Sickness absence and return to work in workers with major depressive disorder

Vlasveld, M.C.

2012

document version
Publisher's PDF, also known as Version of record

Chapter 6

Collaborative care for sick-listed workers with major depressive disorder: A randomised controlled trial from the Netherlands Depression Initiative aimed at return to work and depressive symptoms

This chapter was based on:
Vlasveld M.C., van der Feltz-Cornelis C.M., Adèr H.J., Anema J.R., Hoedeman R., van Mechelen W., Beekman A.T.F. Collaborative care for sick-listed workers with major depressive disorder: a randomised controlled trial from the Netherlands Depression Initiative aimed at return to work and depressive symptoms. (Submitted)

ABSTRACT

Objectives Major depressive disorder (MDD) is associated with absenteeism. In this study, the effectiveness of collaborative care, with a focus on return to work (RTW), was evaluated in its effect on the duration until RTW and on depressive symptoms in sick-listed workers with MDD in the occupational health setting (OHS).

Methods In this randomised controlled trial, 126 sick-listed workers with MDD were randomised to usual care (N=61) or collaborative care (N=65). Collaborative care was applied by the occupational physician care manager (OP-CM), supported by a web-based tracking system and a consultant psychiatrist. Treatment included Problem Solving Treatment, manual guided self-help, a workplace intervention and antidepressant medication. Primary outcome measure was the duration until full RTW. Secondary outcome measures were the time to remission, time to response for participants who did not achieve remission, and depressive symptoms as continuous outcome measure.

Results With a median of 180 days in the collaborative care group, and 199 days in the usual care group, the groups did not differ significantly from each other in the duration until lasting, full RTW. Collaborative care participants did have a shorter time to response. However, no difference was found on time to remission or depressive symptoms as continuous outcome measure.

Conclusions Although time to response was shorter in the collaborative care group, the results do not justify a widespread implementation of collaborative care as operationalized here in the OHS. Further research is needed to develop the best fitting model for addressing RTW in depressed sick-listed workers.

Trial registration: ISRCTN78462860

INTRODUCTION

Major depressive disorder (MDD) is strongly associated with negative work outcomes such as absenteeism [1,2]. In the Netherlands, workers with MDD have 8 to 9 times more absence days than their colleagues without MDD, and with a mean duration of 200 days, absences due to depressive symptoms often have a long duration [3-5]. Moreover, MDD is the largest contributor to the total number of sickness absence days in the Dutch working population, generating an annual cost of 1.8 billion Euros [6]. Besides placing a high financial burden on society, prolonged absence from work has important consequences for the quality of life of the depressed, sick-listed worker as well [7]. Therefore, reducing sickness absence and stimulating return to work (RTW) is important.

Sickness absence and RTW are multifactorial phenomena, influenced by the health condition and personal characteristics of the worker as well as by environmental factors such as the workplace and the health care system [8-10]. In line with this multidimensionality, research showed that a reduction in depressive symptoms does not automatically lead to RTW [11-13]. Thus, focusing treatment solely at symptom reduction is not sufficient. To achieve a more rapid RTW as well as a reduction in depressive symptoms in sick-listed patients with MDD, a focus on both aspects is essential in treatment [11-13]. Moreover, current evidence suggests that interventions aimed at RTW need to take into account the work environment and could be best delivered by professionals who are close to, and familiar with, the work environment, such as labor experts or occupational physicians (OPs) [13,14]. In the Netherlands, OPs play a central role in the guidance of sick-listed workers. However, in the Dutch social legislation, treatment and sickness certification are separated from each other, and as a consequence of that separation, there is a lack of collaboration and communication between OPs and the curative sector and a lack of focus on RTW in the curative sector, which both hamper the recovery towards RTW [15,16]. Also, waiting lists hamper the referral from the occupational health service to the specialty mental health setting.

To overcome these barriers, in the present study a collaborative care model with a focus on RTW was applied in the treatment of sick-listed patients with MDD by OPs in the occupational healthcare setting, in order to avoid waiting lists and communication problems. Collaborative care was developed in the United States as a primary care treatment model for MDD, and the effectiveness of this treatment model in reducing depressive symptoms has been shown in many studies [17,18]. In collaborative care, a care manager coordinates care, offers a short, structured intervention such as Problem Solving Treatment (PST) and monitors treatment progress regularly. In addition, a consultant psychiatrist is available for expert input. In the present study, a similar intervention was provided by an OP-care manager (OP-CM) in combination with a workplace intervention. The workplace intervention was aimed at eliminating barriers for RTW and involved the worker, the OP-CM and the employer [19]. By combining the workplace intervention with interventions aimed at the worker (such as PST) and by having the collaborative care treatment applied by an OP-CM, the intervention in this study was expected to reduce both the duration until RTW and the severity of depressive symptoms. In a previous study among workers with common mental disorders, linking the expertise of OPs with that of a consultant psychiatrist resulted showed promising results on reducing the duration until RTW [20]. In the present study, a more comprehensive treatment model for MDD, the collaborative care model, was evaluated for its effectiveness, with a web-based tracking system and a consultant psychiatrist

supporting the OP-CM. Results of this study at 3 months after baseline have been described elsewhere, showing that collaborative care was more effective than usual care in terms of response for depressive symptoms, which is a reduction in symptoms of at least 50% [21]. Although no effect for collaborative care could be found on depressive symptoms as a continuous outcome measure, post hoc analyses found collaborative care to be more effective than usual care among those with moderately severe depression [21]. Here the results of the 12-month follow-up are presented, reporting on the effect of collaborative care on RTW as well as on depressive symptoms.

METHODS

Study oversight

This study is part of the Depression Initiative, a national program aimed at improving depression care in the Netherlands [22]. A steering group reviewed design and methods initially, adherence to the research protocol every 4 months and outcomes and analyses every 6 months.

Study design

The study is a randomised controlled trial (RCT) in which the effectiveness of a collaborative care treatment for MDD was compared to usual care in the Dutch occupational healthcare setting. The study was carried out within a large occupational health service in the Netherlands. Randomisation took place at patient level. In both groups, the participants received sickness guidance and certification as usual by their company's OP. In addition, participants allocated to the intervention group received the collaborative care treatment from an OP-CM, who was guided by a web-based stepped care protocol and a consultant psychiatrist. Participants allocated to the usual care group were not referred to the OP-CM. In both groups, participants were free to engage in any other treatment as well. The study protocol was approved by the Medical Ethics Committee of the VU University Medical Center and is described in greater detail elsewhere [23]. According to the power calculation, as described in the study protocol, 126 participants were needed [23]. The trial was also approved by the EMGO scientific committee of the VU University Medical Center.

Study population and recruitment procedures

Workers on sickness absence between 4 and 12 weeks whose absence was diagnosed by the OP as due to mental disorders, were screened for depressive symptoms [24]. The 9-item depression subscale of the Patient Health Questionnaire, the PHQ-9, was used as screener. The PHQ-9 ranges from 0 to 27 and is a reliable instrument for detecting depressive disorders and for monitoring treatment response [25]. All workers who reached the cut-off score of 10 for at least moderate MDD and who gave initial informed consent were contacted by a research assistant for the administration of the mini-International Neuropsychiatric Interview (MINI) by telephone [26,27]. Sick-listed workers between 4 and 12 weeks who met the DSM-IV criteria for MDD according to the MINI and gave written informed consent were included in the study. Workers who were suicidal, psychotic or had a primary diagnosis of substance abuse or dependence, as assessed by the MINI, were excluded from the study. In addition, workers with insufficient command of the Dutch language to fill out the questionnaires, those who were pregnant and those with a legal involvement against their employer, were excluded.

Randomisation and blinding

While assessing eligibility for the study, both the research assistant and the participant were blinded for the allocation. Computer-generated randomisation took place at participant level by the research assistant, who informed the participant about the allocation. Data were collected by self-report questionnaires, in order to exclude the possibility of interviewer bias. Because OP-CM were only assigned to workers in the intervention group, contamination between the two groups was unlikely to occur. The workers in the intervention group thus had two OPs: one OP-CM providing collaborative care and one OP providing regular guidance aimed at RTW. The usual care group only had regular guidance aimed at RTW.

Interventions

Collaborative care intervention

The collaborative care intervention provided by the OP-CM contained the following elements: 6 to 12 sessions of Problem Solving Treatment (PST), manual-guided self-help, a workplace intervention and, depending on patient preference, prescription of antidepressant medication according to a treatment algorithm. PST is a brief, structured psychological intervention aimed at teaching the worker problem solving skills [28]. The self-help manual used in this study was based on several existing self-help books and focused on cognitive restructuring, RTW and aspects of healthy lifestyle [29]. The workplace intervention, in which the worker, the OP-CM and the employer participated, consisted of a workplace assessment and work adjustments. In the workplace intervention, the employer and the worker both pointed out barriers for RTW, brainstormed for possible solutions and made a plan for implementation of the solutions [19]. The treatment was closely monitored by the OP-CM, using the PHQ-9 as monitoring instrument. A web-based tracking system was developed to support the OP-CM in monitoring treatment outcomes and in adhering to the stepped care protocol. In case of questions regarding the treatment, the prescription of antidepressants, or (lack of) progress of the worker, the OP-CM was prompted by the web-based tracking system to consult the psychiatrist who was available for this. The content of the collaborative care intervention in this study is described elsewhere more extensively [23].

In accordance with the separation of treatment and sickness guidance in the Dutch legislation, the collaborative care treatment and sickness guidance were separated from each other in this study. Therefore, communication between the company's OP and the OP-CM followed existing Dutch laws and guidelines and was only allowed after written informed consent by the participant [30]. The OP-CMs received a two-day training prior to the study, and supervision during the study, in order to be able to fulfill the role of care manager.

Usual care

In the Netherlands, sick-listed workers start to visit the company's OP before the sixth week of sickness absence. The guidance of company's OP is protocollized according to the OP guidelines of the Dutch Board for Occupational Medicine [31]. However, in practice, whether or not sick-listed workers will receive treatment for MDD may vary considerably. Therefore, the actual care that was provided was assessed by questionnaire in both groups.

Outcome measures and data collection

Data were collected by self-report questionnaire at baseline and 3, 6, 9 and 12 months after baseline. Sickness absence data were derived from the register of the occupational health service one year after randomisation.

Primary outcome measure

The primary outcome measure was the duration until lasting, full RTW, defined as the duration of sickness absence due to MDD in calendar days, from the day of randomisation until full RTW for at least 4 weeks without partial or full recurrence. In accordance with the Dutch Health Law, 2 sickness absence episodes with less than 4 weeks of full RTW in between, were counted as a single, continuous absence episode. Data were censored for workers whose sickness absence ended because they resigned. In addition, the total number of sickness absence days was assessed, calculated for the entire follow-up period.

Secondary outcome measure

Remission is defined as a score of less than 5 on the PHQ-9. Response is defined as a reduction in depressive symptoms of at least 50% [25]. Secondary outcome measures in this study were time to remission, and time to response for participants who did not achieve remission. The PHQ-9 as a continuous outcome measure was also reported, and post hoc, the intervention effect was explored in participants with a baseline PHQ-9 score of at least 15 [21]. In addition, the actual health care utilization in both groups was assessed with the Trimbos/iMTA questionnaire for Costs associated with Psychiatric Illness (TiC-P) [32].

Covariates

Demographic data such as age, gender, marital status, educational level and nationality were collected. Co-morbid chronic medical illness was measured with the Dutch Central Bureau of Statistics (CBS) list [32]. The Patient Health Questionnaire (PHQ) was used to measure anxiety (including generalized anxiety and panic) and somatic symptoms [33,34]. Job characteristics were assessed with the Job Content Questionnaire (JCQ), including decision latitude, psychological job demands, physical job demands, job insecurity and social support [35].

Statistical analyses

Most analyses were performed using multilevel analysis with 3 levels: Time to administration, participant and participant nested within OP-CM. Analyses were performed according to the intention-to-treat principle. In addition, per-protocol analyses were performed, comparing the usual care participants with the collaborative care participants who actually had visited the OP-CM and examining the influence of the separate collaborative care elements (PST, antidepressant medication, psychiatric consultation and the workplace intervention) as well. The duration until lasting RTW was analyzed using accelerated lifetime (log-duration) models. Covariates were considered as an effect modifier if the interaction term had a significant p-value ($p<.05$). The total number of sickness absence days during the entire follow-up period was compared between both groups by using the Mann-Whitney U test, performed with SPSS 15.0 software. The analysis of the secondary outcome measures proceeded in two steps. First, it was examined whether the usual care group and collaborative care significantly differed

from each other in the odds of not achieving remission or response, using logistic multilevel regression analysis. Second, time to remission or response were analyzed for the participants who had achieved remission or response, using linear multilevel regression analyses. For an extended discussion of the coding scheme for the variables time to first remission/response, its properties and the way it was analyzed using multilevel analysis see Adèr [36]. The PHQ-9 as a continuous outcome measure was also analyzed using linear multilevel regression analyses, using the depressive symptom severity at screening as baseline correction. All multilevel analyses were performed with MLwiN software, version 2.15. Propensity scores were calculated and included in all models to correct for possible selection bias.

RESULTS

Participants and baseline characteristics

The recruitment of participants lasted 22 months. During that period, 14.595 workers on sickness absence between 4 and 12 weeks due to psychological causes were screened for depressive symptoms. 368 Workers refused to participate in the screening. A total of 2955 workers (20.2%) participated in the screening, of which 52.5% (N=1551) screened positive for depression. Of the screened-positive workers, 1425 workers were excluded for various reasons, which are shown in Figure 1. Finally, 126 participants were included in the study and were randomised in the usual care group (N=61) or the collaborative care group (N=65). Baseline characteristics of the participants are shown in table 1. With regard to the self-report questionnaires, the loss to follow-up rates at 3, 6, 9 and 12 months were respectively 22.2%, 28.6%, 33.3% and 41.3%. Both groups did not differ significantly from each other on the loss to follow-up rates ($p>.05$).

Return to work

Within the one year follow-up, 64.6% of the collaborative care participants and 59.0% of the usual care participants had achieved lasting, full RTW. The median duration until lasting, full RTW, calculated from the day of randomisation, was 180 days in the collaborative care group, and 199 days in the usual care group. In the collaborative care group, 13.8% of the participants (N=9) were censored because they resigned, compared with 13.1% of the participants (N=8) in the usual care group. In figure 2, the survival curve is shown. The results of the accelerated lifetime (log-duration) model showed that the two groups did not differ significantly from each other in the duration until lasting, full RTW ($B=-0.198$, $SE=0.234$, $p>.05$; 95% CI: -0.657; 0.261). The median number of sickness absence days in the entire follow-up period was 196 in the collaborative care group and 199 in the usual care group and did not differ significantly between both groups ($p>.05$).

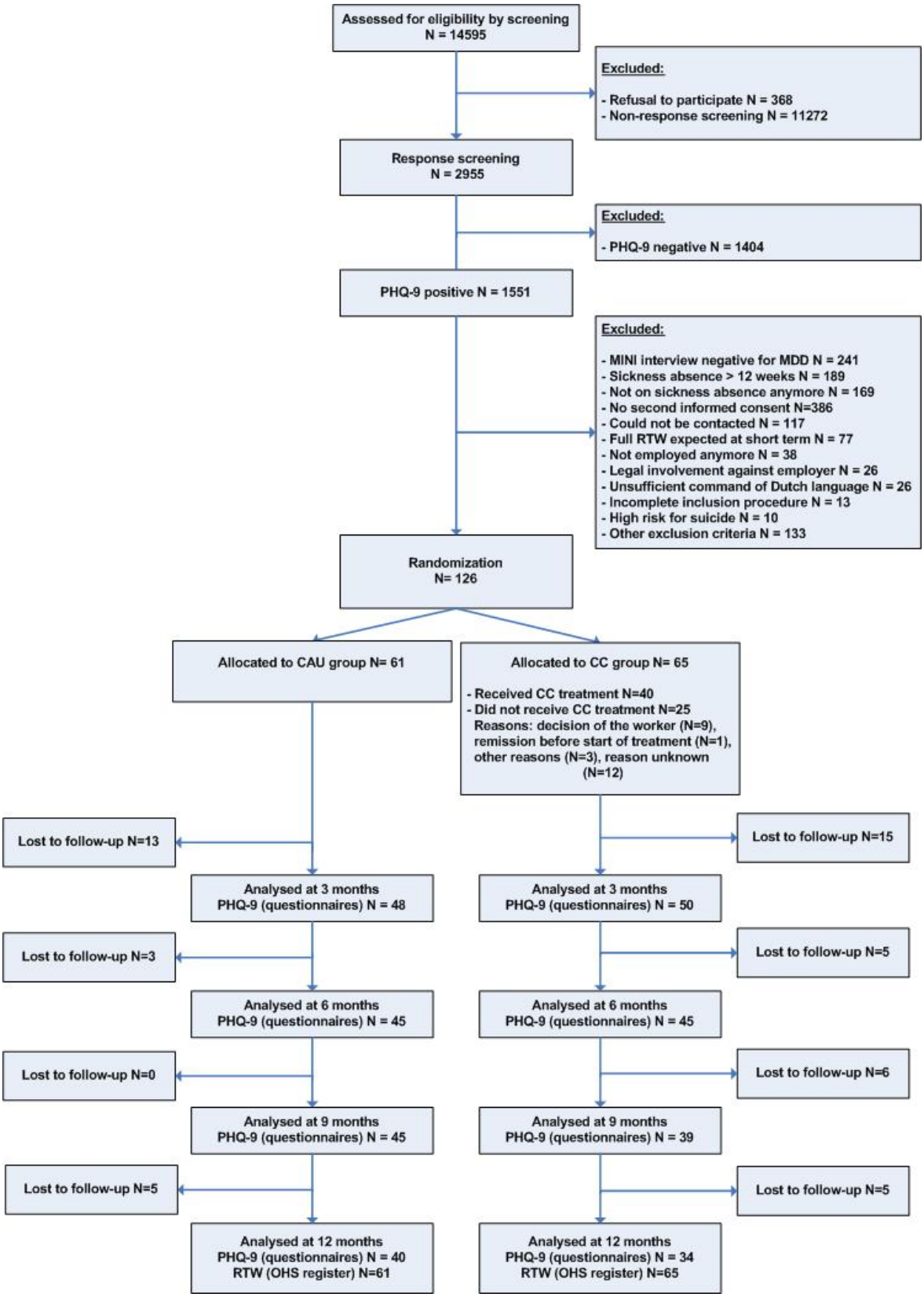

Figure 1. Flowchart of participants.

Table 1. Baseline characteristics of the participants.

	CAU N=61	CC N=65
Demographics		
Age in years	43.4 (11.4)	41.9 (11.4)
Gender (% male)	45.9	46.2
Married or cohabiting (%)	73.3	60.0
Educational level: High (%)	35.0	36.1
Average (%)	30.0	36.0
Low (%)	35.0	27.9
Dutch nationality (%)	91.8	95.4
Symptoms and conditions		
Depressive symptoms (range 0-27)	16.0 (5.4)	15.9 (4.9)
Somatic symptoms (range 0-30)	12.3 (5.1)	13.6 (5.1)
Generalized anxiety (%)	50.8	51.6
Panic disorder (%)	16.9	15.9
Number of co-morbid chronic medical conditions (range 0-27)	1.3 (1.3)	1.2 (1.1)
Job characteristics (JCQ)		
Decision latitude (range 24-96)	64.2 (12.4)	67.6 (12.6)
Psychological job demands (range 12-48)	35.8 (5.4)	34.3 (5.7)
Physical job demands (range 5-20)	11.3 (3.8)	9.5 (3.5)
Job insecurity (range 3-12)	7.9 (1.0)	7.8 (0.9)
Social support (range 8-32)	20.5 (3.8)	21.4 (2.8)

** The numbers presented are means and standard deviations unless otherwise specified.*

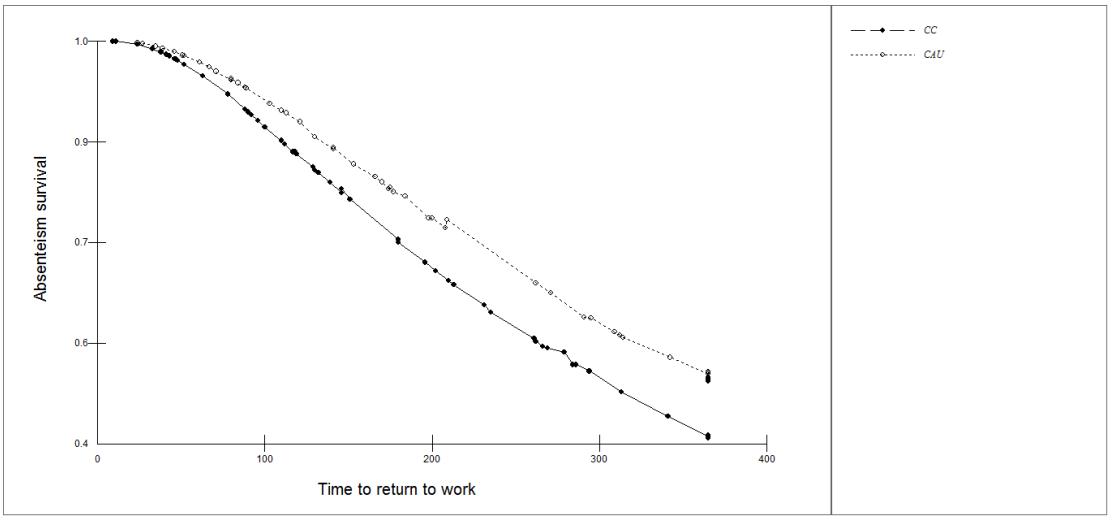

Figure 2. Survival curve.

Depressive symptoms

Collaborative care participants did not differ significantly from usual care participants in the odds of not achieving remission or response (p>.05; CI: -0.281; 1.353). For participants who achieved remission, the average time to first remission was 6.5 months

in the collaborative care group (N=27/65) and 7.9 months in the usual care group (N=29/61). However, this difference was not significant. Collaborative care participants did differ significantly from usual care participants in the time to response (p<.05; 95% CI: -1.684; -0.027). For the participants who achieved response, the average time to response was 5.0 months in the collaborative care group (N=15/65), and 7.8 months in the usual care group (N=14/61). Table 2 shows the mean PHQ-9 scores of the collaborative care group and the usual care group at baseline and at 3, 6, 9 and 12 months after baseline. Both groups did not differ significantly from each other on the continuous outcome measure on any of the follow-up measurements. The interaction effect that was found previously at 3 months after baseline, showing that collaborative care was more effective than usual care among those with moderately severe depression, was not found for the subsequent follow-up measurements [21].

Table 2. Depressive symptoms in the study population.

PHQ-9	**CC**		**CAU**		**95% CI**		**p-value**
	Mean (SD)	***n***	***Mean (SD)***	***n***			
Baseline	15.9 (4.9)	65	16.0 (5.4)	61			
At 3 months	8.9 (5.0)	50	9.9 (5.7)	48	-2.915	1.185	.408
At 6 months	7.1 (4.9)	45	7.8 (7.1)	45	-2.929	1.273	.439
At 9 months	7.3 (6.7)	39	6.9 (6.1)	45	-2.010	2.294	.897
At 12 months	7.7 (5.8)	34	5.9 (7.7)	40	-1.067	3.437	.302

Interventions

The actual health care utilization within 12 months after baseline was assessed in both groups by questionnaire [32]. The proportions of participants that had had contact with the different health care professionals are presented in table 3. In most cases, usual care involved contact with the OP (87.3%), the general practitioner (GP, 89.1%) and a mental health professional (83.6%). In the collaborative care group, the majority of the participants visited the OP (89.1%), the GP (83.6%) and a mental health professional (78.2%). Compared with the collaborative care group, more participants in the usual care group had received day treatment for mental health problems (14.5% versus 1.8%).

Treatment integrity

In the collaborative care group, almost two-thirds of the participants (N=40/65) visited the OP-CM and started collaborative care treatment including PST. For 17.5% of those (N=7/40), the psychiatrist was consulted by the OP-CM and 47.5% of these participants (N=19/40) used

Table 3. Health care utilization in the study population within 12 months after baseline.[1]

Health care professional	CAU	CC	p-value
Contact with OP	87.3%	89.1%	.768
Contact with general practitioner (GP)	89.1%	83.6%	.405
Contact with mental health professional (psychologist, psychiatrist, psychotherapist)	83.6%	78.2%	.467
Day treatment for mental health problems	14.5%	1.8%	.015*
Contact with a social worker	20.0%	16.4%	.621
Contact with medical specialist	36.4%	30.9%	.545
Contact with a paramedic	45.5%	32.7%	.171
Contact with alternative health care	16.4%	18.2%	.801
Hospitalization	5.5%	1.8%	.308
Participation in a self help group	14.5%	5.5%	.112

** significant at p<.05.*

[1] Missing values on health care utilization were imputed using the Last Observation Carried Forward method.

antidepressant medication. The workplace intervention was applied in 12.5% of the collaborative care participants who visited the OP-CM (N=5/40). Both objections by the worker and objections by the OP-CM were reported as reasons for not applying the workplace intervention, indicating that both did not feel comfortable with applying this intervention within the depression treatment. During the recruitment of participants, waiting lists of workers occurred due to a lack of available OP-CMs. On average, the collaborative care treatment started 29 days after randomisation, with a standard deviation of 16 days. The mean duration of the collaborative care treatment was 82 days, with a standard deviation of 49 days.

Per-protocol analyses

In the per-protocol analyses, the collaborative care participants who visited the OP-CM (N=40) were compared with the usual care participants (N=61). The per-protocol analyses did not result in different findings than the intention-to-treat analyses. On average, collaborative care participants who had visited the OP-CM and received PST only, had had their first response at 3.5 months after baseline, which was significantly faster than usual care participants (p<.05; 95% CI: 0.148; 2.442). Collaborative care participants who had visited the OP-CM did not differ significantly from usual care participants in the duration until RTW (B=-0.305, SE=0.316, p>.05; 95% CI: -0.924; 0.314). Receiving additional collaborative care elements, such as antidepressant medication or psychiatric consultation, did not result in a shorter duration until first response or a shorter duration until RTW.

DISCUSSION

Main findings

The collaborative care treatment was not found to be superior to usual care among sick-listed workers with MDD in reducing the duration until lasting, full RTW. With regard to the results on depressive symptoms, over the entire follow-up period, collaborative care

did not lead to more treatment response than usual care. Nevertheless, collaborative care was more effective than usual care in reducing the time to response. The time to response was significantly shorter, with a difference of 2,8 months in favor of collaborative care. No difference was found between the two groups in terms of the time to remission or on the PHQ-9 as continuous outcome measure.

Interpretation of results

Despite the finding that collaborative care reduced the time to response, the results of this study can be interpreted as modest since the intervention did not have an effect on the duration until RTW, on the odds on response and remission and on the continuous outcome measure. As was reported elsewhere, collaborative care was more effective than usual care in terms of response at 3 months after baseline [21]. The present findings, i.e. that collaborative care led to a faster response but not to more response, suggest that collaborative care did have an immediate effect, but that this effect decayed during the 12-month follow-up. To interpret findings as these, Kristensen distinguished between program failure and theory failure [37]. When treatment itself is effective, but patients are not adhering to the treatment protocol or treatment recommendations, it can be referred to as program failure. When patients are adhering to the treatment protocol and recommendations, but the treatment itself is not effective, it is theory failure [37]. In the present study, there might have been program failure, for several reasons. First, a substantial number of collaborative care participants did not start the collaborative care treatment, because long waiting lists occurred of participants waiting for the collaborative care treatment to start. Ironically, the idea to move treatment to the occupational healthcare setting in order to avoid waiting lists for referral to the specialty mental health setting, created waiting lists and lack of treatment in the occupational healthcare setting. Moreover, because of the separation of treatment and sickness certification in the Dutch legislation, workers may not be used to the treatment role of the OP-CM, which may have inhibited them as well in visiting the OP-CM. Second, despite training and close supervision of the OP-CMs, the workplace intervention was applied to a low extent, thereby eliminating the most important contrast in the intervention aimed at RTW. It may have felt unsafe for workers to be guided in the workplace intervention, with the employer participating as well, by the OP-CM who also provided their depression treatment. In addition, the OP-CMs as well felt uncomfortable with the workplace intervention in their treatment role. Perhaps the workplace intervention would have been better implemented if a different occupational health professional, such as a company social worker or a labor expert, would have guided the workplace intervention [38].

Comparison with other studies

To our knowledge, this was the first study examining the effectiveness of collaborative care in sick-listed, depressed patients, aimed at both reducing the duration until RTW and reducing the depressive symptoms. In a previous study, linking the expertise of OPs with that of a consultant psychiatrist showed promising results on RTW, with a mean difference of 68 days [20]. However, in that study, the OPs themselves did not treat the depression. In a recent study among workers with chronic low back pain, the workplace combined with a graded activity programme reduced sickness absence with a median of 120 days, compared to usual care [39]. In another study, the workplace intervention was evaluated among sick-listed workers with distress [40]. In that population, the workplace intervention only reduced the duration until RTW in the subgroup of workers who had at

baseline the intention to return to work despite still having symptoms [40]. Unfortunately, that interaction effect could not be examined here, since the intention to return to work despite still having symptoms was not measured in the present study. Moreover, evaluating the added value of the workplace intervention is not possible in this study since the intervention was applied in only a few participants.

Strengths and limitations

This was an innovative study, aimed at reducing both the duration until RTW and the depressive symptoms in depressed, sick-listed workers. However, application of the collaborative care model in the occupational healthcare setting in order to avoid waiting lists in the specialty mental health setting was a bridge too far. Moving depression treatment to the occupational healthcare setting led to waiting lists in that setting as well. Moreover, OP-CMs in the majority of cases refrained from providing the workplace intervention. As a consequence, the contrast between collaborative care and usual care in this study regarding interventions specifically aimed at RTW was almost nonexistent, thereby reducing the chance of effect on the RTW outcome. Although in Dutch legislation OPs are now licensed to treat patients, actually providing treatment is a big step. Nevertheless, there was a significant difference in favour of collaborative care in terms of time to response, indicating that there may be grounds to further explore the model in future research.

Implications for practice and further research

The results of this study do not justify a widespread implementation of collaborative care, as it was operationalized here, in the occupational healthcare setting. Although collaborative care had a positive effect on the time to response, collaborative care did neither have an impact on the duration until RTW, nor on the odds on response or remission and the PHQ-9 as continuous outcome measure. Because in the Netherlands entitlement for a disability pension is determined after a maximum of 2 years of sickness absence, a follow-up of 2 years on sickness absence data may be interesting for future research. It might be that the comprehensive collaborative care treatment by the OP-CM not so much leads to a faster RTW but that it does lead a more sustainable RTW, leading to less recurrences of sickness absence. The dual focus on RTW as well as on depressive symptoms remains important in the treatment of depressed, sick-listed workers, but future research needs to examine how that focus can be best put into practice. Future research may focus on improving referral to, and monitoring of, adequate treatment by OPs and on improving collaboration between OPs and the curative sector.

Acknowledgement

This study was part of the Depression Initiative, a national program aimed at supporting depression care in the Netherlands. This study was funded by the Foundation for Innovation of Health Insurers ('Innovatiefonds Zorgverzekeraars') in the Netherlands.

REFERENCES

1. Lerner D, Henke RM. What does research tell us about depression, job performance, and work productivity? J Occup Environ Med 2008; 50(4):401-410.

2. Lagerveld SE, Bultmann U, Franche RL, van Dijk FJ, Vlasveld MC, van der Feltz-Cornelis CM et al. Factors Associated with Work Participation and Work Functioning in Depressed Workers: A Systematic Review. J Occup Rehabil 2010.

3. Kruijshaar ME, Hoeymans N, Bijl RV, Spijker J, Essink-Bot ML. Levels of disability in major depression: findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). J Affect Disord 2003; 77(1):53-64.

4. Plaisier I, Beekman AT, de Graaf R, Smit JH, van Dyck R, Penninx BW. Work functioning in persons with depressive and anxiety disorders: the role of specific psychopathological characteristics. J Affect Disord 2010; 125(1-3):198-206.

5. Koopmans PC, Roelen CA, Groothoff JW. Sickness absence due to depressive symptoms. Int Arch Occup Environ Health 2008; 81(6):711-719.

6. de Graaf R, Tuithof M, van Dorsselaer S, ten Have M. Verzuim door psychische en somatische aandoeningen bij werkenden. Resultaten van de 'Netherlands Mental Health Surevey and Incidence Study-2' (NEMESIS-2). Utrecht: Trimbos-instituut, 2011.

7. Bowling A. What things are important in people's lives? A survey of the public's judgements to inform scales of health related quality of life. Soc Sci Med 1995; 41(10):1447-1462.

8. World Health Organization. Towards a common language for functioning, disability and health. ICF. 2002. Geneva.

9. Dekkers-Sanchez PM, Hoving JL, Sluiter JK, Frings-Dresen MH. Factors associated with long-term sick leave in sick-listed employees: a systematic review. Occup Environ Med 2008; 65(3):153-157.

10. Vlasveld MC, van der Feltz-Cornelis CM, Bultmann U, Beekman ATF, van Mechelen W, Hoedeman R et al. Predicting Return to Work in Workers with All-Cause Sickness Absence Greater than 4 Weeks: A Prospective Cohort Study. J Occup Rehabil 2011.

11. van der Klink JJ, Blonk RW, Schene AH, van Dijk FJ. Reducing long term sickness absence by an activating intervention in adjustment disorders: a cluster randomised controlled design. Occup Environ Med 2003; 60(6):429-437.

12. Schene AH, Koeter MW, Kikkert MJ, Swinkels JA, McCrone P. Adjuvant occupational therapy for work-related major depression works: randomized trial including economic evaluation. Psychol Med 2007; 37(3):351-362.

13. Blonk RW, Brenninkmeijer V, Lagerveld SE, Houtman ILD. Return to work: A comparison of two cognitive behavioural interventions in cases of work-related psychological complaints among the self-employed. Work & Stress 2006; 20:129-144.

14. Brouwers EP, Tiemens BG, Terluin B, Verhaak PF. Effectiveness of an intervention to reduce sickness absence in patients with emotional distress or minor mental disorders: a randomized controlled effectiveness trial. Gen Hosp Psychiatry 2006; 28(3):223-229.

15. Anema JR, Jettinghoff K, Houtman I, Schoemaker CG, Buijs PC, van den Berg R. Medical care of employees long-term sick listed due to mental health problems: a cohort study to describe and compare the care of the occupational physician and the general practitioner. J Occup Rehabil 2006; 16(1):41-52.

16. Anema JR, Van Der Giezen AM, Buijs PC, van Mechelen W. Ineffective disability management by doctors is an obstacle for return-to-work: a cohort study on low back pain patients sicklisted for 3-4 months. Occup Environ Med 2002; 59(11):729-733.

17. Unutzer J, Katon W, Callahan CM, Williams JW, Jr., Hunkeler E, Harpole L et al. Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. JAMA 2002; 288(22):2836-2845.

18. Gilbody S, Bower P, Fletcher J, Richards D, Sutton AJ. Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes. Arch Intern Med 2006; 166(21):2314-2321.

19. Anema JR, Steenstra IA, Bongers PM, de Vet HC, Knol DL, Loisel P et al. Multidisciplinary rehabilitation for subacute low back pain: graded activity or workplace intervention or both? A randomized controlled trial. Spine (Phila Pa 1976) 2007; 32(3):291-298.

20. van der Feltz CM, Hoedeman R, de Jong FJ, Meeuwissen JAC, Drewes HW, van der Laan NC et al. Faster return to work after psychiatric consultation for sicklisted employees with common mental disorders compared to care as usual. A randomized clinical trial. Neuropsychiatric Disease and Treatment 2010; 6:375-385.

21. Vlasveld MC, van der Feltz-Cornelis CM, Ader HJ, Anema JR, Hoedeman R, van Mechelen W et al. Collaborative care for major depressive disorder in an occupational healthcare setting. Br J Psychiatry 2011.

22. van der Feltz-Cornelis CM. Towards integrated primary health care for depressive disorder in the Netherlands. The depression initiative. Int J Integr Care 2009; 9:e83.

23. Vlasveld MC, Anema JR, Beekman AT, van Mechelen W, Hoedeman R, Van Marwijk HW et al. Multidisciplinary collaborative care for depressive disorder in the occupational health setting: design of a randomised controlled trial and cost-effectiveness study. BMC Health Serv Res 2008; 8:99.

24. Lisv CAS. Classification of symptoms, diseases and causes for occupational and insurance physicians. 1997. Utrecht, Lisv.

25. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med 2001; 16(9):606-613.

26. Van Vliet I, Leroy H, Van Megen H. De MINI-Internationaal Neuropsychiatrisch interview: een kort gestructureerd diagnostisch interview voor DSM-IV en ICD-10 psychiatrische stoornissen. Leiden: LUMC, 2000.

27. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatry 1998; 59 Suppl 20:22-33.

28. Mynors-Wallis L. Problem-solving treatment for anxiety and depression. A practical guide. New York: Oxford University Press, 2005.

29. Cuijpers P. In de put, uit de put. Zelf depressiviteit overwinnen. Baarn: HB Uitgevers, 2003.

30. Doppegieter RMS, Willems JHBM. Code gegevensverkeer en samenwerking bij arbeidsverzuim en reïntegratie. 2006. Utrecht, KNMG.

31. NVAB. Handelen van de bedrijfsarts bij werkenden met psychische problemen. 2007. Utrecht, NVAB.

32. Hakkaart-van Roijen L. Manual Trimbos/iMTA questionnaire for costs associated with psychiatric illness (in Dutch). Rotterdam: Institute for Medical Technology Assessment, 2002.

33. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. JAMA 1999; 282(18):1737-1744.

34. Kroenke K, Spitzer RL, Williams JB. The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. Psychosom Med 2002; 64(2):258-266.

35. Karasek R, Brisson C, Kawakami N, Houtman I, Bongers P, Amick B. The Job Content Questionnaire (JCQ): an instrument for internationally comparative assessments of psychosocial job characteristics. J Occup Health Psychol 1998; 3(4):322-355.

36. Ader HJ. A composite score that combines response and remission. 2012.

37. Kristensen TS. Intervention studies in occupational epidemiology. Occup Environ Med 2005; 62(3):205-210.

38. van Oostrom SH, Anema JR, Terluin B, Venema A, de Vet HC, van Mechelen W. Development of a workplace intervention for sick-listed employees with stress-related mental disorders: Intervention Mapping as a useful tool. BMC Health Serv Res 2007; 7:127.

39. Lambeek LC, van Mechelen W, Knol DL, Loisel P, Anema JR. Randomised controlled trial of integrated care to reduce disability from chronic low back pain in working and private life. BMJ 2010; 340:c1035.

40. van Oostrom SH, van Mechelen W, Terluin B, de Vet HC, Knol DL, Anema JR. A workplace intervention for sick-listed employees with distress: results of a randomised controlled trial. Occup Environ Med 2010; 67(9):596-602.