions that were provided in these formats really matched all relevant barriers. A review examined studies of the development of educational and organisational interventions to improve the quality of health care (21). The researchers indicated that it seems there is often a mismatch between the level of identified barriers and the type of interventions selected for use. For example most of the studies mentioning barriers at team or organisation level primarily selected information and educational interventions for improvement. To overcome this mismatch, it was attempted in the present thesis to select specific interventions linked to the barriers. GPs composed the content of the peer group supervisions in collaboration with the researchers, and the telephone consultation was tailored to the experienced barriers of the individual GP.

Various methods can be used to match interventions to prospectively identified barriers for change. In the present thesis barriers were identified using two successive steps: assessing previously published studies on barriers associated with the uptake of guideline recommendations for depressive and anxiety related disorders in general practice; and through the development of an interview based on the barriers found

in published studies, administered by the interviewers with each GP. Subsequently, tailored interventions were chosen through a consensus process among researchers involved in the study. The advantage is that the process was carefully carried out, although this iterative design process is time consuming and costly. An evaluation of different methods for identifying determinants used for the development of tailored implementation interventions was carried out (22). The methods 'brainstorming amongst health professionals', 'interviews with health professionals' and 'interviews of patients' were compared. The additional value of 'discussion' (structured through reference to a checklist of determinants (23)) in addition to 'brainstorming', and determinants identified by open questions in a questionnaire survey were investigated. This study showed that each of the methods provided unique determinants of practice, with 'brainstorming' and 'interviews with health professionals' as the most comprehensive. The data suggest use of a combination of methods, depending on the guidelines or recommendations being implemented. Brainstorming could be used as a relatively quick and inexpensive method for the identification of barriers. As this is one of the first comparative studies of tailoring methods, these recommendations are associated with high uncertainty.

### **Cost-effectiveness**

Any additional recognition of anxiety or depression in the intervention group was associated with care and productivity costs of €6,807. The study illustrates the importance of considering cost-effectiveness: tailoring requires additional resources, which should be offset by additional effects. Because of the relatively short duration of the data collection phase (6 months), it is unknown how the cost-effectiveness of the tailored intervention changed over longer periods. GPs and other decision makers (e.g. GP associations, patient associations, health insurers) have to consider whether the efforts outweigh the investment. The value of an additionally recognised patient, also depends on the availability and accessibility of effective treatment interventions, and patient's need for care (24-27).

Some studies showed the costs of implementation programmes, but comparisons with the costs of the tailored implementation programme are difficult to make, because there are no studies examining the cost-effectiveness of tailored interventions to improve professional performance or patient outcomes. It is likely, however, that the economic costs of tailoring are higher than the application of one single intervention, such as feedback (28). Studies also provided different estimations of costs. Gustafson et al. (2013) found that coaching was substantially more cost-effective compared to interest circle call interventions, learning sessions or a combination of these three interventions (20). Costs of coaching were \$2878 per out-patient clinic. The costs are not comparable to the costs of the tailored programme, because costs of the out-patient clinics participating in the study, such as staff time spent on implementing changes, were not collected. Franx et al. (2014) calculated the implementation costs of the Depression QIC for the participants (29). The costs per primary care

professional were around €36,000. In addition, costs of carrying out the QIC (e.g. project management, expert team, learning sessions) were €340,500. The researchers estimated that about 1 million euros were invested in order to implement this project in which eighty health professionals were targeted.

Improving healthcare is associated with cost, but obviously the question is whether costs and benefits are reasonably balanced. Reimbursement schemes can be used to incentivise specific GP behaviours, such as providing care for a patient specific population or for providing a pre-specified level of quality of care. Irrespective of the method of reimbursement, evidence based care has to be actively implemented as change in provider performance does not come naturally.

## METHODOLOGICAL LIMITATIONS

Various study designs and methods were used in this thesis. The most important methodological strengths, and the limitations that may have threatened internal and external validity are discussed.

### **Selection of GPs**

The recruitment and selection carried out within the various studies resulted in a selected population which may have reduced external validity. It is likely that the participating GPs were more motivated, had a positive attitude towards anxiety and depression and a specific interest compared to the total Dutch GP population. As a consequence, the selected population might adhere to guideline recommendations to a greater extent. Although evidence of the impact of interest in guideline adherence is limited (30), it seems likely that the studies give an overly optimistic view of current practice in the Netherlands. When GP adherence to the guidelines is high, further improvement is difficult to make and the impact of the tailored implementation programme on the outcomes between the compared groups in the RCT small. If the study was carried out on a larger scale, more GPs would be included (with lower levels of motivation and guideline adherence) the tailored interventions might be more effective. Second, GPs from 13 practices (7 in the intervention condition) who received a financial incentive from a health insurance company could have influenced the outcomes of the RCT, because there is evidence that financial incentives may improve some aspects of the quality of primary health care (31,32). The GPs who received a financial incentive were about equally divided between both conditions, however, there might be an interaction between incentive and intervention. The combination may have strengthened each other, thus overestimating the effectiveness of the tailored implementation strategy.

**Patient selection**

Patients aged 18 years or older, attending the participating general practices and who screened positive on the EK-10 were included in the RCT (*Chapter 5*). This data was also used for a secondary analysis to examine whether patient and GP characteristics are associated with the recognition of anxiety and depression in general practice. The Dutch EK-10 is a validated instrument for screening anxiety and depressive disorders in primary care. A cut-off point of 20 and/or at least one positive answer on the additional questions provided a sensitivity of 0.90 and a specificity of 0.75 for detecting any depressive and/or anxiety disorder (33). Although the sensitivity is high, 10% of patients who have an anxiety or a depressive disorder are still not recognised (false negative diagnosis). The specificity is relatively low, indicating that 25% of patients who do not have an anxiety or depressive disorder are screened as positive on the EK-10 (false positive diagnosis). The probability of the inclusion of patients with false positive diagnosis was inevitable. Indeed it appeared that one third of all patients who screened positive on the EK-10 had low 4DSQ scores, indicating that they had few symptoms and possibly suffered from anxiety or depressive symptoms. The inclusion of some patients with low 4DSQ scores could have influenced the recognition rate of anxiety and depression by the GP. In addition, given the recruitment strategy used, patients who visited their GP might not necessarily consult them for anxiety or depression or may not have a need for care. When patients had more severe symptoms and a need for care it would have been more likely that they were recognised as anxious or depressed more easily and were getting treatment (26,34-39). Given the selected patient population the tailored interventions may have had a smaller impact on outcomes. When the study involved patients with more severe symptoms of anxiety and depression, the tailored interventions might have been more effective. With hindsight the use of another reference, such as the Composite International Diagnostic Interview (CIDI), might have ameliorated the problem but would not have solved it completely because of the less than perfect reliability of a CIDI diagnosis (40).

**Measurement issues regarding GPs' electronic patient record data**

In the three studies for this thesis data from the electronic patient records of GPs was used to assess GP performance in daily practice: *Chapter 3* reports on the evaluation of the impact of the Anxiety Disorders Breakthrough Collaborative; *Chapter 5* reports on the cluster randomized trial, and *Chapter 7* reports on the examination of which patient and GP characteristics are associated with the recognition of anxiety and depression in general practice. In the study described in *Chapter 3* the project managers of each included team gathered data from patient records and subsequently registered the data in Excel. Gathering the data from the patient records and registering it in Excel may lead to incompleteness and incorrectness. Data could be wrongly registered, and interpreted differently than GPs intended. As a consequence, results may be biased. In the studies described in *Chapters 5 and 7* patient records were audited for the assessment of actual health care from GPs. Although the records

were assessed in a systematic way by researchers, a disadvantage of this approach is that GPs do not consistently record all aspects of performance. One of the findings in a Dutch study addressing GP adherence to evidence based guidelines for anxiety and depression was that GPs often fail to record patient information, especially diagnostic information (41,42). Assuming GPs failed to record diagnostic information in the electronic patient record, it is possible that the results of the present study give a too pessimistic view of the proportion of patients recognised. For the assessment of the effectiveness of tailored interventions, however, not recording diagnostic information may not have affected the results between groups given the design of the study (RCT).

## GENERALISABILITY OF THE RESULTS

The conclusions of the present thesis cannot just be generalised to the whole of the Dutch population or other Western countries, given the omission of the selected GPs and patients in the study sample. General practice is well developed in the Netherlands and most patients have a long-term relationship with their general practitioner. General practice plays an important role in the diagnosis and treatment of anxiety and depressive disorders, which may be different in other countries.

There is evidence that financial incentives may increase the recruitment of GPs (43,44) and therefore, as well as a random sample of GPs derived from a national register, GPs contracted to a particular health insurance company who made additional payments (€ 0.60 for each practice-listed patient in 2010 and 2011) were actively recruited. As a consequence, 13 of 23 general practices were located in the northern part of the Netherlands.

## IMPLICATIONS FOR FUTURE RESEARCH

### **Issues concerning treatment according to guidelines for anxiety and depression**

In this thesis a stepped care approach recommended by the guidelines for anxiety and depression in general practice was implemented. To allocate stepped care adequately, patients had to be identified in a timely manner, and the severity of symptoms has to be assessed. Treatment should be based on the severity of the disorder and should begin with the least intensive treatment that may be expected to prove effective. Patients with a simple or mild disorder should be offered a less intensive intervention, more intensive treatment options are appropriate for patients who have failed to respond to low intensity interventions and for patients with a complex or severe disorder. Although the guidelines recommend stepped care, there is little evidence of their effectiveness on patient outcomes (45-47). As in the UK there might be levels of variation in stepped care models in clinical practice in the Netherlands, such as

the model where all patients start with a low intensity treatment such as guided self-help, instead of allocating treatment based on the severity of anxiety and depression. Future research is necessary to improve evidence of the most effective, efficient, and acceptable stepped care approaches. With regard to acceptable care, in addition to cost, the availability of treatment, professional preferences, and patient characteristics and preferences should be included when stepped care is studied. Patient preferences were one of the reasons GPs indicated deviating from stepped care (*Chapter 2*). It seems plausible that stepped care is not only be allocated based on severity. When more is known about patient preferences and the treatment decision making process (this may be influenced by site and setting, the duration and intensity of an interventions, patients-and disorder specific characteristics), treatment may be more closely tailored to patients.

### **Issues concerning the tailored strategy for the implementation of guidelines for anxiety and depression**

In the present thesis, a pragmatic trial was carried out in which the main research question focused on the effectiveness of the tailored interventions in a general practice setting on the recognition of anxiety and depression (*Chapter 5*). The recognition and diagnosis of diseases is rarely the subject of implementation research (with the exception of diagnostic test ordering) because to determine whether a patient is clearly recognised and diagnosed an independent golden standard should be available. In research the Composite Interview Diagnostic Instrument (CIDI) is mostly used for the determination of anxiety and depression, but to administer this interview in general practice is a time consuming and costly activity. Studies showed a wide range of recognition rates of depression and anxiety in primary care, depending also on the method of case ascertainment, the time allowed for GPs to recognise and the definition of recognition. It is therefore appropriate that GPs, patients and researchers develop a standard with measurable indicators for the recognition of anxiety and depression to improve research and make implementation research on this topic more feasible and comparable.

As previously mentioned in this thesis recognition alone is not effective, it has to be a part of a stepped care approach according to guidelines (24,48,49). Patients have to be informed about their anxiety and depression, about evidence-based treatment options (including watchful waiting) and be supported in expressing their preferences.

The results of the RCT on the effectiveness of the tailored interventions add to the evidence supporting the use of tailored interventions to improve the adherence to guidelines, however, no effect was found on symptoms and functioning. Future research should focus on the effects of tailored interventions over a long time period (12 or 18 months) on the adherence of guidelines, patient outcomes and costs. Research should also focus on which tailored interventions are most effective and at which level (i.e. patient, professional and organisation). Tailored interventions were

provided to GPs in the RCT. Although these included interventions addressed to patients (e.g. provision of patient education) and the organisation of care (e.g. stimulating collaboration with mental health professionals), the interventions provided were not directly addressed at the level of the patient or organisation. An important question is whether the time consuming and costly pragmatic iterative design process used, was the most efficient method. A checklist for the identification of barriers and facilitators in healthcare professional practice in implementation research and quality improvement projects may be more efficient (23). Using a checklist for the initial assessment of determinants may improve systematic tailoring by a careful assessment of the perceived barriers and matching tailored interventions. Because the checklist focusses primarily on the healthcare for patients with chronic diseases and is relatively long, future research could focus on the adjustment of the checklist for the uptake of guideline recommendations for anxiety and depression in general practice and in a shortened version. The guidelines for general practice also focus on mild symptoms and may reveal other barriers. The checklist could be used in brainstorming, a low cost method for the identification of barriers and developing tailored interventions (22).

## IMPLICATIONS FOR CLINICAL PRACTICE

Although the value of the recognition of anxiety and depression is a topic of debate (e.g. regarding patient outcomes, treatment initiation, organising and delivering care) (24,48-51), the burden of the disease of anxiety and depression is high and therefore recognition of these diseases in high risk groups is important. To improve recognition by GPs, training only in knowledge and skills is inadequate as the RCT in this thesis showed. Training should be supplemented with supervision and focus on the attitude of the GP. Key topics for supervision should be increasing GP confidence in their ability to identify symptoms of distress, anxiety and depression and the utility of diagnosing as part of a stepped care approach according to guidelines. The disadvantage of interventions such as training (whether or not in e-learning format) and supervision is that only interested GPs participate, even when these are accredited according to quality criteria covering medical performance. GPs are offered much training and they have to make a choice regarding the large number of courses. More sustained quality improvement for patients with anxiety and depression in general practice is needed. A sustainable method may be the development and implementation of a prevention consultation for psychiatric disorders in general practice. The Dutch College of General Practitioners (NHG) supports the development of such innovations. In the Netherlands a prevention consultation has been developed for the prevention of cardiometabolic diseases (52). In short, in a prevention consultation for psychiatric disorders, GP patients could be invited to fill-out a questionnaire (written or computerised) and if they are at high risk for anxiety or depression be invited to visit the GP and obtain tailored advice. In follow-up consultations GPs

and patients would monitor the perceived usefulness of the interventions. Naturally not all patients at high risk of anxiety or depression will complete a questionnaire or visit their GP. To increase their the community care teams who collaborate with GPs could play an important role in the early recognition of psychosocial and mental health problems. To recognise and diagnose anxiety and depression it may be obvious that the patient must have a need for care and be willing to adhere to the intervention when invited patients seem to be well able to verbalise their needs and preferences (8). The quality of the doctor–patient relationship is therefore of importance and the six functions of medical consultations, previously mentioned, may be useful.

Collaboration between GPs, psychologists, psychiatrists, nurses, social workers and pharmacists should be further improved. GPs and their practice nurses play an important role in the estimation of the nature and severity of the problems patients present and the early management of health problems. Collaboration with other professionals in this management is of importance, especially now changes in Dutch mental health care, intended to achieve a controllable growth of mental health care use and expenditure, may induce more care in general practice. Because there is no deductible for care in general practice, in contrast to mental health care provided by other professionals and organisations. Health care insurance should support clinicians through financial incentives that reward collaboration to improve the quality of care for their participants. Clinical decision-support systems may also be supportive in the uptake of guideline recommendations and patient outcomes (53).

In the Netherlands strengthening mental health care in general practice is organised via a health care group or in collaborative health centres in primary care. A care group consists of a legal entity formed by multiple health care providers, who are often GPs. The care group assumes both clinical and financial responsibility for all assigned patients. To improve care by the uptake of guideline recommendations or care programmes derived from guidelines, tailored implementation programmes (i.e. developing interventions to prospectively identified barriers) may therefore be carried out in these ‘care groups’ or collaborative health centres in primary care. The tailored implementation programme should not only be developed by the managers and professionals of the care group or collaborative health centres, but all partners in anxiety and depression care should be involved, because barriers may also be related to availability and accessibility of effective treatment interventions, and patient preferences. Patients and stakeholders such as health care insurance and professionals (e.g. welfare and social workers, public health nurse and mental health care professionals) may therefore be partners in the programme. To achieve a sustainable (continuous) quality improvement of care, tailoring should be an ongoing process, since influencing factors related to professionals, patients, organisations and healthcare systems may change.

In addition to efforts to implement guidelines, guideline development may be modified. Alongside recommendations, guidelines should include indicators so as to monitor the quality of care for patients with anxiety and depression. The development of indicators is consistent with the recently developed public register 'assessment framework quality standards and measuring instruments' from the Care Institute Netherlands (54). Recommendations (e.g. instruments and interventions) and indicators should be tailored to the users (GPs, mental health professionals and patients, health insurance) and be feasible in general practice and within collaboration with the partners in care. Guideline development should include a test period in clinical practice before the finalisation of the guidelines. For instance, in youth health care in the Netherlands such tests are common in guideline development. In such a test phase the feasibility and practicability of the guideline recommendations and indicators can be established. The results of such a test phase determine the definite version of the guideline. The indicators should also be included in the GPs' electronic patient record. To improve performance and patient outcomes the indicators should be monitored. A care programme manager working in a care group or primary care health centre may analyse the electronic patient records to monitor the implementation of the guideline recommendations and patient outcomes and discuss the results with the GP and other partners in care. Fortunately, initiatives developed by care groups or primary care health centres are moving in this direction (18,55).

In conclusion, the results of this thesis suggest that the stepped care approach recommended by the guidelines for anxiety and depression in general practice can be further improved in general practice. Additionally, research into the most effective, efficient, and acceptable stepped care approaches is necessary. The use of tailored interventions may be a solution to improve the uptake of guideline recommendations for anxiety and depression in general practice. More research is needed before large scale tailored implementation can be recommended. Future research should focus on the effects of tailored interventions on patient outcomes and the cost effectiveness.

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## CURRICULUM VITAE

Henny Sinnema werd geboren op 21 Mei 1964 in Leeuwarden. Na het verkrijgen van haar middelbare school diploma (MAVO de Nijehove, HAVO Mariënborg in Leeuwarden), studeerde ze aan de Hogeschool Groningen verpleegkunde (HBO-V) van 1982-1986. Na het behalen van haar bachelor graad werkte zij in verschillende ziekenhuizen, reisde in Azië, volgde de tropencursus voor verpleegkundigen aan het Instituut voor Tropische Geneeskunde in Antwerpen en deed vrijwilligerswerk in Karachi (Pakistan) in de zorg voor kinderen en jongeren met een verstandelijke beperking. Van 1990-1992 werkte zij als groepsbegeleider in de Dr. Henri van der Hoeven kliniek, een centrum voor klinische forensische psychiatrie in Utrecht. In die tijd startte zij met de deeltijd opleiding Maatschappelijke Gezondheidszorg, richting GGZ aan de Hogeschool Utrecht en behaalde in 1993 haar diploma. Van 1993 tot 1997 werkte zij als sociaal psychiatrisch verpleegkundige (SPV) bij de RIAGG Rotterdam Zuid, afdeling Ouderen. Zij volgde de VO-GGZ: Algemene Methodiek-ontwikkeling Groepsbehandeling van 1996-1997. Van 1997-1998 was zij werkzaam als SPV op de deeltijdbehandeling Angst en Dwang van het Universitair Medisch Centrum Utrecht. Van 1998-2006 werkte zij als SPV bij de RIAGG Gooi en Vechtstreek in Hilversum. Eerst 2 jaar in de ambulante ouderenzorg en daarna in de volwassenzorg waaronder detachering naar een huisartsenpraktijk. Zij raakte toenemend geïnteresseerd in de kwaliteit van zorg en startte in 2002 met de studie Gezondheidswetenschappen aan de universiteit van Utrecht. Na het behalen van haar doctoraal-examen ging zij in 2006 bij het Trimbos-instituut werken. Daar heeft ze het onderzoek uitgevoerd dat in dit proefschrift staat beschreven. In haar werk houdt ze zich bezig met de implementatie van wetenschappelijke kennis in de praktijk, onderzoek en richtlijnontwikkeling.

Henny Sinnema is gehuwd met Loes Lanting.





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