

## Research and Theory

# A stepped care programme for depression management: an uncontrolled pre-post study in primary and secondary care in The Netherlands

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## Abstract

**Introduction:** Stepped care strategies are potentially effective to organise integrated care but unknown is whether they function well in practice. This paper evaluates the implementation of a stepped care programme for depression in primary care and secondary care.

**Theory and methods:** We developed a stepped care algorithm for diagnostics and treatment of depression, supported by a liaison-consultation function. In a 2½ year study with pre-post design in a pilot region, adherence to the protocol was assessed by interviewing 28 caregivers of 235 patients with mild, moderate, or severe major depression. Consultation and referral patterns between primary and secondary care were analysed.

**Results:** Adherence of general practitioners and consultant caregivers to the stepped care protocol proved to be 96%. The percentage of patients referred for depression to secondary care decreased significantly from 26% to 21% ( $p=0.0180$ ). In the post-period more patients received treatment in primary care and requests for consultation became more concordant with the stepped care protocol.

**Conclusions:** Implementation of a stepped care programme is feasible in a primary and secondary care setting and is associated with less referrals.

**Discussion:** Further research on all subsequent treatment steps in a standardised stepped care protocol is needed.

## Keywords

stepped care, integrated care, depression management, treatment algorithm, transmural care, liaison-consultation

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## Introduction

Depression is a common and frequently chronic mental disorder that can cause a high burden of disease and long periods of restrictions on psychological and social functioning [1, 2]. In one year, 736,000 people suffer from depression in The Netherlands and in the 18–65 age group costs of depression are estimated at €2,100,000,000 a year, mainly due to the need for care and the absence from work [3, 4]. Depression

varies in severity and prognosis [5, 6]. Whereas fifty percent of the patients with a new major depressive episode recover within three months without intervention, patients who have not recovered six months after onset develop a high risk on chronic depression, estimated at 10–20% after two years. Additionally, whereas 60% of the patients with intervention are in remission after one year, in the year after remission of symptoms relapses occur in 30%, and in the year after full recovery recurrence occurs in 50–60% [7].

This varying course of depression requires fine-tuning of the choice of consecutive treatment strategies.

Instead, although evidence-based clinical guidelines are available, depression is often under-treated or over-treated [8, 9], thus impeding an adequate treatment match based on patient characteristics and nature and severity of symptoms. After the initial diagnosis and treatment in primary and secondary care, there is often no follow-up treatment or additional diagnostic procedure in case of non-remittance [10]. This is a problem of high clinical and societal relevance.

The stepped care model could provide a solution to this problem by aiming to initiate interventions at the right time and adequately: not earlier or more intensely than necessary, not later or less intensely than needed [11–15]. Stepped care strategies prevent unnecessary treatment for most of the patients who will recover spontaneously or with minimal interventions. Symptoms are monitored carefully and patients who fail to respond or exhibit insufficient signs of recovery are easily detected and given appropriate treatment, ‘stepping up’ the treatment intensity.

In Dutch clinical practice, however, until this moment there are no sufficient practical tools to facilitate clinical decision-making and structured collaboration among caregivers to support stepped care treatment strategies tailored to individual needs. Moreover, although stepped care strategies are potentially an effective way to organise integrated health care services [11, 16–19], little is known about whether stepped care programmes function well in practice.

In our study, for the first time, a stepped care programme for depression in primary and secondary care was developed and tested in one region in The Netherlands. The programme consists of a stepped care protocol in which a five-step algorithm for the diagnostics and treatment of depression is supported by a liaison-consultation function. The aim of the stepped care protocol is to facilitate clinical decision-making on the diagnostics and treatment of depression in primary and secondary care by improving diagnostic and treatment procedures for depressive disorder along the spectrum of severity.

## Theory and methods

### Theory and hypothesis

Our hypothesis was that the stepped care programme would result in relatively fewer referrals to the Mental Health institution because appropriate treatment is delivered in primary care. The underlying assumption

based on the stepped care model is that working with the stepped care algorithm supported by the liaison-consultation function improves coordination and cooperation between primary care and the Mental Health institution. In the application of the stepped care algorithm, consultation and referral are regarded as vital links between the various treatment steps. The stepped care protocol should integrate care processes across the care continuum and enable a clear division of tasks and responsibilities, leading to better quality of care at the patient level.

### Design

This 2<sup>1</sup>/<sub>2</sub> year study follows an uncontrolled pre-post design evaluating the implementation of the stepped care protocol. The development and implementation of the stepped care protocol followed the method of programme evaluation in which intermittent evaluation based on interview data served the continuous improvement of the stepped care programme [20].

Main outcomes on consultations and referrals are presented for the pre-period (January 2000 to March 2001) and post-period (April 2001 to June 2002). The reporting follows the TREND statement for non-randomised evaluations [21].

### Setting and subjects

The study was conducted from January 2000 to June 2002 in the pilot region Zeeuws-Vlaanderen, a catchment area of 380,226 inhabitants in the south of The Netherlands with 120 general practices and one Mental Health institution having 9700 outpatient contacts a year and facilities for inpatient treatment of 290 patients. The pilot region is comparable to other regions in The Netherlands regarding the GP’s role in depression care with respect to the understanding of one’s tasks in diagnostics and treatment, and experienced bottlenecks in communication and cooperation with other caregivers, including consultation and referral [22].

Study subjects are patients in the 18–65 age group who sought treatment from a general practice or the Mental Health institution for a mild, moderate, or severe major depression as established in a psychiatric interview according to the DSM-IV criteria [23]. Patients with a manic episode, psychotic symptoms or suicidal ideation were excluded.

### Intervention

The main component of the programme is the stepped care protocol, i.e. a five-step algorithm for the diag-

nostics and treatment of depression supported by a liaison-consultation function. In the stepped care algorithm, evidence-based treatment options and the sequence in which the interventions are considered are based on the state-of-the-art according to the Dutch Multidisciplinary Guideline for Depression [24] and the General Practitioners (NHG) Standard for Depressive Disorder [25] (see [Box 1](#) and [Figure 1](#)). The treatment options were standardised as modules in the stepped care programme [26]. For each treatment option directions for monitoring and evaluation as key elements in stepped care, were described.

In the liaison-consultation function the Mental Health institution psychiatrist or psychotherapist advises the general practitioner (GP) on request for any reason, for example on diagnosis, treatment and referral according to the stepped care algorithm. The stepped care protocol describes how consultants in the liaison-consultation function can be reached, how patients should be referred within the primary care system and from primary care to secondary care, how the referring GP should be informed about the treatment progress, and how the care process should be coordinated between the GP and other caregivers according to the five steps in the algorithm with explicit decision points for evaluating diagnosis and treatment.

## Development and implementation

To develop and implement the stepped care protocol a regional multidisciplinary task force was established with 4 GPs and 2 social workers, 1 psychologist/psychotherapist and 1 pharmacist in primary care, 4 psychologists/psychotherapists and 2 psychiatrist from the Mental Health institution, as well as researchers from the Trimbos Institute. The work group met at 10 bimonthly sessions to discuss the applicability, practical usefulness and clinical value of the stepped care protocol, in the first stage resulting in criteria for the programme evaluation (see [Process and outcome measures](#)).

The stepped care protocol was introduced in the region at regular meetings for continuing education of caregivers. An expert committee supervised the process at three-monthly meetings where the stepped care protocol was presented for feedback. Based on intermittent findings in the interview data the stepped care protocol was adjusted.

To preclude a Hawthorne effect, the task force that developed the stepped care protocol was a different group of caregivers (n=14) than the group that put the protocol into effect (n=28). The task force instructed a group of colleagues to use the stepped care protocol in daily practice. Only 5 caregivers participated in both groups. All 28 caregivers were interviewed for evaluation purposes (see [Data collection and Analysis](#)).

## Data collection

### Source I: description of caseloads and process measures

The participating caregivers selected from the patients in the 18–65 age group in their caseload every patient whom they had treated for a mild, moderate, or severe major depressive disorder in the past six months. A total of 235 patients were eligible for the evaluation, which is 3–5 per caregiver. Data were collected in a baseline interview with the caregivers at the start of the project (T0) and two follow-up interviews after 6 months (T1) and after 12 months (T2), all with the same interviewer. These semi-structured interviews provided data on patient characteristics in their caseloads and process measures on treatment policy for these patients, as well as data for the intermittent programme evaluation (see [Table 1](#)).

### Source II: consultations and referrals

Institutional data on the 164 consecutive patients who were subjects of consultations by caregivers of the Mental Health institution, and on the 344 consecutive referrals for depressive disorder, were recorded by

#### Box 1. Interventions in the stepped care algorithm for diagnostics and treatment of depression

The five-step algorithm cites the sequence in which minimal interventions, systematic psychotherapy, biological therapy and non-specific interventions for support, care and reintegration are considered when initiating and adjusting individual treatment policy ([Figure 1](#)). Treatment choices are jointly made by the caregiver and patient at structured evaluation moments based on nature and severity of symptoms, earlier treatment results, treatment progress and patient preferences until the treatment goals are reached.

Step 1, the least invasive intervention, consists of psycho-education or a self-help course, e.g. in the form of bibliotherapy [27]. In Step 2, practical interventions, counseling, brief problem-solving therapy or running therapy are initiated. Step 3 consists of cognitive therapy, cognitive behavioural therapy, interpersonal therapy, pharmacotherapy or St. John's Wort. In Step 4 either of the forms of psychotherapy or pharmacotherapy is added to Step 3. In seasonal depression light therapy is offered instead. If Step 5 is needed to support the interventions in a therapeutic setting or after pharmacotherapy, admission of electro convulsion therapy is indicated. Each step is succeeded by relapse prevention, aftercare or individual reintegration. Interventions are standardised to facilitate the appropriate treatment choices and referrals, anticipating the effectiveness of treatment alternatives and making a comparison possible of the treatment evaluation (see [Figure 1](#)).

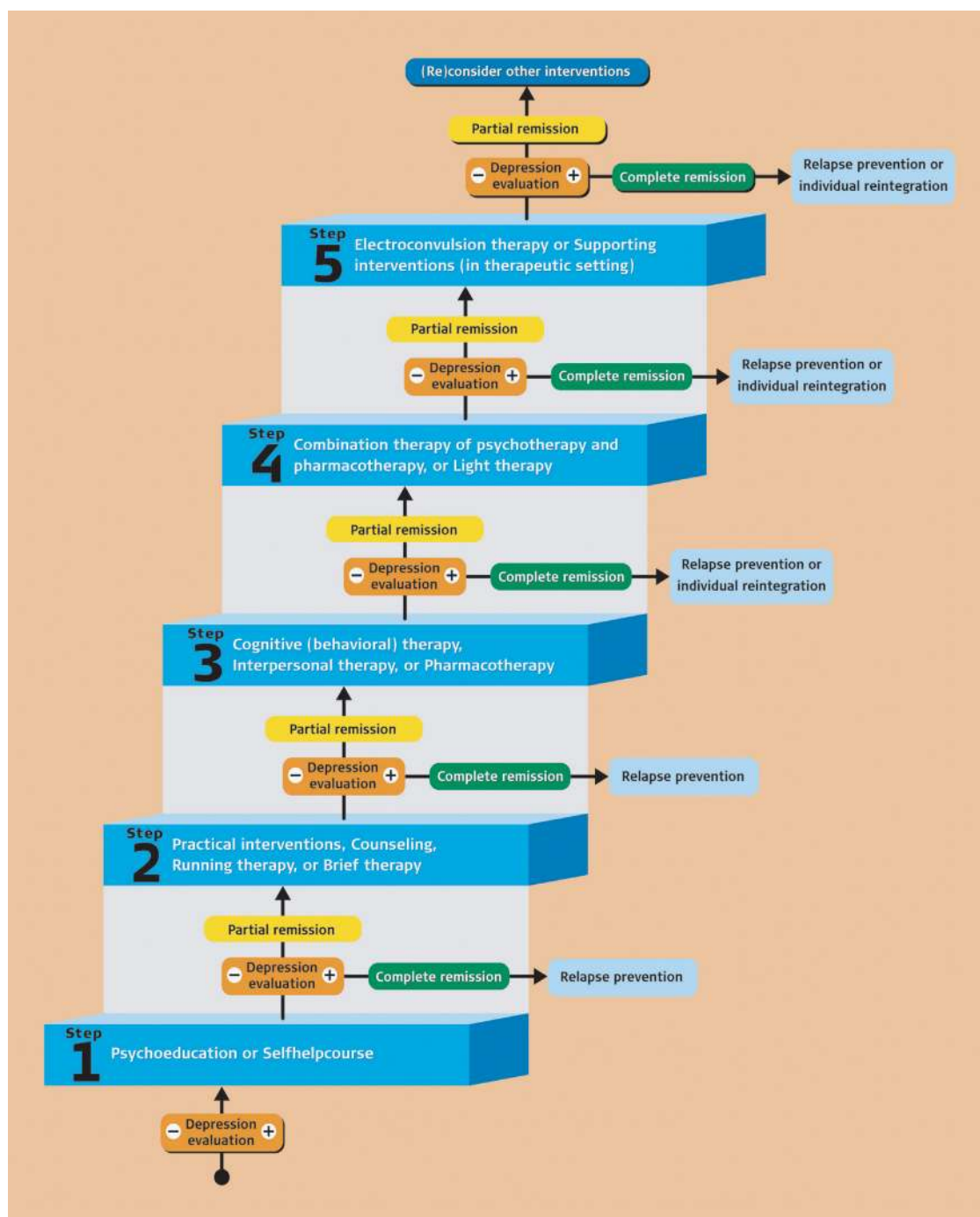


Figure 1. Stepped care algorithm for diagnostics and treatment of depression.

the research coordinator during the study period, providing data on the main outcomes (see Table 1). For the timeline in data collection see Figure 2.

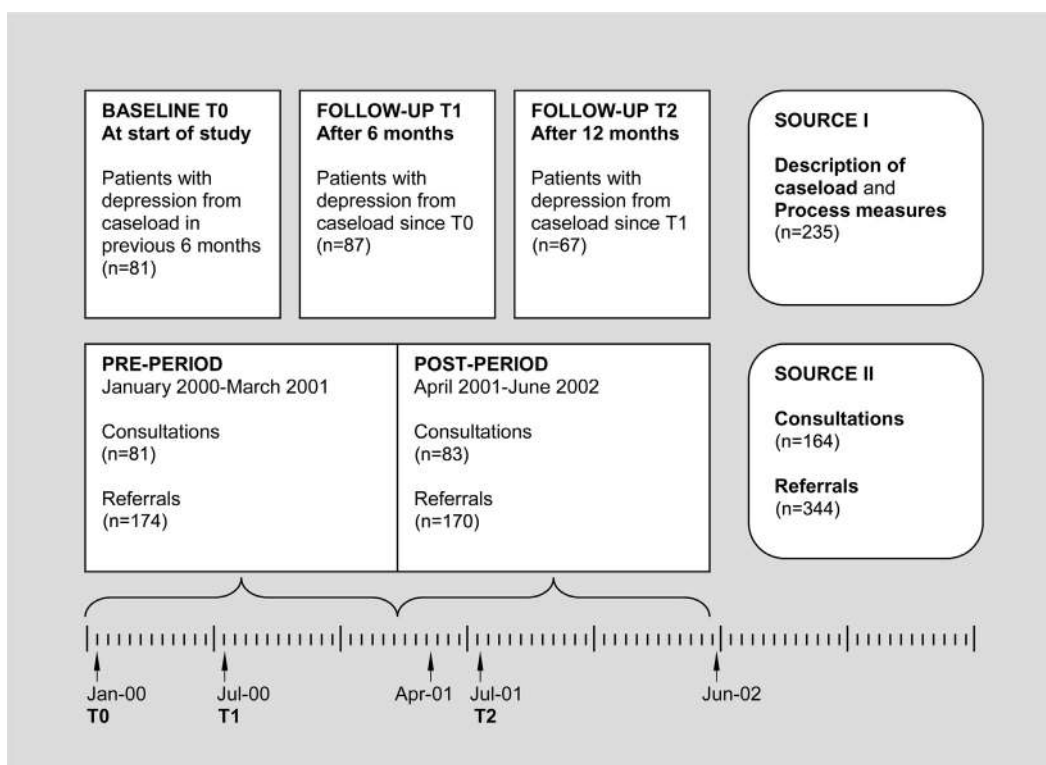
### Process and outcome measures

Process measure was adherence of GPs and caregivers at the Mental Health institution to the stepped

care protocol. This was assessed by self report in the semi-structured interviews providing data for Source I on the question whether the caregiver treats patients in accordance to the stepped care protocol. Also, the clinical value of its application as perceived by caregivers was asked for. Main outcomes measured are number of consultations and referrals as well as consultation and referral characteristics such as reasons for consultation and referral. Furthermore, the

**Table 1.** Constructs, data sources, assessments, number of patients and unit of analysis

<b>Data source</b>	<b>Assessment</b>	<b>Number of patients</b>
Source I	Semi-structured interviews (n=28) with caregivers at T0 (n=19; 10 GPs and 9 caregivers from the Mental Health institution), T1 (n=24; 8 GPs, 8 caregivers from the Mental Health institution, 6 social workers, and 2 primary care psychologists) and T2 (n=20; 8 GPs and 8 caregivers from the mental health institution, 3 social workers, and 1 primary care psychologist)	T0: n=81 patients with depression from caseloads in previous 6 months T1: n=87 patients with depression from caseloads since T0 T2: n=67 patients with depression from caseloads since T1
<b>Constructs (process measures)</b>		<b>Unit of analysis</b>
<ul style="list-style-type: none"> <li>• Description of caseloads</li> <li>• Adherence of caregivers to stepped care protocol</li> <li>• Clinical implications according to caregivers at T2</li> </ul>		Patient level Caregiver level Caregiver level
Source II	Institutional data on consultations in pre-period and post-period	n=164 Pre-period: n=81 Post-period: n=83
<b>Constructs (outcome measures)</b>		<b>Unit of analysis</b>
<ul style="list-style-type: none"> <li>• Patient and consultation characteristics</li> <li>• Reason for consultation</li> <li>• Number of consultations</li> </ul>		Patient level Caregiver level Institutional level
Source II	Institutional data on referrals in pre-period and post-period	n=344 Pre-period: n=174 Post-period: n=170
<b>Constructs (outcome measures)</b>		<b>Unit of analysis</b>
<ul style="list-style-type: none"> <li>• Patient and referral characteristics</li> <li>• Reason for referral</li> <li>• Number of referrals</li> </ul>		Patient level Caregiver level Institutional level



**Figure 2.** Timeline in data collection in Source I and Source II.

Mental Health institution and neighbouring Mental Health institutions were asked if they used the protocol after completion of the study.

## Analysis

Descriptive statistics on sociodemographic variables and clinical characteristics included mean and frequency analyses using *t*-tests and  $\chi^2$ -tests. Mann-Whitney and Fisher-Exact tests were used for the pre-period and post-period outcome comparisons.

## Results

### Patient characteristics

No significant differences in the caseloads of interviewed caregivers at the several measurement points were found. Patient characteristics and established diagnostic categories for consultation and referral are summarised in Table 2.

The figures on the consultation of in total 164 depressed patients constitute 39% of all the consultation contacts in the study period. No significant differences in demographic characteristics were found between the pre-period and post-period. Also, patients in the pre-period and post-period did not differ significantly in the number of complaints or the preceding history of the symptoms.

The institutional referral figures on the 344 depressed patients pertain to 24% of all the patients referred to the Mental Health institution in the study period in the region. No significant differences in patient characteristics were found between the pre-period and post-period. A significant difference is found between the periods on axis IV, with more psychosocial or social problems co-occurring in the pre-period (62% vs. 76%;  $p=0.0006$ ). These patients appear to have been less frequently referred to the Mental Health institution in the post-period, in accordance with the stepped care protocol.

**Table 2.** Patient characteristics and diagnosis

	Consultations n = 164	Referrals n = 344
Age (mean years)	47	39
Female	102 (62%)	211 (61%)
Living with partner and child(ren)	52 (31%)	–
<b>Mental disorder</b>		
Co-morbid problems on axis I	78 (48%)	82 (24%)
Anxiety disorder	35 (21%)	30 (9%)
Substance abuse disorder	7 (4%)	25 (7%)
Relationship problems	25 (15%)	

### Number and reasons for consultation and referral

Pre-period and post-period observations on the numbers of patients and reasons for consultation and referral are summarised in Table 3.

In the post-period, the reasons for consultation increased significantly from mean 1.56 to mean 1.81 ( $p=0.0037$ ). The frequency of consultations on the communication or interaction of caregivers with the patient, instead of for example medication being prescribed, increased significantly from 9% to 33% ( $p=0.0000$ ). In the post-period, the reasons for referrals are more frequently specified than in the pre-period.

Whereas the total number of referrals remains about the same, the comparative number of referrals for depression from primary care to the Mental Health institution significantly decreases from 26% of all referrals in the pre-period to 21% of all referrals in the post-period ( $p=0.0180$ ). The percentage of depressed patients who come in for consultation does not differ significantly between the pre-period and post-period. These findings confirm our study hypothesis.

### Adherence

The interviewed caregivers reported significant improvement from 88% adherence to evidence-based guidelines on depression at baseline to 96% adherence to the stepped care protocol at follow-up ( $p=0.0089$ ). In the small non-adherent group, reasons for non-adherence to the stepped care protocol include: fear of following the stepped care protocol rigidly or inflexibly and criticism of protocols in general, an excessive workload that does not leave time for change and the expectation of extra consultation time involved, the excessive number of disciplines involved and not knowing other caregivers well enough, unfamiliarity with the protocol, dealing with old routines by colleagues, or no need for a protocol assuming that one implicitly follows the protocol.

**Table 3.** Number and reasons for consultations and referrals

Consultations	Pre-period n=81	Post-period n=83	Statistic
Percentage of subjects for consultation for depression	41%	38%	n.s.
Consultation asked by			
GP	65 (80%)	48 (58%)	n.s.
Other	16 (20%)	48 (42%)	n.s.
Consultation given by			
Psychiatrist	69 (85%)	52 (63%)	n.s.
Psychologist/psychotherapist	7 (9%)	7 (8%)	n.s.
Consultation by telephone	58 (72%)	61 (73%)	n.s.
Mean number of reasons for consultation	n=81 1.56 ± 0.69	n=83 1.81 ± 0.83	t-test t = -2.105; df = 162; sig = 0.037
Topic of consultation advice	n=81	n=67	
Medication	50 (62%)	39 (58%)	n.s.
Advice on referral	21 (26%)	25 (37%)	n.s.
Other treatment advice	29 (36%)	17 (25%)	n.s.
Advice on communication and interaction with the patient	7 (9%)	22 (33%)	$\chi^2 = 13.623$ ; df = 1; sig = 0.000
Advice on diagnostics	18 (22%)	11 (16%)	n.s.
Advice on somatic diagnostics	2 (2%)	0 (0%)	n.s.
Other topic	0 (0%)	3 (4%)	$\chi^2 = 3.702$ ; df = 1; sig = 0.054
Referrals	Pre-period n = 174	Post-period n = 170	Statistic
Percentage of referrals for depression	26%	21%	Fisher Exact sig; p = 0.0180
Referral	n = 171	n = 168	
By GP	150 (88%)	154 (92%)	n.s.
By other	21 (12%)	14 (8%)	n.s.
Reason for referral (if given)	n = 99	n = 138	
Severity of symptoms	48 (49%)	71 (51%)	n.s.
No recovery	21 (21%)	28 (20%)	n.s.
Indication for psychotherapy	6 (6%)	16 (12%)	n.s.
Direct intervention needed	0 (0%)	5 (4%)	n.s.
Unclear diagnosis/treatment	12 (12%)	16 (12%)	n.s.
Other reason	12 (12%)	2 (1%)	$\chi^2 = 16.741$ ; df = 5; sig = 0.005

## Clinical implications according to caregivers

The perceived clinical implications in the post-period are summarised in Table 4. According to the caregivers interviewed at T2, the stepped care programme provides a structured, standard approach that highlights the clinical decisions to be made during the care process. The way the care process is organised becomes more transparent. Various disciplines share a frame of reference with the stepped care protocol, and have a shared view on an integrated care process in which each caregiver's tasks and responsibilities are defined.

## Implementation at end of the study

The stepped care protocol is still being used in the pilot region. To the general satisfaction of the GPs,

the liaison-consultation function has been expanded to include a psychologist from the secondary mental health care institution operating structurally in 60% of the general practices. Two Mental Health institutions in neighbouring regions that were asked if they used the protocol did so to their satisfaction: a neighbouring region in The Netherlands, Brabant, has adapted the protocol, as has a region in Belgium with 500,000 residents with good results [28, 29].

## Discussion

### General conclusions

This study shows that adherence to the stepped care protocol can be reached. The comparative number of referrals from primary care to the Mental Health institution decreased significantly while the percentage of

**Table 4.** Clinical implications of stepped care protocol perceived by caregivers

<p><b>Appropriate treatment</b></p> <ul style="list-style-type: none"><li>• Earlier recognition of depression</li><li>• Timely referral if necessary</li><li>• More patients receive adequate treatment</li><li>• Less under-treatment, less over-treatment</li></ul> <p><b>Collaborative care and streamlining the care process</b></p> <ul style="list-style-type: none"><li>• Support by inter-collegial consultation on diagnostics and treatment choice</li><li>• Improved consultative structure and feedback with referrer on treatment results</li><li>• Improved gearing of follow-up activities</li></ul> <p><b>Other quality of care aspects</b></p> <ul style="list-style-type: none"><li>• Support on clinical decision-making</li><li>• Improved monitoring of the course of depression and evaluation of treatment results</li><li>• Shorter waiting times and accessible care for the patient</li><li>• Explicit and efficient process, increased reference points</li></ul>
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patients for whom consultation was requested remains the same. In the post-period, more patients received treatment in the primary care setting. The number of reasons for consultation increased per patient and consultation questions pertaining to the preferable caregiver's way of communicating or interacting with the patient rise in the post-period. According to the interviewed caregivers, the stepped care protocol plays an important role in supporting diagnostics, treatment choices and intermittent evaluations at critical decision points in the stepped care treatment strategies. These findings confirm our study hypothesis. They are consistent with randomised clinical trials showing that collaborative care or support interventions improve patient outcomes [16, 17, 30–32].

### Limitations of the study

One limitation of the study might be that coordination and cooperation would be improved as a specific effect by better collaboration between caregivers, regardless of the content of the care process, but this was not borne out by the results: over 90% of the caregivers adhered to the stepped care protocol. However, adherence to the stepped care protocol was assessed by self report in semi-structured interviews, which possibly resulted in an overestimation of adherence. Also, the pilot region might be differing from other regions in self reported adherence to evidence-based guidelines at baseline, although we have no reason to assume that adherence to guidelines or protocols is varying between regions.

In this study we had no data describing the flow per patient through the programme, only clustered institutional data indicating that patients are sufficiently dealt with at lower steps. More specific results should

be established in a randomised clinical trial exploring the effectiveness all subsequent steps as well as of the entire protocol.

### Research implications

In this study, the liaison-consultation function facilitates implementation of the stepped care algorithm. This is in line with studies describing several types of multidisciplinary consultation about diagnosis, treatment or referral, such as the nurse practitioner or the psychiatrist [30–35]. In this study, we did not distinguish consultation as a separate step as in other studies [15], assuming it can be supporting all interventions in the stepped care algorithm [36, 37]. As regards the actual sequence of evidence-based interventions, deviating from other studies [38, 39], we position pharmacotherapy either in the same step or after brief psychotherapy such as cognitive or cognitive behavioural therapy or interpersonal therapy. This is in line with the Dutch evidence-based multidisciplinary guideline for depression.

In Dutch secondary health care, it is common for patients to follow an extensive procedure matching treatment choice to patient characteristics prior to the start of treatment based on specific patient needs and characteristics. In a pragmatic randomised trial on the treatment of anxiety and depression at secondary mental health centres, this extended procedure proved to be no more effective than either brief therapy with restrained sessions or cognitive therapy as a first step, demonstrating that brief therapy can be a more efficient first step [40]. These findings support the intervention sequencing in Steps 2 and 3, as in the stepped care algorithm described in this paper.

This is the first and only completed study in The Netherlands to systematically evaluate the feasibility of a stepped care algorithm with standardised treatment steps covering the whole continuum from prevention, diagnostics, cure and care to reintegration, based on evidence-based guidelines. Given the positive outcome of this study, an explorative study that gives directions for clinical parameters for 'stepping up' in the stepped care algorithm will be interesting. A cost-effectiveness study should be performed to establish the efficiency of following all treatment steps in a standardised stepped care protocol.

### Further implementation

As is shown by the implementation follow-up the stepped care protocol is adopted and can be generalised to other regions and the barriers perceived before implementation can be accounted for. In a



'breakthrough series approach', parts of the stepped care protocol have been adapted for implementation nationwide to improve the quality of care [41]. This demonstrates that the five step algorithm together with a supportive liaison-consultation function between primary and secondary care is a feasible and generalisable method to implement evidence-based diagnostics and treatment for patients with a depressive disorder in The Netherlands.

## Conclusion

Our study can contribute to clinical practice in three ways: by structuring treatment steps across the care continuum, by supplying practical tools that enable caregivers to choose evidence-based treatment strategies regarding the severity and course of depression, and by demonstrating the feasibility of the stepped care protocol in daily practice.

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