



## UvA-DARE (Digital Academic Repository)

### Building blocks for return to work after sick leave due to depression

de Vries, G.

**Publication date**

2016

**Document Version**

Final published version

[Link to publication](#)

**Citation for published version (APA):**

de Vries, G. (2016). *Building blocks for return to work after sick leave due to depression*. [Thesis, fully internal, Universiteit van Amsterdam].

**General rights**

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

**Disclaimer/Complaints regulations**

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.



Gabe de Vries

BUILDING BLOCKS



Gabe de Vries

# BUILDING BLOCKS

FOR RETURN TO WORK AFTER SICK LEAVE  
DUE TO DEPRESSION

**Building Blocks**  
**for Return to Work after Sick Leave**  
**due to Depression**

**Gabe de Vries**

Parts of the studies in this thesis (chapter 2 and chapter 6) were funded by the Netherlands Foundation for Mental Health and the National Institute for Employee Benefit Schemes in Amsterdam, the Netherlands.

Building blocks for return to work after sick leave due to depression  
Thesis, University of Amsterdam The Netherlands

© 2016 Gabe de Vries

All rights reserved. No part of this thesis may be reproduced or transmitted, in any form or by any means, without the prior permission of the author.

Lay Out: Menno de Bok, Roads Print en Pixels, Haarlem

Cover illustration: Sybren de Vries, Delft

Print: Roads Print en Pixels, Haarlem

ISBN: 978-90-9029597-8

**Building Blocks**  
**for Return to Work after Sick Leave**  
**due to Depression**

**ACADEMISCH PROEFSCHRIFT**

ter verkrijging van de graad van doctor  
aan de Universiteit van Amsterdam  
op gezag van de Rector Magnificus  
prof.dr. D.C. van den Boom  
ten overstaan van een door het College voor Promoties ingestelde commissie  
in het openbaar te verdedigen in de Agnietenkapel  
op vrijdag 15 april 2016 te 10.00 uur

door

**Gabe de Vries**  
geboren te Dantumadeel

## **Promotiecommissie**

**Promotor:** Prof. dr. A.H. Schene                      Universiteit van Amsterdam

**Co-promotor:** Dr. M.W.J. Koeter                      Universiteit van Amsterdam

**Overige leden:** Prof. dr. J.J.M. Dekker                      Vrije Universiteit

Prof. dr. F.J.H. van Dijk                      Universiteit van Amsterdam

Prof. dr. L. de Haan                      Universiteit van Amsterdam

Prof. dr. J.J.L. van der Klink                      Universiteit Tilburg

Dr. K. Nieuwenhuijsen                      Universiteit van Amsterdam

**Faculteit der Geneeskunde**

## Contents

Chapter 1	Introduction	7
Chapter 2	Adjuvant occupational therapy improves long-term depression recovery and return-to-work in good health in sick-listed employees with major depression: results of a randomised controlled trial Occupational and Environmental Medicine, 2013; 70(4): 252–260	27
Chapter 3	Return to work after sick leave due to depression; a conceptual analysis based on perspectives of patients, supervisors and occupational physicians Journal of Affective Disorders, 2012; 136(3): 1017–1026	55
Chapter 4	Perceived impeding factors for return-to-work after long-term sickness absence due to major depressive disorder: a concept mapping approach PLoS ONE, 2014; 9(11): e85038	83
Chapter 5	Depression and return to work; cultural differences in stakeholder perception Submitted	111
Chapter 6	Predictors of impaired work functioning in employees remitted from major depression Journal of Affective Disorders, 2015; 185: 180–187	139
Chapter 7	General discussion	165

Summary	203
Samenvatting (Summary in Dutch)	209
Portfolio	217
About the author	223
Dankwoord (Acknowledgements in Dutch)	227



# Chapter 1

## Introduction

## Introduction

People spend a large proportion of their life in paid work. Most of them find meaning and personal fulfilment in this work. This may also pertain to people with a disability due to mental illness. Work provides them with a source of identity, time structure, capability, feeling of normality, social contacts and financial support (Waddel and Burton, 2006; WHO, 2000). When on sickness absence, these attributes were found to be both motivating for return to work (RTW) and promoting health (Saunders and Nedelec, 2014; Schuring et al., 2011). Therefore RTW is not only important for societal interest but also for the employee's health and wellbeing.

In the early 90's, I started working as an occupational therapist at the Program for Mood Disorders of the Academic Medical Centre (AMC) in Amsterdam. We observed that even after successful treatment, many employees who had been suffering from a major depressive disorder (MDD) did not RTW. Residual symptoms, the duration of the period out of work and an inability to cope with problems in general, were the reasons most mentioned. Even if professionals were informed of the employee's mental health status, following the AMC treatment, this was not enough to make sure employees were properly supported in their RTW. Unsuccessful RTW may also have affected their health status, as those with a readmission to the AMC because of a recurrence of depression, frequently had not returned to work in the intervening period. In order to increase successful RTW and improve mental health, we developed our first occupational therapy (OT) intervention in 2000 (de Vries and Schene, 2003). This OT was revised in 2008 to a new and as we expected improved version of this intervention (de Vries, 2008/2015). These experiences are the basis for this thesis.

This introductory chapter starts with a brief overview of the prevalence of MDD, its influence on work and vice versa and a brief description of the OT interventions we developed at the AMC. Next, the main topics will be introduced, respectively: effectiveness of the OT intervention, promoting factors for RTW, impeding factors for RTW, cultural differences in promoting factors for RTW and the employee's work functioning after recovery, during the period MDD was in remission.

## ***Major Depression***

MDD is characterised by a depressed mood and a loss of interest or pleasure in activities for at least two weeks as the two core symptoms. Additional symptoms are sleeping problems, tiredness or loss of energy, poor appetite or overeating, concentration problems, feelings of guilt, psychomotor agitation or retardation and suicidal thoughts or thoughts about death. If at least five of these symptoms are present for at least two weeks, of which at least one core symptom, and if they cause suffering or significant limitations in daily functioning, one speaks of MDD according to the diagnostic manual of mental disorders (DSM-IV).

MDD is a common disorder, with lifetime and 12-month prevalence estimates of respectively 14.6% and 5.5% in ten high-income countries and respectively 11.1% and 5.9% in eight low- to middle-income countries (Bromet et al., 2011). It affects almost twice as many females, compared to males (Bromet et al., 2011). In the Netherlands, lifetime prevalence is estimated at 18.7 % and 12-months prevalence at 5.2% (de Graaf et al., 2012a). These depressive episodes vary widely in their duration with a mean of three months (Spijker et al., 2002), but with a high probability (20%) of a chronic course, which means a duration of 24 months or more (Spijker et al., 2002). For those who recover, there is a high recurrence rate of MDD. In specialised mental healthcare settings 60% recur within 5 years, 67% within 10 years and 85% within 15 years, and of course this is lower but nevertheless substantial in the primary care population (35% within 15 years) (Hardeveld et al., 2010). Because of its recurrent and chronic course, MDD is expected to be one of the major health problems in the near future and the leading cause for disability-adjusted life years (DALYs; a combined measure of years of life lost due to premature death and years of live lived with disability) among men and women in high income countries. In middle (resp. low) income countries it will rank the second (resp. third) leading cause in 2030 (Mathers and Loncar, 2006).

MDD is a disabling disorder, and may trigger severe negative consequences for work, personal, social, and economic outcomes (Kessler et al., 2006). Among the working population, MDD is the most prevalent mental disorder (Sanderson and Andrews, 2006), accounting for a 12-months prevalence of 6.4% of the working population in the USA (Kessler et al., 2008), 4% in Canada (Gilmour and Patten, 2007) and 4.2% in the Netherlands (de Graaf et al., 2012b). At work it may cause absenteeism and presenteeism.

### ***Absenteeism***

Around 55% of employees suffering from MDD are on sickness absence (Laitinen-Krispijn and Bijl, 2000). In the Netherlands, this accounts for 8.2% of the total sickness absence spell over a 12 month period, in the working population (Trimbos, 2011). MDD generates 23 additional days off, compared to the general population, representing the highest number of additional days absent compared to other diseases (de Graaf et al., 2012b). Once on sick leave, it also accounts for long periods of absence from work, varying between a mean of 25 weeks (median=21) in a Danish study to 30 weeks (median=27) in a Dutch study (Nielsen et al., 2012; Koopmans et al., 2008) with an estimated rate of persistence (one year of sickness absence) of about 24% (Brenninkmeijer et al., 2008; Koopmans et al., 2008). Moreover, MDD increases the risk of exclusion from the workforce either through unemployment, early retirement or claiming disability benefit (Gilbody et al., 2012; Gjesdal et al., 2008; Rytsälä et al., 2007; Karpansalo et al., 2005). In the Netherlands, among those with disability benefit after two years of sickness absence, the primary cause of disability was a mental disorder in 25.2% and a mood disorder in 7.8% of the respondents. Moreover, 43.1% met the MDD criteria for lifetime prevalence and 24% for 12 months prevalence (Cornelius et al., 2015).

### ***Presenteeism***

MDD causes absenteeism from work but, even more important, presenteeism. Presenteeism is defined as impaired work functioning while the employee is still at work. MDD has the greatest negative impact on work functioning compared to all other chronic health conditions (Burton et al., 2004). This

impaired function accounts for one to five times more work loss than the one due to absenteeism (de Graaf et al., 2012b; Kessler et al., 2006; Goetzl et al., 2004). This is caused by depressive symptoms, prior to-, during-, and after the onset of depression (Trivedi et al., 2013; Dewa et al., 2011; Wang et al., 2010; Lerner and Henke, 2008; Slebus et al., 2008; Porter et al., 2003).

These depressive symptoms may lead to the following restrictions:

- Cognitive restrictions, characterised by problems in attention, concentrating on the work tasks, planning the performance of the work tasks, memory function and limited capability to cope with complex stimuli.
- Emotional restrictions, characterised by feelings of inferiority and guilt, and loss of interest and initiative. This may result in problems with executing daily activities at work, for example accepting too much work while having difficulties in solving problems.
- Social restrictions, characterised by a lower mood, introverted behaviour, or social anxiety, which may result in difficulties in dealing with colleagues or clients.

### ***Economic and social costs***

The high prevalence and the impact of depression on productivity causes a high economic burden, estimated in the US to account for \$ 348,- per eligible employee per year (based on \$23,15/hour wage estimate) including medical costs (\$54,-), absenteeism (\$48,-) and presenteeism (\$246,-) (Goetzl et al., 2004). In the Netherlands estimated annual costs are €177,- per inhabitant aged between 18 and 65, including direct medical (€ 26,-), direct non-medical (€ 17,-) and indirect non-medical costs (e.g. absenteeism, presenteeism not included, € 135,-) (Cuijpers et al., 2007). Compared to other health conditions, MDD topped the list of work loss (absence, reduced quality and quantity), estimated for 1.8 billion a year on absenteeism and presenteeism for all workers in the Netherlands, which is about € 242,- per worker (de Graaf et al., 2012b).

Besides social costs, personal grief is also high, demonstrated in several (auto) biographies which are now part of a research program financed by the Dutch organization for scientific research (NWO). It is also demonstrated in the high suicide rates of those affected by MDD; more than half of all people who die through suicide per year meet criteria for current depressive disorder (Hawton and van Heeringen, 2009).

### ***Work environment***

Work and depression have a complex relationship. Work-related problems can be one of the determining factors of MDD, while MDD impairs functioning in the work environment. At work, several workplace characteristics have been identified that influence the aetiology of MDD (Stansfeld and Candy, 2006; Paterniti et al., 2002; Tennant, 2001). These will be discussed in the context of the three main work-stress models.

1. The Demand Control Model (DCM) hypothesis, states that stress will be highest in jobs associated with high demands and low job control. This model is expanded into the Job Control Support Model (JCS), which hypothesises that high levels of support protect against high levels of stress and low levels of control. High levels of work stress, in particular psychological stress, low control and low social support, were found as predictors of depression in the workplace (Theorell et al., 2014; Magnusson et al., 2009; Bonde, 2008; Netterstrøm et al., 2008; Plaisier et al., 2007) and long-term sickness absence among employees with mental health disorders (Silva-Junior and Fischer, 2014).
2. The Effort Reward Imbalance (ERI) or Job Demands-Resources model (JD-R) hypothesises that the experience of a lack of balance between costs (too high) and gains (too low), elicits negative emotions and stress. Gains can be identified as resources to fulfil human needs, such as the need for autonomy, relatedness, competence and financial independency or wealth. High job demands are not necessarily negative, employees may thrive on high job demands and high job resources (Bakker et al., 2010). This model was also found predictive for the incidence of depression (Siegrist, 2008) and for long-term sickness absence among employees with mental health disorders (Silva-Junior and Fischer, 2014).

3. The work family conflicts model (WFM) reflects the interplay between work and personal lives, and has also been found to be associated with mental health disorders (van Daalen et al., 2009; Wang, 2006), e.g. a high work load in combination with a stressful home situation causes a higher risk of getting depressed (de Croon et al., 2002).

### ***Treatment and RTW***

Successful RTW after sickness absence is partly explained by the severity of symptoms (Lagerveld et al., 2010), but symptom reduction will not lead to better RTW outcomes per se. This is illustrated in a Cochrane review that points out the limited effects of regular mental health care (medication) on RTW even though these interventions are known to reduce symptoms (Nieuwenhuijsen et al., 2008). In particular there is a need for studies that assess modifiable factors that improve RTW (Lagerveld et al., 2010) and subsequent interventions. Disability is no longer understood as a feature of the individual, solely determined by his health condition, but it is now considered as the result of a complex relationship between health, personal and environmental factors (Schneidert et al., 2003; ICF, 2002). To improve RTW outcomes, alongside treatment for MDD, professional support should focus on personal and environmental factors. But research on interventions that comprise these factors are scarce (Lagerveld et al., 2010; Nieuwenhuijsen et al., 2008).

### ***OT intervention***

The first OT intervention, aiming to improve RTW, was developed in the 1990's at the AMC. This OT intervention lasted 6 months and consisted of 20 group sessions (one each week), 10 individual sessions (one every second week) and three follow-up sessions (de Vries and Schene, 2003). This

intervention covered several themes. Occupational therapists developed these themes, and participating employees evaluated these sessions. Their comments were used to improve sessions. In the end, six themes remained: lack of motivation, stress at work, personal limitations, perfectionism, conflicts and independence versus dependence. These themes were integrated in the OT intervention, in three phases lasting a six months period. In the first two months, the focus was on being active in the home situation, in the second two months, the focus was on return to work and in the third two months, the focus was on improving coping ability with stressful situations at work. Every group or individual session addressed (1) the work performance, (2) the patterns of coping behaviour, (3) the home situation, and (4) the reintegration at work. In a RCT (n=62), this intervention showed an improvement on RTW but not (or only very limited) on depression symptoms (Schene et al., 2007), which encouraged us to develop a new and even better intervention.

The new OT intervention, assessed in this thesis, was developed with respect to policy changes in healthcare (shorter) and RTW (earlier), and the aim was to improve the statistical power of the results (n=117). With respect to our better view on possible therapeutic factors and the ambition of shortening the intervention, we decided to focus more on work related factors that affect RTW. This new OT intervention consisted of eight group sessions and four individual sessions (De Vries, 2008/2015).

Findings from the work-stress literature, the Job Control-Support model of Karacek, the Effort Reward Imbalance model, the Work-family conflict model and our experiences with employees with depression, were incorporated in this intervention. These findings, additional to our clinical experiences, resulted in a screening list for RTW, designed to identify the most important stress factors. This list includes work demands, decision latitude, social support, work-home balance and perspective. In addition, this new OT intervention encouraged an early return to the workplace, even before the recovery, shifting from the traditional 'train-and-place' model to the more recent 'place-and-train' model. When starting with the OT intervention, patients were required to (start) work for at least two hours a week. In this way, patients were able to directly practise tools learned (e.g., how to cope with a specific challenge). It also resulted in a maintained contact with



the work environment in order to enhance understanding and social support from colleagues. Finally, to improve cooperation between stakeholders, we organised so called ‘work visits’, with the occupational therapist, the employee and the supervisor. During these visits, the occupational therapist provided health education regarding RTW and depression, aiming to improve the supervisor’s understanding. The employee and the supervisor were challenged to discuss a subject on what they thought was important for their understanding of the RTW process. The results of this intervention on RTW and depression are described in Chapter 2.

### ***Promoting factors for RTW***

Most studies on RTW for employees suffering from mental health focus on a more general population i.e. employees with mental health disorders, including employees with psychiatric morbidity, stress, adjustment disorders, anxiety disorders or depressive complaints (e.g. Blank et al., 2008; Cornelius et al., 2011). Within these studies, a wide range of factors are associated with RTW, including demographic (e.g. older age), health (e.g. severity), personal (e.g. own expectation of duration) and work (e.g. partial RTW). Outcomes of interventions in studies aiming to improve RTW after sick leave due to MDD are scarce and outcomes are not convincing. In a review (Nieuwenhuijsen et al., 2008) only one study was found that addressed work issues during treatment (Schene et al., 2007; Kikkert et al., 2002). The other interventions included in this review were antidepressant medication (4 studies), psychodynamic therapy (1 study), computerised cognitive behavioural intervention (1 study), problem-solving therapy (1 study), and enhanced primary care (3 studies). None of the included studies showed improvement on RTW. Because of the limited studies and evidence, there is still a need for assessing modifiable factors that might improve RTW among employees with MDD. Fortunately a substantial number of employees do succeed in RTW. Their experience and those of involved stakeholders, supervisors and occupational physicians, may add modifiable factors to improve current interventions or develop new ones. This topic is addressed in Chapter 3.

### ***Impeding factors for RTW***

Although most employees suffering from MDD do succeed to RTW within the first year, a substantial part of about a quarter remain unemployed (Roelen et al., 2012; Koopmans et al., 2008). Also in our intervention study, we did not always succeed in facilitating the employee's RTW. Persistent depression or residual symptoms could explain this impeded RTW, but it is also possible that these employees did not receive the appropriate support. Also there may still be other factors responsible for impeded RTW. To gain more insight into these factors, stakeholders involved in RTW (employees, supervisors and occupational physicians) who experienced difficulties with RTW after sick leave due to depression, were invited to participate in this study. Results are addressed in Chapter 4.

### ***Cultural differences in factors that promote RTW***

In our clinical practice, occupational therapists have experienced that commonly used RTW strategies are not suitable for employees from a non-western culture. Participating employees stated for instance that they had to "translate the intervention into their own language". They also suggested that therapists should solve their problems with their supervisor, although we encouraged them to solve these problems themselves with their supervisor. In literature, the reasons for a hampered RTW process among employees with a non-western background, were identified as misunderstanding of nonverbal communication, differences in expectations, somatising, restrained and indirect attitude of the employee, motivation problems, unhealthy lifestyle, employee's inability to explain physical complaints, to discuss private situation, and/or to discuss psychological complaints (Vink, 2009; Dautzenberg et al., 2005; Meershoek et al., 2005; van Poppel and Kamphuis, 2003; Hijmans van den Bergh, 2002). However, there is still no literature explaining how to adapt common RTW strategies into culturally sensitive RTW strategies.

To bridge this gap, experiences in RTW strategies in non-western countries might be useful to improve RTW strategies in western countries for non-western employees. Therefore we repeated our Dutch study on promoting factors for RTW in Suriname and invited Surinamese stakeholders (employees, supervisors, occupational physicians) experiencing a successful RTW, to participate in this study. Comparisons between Dutch and Surinamese results are addressed in Chapter 5.

### ***Work functioning for employees with MDD in remission***

For more than 50 percent of patients MDD has a long-term course with different levels of residual or subclinical symptoms, and a chronic nature. This may affect long term work functioning and consequently create economic costs. However, most studies on RTW from employees with MDD focus on reduced absenteeism, measured in number of hours worked (e.g. Dewa et al., 2009; Schene et al., 2007; Wang et al., 2007) or time until RTW (e.g. Vlasveld et al., 2013; Noordik et.al., 2013; Nieuwenhuijsen et al., 2004). There is a lack of information on success in terms of level of work functioning. The level of work functioning among employees who returned to work in good health (MDD in remission) and its predictors of impaired functioning, assessed on different domains, are addressed in Chapter 6.

### ***Aim and research questions***

The general aim of this thesis is to gain more knowledge on how to improve RTW of employees with MDD absent from work. In order to do so we formulated five research questions:

1. Is occupational therapy additional to treatment as usual (TAU+OT) more effective than standard clinical treatment (TAU) for improving adverse work outcomes and depression outcomes in employees on sick leave due to MDD?
2. Which factors do promote RTW in of employees on sick leave with MDD, as perceived by employees, supervisors and occupational physicians and what are the differences in perception between these stakeholders?

3. Which factors impede the RTW in employees on sick leave with MDD, as perceived by employees, supervisors and occupational physicians?
4. What are the similarities and differences in perceived promoting factors for RTW of employees on sick leave due to MDD, between Dutch (western) and Surinamese (non-western) stakeholders (employees, supervisors and occupational physicians)?
5. At what level of work functioning are employees with MDD in remission, who returned to work performing, and what factors (demographic, health, personality and work characteristics) influence impaired work functioning?

### ***Thesis outline***

Chapter 2 covers the results of the randomised controlled trial of the effectiveness of adjuvant occupational therapy, to care as usual, in absent employees with MDD. Perceived promoting factors identified by main stakeholders for RTW are covered in Chapter 3. Factors that impede RTW identified by main stakeholders are addressed in Chapter 4. Chapter 5 covers cultural differences in perceived promoting factors for RTW in employees with MDD. Chapter 6 examines work functioning after MDD and aims to identify factors that impede work functioning. In the general discussion, in Chapter 7, the main findings of this thesis are presented and strategies to improve RTW for employees with MDD are further discussed, together with methodological considerations and implications for future research and clinical practice.

## References

- Bakker AB, van Veldhoven M, Xanthopoulou D, (2010). Beyond the Demand-Control Model. Thriving on High Job Demands and Resources. *Journal of Personnel Psychology*, 9(1): 3–16.
- Blank L, Peters J, Pickvance S, Wilford J, Macdonald E, (2008). A systematic review of the factors which predict return to work for people suffering episodes of poor mental health. *J Occup Rehabil*, 18: 27-34.
- Bonde JP, (2008). Psychosocial factors at work and risk of depression: a systematic review of the epidemiological evidence. *Occup Environ Med*, 65: 38-445.
- Brenninkmeijer V, Houtman I, Blonk R, (2008). Depressed and absent from work: predicting prolonged depressive symptomatology among employees. *Occup Med*, 58(4): 295-301.
- Bromet E, Andrade LH, Hwang I, Sampson NA, Alonso J, de Girolamo G, de Graaf R, Demyttenaere K, Hu C, Iwata N, Karam AN, Kaur J, Kostyuchenko S, Lépine JP, Levinson D, Matschinger H, Mora ME, Browne MO, Posada-Villa J, Viana MC, Williams DR, Kessler RC, (2011). Cross-national epidemiology of DSM-IV major depressive episode. *BMC Med*, 26(9): 90.
- Burton WN, Pransky G, Conti DJ, Chen CY, Edington DW, (2004). The association of medical conditions and presenteeism. *J Occup Environ Med*, 46 (Suppl. 6):S38–45.
- Cornelius LR, van der Klink JJ, de Boer MR, Brouwer S, Groothoff JW, (2015). High prevalence of early onset mental disorders among long-term disability claimants. *Disabil Rehabil*, 14: 1-8.
- Cornelius LR, van der Klink JJ, Groothoff JW, Brouwer S, (2011). Prognostic factors of long term disability due to mental disorders: a systematic review. *J Occup Rehabil*, 21: 259-274.
- de Croon EM, Blonk RW, de Zwart BC, Frings-Dresen MH, Broersen JP, (2002). Job stress, fatigue, and job dissatisfaction in Dutch lorry drivers: towards an occupation specific model of job demands and control. *Occup Environ Med*, 59(6): 356-361.
- Cuijpers P, Smit F, Oostenbrink J, de Graaf R, Ten Have M, Beekman A, (2007). Economic costs of minor depression: a population-based study. *Acta Psychiatr Scand*, 115(3): 229-236.

- van Daalen G, Willemsen TM, Sanders K, van Veldhoven MJ, (2009). Emotional exhaustion and mental health problems among employees doing “people work”: the impact of job demands, job resources and family-to-work conflict. *Int Arch Occup Environ Health*, 82(3): 291-303.
- Dautzenberg M, Wersch S, Pardoel K, (2005). Preventie van langdurig ziekteverzuim onder allochtone werknemers. IVA, Tilburg.
- Dewa CS, Hoch JS, Carmen G, Guscott R, Anderson C, (2009). Cost, effectiveness, and cost-effectiveness of a collaborative mental health care program for people receiving short-term disability benefits for psychiatric disorders. *Can J Psychiatry*, 54(6): 379-88.
- Dewa CS, Thompson AH, Jacobs P, (2011). The association of treatment of depressive episodes and work productivity. *Can J Psychiatry*, 56(12): 743-50.
- DSM-VI, (2000). Diagnostic and statistical manual of mental health disorders: DSM-IV-TR. 4th ed, text revision. Arlington, VA: American Psychiatric Association.
- Gilbody S, Bower P, Rick J, (2012). Better care for depression in the workplace: integrating occupational and mental health services. *Br J Psychiatry*, 200(6): 442-443.
- Gilmour H, Patten SB, (2007). Depression and work impairment. *Health Rep*, 18(1): 9-22.
- Gjesdal S, Ringdal PR, Haug K, Maeland JG, (2008). Long-term sickness absence and disability pension with psychiatric diagnoses: a population-based cohort study. *Nord J Psychiatry*, 62(4): 294-301.
- Goetzl RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W, (2004). Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. *J Occup Environ Med*, 46(4): 398-412.
- de Graaf R, Ten Have M, van Gool C, van Dorsselaer S, (2012a). Prevalence of mental disorders, and trends from 1996 to 2009. Results from NEMESIS-2. *Tijdschr Psychiatrie*, 54(1): 27-38.
- de Graaf R, Tuithof M, van Dorsselaer S, ten Have M, (2012b). Comparing the effects on work performance of mental and physical disorders. *Soc Psychiatry Psychiatr Epidemiol*, 47(11): 1873-1883.

- Hardeveld F, Spijker J, De Graaf R, Nolen WA, Beekman AT, (2010). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta. Psychiatr. Scand*, 122(3): 184-91.
- Mathers CD, Loncar D, (2006). Projections of Global Mortality and Burden of Disease from 2002 to 2030. *PLoS Med*, 3(11): e442.
- Hawton K, van Heeringen K, (2009). Suicide. *Lancet*, 373: 1372–1381.
- Hijmans van den Bergh A, (2002). Sociaal medische begeleiding van allochtonen. Een verkennend onderzoek. Utrecht: Forum.
- Internationale classificatie van het menselijk functioneren, (2002). WHO-FIC Collaborating centre, RIVM, Bilthoven (Nederlandse vertaling van de WHO publicatie: International classification of functioning, disability and health: ICF, Geneva 2002). Houten, Bohn Stafleu Van Loghum.
- Karpansalo M, Kauhanen J, Lakka TA, Manninen P, Kaplan GA, Salonen JT, (2005). Depression and early retirement: prospective population based study in middle aged men. *J Epidemiol Community Health*, 59: 70–74.
- Kessler RC, Akiskal HS, Ames M, Birnbaum H, Greenberg P, Hirschfeld RM, Jin R, Merikangas KR, Simon GE, Wang PS, (2006). Prevalence and effects of mood disorders on work performance in a nationally representative sample of U.S. workers. *Am J Psychiatry*, 163(9): 1561-1568.
- Kessler RC, Merikangas KR, Wang PS, (2008). The prevalence and correlates of workplace depression in the national comorbidity survey replication. *J Occup Environ Med*, 50(4): 381-390.
- Kikkert MJ, Schene AH, Swinkels JA, Koeter MWJ, (2002). Ergotherapeutische interventie voor patienten met een arbeidsgerelateerde depressie: een kosteneffectiviteitsstudie. Amsterdam: Academisch Medisch Centrum bij de Universiteit van Amsterdam, Zorgprogramma Stemningsstoornissen & afdeling ergotherapie.
- Koopmans PC, Roelen CA, Groothoff JW, (2008). Sickness absence due to depressive symptoms. *Int Arch Occup Environ Health*, 81: 711-719.
- Lagerveld SE, Bültmann U, Franche RL, van Dijk FJ, Vlasveld MC, van der Feltz-Cornelis CM, Bruinvels DJ, Huijs JJ, Blonk RW, van der Klink JJ, Nieuwenhuijsen K, (2010). Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil*, 20: 275-292.

- Laitinen-Krispijn S, Bijl RV, (2000). Mental disorders and employee sickness absence: the NEMESIS study. Netherlands Mental Health Survey and Incidence Study. *Soc Psychiatry Psychiatr Epidemiol*, 35(2): 71-77.
- Lerner D, Henke RM, (2008). What does research tell us about depression, job performance, and work productivity? *J Occup Environ Med*, 50: 401-410
- Magnusson Hanson LL, Theorell T, Bech P, Rugulies R, Burr H, Hyde M, Oxenstierna G, Westerlund H, (2009). Psychosocial working conditions and depressive symptoms among Swedish employees. *Int Arch Occup Environ Health*, 82(8): 951-960.
- Mathers CD, Loncar D, (2006). Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med* 3(11): e442.
- Meershoek A, Krumeich A, Desain L, (2005). *Arbeidsongeschiktheid, reïntegratie en etniciteit*. Amsterdam: Het Spinhuis.
- Netterstrøm B, Conrad N, Bech P, Fink P, Olsen O, Rugulies R, Stansfeld S, (2008). The relation between work-related psychosocial factors and the development of depression. *Epidemiol Rev*, 30: 118-132.
- Nielsen MB, Bültmann U, Madsen IE, Martin M, Christensen U, Diderichsen F, Rugulies R, (2012). Health, work, and personal-related predictors of time to return to work among employees with mental health problems. *Disabil Rehabil*, 34(15): 1311-1316.
- Nieuwenhuijsen K, Bültmann U, Neumeyer-Gromen A, Verhoeven AC, Verbeek JH, van der Feltz-Cornelis CM, (2008). Interventions to improve occupational health in depressed people. *Cochrane Database Syst Rev*, 16(2): CD006237.
- Nieuwenhuijsen K, Verbeek JH, de Boer AG, Blonk RW, van Dijk FJ, (2004). Supervisory behaviour as a predictor of return to work in employees absent from work due to mental health problems. *Occup Environ Med*, 61(10): 817-823.
- Noordik E, van der Klink JJ, Geskus RB, de Boer MR, van Dijk FJ, Nieuwenhuijsen K, (2013). Effectiveness of an exposure-based return-to-work program for workers on sick leave due to common mental disorders: a cluster-randomized controlled trial. *Scand J Work Environ Health*, 39(2): 144-154.
- Paterniti S, Niedhammer I, Lang T, Consoli SM, (2002). Psychosocial factors at work, personality traits and depressive symptoms. Longitudinal results from the GAZEL Study. *Br J Psychiatry*, 181: 111-117.



- Plaisier I, de Bruijn JGM, de Graaf R, ten Have M, Beekman ATF, van Dyck R, Penninx BWJH, (2007). The contribution of working conditions and social support to the onset of depressive and anxiety disorders among male and female employees. *Social Science and Medicine*, 64: 401-410.
- Poppel J van, Kamphuis P, (2003). Sociaal medische begeleiding van allochtone werknemers, een literatuurstudie. *Tijdschrift Bedrijfs en Verzekeringsgeneeskunde*, 11 (6): 163-168.
- Porter RJ, Gallagher P, Thompson JM, Young AH, (2003). Neurocognitive impairment in drug-free patients with major depressive disorder. *Br J Psychiatry*, 182: 214-220.
- Roelen CA, Norder G, Koopmans PC, van Rhenen W, van der Klink JJ, Bültmann U, (2012). Employees sick-listed with mental disorders: who returns to work and when? *J Occup Rehabil*, 22: 409-417.
- Rytsälä HJ, Melartin TK, Leskelä US, Sokero TP, Lestelä-Mielonen PS, Isometsä ET, (2007). Predictors of long-term work disability in Major Depressive Disorder: a prospective study. *Acta Psychiatr Scand*, 115(3): 206-213.
- Sanderson K, Andrews G, (2006). Common mental disorders in the workforce: recent findings from descriptive and social epidemiology. *Can J Psychiatry*, 51(2): 63-75.
- Saunders SL, Nedelec B, (2014). What work means to people with work disability: a scoping review. *J Occup Rehabil*, 24(1): 100-110
- Schene AH, Koeter MW, Kikkert MJ, Swinkels JA, McCrone P, (2007). Adjuvant occupational therapy for work-related MDD works: randomized trial including economic evaluation. *Psychol Med*, 37: 351–362.
- Schneidert M, Hurst R, Miller J, Ustün B, (2003). The role of environment in the International Classification of Functioning, Disability and Health (ICF). *Disabil Rehabil*, 25(11-12): 588-595.
- Schuring M, Mackenbach J, Voorham T, Burdorf A, (2011). The effect of re-employment on perceived health. *J Epidemiol Community Health*, 65(7): 639-44.
- Siegrist J, (2008). Chronic psychosocial stress at work and risk of depression: evidence from prospective studies. *Eur Arch Psychiatry Clin Neurosci*, 258 [Suppl 5]: 115–119.

- Silva-Junior JS, Fischer FM, (2014). Long-Term Sickness Absence Due to Mental Disorders Is Associated with Individual Features and Psychosocial Work Conditions. *PLoS ONE*, 9(12): e115885.
- Slebus FG, Kuijjer PP, Willems JH, Sluiter JK, Frings-Dresen MH, (2008). Prognostic factors for work ability in sicklisted employees with chronic diseases. *Occup. Environ. Med*, 64(12): 814-819.
- Spijker J, de Graaf R, Bijl RV, Beekman AT, Ormel J, Nolen WA, (2002). Duration of major depressive episodes in the general population: results from The Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Br J Psychiatry*, 181: 208-13
- Stansfeld S, Candy B, (2006). Psychosocial work environment and mental health, a meta-analytic review. *Scand J Work Environ Health*, 32(6): 443-462.
- Tennant C, (2001). Work-related stress and depressive disorders. *J Psychosom Res*, 51: 697–704.
- Theorell T, Hammarström A, Gustafsson PE, Magnusson Hanson L, Janlert U, Westerlund H, (2014). Job strain and depressive symptoms in men and women: a prospective study of the working population in Sweden. *J Epidemiol Community Health*, 68(1): 78-82.
- Trimbos instituut, (2011). Preventie van depressie, factsheet preventie 2011. [www.Trimbos.nl](http://www.Trimbos.nl).
- Trivedi MH, Morris DW, Wisniewski SR, Nierenberg AA, Gaynes BN, Kurian BT, Warden D, Stegman D, Shores-Wilson K, Rush AJ, (2013). Clinical and sociodemographic characteristics associated with suicidal ideation in depressed outpatients. *Can J Psychiatry*, 58(2): 113-122.
- Vink J, (2009). Interculturele belastbaarheidbepaling, een zoetwatervis is geen zoutwatervis. Houten: Bohn Stafleu van Loghum.
- Vlasveld MC, van der Feltz-Cornelis CM, Anema JR, van Mechelen W, Beekman AT, van Marwijk HW, Penninx BW, (2013). The associations between personality characteristics and absenteeism: A cross-sectional study in workers with and without depressive and anxiety disorders. *J Occup Rehabil*, 23: 309-317.
- de Vries G, Schene AH, (2003). Arbeidshulpverlening bij depressie, protocollen programma stemmingsstoornissen. Amsterdam, Programma Stemmingsstoornissen AMC/De Meren.

- de Vries, (2008 / 2015). Module Ergotherapie, Werkhervatting bij depressie. Amsterdam, Academisch Medisch Centrum bij de Universiteit van Amsterdam, Zorgprogramma Stemmingsstoornissen, Afdeling ergotherapie / Roads.
- Waddell G, Burton A, (2006). Is work good for your health and well-being? The Stationery Office, London.
- Wang J, Schmitz N, Smailes E, Sareen J, Patten S, (2010). Workplace characteristics, depression, and health-related presenteeism in a general population sample. *J Occup Environ Med*, 52(8): 836-842.
- Wang PS, Simon GE, Avorn J, Azocar F, Ludman EJ, McCulloch J, Petukhova MZ, Kessler RC, (2007). Telephone screening, outreach, and care management for depressed workers and impact on clinical and work productivity outcomes: a randomized controlled trial. *JAMA*, 298(12): 1401-11
- Wang JL, (2006). Perceived work stress, imbalance between work and family/personal lives, and mental disorders. *Soc Psychiatry Psychiatr Epidemiol*, 41(7): 541-548.
- WHO, (2000). Mental health and work: impact, issues and good practices. Mental health policy and service development, Department of mental health and substance dependence, World Health Organization, Geneva.



## Chapter 2

**Adjuvant occupational therapy improves long-term depression recovery and return-to-work in good health in sick-listed employees with major depression: results of a randomised controlled trial**

Hiske L Hees, Gabe de Vries, Maarten W J Koeter, Aart H Schene

Occupational and Environmental Medicine 2013; 70(4): 252–260

## **Abstract**

### ***Objectives***

To evaluate whether adjuvant occupational therapy (OT) can improve the effectiveness of treatment as usual (TAU) in sick-listed employees with major depressive disorder (MDD).

### ***Methods***

In total, 117 employees sick-listed for a median duration of 4.8 months (IQR=2.6 to 10.1 months) because of MDD were randomised to treatment as usual (TAU; n=39) or adjuvant occupational therapy (TAU+OT; n=78). OT (18 sessions) focused on a fast return to work (RTW) and improving work-related coping and self-efficacy. The primary outcome was work participation (hours of absenteeism + duration until partial/full RTW). Secondary outcomes were depression, at-work functioning, and health-related functioning. Intermediate outcomes were work-related, coping and self-efficacy. Blinded assessments occurred at baseline and 6-, 12- and 18-month follow-up.

### ***Results***

The groups did not significantly differ in their overall work participation (adjusted group difference = -1.9, 95% CI -19.9 to +16.2). However, those in TAU +OT did show a greater improvement in depression symptoms (-2.8, -5.5 to -0.2), an increased probability of long-term symptom remission (+18%, +7% to +30%), and an increased probability of long-term RTW in good health (GH) (+24%, 12% to 36%). There were no significant group differences in the remaining secondary/intermediate outcomes.

### ***Conclusions***

In a highly impaired population, we could not demonstrate significant benefit of adjuvant OT for improving overall work participation. However, adjuvant OT did increase long-term depression recovery and long-term RTW-GH (ie, full RTW while being remitted and with better work and role functioning).

## Background

Depression is one of the most prevalent causes of disability (Lopez et al., 2006) and leads to substantial negative effects in the workplace: depressed employees have more absenteeism and at-work productivity loss than other employees (Lerner and Henke, 2008), including those with chronic medical conditions, such as heart disease and rheumatoid arthritis (Alonso et al., 2004). Characterised by an early age of onset (Eaton et al., 2008), a recurrent-chronic course (Brodaty et al., 2001) and pervasive effects on social and cognitive functioning (Judd et al., 2000) depression is associated with substantial costs for the individual, and also for society (Welch et al., 2009).

Standard clinical treatments have not proven sufficient for full recovery from depression (Paykel et al., 1995) or work-related disability (Nieuwenhuijsen et al., 2008). Although work is a central part of a person's life, standard clinical treatments often pay little attention to depression-related problems in the workplace. However, not being able to (fully) participate in the workplace may lead to social and economic deprivation, which in turn can have an added negative impact on the course of depression (Harnois and Gabriel, 2000), initiating a downward spiral. Thus, improving standard treatment by adding interventions that specifically target the workplace may have an additional effect on reducing work-related disability and/or depression symptoms in sick-listed employees with MDD (Lagerveld et al., 2010).

Surprisingly, a recent review (Nieuwenhuijsen et al., 2008) found only one study that has evaluated such an occupational intervention specifically designed for sick-listed employees with MDD. This study (Schene et al., 2007), conducted by our research group, showed that adjuvant occupational therapy (TAU+OT) resulted in a higher reduction of work-loss days and was more cost-effective than treatment-as-usual (TAU) only.

Based on these encouraging results, we have developed a shorter and improved version of our earlier OT (Hees et al., 2010). This new OT adopts an increased focus on three elements found to be essential for a successful return to work (RTW): an early return to the working environment according to the ‘place-then-train’ principle (Crowther et al., 2001), an increased focus on work-related coping (Schreuder et al., 2011) and self-efficacy (Brouwer et al., 2010), and enhanced communication among the various stakeholders involved (MHF, 2009). In the present study, we aimed to evaluate the effectiveness of this new adjuvant OT (TAU+OT), when compared with TAU only, in employees who were sick-listed because of MDD.

## **Methods**

This study was approved by the medical ethics committee of the Academic Medical Center in Amsterdam, The Netherlands (MEC 06/285), and is registered with the Dutch Trial Register (NTR2057). Written informed consent was obtained from all participants in the study.

### ***Participants***

Participants were eligible if they were aged 18–65 years, diagnosed with a major depressive disorder according to DSM-IV criteria, and absent from work for at least 25% of their contract hours due to their depression. In addition, the duration of their depressive disorder had to be at least 3 months, or the duration of their sickness absence had to be at least 8 weeks. Finally, there had to be a relationship between the depressive disorder and the work situation, that is, work was one of the determinants of depressive disorder and contributed substantially to MDD (>25%), or the depressive symptoms reduced productivity or hindered RTW. Participants with severe alcohol or drug dependence, bipolar disorder, psychotic disorder, depression with psychotic characteristics, or an indication of inpatient treatment were excluded from the study. Participants were referred by occupational physicians from several occupational health services in the Amsterdam area. After a telephone screening by a senior psychiatrist, participants received a 3-hour psychiatric intake, including the structured psychiatric interview for DSM-IV axis I disorders (First et al., 1997).



Participants who met the inclusion criteria and were willing to participate in the study were asked for written informed consent. More details regarding the study design and procedure is described elsewhere (Hees et al., 2010).

## ***Interventions***

### *Treatment as usual*

TAU consisted of treatment by psychiatric residents in an outpatient university clinic according to a treatment protocol consistent with the American Psychiatric Association (APA) guidelines (2000). Visits consisted of clinical management, including psychoeducation, supportive therapy and cognitive behavioural interventions. Therapies were supervised on a weekly basis by an experienced senior psychiatrist specialised in depression. If needed, participants received pharmacotherapy according to a protocolled algorithm. If the participant's condition deteriorated and outpatient treatment was no longer deemed adequate, he/she was referred to day treatment or inpatient treatment.

### *Occupational therapy*

OT consisted of 18 sessions (nine individual sessions, eight group sessions and a meeting with the employer), and was conducted by two experienced occupational therapists who had received extensive training in the intervention protocol. During the intervention, the occupational therapist frequently communicated with the occupational physician and the resident treating psychiatric. Employees were required to work at least 2 hours per week when starting OT, so that employees were able to practise what they had learned (e.g. new coping strategies) during therapy. The content of OT has been described in detail elsewhere (Hees et al., 2010; de Vries, 2008).

## ***Outcome measures***

### *Primary outcome*

Our primary outcome was work participation, defined in terms of absenteeism and time until partial/full RTW. Absenteeism was operationalised as the average number of hours of absenteeism over each 6-month period. Time until partial/full RTW was operationalised as the duration of sick leave due to depression in calendar days from the start of treatment until partial (or full) RTW. Partial RTW was defined as working an increment of at least 5 hours (compared with hours worked at baseline), for at least 4 weeks without partial or full recurrence. Full RTW was defined as working the full number of contract hours in own or other work for at least 4 weeks, without partial or full recurrence.

### *Secondary outcomes*

Severity of depression was assessed by the Hamilton Rating Scale for Depression (HRSD), a semi-structured clinical interview. A score  $\leq 7$  is qualified as ‘normal’, 8–13 as ‘mild’, 14–18 as ‘moderate’, 19–22 as ‘severe’ and  $\geq 23$  as ‘very severe’ (Hamilton, 1960). Thus, depression remission was defined as having a HRSD  $\leq 7$ . In addition, we used the Inventory of Depressive Symptoms-Self-Report, the IDS-SR (Rush et al., 1996), where a score  $\leq 13$  is qualified as ‘normal’, 14–22 as ‘mild’, 23–30 as ‘moderate’, 31–38 as ‘moderate to severe’ and  $\geq 39$  as ‘severe’.

At-work functioning was assessed through weekly self-report records of work efficiency on a scale of 1 (‘not productive at all’) to 10 (‘very productive’). In addition, we examined three subscales of the Work Limitations Questionnaire (WLQ): ‘Output’ (ie, difficulties in completing the required amount of work), ‘Time’ (ie, difficulties in handling the job’s time and scheduling demands) and ‘Mental-Interpersonal’ (ie, difficulties in handling the job’s cognitive and social demands). Each WLQ scale was scored from 0 to 100, reflecting the percentage of time during which a participant experienced work limitations during the past 4 weeks (Lerner et al., 2001).

Health-related functioning was assessed with three subscales of the Medical Outcomes Study-Short Form (MOS-SF 36): ‘Mental health’, ‘Role limitations due to emotional problems’ (Role Emotional), and ‘Role limitations due to physical problems’ (Role Physical). Each scale ranged from 0 to 100, with higher scores reflecting higher levels of functioning (Aaronson et al., 1998).

*Intermediate outcomes: mechanisms of change*

Coping with work-related situations was measured by an adapted version of the Utrecht Coping List (UCL) (Schreurs et al., 1993). We included three UCL-subcales: ‘Active problem focusing’ (seven items; e.g. being goal-directed, thinking of several solutions to a problem), ‘Avoidance Behaviour’ (eight items; e.g. withdrawing from problematic situations), and ‘Passive Reaction’ (seven items; e.g. worrying about the past and taking refuge in fantasies). All items were rated on a four-point scale, ranging from 1 (‘seldom or never’) to 4 (‘very frequently’).

Work-related self-efficacy was measured by the 11-item questionnaire ‘Expectations regarding work resumption’. Items were rated on a five-point scale, with higher scores reflecting higher self-efficacy (Lagerveld et al., 2010).

In the study protocol (Hees et al., 2010), seven subscales from the ‘Perception and Judgment of the Working Situation’ questionnaire (in Dutch: Vragenlijst Beleving en Beoordeling van de Arbeid, VBBA) were also described as intermediate outcomes. Considering that adjuvant OT primarily aimed to target coping and self-efficacy, and in order to limit the number of statistical tests, we decided (before starting the analyses) to only include coping and self-efficacy as intermediate outcomes in our final analyses.

### ***Additional analyses***

In additional analyses, we examined the percentage of participants who achieved a RTW in good health (RTW-GH), defined as having achieved a full RTW while being remitted from depression ( $\text{HRSD} \leq 7$ ). Questionnaires and clinical interviews were administered to employees at baseline and after 6, 12 and 18 months. For the WLQ and UCL, the baseline measure consisted of a retrospective assessment during the period before start of sickness absence. For all other measures, baseline scores referred to the period during study entry. Sickness absence data were derived from diaries that employees kept on a weekly basis during the 18-month study period.

### ***Process outcomes***

We recorded the number of sessions of OT, visits to the psychiatric outpatient department, primary care contacts (only those related to mental health), use of psychotropic medications, and days of psychiatric hospitalisation.

### ***Sample size***

Based on previous results (Schene et al., 2007), we expected to find a difference of 25% in hours of absenteeism between both groups. To achieve a power of 0.80 given a one-sided  $\alpha$  of 0.05, an estimated effect size of 0.30, and a ratio of our control sample to our experimental sample of 1 : 2, we needed at least 35 participants in the control condition and 70 participants in the experimental condition. Considering loss to follow-up, we included an extra 10% of participants, leading to a required sample size of 116 participants. Power calculations were made with G-power (Faul et al., 2007).

### ***Randomisation and blinding***

Participants were randomised to either TAU or TAU+OT after baseline data had been collected and informed consent was obtained.

Randomisation was conducted by an independent research assistant, using software based on a minimisation randomization procedure (Pocock and Simon, 1975). Randomisation was stratified for baseline depression severity (HDRS  $\leq 17$  or  $\geq 18$ ) and number of previous depressive episodes ( $\leq 2$  or  $\geq 3$ ). Study assessments were conducted by a psychiatrist and a researcher who were blind to group allocation. Due to the nature of our intervention, neither patients nor therapists could be blinded to the patients' allocation status.

### *Statistical analysis*

Data were analysed according to the intention-to-treat principle. Independent samples t-tests and  $\chi^2$  tests were used to evaluate potential differences in baseline characteristics between the experimental and control condition. All baseline measures with an effect size of at least  $d=0.3$  between TAU and TAU+OT were combined into a propensity score (Weele, 2006), which was entered as a covariate in the analyses. To take potential biased outcomes caused by selective loss to follow-up into account, we used multiple imputation (five imputed datasets), which, assuming missing at random for missing values, gives unbiased results with correct SEs. Results of each of the five imputation sets were combined using Rubin's rules (Enders 2010).

### *Treatment effect*

The primary outcome measure was analysed twofold: first, a Cox proportional hazard model was used to estimate HR for partial/full RTW with bootstrapping to account for the large variance in the outcome measure. Kaplan–Meier curves were used to describe the duration until partial/full RTW. Second, the reduction in hours of absenteeism was analysed with random coefficient regression analysis, using change scores between each follow-up assessment and baseline as dependent variables ( $\Delta T0-T1$ ,  $\Delta T0-T2$ ,  $\Delta T0-T3$ ). Treatment, time and the treatment by time interaction were entered as independent variables, the baseline (T0) and propensity score were entered as covariates.

A model with change scores is the only way to include the change between T0 and T1 in the analyses, while still correcting for potential baseline differences. If a non-linear effect of time was suspected after examining the data, we added a quadratic main effect of time, and a quadratic time by group interaction as independent variables to the model. In order to account for individual trajectories of the dependent variable, we allowed the intercept (and slope) to vary randomly among participants. A random slope was only included if this improved the model fit (Verbeke and Molenberghs, 2000). In these analyses, both the treatment main effect and/or the treatment by time interaction describe the effect of adjuvant OT.

For all continuous secondary outcomes and intermediate outcomes, similar analyses were conducted, with the exception of the WLQ and UCL. For these variables, the baseline measure concerned at-work functioning (WLQ) and work-related coping (UCL) before the start of sickness absence. This results in (a) variable time periods between ‘baseline’ (T0) and the first follow-up measure (T1) and (b) the impossibility to attribute changes between ‘baseline’ (T0) and first follow-up measure (T1) to the effect of adjuvant OT. For this reason, we did not include T0 (or change between T0 and T1) as a dependent variable in our model and, consequently, no change scores were necessary in order to be able to correct for baseline differences on the outcome variable. For these analyses, a follow-up vector with T1, T2, and T3 assessments was used as dependent variables. In these ‘more standard’ longitudinal analyses, only the interaction effect describes the effect of adjuvant OT.

Dichotomous outcomes (% of remission, % of RTW in GH) were analysed using population-averaged logistic regression analysis (Generalised Estimating Equations, GEE), with unstructured covariance matrices to allow for correlation in outcomes across time within participants.

Independent variables were treatment group, time and the treatment group by time interaction. The propensity score was entered as covariate. All analyses were conducted with SPSS V.18 for Windows.

## Results

Figure 1 shows the progression through the trial. Between December 2007 and October 2009, 224 participants were screened for participation in the study. Of these, 107 were excluded and 117 participants were randomised to receive either TAU+OT (n=78) or TAU (n=39). The treatment groups were comparable at baseline, except for the number of contract hours ( $d=0.43$ ), WLQ output scale ( $d=0.34$ ), and HRSD scores ( $d=0.39$ ; Table 1). These baseline variables were included as a covariate in the propensity score in all further analyses. Overall, our sample consisted of a highly impaired population: at baseline, more than two-thirds of participants (69% in TAU+OT; 68% in TAU) were depressed for more than 6 months, and a high proportion of participants (67% in TAU+OT; 56% in TAU) were absent from work for more than 3 months. In addition, more than half the participants (53% in TAU+OT; 54% in TAU) had had at least one previous depressive episode. At baseline, both groups scored well below the Dutch population average on all three SF-36 scales: Mental Health ( $-2.5$  SDs below the population average), Role Emotional ( $-2.2$  SDs), and Role Physical ( $-1.4$  SDs).

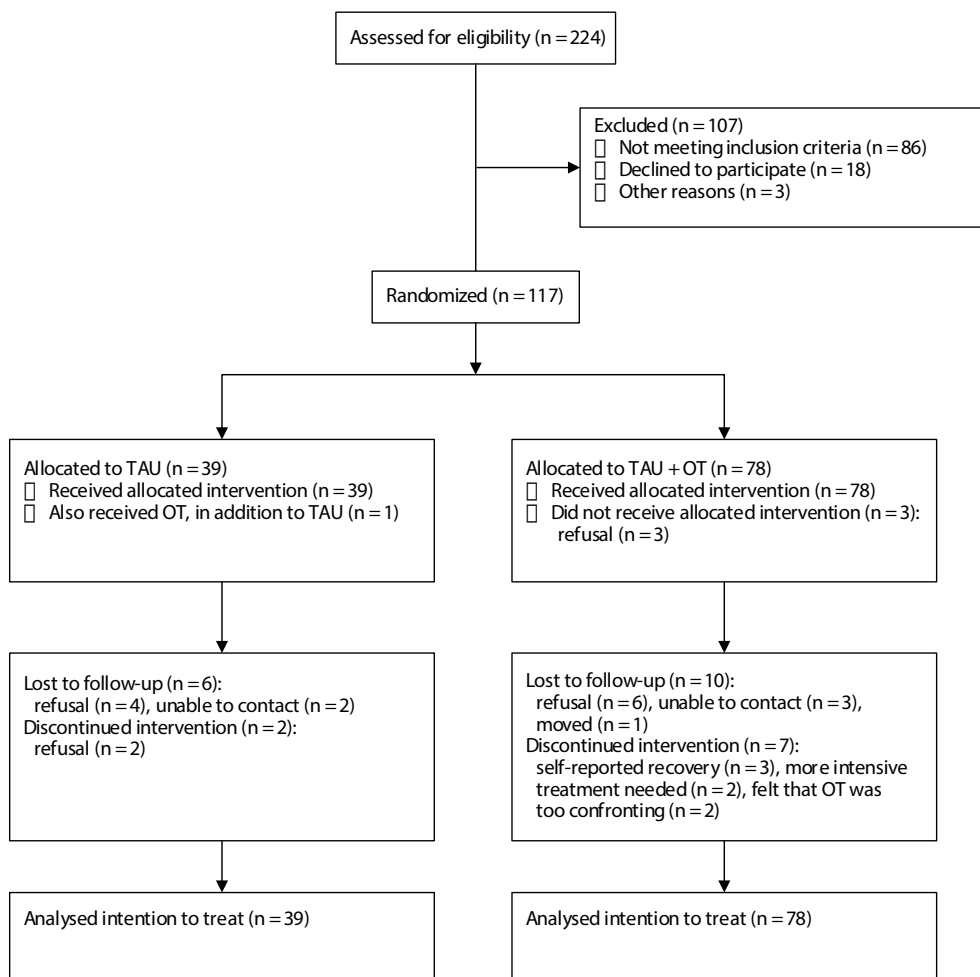
### *Service and medication use*

Participants in TAU+OT received an average of 15.2 (SD=5.8) OT sessions. In all, 85% of participants in OT (n=66) completed the intervention. Of these participants, only seven (11%) finished OT before the 6-month follow-up. Of the remaining, 45 participants (68%) finished OT before the 12-month follow-up, and 14 participants (18%) finished OT before the 18-month follow-up.

Participants in TAU+OT had significantly less visits to a psychiatrist ( $M=10.6$ ,  $SD=6.3$ ) than those in TAU ( $M=14.5$ ,  $SD=8.4$ ;  $p=0.005$ ). When corrected for baseline covariates, this difference remained statistically significant ( $p=0.01$ ). There were no significant group differences regarding the number of visits to a psychologist (TAU+OT=4.87 (8.94), TAU=4.79 (8.04);  $p=0.92$ ), general practitioner (TAU+OT=1.40 (2.51), TAU=1.69 (2.82);  $p=0.19$ ), or occupational physician (TAU+OT=2.79 (4.13), TAU=3.79 (5.61);  $p=0.12$ ).

In total, 13 participants (17%) in TAU+OT and eight participants (21%) in TAU were admitted for day treatment or inpatient treatment, with a mean of 38 days (SD=14) in TAU+OT and 58 days (SD=36) in TAU. Although we were not able to perform statistical tests due to the small number of participants being admitted, these findings seem to suggest that TAU+OT leads to fewer days of day treatment/inpatient treatment. Regarding medication, 78% of those in TAU (n=30) and 73% of those in TAU+OT (n=57) used antidepressants ( $p=0.55$ ) during the 18-month study period, for a mean of 290 (SD=235) and 303 (SD=237) days, respectively ( $p=0.77$ ).

**Figure 1.** Participant flow (TAU = treatment as usual; OT = occupational therapy).





**Table 1: Baseline characteristics of participants randomised to treatment as usual (TAU) or adjuvant occupational therapy (TAU + OT).**

	TAU (n = 39)	TAU + OT (n = 78)
<b>Demographics</b>		
Age, years	41.5 (9.6)	43.8 (9.0)
Male (%)	41%	53%
Education, years	13.9 (3.7)	13.5 (3.1)
Marital status (%)		
Married/living together	59%	58%
Single	23%	28%
Divorced/widowed	18%	14%
<b>Work characteristics</b>		
Contract, number of hours	32.7 (5.8)	35.0 (5.0)
Job sector (%)		
Financial/insurance	54%	58%
Healthcare	18%	9%
Other	28%	33%
Work experience, years	14.1 (9.6)	15.9 (11.0)
Absenteeism, number of hours	27.1 (8.8)	27.6 (10.0)
Duration of absenteeism, months <sup>a</sup>	3.8 (2.0-6.5)	5.0 (2.8-5.0)
WLQ Output <sup>b</sup>	51.7 (27.4)	62.0 (20.5)
WLQ Time <sup>b</sup>	58.1 (25.9)	55.6 (23.5)
WLQ Mental-Interpersonal <sup>b</sup>	55.0 (21.1)	55.5 (18.9)
Efficiency	4.8 (1.4)	5.4 (1.5)
HRSD	20.1 (5.0)	18.0 (5.1)
IDS-SR	42.1 (9.8)	38.7 (11.3)
More than one depressive episode (%)	54%	53%
Duration of current depressive episode, months <sup>a</sup>	8.0 (4.0-14.0)	7.5 (4.0-12.0)
MOS-SF 36 Mental Health	31.2 (15.6)	34.8 (15.7)
MOS-SF 36 Role Emotional	8.6 (21.2)	12.6 (25.4)
MOS-SF 36 Role Physical	21.8 (38.1)	28.8 (39.5)
<b>Coping &amp; Self-efficacy</b>		
UCL Active problem solving <sup>b</sup>	15.8 (4.3)	15.4 (4.0)
UCL Avoidance <sup>b</sup>	18.1 (4.3)	17.8 (3.6)
UCL Passive Reaction <sup>b</sup>	17.5 (4.4)	17.8 (4.2)
Self-efficacy	2.4 (1.1)	2.5 (1.0)

Data are mean (SD), unless stated otherwise.

<sup>a</sup> Median values (interquartile range) were calculated if data were skewed.

<sup>b</sup> Baseline measure reflects the last four weeks before start of absenteeism (variable time period).

Abbreviations: WLQ, Work Limitations Questionnaire; HRSD, Hamilton Rating Scale for Depression; IDS-SR, Inventory of Depressive Symptoms-Self-report; MOS-SF 36, Medical Outcomes Study Short Form; UCL, Utrecht Coping List.

**Table 2. Mixed-model analyses of work outcomes for participants in TAU+OT (n=78) and TAU (n=39)**

Outcome variable	6 months (T1)	12 months (T2)	18 months (T3)	Model	B	Adjusted Estimate* (95% CI)	p-value
<b>Hours of absenteeism</b>				Group	-5.5	(-22.9 to 11.9) <sup>d</sup>	0,53
TAU + OT	22.7 (10.0) <sup>a</sup>	14.1 (11.9) <sup>b</sup>	10.4 (12.5) <sup>c</sup>	Time	-36.0	(-42.2 to -29.8)	<0.001
TAU	23.3 (10.8) <sup>a</sup>	17.0(12.8) <sup>b</sup>	11.9 (12.3) <sup>c</sup>	Time <sup>2</sup>	10.9	(4.7 to 17.0) <sup>d</sup>	<0.001
adjusted effect OT (Δ) <sup>e</sup>	-1.9 (-19.9 to +16.2)	-12.9 (-32.3 to 6.6)	-1.9 (-19.9 to 16.2)	Group x Time	-3.1	(-16.2 to 10.4) <sup>d</sup>	0,64
				Group x Time <sup>2</sup>	11.0	(-1.9 to 23.8) <sup>d</sup>	0,09
<b>RTW-GH</b>				Group	0.03	(-0.8 to 0.9)	0.96
TAU + OT	6%	34%	52%	Time	1.2	(0.8 to 1.5)	<0.001
TAU	10%	23%	28%	Time <sup>2</sup>	-0.5	(-1.0 to -0.1)	0.01
adjusted effect OT (Δ) <sup>e</sup>	-1% (-8% to 6%)	8% (-3% to 20%)	24% (12% to 36%)	Group x Time	0.6	(0.1 to 1.5)	0.02
				Group x Time <sup>2</sup>	-0.3	(-1.1 to 0.6)	0.49
<b>Efficiency</b>				Group	-0.3	(-0.7 to 0.2) <sup>d</sup>	0,29
TAU + OT	5.6 (1.3) <sup>a</sup>	6.7 (1.6) <sup>b</sup>	7.2 (1.6) <sup>c</sup>	Time	0.8	(0.7 to 0.9) <sup>d</sup>	<0.001
TAU	5.4 (1.3) <sup>a</sup>	6.4 (1.4) <sup>b</sup>	7.2 (1.3) <sup>c</sup>	Time <sup>2</sup>	-0.2	(-0.4 to -0.1) <sup>d</sup>	0,01
adjusted effect OT (Δ) <sup>e</sup>	-0.2 (-0.7 to 0.3)	-0,3 (-0.9 to 0.2)	-0,4 (-1.1 to 0.3)	Group x Time	-0.1	(-0.4 to 0.2) <sup>d</sup>	0,47
				Group x Time <sup>2</sup>	-0.2	(-0.5 to 0.2) <sup>d</sup>	0,33
<b>WLQ Output<sup>f</sup></b>				Group	-1.3	(-7.6 to 5.0)	0,69
TAU + OT	40.6 (17.6)	33.1 (15.0)	31.2 (17.3)	Time	-4.5	(-6.4 to -2.6)	<0.001
TAU	43.6 (23.2)	34.7 (19.8)	35.7 (19.8)	Time <sup>2</sup>	3.6	(0.9 to 6.2)	0,01
adjusted effect OT (Δ) <sup>e</sup>	-0.5 (-8.2 to 7.2)	-1,2 (-7.6 to 5.1)	-2 (-9.3 to 5.3)	Group x Time	-0.7	(-4.8 to 3.3)	0,72
				Group x Time <sup>2</sup>	-2.1	(-7.7 to 3.4)	0,45
<b>WLQ Time management<sup>f</sup></b>				Group	1.8	(-9.2 to 5.6)	0,64
TAU + OT	45.4 (21.5)	34.4 (16.5)	33.1 (20.9)	Time	-5.3	(-7.2 to -3.4)	<0.001
TAU	45.1 (21.9)	38.8 (23.8)	38.0 (24.2)	Time <sup>2</sup>	4.2	(0.8 to 7.6)	0,02
adjusted effect OT (Δ) <sup>e</sup>	1 (-7.3 to 9.3)	-1,7 (-9.1 to 5.7)	-4,3 (-13.1 to 4.5)	Group x Time	2.6	(-6.7 to 1.4)	0,20
				Group x Time <sup>2</sup>	2.1	(-5.0 to 9.2)	0,56
<b>WLQ Mental/ Interpersonal<sup>f</sup></b>				Group	-2.2	(-8.4 to 3.9)	0,47
TAU + OT	41.3 (17.2)	34.2 (13.3)	32.8 (15.6)	Time	-3.5	(-5.2 to -1.9)	<0.001
TAU	42.2 (19.2)	38.1 (19.8)	37.7 (17.6)	Time <sup>2</sup>	2.5	(0.4 to 4.6)	0,02
adjusted effect OT (Δ) <sup>e</sup>	0.1 (-7.2 to 7.3)	-2.0 (-8.1 to 4.2)	-3.9 (-10.9 to 3.1)	Group x Time	2.0	(-5.6 to 1.6)	0,28
				Group x Time <sup>2</sup>	1.1	(-3.4 to 5.5)	0,64

Data are mean (SD) or percentage, unless stated otherwise. All analyses are adjusted for covariates (propensity score) and baseline measure. TAU is the reference category for Group.

Time is coded as -1(T1), 0(T2), 1(T3). Time<sup>2</sup> is coded as 1(T1), 0(T2), 1(T3).

<sup>a</sup>Weekly average over 1–6 months.

<sup>b</sup>Weekly average over 7–12 months.

<sup>c</sup>Weekly average over 13–18 months.

<sup>e</sup>Adjusted differences between treatment groups and their 95% CIs.

<sup>f</sup>As the WLQ baseline measure reflects a variable time period (ie, the period before the start of sickness absence),

analyses for WLQ scales were not based on change scores from baseline (see 'Statistical Analyses' for more information).

Abbreviations: OT, occupational therapy; RTW-GH, return-to-work in good health, defined as: working the full number of contract hours while being remitted from depression (HRSD<7); TAU, treatment-as-usual; WLQ, Work Limitations Questionnaire.

### ***Primary outcome: work participation***

Both groups significantly decreased their hours of absenteeism ( $p < 0.001$ ), with the highest decrease between six and twelve months (time2:  $p < 0.001$ ). However, there were no significant differences between groups (Table 2). Similarly, two Cox proportional hazards models, adjusted for baseline covariates, indicated no significant group differences in time until partial RTW (HR=0.72; 95% CI 0.44 to 1.11;  $p=0.14$ ) or time until full RTW (HR=0.93; 95% CI= 0.57 to 1.53;  $p=0.79$ ). The median number of days until partial RTW was 80 (IQR: 42–172 days) in TAU+OT and 166 (67–350) in TAU. For full RTW, the median number of days was 361 (193–653) in TAU+OT and 405 (189–613) in TAU. During the 18-month study period, 91% of participants achieved at least partial RTW (TAU+OT=92%; TAU=89%), and 63% of participants achieved full RTW (TAU+OT=66%; TAU=56%).

### ***Secondary outcomes***

Over time, participants in TAU+OT showed greater improvement in depression symptoms than those in TAU, both in terms of severity ( $p=0.03$ ) and long-term symptom remission (HRSD $\leq 7$ ; OR=1.8, 95% CI= 1.0 to 3.3;  $p=0.05$ ; see also Table 3). In addition, the percentage of participants who attained sustainable remission – defined as remission for  $\geq 6$  months (Furukawa et al., 2008) – was higher in TAU+OT (92%) when compared with TAU (69%;  $p=0.04$ ). Although participants in TAU+OT also improved on the self-report measure, IDS-SR, this difference was not statistically significant ( $p=0.13$ ; Table 3). In addition, participants in TAU+OT showed greater improvement on the MOS-SF 36 Mental Health scale over time than participants in TAU ( $p=0.04$ ; Table 3). Although both groups decreased in SF-36 Emotional ( $p < 0.001$ ) and Physical ( $p < 0.001$ ) Role Limitations, with the highest decrease between six and 12 months (Emotional: time2  $p < 0.001$ , Physical: time2  $p=0.01$ ), no significant differences between groups were found regarding improvements in role functioning (Table 3). Both groups significantly decreased in their work limitations (all three WLQ scales  $p < 0.001$ ), with the highest decrease between 6 and 12 months (Output: time2  $p=0.01$ , Time Management: time2  $p=0.02$ , Mental/Interpersonal: time2  $p=0.02$ ). Similarly, both groups increased in work efficiency ( $p < 0.001$ ), with the highest increase between six and 12 months (time2  $p=0.01$ ). However, no significant group differences were found for these measures (Table 2).

**Table 3: Mixed-model analyses of clinical outcomes for participants in TAU+OT (n = 78) and TAU (n = 39).**

Outcome variable	6 months (T1)	12 months (T2)	18 months (T3)	Model	B	(95% CI)	P-value
<b>HRSD</b>				Group	-1.4	(-3.7 to 0.9) <sup>a</sup>	0.25
TAU + OT	11.2 (6.6)	7.1 (6.7)	4.7 (5.4)	Time	-2.8	(-3.4 to -2.2) <sup>a</sup>	<0.001
TAU	12.4 (8.1)	9.6 (7.8)	8.8 (8.2)	Group x Time	-1.5	(-2.8 to 3.0) <sup>a</sup>	0.03
adjusted effect OT (Δ) <sup>b</sup>	0.1 (-2.5 to 2.7)	1.4 (-1.0 to 3.7)	-2.8 (-5.5 to -0.2)				
<b>HRSD remission (≤ 7)</b>				Group	-0.2	(-1.0 to 0.6)	0.65
TAU + OT	32%	57%	77%	Time	0.8	(0.5 to 1.1)	<0.001
TAU	31%	47%	52%	Group x Time	0.6	(0.0 to 1.2)	0.05
adjusted effect OT (Δ) <sup>b</sup>	-7% (-19% to 5%)	2% (-11% to 15%)	18% (7% to 30%)				
<b>IDS-SR</b>				Group	-0.1	(-4.5 to 4.2) <sup>a</sup>	0.95
TAU + OT	28.1 (13.7)	22.4 (13.1)	18.6 (11.7)	Time	-4.2	(-5.2 to -3.2) <sup>a</sup>	<0.001
TAU	29.7 (16.2)	24.6 (15.1)	23.4 (15.2)	Group x Time	-1.6	(-3.7 to 0.5) <sup>a</sup>	0.13
adjusted effect OT (Δ) <sup>b</sup>	1.5 (-3.3 to 6.3)	-0.1 (-4.3 to 4.0)	-1.8 (-6.6 to 3.1)				
<b>IDS-SR remission (≤ 15)</b>				Group	0.2	(-1.1 to 0.6)	0.53
TAU + OT	28%	40%	51%	Time	0.3	(0.1 to 0.6)	<0.001
TAU	18%	24%	28%	Group x Time	-0.3	(-0.3 to 0.6)	0.32
adjusted effect OT (Δ) <sup>b</sup>	-8% (-19% to 3%)	-9% (-20% to 3%)	-1% (-13% to 110%)				
<b>MOS-SF 36 Mental Health</b>				Group	1.1	(-6.1 to 8.3) <sup>a</sup>	0.76
TAU + OT	52.2 (19.6)	61.7 (18.6)	65.9 (18.0)	Time	5.8	(4.3 to 7.2) <sup>a</sup>	<0.001
TAU	50.6 (22.9)	57.0 (22.5)	57.9 (22.7)	Time <sup>2</sup>	-2.7	(-5.2 to -0.2) <sup>a</sup>	0.04
adjusted effect OT (Δ) <sup>b</sup>	-1.4 (-6.4 to 9.2)	1.1 (-6.1 to 8.3)	4.3 (-3.5 to 12.2)	Group x Time	3.2	(-0.2 to 6.3) <sup>a</sup>	0.04
				Group x Time <sup>2</sup>	0.2	(-4.9 to 5.2) <sup>a</sup>	0.95
<b>MOS-SF 36 Role Emotional</b>				Group	-1.1	(-13.7 to 11.5) <sup>a</sup>	0.86
TAU + OT	33.5 (36.9)	62.1 (34.5)	62.5 (37.0)	Time	12.7	(9.2 to 16.2) <sup>a</sup>	<0.001
TAU	36.9 (40.3)	54.4 (37.4)	54.9 (39.7)	Time <sup>2</sup>	-12.2	(-18.3 to -6.2) <sup>a</sup>	<0.001
adjusted effect OT (Δ) <sup>b</sup>	-6.8 (-9.8 to 23.3)	-1.2 (-16.0 to 13.5)	4.3 (-12.3 to 20.9)	Group x Time	5.5	(-1.8 to 12.9) <sup>a</sup>	0.14
				Group x Time <sup>2</sup>	-5.5	(-18.3 to 7.3) <sup>a</sup>	0.40
<b>MOS-SF 36 Role Physical</b>				Group	-1.4	(-14.1 to 11.3) <sup>a</sup>	0.83
TAU + OT	46.8 (39.3)	63.9 (34.1)	66.1 (35.7)	Time	7.9	(-4.3 to 11.4) <sup>a</sup>	<0.001
TAU	46.3 (44.0)	62.8 (36.1)	62.0 (40.8)	Time <sup>2</sup>	-8.6	(-14.8 to -2.4) <sup>a</sup>	0.01
adjusted effect OT (Δ) <sup>b</sup>	-4.2 (-24.1 to 15.7)	1.0 (-17.3 to 19.3)	6.3 (-13.6 to 26.1)	Group x Time	-5.2	(-12.8 to 2.3) <sup>a</sup>	0.18
				Group x Time <sup>2</sup>	-3.7	(-16.8 to 9.4) <sup>a</sup>	0.58

Data are mean (SD) or percentage, unless stated otherwise. All analyses are adjusted for covariates (propensity score) and baseline measure. TAU is the reference category for Group. Time is coded as -1(T1), 0(T2), 1(T3). Time<sup>2</sup> is coded as 1(T1), 0(T2), 1(T3).

<sup>a</sup>Analysis is based on change scores from baseline.

<sup>b</sup>Adjusted differences between treatment groups and their 95% confidence intervals.

Abbreviations: HRSD, Hamilton Rating Scale for Depression; IDS-SR, Inventory of Depressive Symptoms-Self-report; MOS-SF 36, Medical Outcomes Study Short Form; OT, occupational therapy; TAU, treatment-as-usual

**Table 4: Mixed-model analyses of intermediate outcomes for participants in TAU+OT (n=78) and TAU (n=39).**

Outcome variable	6 months (T1)	12 months (T2)	18 months (T3)	Model	B	(95% CI)	p
<b>Self-efficacy</b>				Group	1.0	(-3.5 to 5.6) <sup>a</sup>	0.66
Experimental	3.4 (1.1)	3.9 (1.1)	4.2 (1.0)	Time	4.2	(3.3 to 5.1) <sup>a</sup>	<0.001
Control	3.2 (1.4)	3.8 (1.2)	4.0 (1.7)	Group x Time	-0.2	(-2.2 to 1.8)	0.83
adjusted effect OT ( $\Delta$ ) <sup>b</sup>	1.2 (-3.8 to 6.2)	1.0 (-3.5 to 5.6)	0.8 (-4.2 to 5.8)				
<b>UCL Active problem solving<sup>c</sup></b>				Group	1.2	(-0.2 to 2.6)	0.10
Experimental	16.6 (3.8)	17.2 (3.6)	17.9 (3.7)	Time	0.7	(0.3 to 1.0)	<0.001
Control	15.4 (3.7)	16.3 (3.9)	16.8 (3.9)	Group x Time	-0.1	0.1 (-0.6 to 0.7)	0.82
adjusted effect OT ( $\Delta$ ) <sup>b</sup>	1.3 (-0.3 to 2.8)	1.2 (-0.2 to 2.6)	1.1 (-0.4 to 2.6)				
<b>UCL Avoidance<sup>c</sup></b>				Group	-0.3	(-1.4 to 0.9)	0.68
Experimental	17.2 (3.2)	16.7 (2.9)	16.9 (3.3)	Time	-0.3	(-0.6 to 0.1)	0.05
Control	18.3 (3.7)	16.4 (3.7)	17.1 (3.5)	Time <sup>2</sup>	0.7	(0.1 to 1.4)	0.04
adjusted effect OT ( $\Delta$ ) <sup>b</sup>	-0.7 (-2.1 to 0.7)	-0.3 (-1.4 to 0.9)	0.2 (-1.6 to 1.2)	Group x Time	-0.5	(-0.2 to 1.1)	0.19
				Group x Time <sup>2</sup>	-0.8	(-2.0 to 0.3)	0.16
<b>UCL Passive Reaction<sup>c</sup></b>				Group	-0.6	(-2.0 to 0.9)	0.43
Experimental	15.8 (4.4)	13.4 (3.4)	13.1 (3.3)	Time	-1.3	(-1.7 to -0.9)	<0.001
Control	16.5 (4.4)	14.6 (4.5)	14.1 (4.4)	Time <sup>2</sup>	0.9	(0.3 to 1.5)	0.01
adjusted effect OT ( $\Delta$ ) <sup>b</sup>	-0.4 (-2.0 to 1.2)	-0.6 (-2.0 to 0.9)	-0.7 (-2.4 to 0.9)	Group x Time	-0.2	(-0.9 to 0.6)	0.68
				Group x Time <sup>2</sup>	0.3	(1.0 to 1.7)	0.26

Data are mean (SD), unless stated otherwise. All analyses are adjusted for covariates (propensity score) and baseline measure. TAU is the reference category for Group, Time is coded as -1(T1), 0(T2), 1(T3). Time2 is coded as 1(T1), 0(T2), 1(T3).

<sup>a</sup>Analysis is based on change scores from baseline.

<sup>b</sup>Adjusted differences between treatment groups and their 95% CIs.

<sup>c</sup>As the baseline UCL scales reflect a variable time period (ie, the period before the start of sickness absence), we were not able to conduct analyses based on change scores from baseline (see 'Statistical Analyses' for further information).

Abbreviations: OT, occupational therapy; TAU, treatment-as-usual; UCL, Utrecht Coping List.

### *Intermediate outcomes: self-efficacy and coping*

Both groups improved in their active coping ( $p < 0.001$ ) and self-efficacy ( $p < 0.001$ ). In addition, both groups showed a reduction in their passive coping strategies (Passive Reaction:  $p < 0.001$ , Avoidance:  $p = 0.05$ ), with the highest reduction between six and 12 months (Passive Reaction:  $\text{time}^2 p = 0.004$ , Avoidance:  $\text{time}^2 p = 0.04$ ). No significant group differences were found (Table 4).

### *Additional analyses*

Over time, the probability of RTW-GH increased more for participants in TAU+OT when compared with participants in TAU (OR=1.9, 95% CI= 1.1 to 3.2,  $p = 0.02$ ; see Table 2). Participants who had RTW-GH had significantly less work limitations (all three WLQ scales:  $p < 0.001$ ), higher work productivity ( $p < 0.001$ ), and better role functioning (Role Emotional:  $p < 0.001$ ; Role Physical:  $p < 0.001$ ) than those who achieved full RTW, but without being remitted (all analyses included correction for baseline differences). Furthermore, participants who achieved RTW-GH had comparable role functioning with the general Dutch population (Emotional: 0.03SD; Physical: 0.12SD), high average work productivity (M=8.01, SD=1.5), and work limitations for less than 30% of the time (WLQ Time: M=24.10, SD=20.5; WLQ Output: M=24.0, SD=18.8; WLQ Mental/Interpersonal: M=26.4, SD=15.3).

## **Discussion**

In a highly impaired population, we could not demonstrate significant benefit for adjuvant OT with regards to overall work participation. We did find, however, that adjuvant OT increased the probability of full return to work in good health (RTW-GH, ie, full RTW while being remitted from depression and with better work and role functioning). Adjuvant OT also increased long-term depression recovery, both in terms of symptom reduction and sustainable remission. Finally, our findings suggested that employees in adjuvant OT used less high-cost medical treatment than those in TAU only (ie, fewer sessions with a psychiatrist and fewer days of day treatment or inpatient treatment).

Our inability to detect significant differences with regards to overall work participation is in contrast with our previous study (Schene et al., 2007). One potential explanation may be that due to the high variability in the duration until partial/full RTW, our power was insufficient to detect significant differences between treatment groups. Second, as previous studies have indicated that functional improvement lags behind symptom reduction (Adler et al., 2006), it is possible that our follow-up period of 18 months was too short for measuring whether additional effects in depression recovery lead to further improvement in work outcomes after the 18-month follow-up. Finally, an important factor that may have contributed to the discrepancy in study findings is the rapid societal changes that have occurred in The Netherlands since our previous study. First, several legislative changes (ie, the new Disability Act and an improved version of the Gatekeeper's Act) have been implemented, stipulating more (financial) incentives for both the employer and employee to achieve a fast RTW. Second, guidelines for occupational physicians and mental health professionals have increasingly emphasised the importance of an early RTW before the recovery of symptoms. These societal changes probably have led to a different TAU, resulting in a reduced contrast with TAU+OT in the current study when compared with our previous study, especially with regards to work participation. Indeed, overall, the population in this study seemed to RTW much faster than the population in our previous study (for TAU+OT, mean of 149 days instead of 207 days; for TAU, mean of 213 days instead of 299 days).

Nevertheless, our finding that adjuvant OT provides additional benefit for achieving RTW-GH is advantageous for all stakeholders involved: Without (interfering) residual symptoms, the employee is able to be fully present at work while having improved work functioning. This outcome is not only beneficial for the employee's well-being, but also contributes to his/her economic productivity, which is of interest to the employer. As previous research has suggested, employees who achieve a healthy RTW have lower chances of recurrent sickness absence (Bültmann et al., 2007). Future research should investigate whether adjuvant OT also provides benefit for a long-term sustainable RTW.

Furthermore, the added benefit of adjuvant OT for long-term depression recovery is especially important in our highly impaired sample with long depression duration, as previous research suggests that treatment response decreases as a function of symptom duration (Stosky et al., 1991). Our finding that adjuvant OT leads to lower residual symptoms is of clinical relevance since these symptoms have proven an important predictor for relapse (Hardeveld et al., 2010) and subsequent functional impairment (Rai et al., 2010). Indeed, in this study, we found that employees in adjuvant OT more frequently achieved sustainable remission than those in TAU. It should be noted that this positive effect of adjuvant OT was statistically significant for the clinical interview (HRSD), but not for the self-report measure (IDS-SR). However, previous findings have indicated that clinician-rated instruments may be more sensitive in measuring changes in depression symptoms than self-report instruments (Cuipers et al., 2010). Moreover, we found that patients in adjuvant OT showed significantly more improvement on the SF-36 Mental Health scale than patients in TAU. Given the considerable overlap of the SF-36 Mental Health scale with depression symptoms (Kristjansdottir et al., 2011), this finding corroborates the beneficial effect of adjuvant OT on symptom recovery.

Although the effect of adjuvant OT did not occur through the working mechanisms as initially hypothesised (i.e. improved work-related coping and self-efficacy), the beneficial effect of adjuvant OT may be explained by the provision of extra therapeutic support during the RTW process. This therapeutic support may increase the employee's capacity to positively use his/her RTW experiences as part of the recovery process. This explanation is supported by previous studies showing that on-the-job support is effective for health recovery and work outcomes (Boardman et al., 2003). However, more research is needed in order to confirm the working mechanisms through which adjuvant OT achieves its added benefit on depression recovery and RTW-GH.

### ***Strengths and limitations of the study***

This study has the following strengths. First, we included a broad range of outcome measures in order to comprehensively assess the effect of adjuvant OT. Other strengths are the use of a



‘protocolled’ intervention, the inclusion of process variables, the long follow-up period with multiple measures, the low loss to follow-up, and the use of an up-to-date approach for missing data that can account for differential loss to follow-up. A limitation of our study is the small sample size. Although this sample size was sufficient to meet the requirements of our power analyses, the wide variability in duration until partial/full RTW may have limited our power to detect differences in our primary outcome (work participation). Second, at-work functioning was measured with self-report questionnaires. Hence, we cannot rule out a discrepancy with employer-based ratings. However, previous studies have demonstrated substantial correlations between self-report measures and employer-based data (Lerner et al., 2003). Third, our TAU consisted of highly specialised treatment at an academic department for mood disorders; this could have potentially reduced the contrast between the two groups, which may have lead to an underestimation of the potential effects of adjuvant OT. Fourth, an advantage of using random coefficient analyses is that these analyses result in more valid estimates by taking the dependency of the data into account. However, one has to pay a price. The calculation of effect estimates becomes very complicated, and there seems to be no consensus yet regarding how to calculate these effect sizes. Finally, the high proportion of employees with chronic sickness absence (69% were absent for more than 3 months) may have diluted a potential effect of adjuvant OT in those with shorter sickness absence spells. Although power was too low to reach significance, exploratory analyses indicated a beneficial trend of adjuvant OT for those with sickness absence spells of less than 3 months (data available from first author). Thus, our findings may only generalise to those with a substantial duration of impairments.

## **Conclusions**

Although adjuvant OT was not significantly more effective than TAU for improving overall work participation, adjuvant OT did increase depression recovery and the probability of RTW-GH in a highly impaired population. Future research should (a) examine whether adjuvant OT provides added benefit for those with a shorter duration of impairments and (b) include a longer follow-up period in order to examine whether adjuvant OT also prevents the recurrence of sickness absence.

## **Acknowledgements**

We would like to thank occupational therapists Ada Frans, Lea Stor and Sylvia Teunissen for conducting the occupational intervention and for their helpful comments. We would also like to thank Wendy Ooteman for her help with the study design and data collection. Finally, we are grateful to all patients and clinicians who contributed their time and effort to the study.

## **Funding**

This study was funded by the Netherlands Foundation for Mental Health (grant no. 20035713) and the National Institute for Employee Benefit Schemes (grant no. 5002002) in Amsterdam, The Netherlands. The authors were independent of the funders, and the funders had no role in the project.

## References

- Aaronson NK, Muller M, Cohen PD, Essink-Bot ML, Fekkes M, Sanderman R, Sprangers MA, te Velde A, Verrips E, (1998). Translation, validation, and norming of the Dutch language version of the SF-36 Health Survey in community and chronic disease populations. *J Clin Epidemiol*, 51: 1055–1068.
- Adler DA, McLaughlin TJ, Rogers WH, Chang H, Lapitsky L, Lerner D, (2006). Job performance deficits due to depression. *Am J Psychiatry*, 163: 1569–1576.
- Alonso J, Angermeyer MC, Bernert S, et al., (2004). Disability and quality of life impact of mental disorders in Europe: results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatr Scand Suppl*, 420: 38–46.
- American Psychiatric Organization, (2000). Practice guideline for the treatment of patients with major depressive disorder (revision). *Am J Psychiatry*, 157: 1–45.
- Boardman J, Grove B, Perkins R, Shepherd G, (2003). Work and employment for people with psychiatric disabilities. *Br J Psychiatry*, 182: 467–8.
- Brodaty H, Luscombe G, Peisah C, Anstey K, Andrews G, (2001). A 25-year longitudinal, comparison study of the outcome of depression. *Psychol Med*, 31: 1347–1359.
- Brouwer S, Reneman MF, Bultmann U, Klink JJ van der, Groothoff JW, (2010). A prospective study of return to work across health conditions: perceived work attitude, self-efficacy and perceived social support. *J Occup Rehabil*, 20: 104–112.
- Bültmann U, Franche RL, Hogg-Johnson S, Côté P, Lee H, Severin C, Vidmar M, Carnide N, (2007). Health status, work limitations, and return-to-work trajectories in injured workers with musculoskeletal disorders. *Qual Life Res*, 16: 1167–1178.
- Crowther RE, Marshall M, Bond GR, Huxley P, (2001). Helping people with severe mental illness to obtain work: systematic review. *BMJ*, 322: 204–208.
- Cuijpers P, Li J, Hofmann SG, Andersson G, (2010). Self-reported versus clinician-rated symptoms of depression as outcome measures in psychotherapy research on depression: a meta-analysis. *Clin Psychol Rev*, 30: 768–78.
- Eaton WW, Shao H, Nestadt G, Lee HB, Bienvenu OJ, Zandi P, (2008). Population-based study of first onset and chronicity in major depressive disorder. *Arch Gen Psychiatry*, 65: 513–20.

- Enders CK, (2010). *Applied missing data analysis*. New York: Guildford Press, 1–381.
- Faul F, Erdfelder E, Lang AG, Buchner A, (2007). G\*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Res Methods*, 39: 175–191.
- First MB, Spitzer RL, Gibbon M, Williams WBJ (1997). *Structured clinical interview for DSM-IV axis I disorders (SCID I)*. New York: Biometric Research Department.
- Furukawa TA, Fujita A, Harai H, Dewa CS, Kennedy SH, (2008). Definitions of recovery and outcomes of MDD: results from a 10-year follow-up. *Acta Psychiatr Scand*, 117: 35–40.
- Hamilton M, (1960). A rating scale for depression. *J Neurol Neurosurg Psychiatry*, 23: 56–62.
- Hardeveld F, Spijker J, Graaf R de, Nolen WA, Beekman AT, (2010). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta Psychiatr Scand*, 122: 184–91.
- Harnois G, Gabriel PF, (2000). *Mental health and work: Impact, issues and good practices*. World Health Organization, Geneva.
- Hees HL, Koeter MW, Vries G de, Ooteman W, Schene AH, (2010). Effectiveness of adjuvant occupational therapy in employees with depression: design of a randomized controlled trial. *BMC Public Health*, 10: 558.
- Judd LL, Akiskal HS, Zeller PJ, Paulus M, Leon AC, Maser JD, Endicott J, Coryell W, Kunovac JL, Mueller TI, Rice JP, Keller MB, (2000). Psychosocial disability during the long-term course of unipolar major depressive disorder. *Arch Gen Psychiatry*, 57: 375–380.
- Kristjansdottir J, Olsson GI, Sundelin C, Naessen T, (2011). Could SF-36 be used as a screening instrument for depression in a Swedish youth population? *Scand J Caring Sci*, 25(2): 262–268.
- Lagerveld SE, Blonk RBW, Brenninkmeijer V, Schaufeli W, (2010). Return to work among employees with mental health problems: Development and validation of a self-efficacy questionnaire. *Work and Stress*, 24(4): 157-359
- Lagerveld SE, Bultmann U, Franche RL, Dijk FJ van, Vlasveld MC, Feltz-Cornelis CM van der, Bruinvels DJ, Huijs JJ, Blonk RW, Klink JJ van der, Nieuwenhuijsen K, (2010). Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil*, 20: 275–292.

- Lerner D, Henke RM, (2008). What does research tell us about depression, job performance, and work productivity? *J Occup Environ Med*, 50(4): 401–410.
- Lerner D, Amick BC III, Lee JC, Rooney T, Rogers WH, Chang H, Berndt ER, (2003). Relationship of employee-reported work limitations to work productivity. *Med Care*, 41: 649–659.
- Lerner D, Amick BC III, Rogers WH, Malspeis S, Bungay K, Cynn D, (2001). The Work Limitations Questionnaire. *Med Care*, 39: 72–85.
- Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ, (2006). Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. *Lancet*, 367: 1747–1757.
- Mental Health Foundation (2009). *Returning to work, the role of depression*. London: Mental Health Foundation.
- Nieuwenhuijsen K, Bultmann U, Neumeyer-Gromen A, Verhoeven AC, Verbeek JH, van der Feltz-Cornelis CM, (2008). Interventions to improve occupational health in depressed people. *Cochrane Database Syst Rev* (2): CD006237.
- Paykel ES, Ramana R, Cooper Z, Hayhurst H, Kerr J, Barocka A, (1995). Residual symptoms after partial remission: an important outcome in depression. *Psychol Med*, 25: 1171–1180.
- Pocock SJ, Simon R, (1975). Sequential treatment assignment with balancing for prognostic factors in the controlled clinical trial. *Biometrics*, 31: 103–115.
- Rai D, Skapinakis P, Wiles N, Lewis G, Araya R, (2010). Common mental disorders, subthreshold symptoms and disability: longitudinal study. *Br J Psychiatr*, 197: 411–412.
- Rush AJ, Gullion CM, Basco MR, Jarrett RB, Trivedi MH, (1996). The Inventory of Depressive Symptomatology (IDS): psychometric properties. *Psychol Med*, 26: 477–486.
- Schene AH, Koeter MW, Kikkert MJ, Swinkels JA, McCrone P, (2007). Adjuvant occupational therapy for work-related MDD works: randomized trial including economic evaluation. *Psychol Med*, 37: 351–362.
- Schreuder JA, Plat N, Mageroy N, Moen BE, van der Klink JJ, Groothoff JW, Roelen CA, (2011). Self-rated coping styles and registered sickness absence among nurses working in hospital care: a prospective 1-year cohort study. *Int J Nurs Stud*, 48: 838–846.

- Rai D, Skapinakis P, Wiles N, Lewis G, Araya R, (2010). Common mental disorders, subthreshold symptoms and disability: longitudinal study. *Br J Psychiatr*, 197: 411–412.
- Rush AJ, Gullion CM, Basco MR, Jarrett RB, Trivedi MH, (1996). The Inventory of Depressive Symptomatology (IDS): psychometric properties. *Psychol Med*, 26: 477–486.
- Schene AH, Koeter MW, Kikkert MJ, Swinkels JA, McCrone P, (2007). Adjuvant occupational therapy for work-related MDD works: randomized trial including economic evaluation. *Psychol Med*, 37: 351–362.
- Schreuder JA, Plat N, Mageroy N, Moen BE, van der Klink JJ, Groothoff JW, Roelen CA, (2011). Self-rated coping styles and registered sickness absence among nurses working in hospital care: a prospective 1-year cohort study. *Int J Nurs Stud*, 48: 838–846.
- Schreurs P, Willige G van de, Brosschot J, Tellegen B, Graus G, (1993). *De Utrechtse Coping Lijst-Handleiding. Omgaan met problemen en gebeurtenissen (utrecht Coping List-Manual. Coping with problems and events)*. Lisse: Swets & Zeitlinger.
- Sotsky SM, Glass DR, Shea MT, Pilkonis PA, Collins JF, Elkin I, Watkins JT, Imber SD, Leber WR, Moyer J, et al., (1991). Patient predictors of response to psychotherapy and pharmacotherapy: findings in the NIMH Treatment of Depression Collaborative Research Program. *Am J Psychiatry*, 148: 997–1008.
- Verbeke G, Molenberghs G, (2000). *Linear mixed models for longitudinal data*. New York: Springer-Verlag.
- de Vries, (2008 / 2015). *Module Ergotherapie, Werkhervatting bij depressie*. Amsterdam, Academisch Medisch Centrum bij de Universiteit van Amsterdam, Zorgprogramma Stemningsstoornissen, Afdeling ergotherapie / Roods.
- Weele T van der, (2006). The use of propensity score methods in psychiatric research. *Int J Methods Psychiatr Res*, 15: 95–103.
- Welch CA, Czerwinski D, Ghimire B, Bertsimas D, (2009). Depression and costs of health care. *Psychosomatics*, 50: 392–401.







# Chapter 3

**Return to work after sick leave due to depression; a conceptual analysis based on perspectives of patients, supervisors and occupational physicians**

Gabe de Vries, Maarten WJ Koeter, Udo Nabitz, Hiske L Hees, Aart H Schene  
Journal of Affective Disorders, 2012; 136: 1017–1026

## **Abstract**

### **Objectives**

This study aims to investigate the most important factors facilitating a return to work after sick leave due to depression from the perspectives of patients, supervisors and occupational physicians.

### **Methods**

Concept mapping was used to develop a conceptual framework. Using purposive sampling, 32 participants representing employees, supervisors and occupational physicians, were asked to formulate statements on what enables patients with sick leave due to depression to return to work. A total of 41 participants rated and grouped the statements. Data were analyzed using the statistical program Ariadne.

### **Results**

The concept mapping yielded 60 statements that consisted of promoting factors for return to work. Based on these statements, three meta-clusters and eight clusters were identified. The three meta-clusters consisted of work-related, person-related and healthcare-related clusters. The work-related meta-cluster comprised “Adaptation of work”, “Understanding and support in the workplace” and “Positive work experiences”. The person-related meta-cluster encompassed “Positive and valid self-perception”, “Competence in self management”, “Positive level of energy”, and “Balanced home/work environment”. The healthcare-related meta-cluster was composed of “Supportive healthcare”. Stakeholder groups differ in opinion, in what they see as most important for return to work.

### **Limitations**

The low number of participants and the high educational level of participants are a limitation for generalization of the findings.

## **Conclusions**

The study generated a range of different statements that stakeholders consider important for return to work after sick leave due to depression. These findings can be used as a checklist for coordination of the return to work process. Differences in opinion regarding what stakeholders see as most important for return to work should receive special consideration during the re-integration process.

## **Introduction**

Questions like ‘Will I be able to resume work again?’ and ‘If I want to, when and how?’ bother patients suffering from depression who are not (yet) able to return to work after a period of absenteeism. Questions like these are certainly also of importance to supervisors, mental health professionals and occupational physicians when they have to decide on the targets of their treatment and guidance. Should the main focus be on person-oriented interventions like medical treatment, psychological counseling or behavioral coping focused techniques, or should they concentrate on physical, psychological or social workplace related interventions? In this study we aim to find the most important factors facilitating a return to work after sick leave due to depression from different perspectives (employees, supervisors and occupational physicians).

The sickness/absence process or, in other words the relation between employee and work environment, can be conceptualized according to three phases, corresponding with the course of depression (Kupfer, 1991). The first phase consists of the development or pathogenesis of depression, the second phase consists of the transition from being depressed but still working (presenteeism) into partial or full sickness absence (absenteeism) and the third phase relates to the transition from partial or full sickness absence to (stepwise) return to work. Although these three phases - becoming depressed, absent from work, and eventually return to work - share the depressive illness as the longitudinal binding factor, the contribution of personal and environmental processes may be different during these phases.

Most scientific literature on work and depression has focused on the first two phases of this sickness process. In the first, or pathogenetic phase, research has focussed on the work related circumstances that may provoke or elicit depression. Here, work stress was found as the main risk factor (Bonde, 2008; Netterstrom et al., 2008). Associations were strongest for job strain defined as effort reward imbalance (Larisch et al., 2003), high psychological demands (Melchior et al., 2007; Plaisier et al., 2007), stressful experiences (Tennant, 2001) and job-insecurity (Simmons and Swanberg, 2009). On the other hand, social support from supervisor and co-workers was found to be a protective factor for the incidence of depression (Plaisier et al., 2007). This suggests that changing work circumstances can influence the occurrence of depression.

In the second phase, most patients with depression and work absenteeism receive psychiatric treatment. Considering this treatment in relation to occupational functioning as a main outcome measure, findings so far are equivocal. Some study results indicate that the clinical treatment of depression can be effective for promoting return to work. For instance, Burnand and colleagues (Burnand et al., 2002) reported that psychotherapy in combination with anti-depressive medication was more effective in reducing the number of days of sickness absence than medication alone. However, in a recent review of randomized controlled trials of work-directed and worker-directed interventions (Nieuwenhuijsen et al., 2008), Nieuwenhuijsen and colleagues found no evidence that clinical treatments such as antidepressant medication, cognitive behavioural therapy, problem-solving therapy, or enhanced primary care improved occupational health outcomes of depressed workers.

Finally the third, or return to work phase, considering factors enabling patients to take up their work role, has hardly been studied (Goldner et al., 2004; Lagerveld et al., 2010). To our knowledge, there is only one study regarding return to work interventions for depressed patients absent from work. Results of this study (Schene et al., 2007) demonstrated that adjuvant occupational therapy, when compared to care as usual, resulted in a larger reduction in work-loss days during the first 18 months. Studies on sick leave in more heterogeneous populations (depression, but also burnout and distress), did not find a positive effect of stress management

interventions nor cognitive-behavioural treatment on sickness absence (Grossi and Santell, 2009; de Vente et al., 2008). In addition to interventions, patients' work attitude seems to be an important factor for work resumption (Millward et al., 2005; Elinson et al., 2004). Depressed people who are absent from work appear to take an 'off work identity'; i.e. an identity characterized by mental symptoms, taking on a sick role and living their life with a strong focus on their illness.

Underlying factors enabling return to work, is a complex interrelationship between depression symptoms, functional limitations and functional demand for a particular job. We have to conclude that of the three phases - becoming depressed, starting sickness absence, return to work – the third has received limited attention. Despite a lack of knowledge regarding which factors increase the probability of return to work after sick leave due to depression, a substantial part of the patients suffering from depression may succeed in return to work. Kronström and colleagues found that 57% of the 287 employees with sick leave due to depression had returned to work within the four-year follow-up period (Kronstrom et al., 2011). In an intervention study on patients with sick leave due to depression, Schene and colleagues found comparable results (Schene et al., 2007). One year from start of treatment, 49% of the patients had fully returned to work and 78% had partially returned.

Experience of return to work can teach us what factors are important, and consequently what approaches may be most successful. Furthermore, there is evidence that other stakeholders, such as supervisors and occupational physicians involved in the return to work process, have different opinions about what is effective for return to work. Previous studies on e.g. diabetes mellitus (Detaille et al., 2006) and rheumatoid arthritis (Varekamp et al., 2005) showed that patients and health professionals differed significantly regarding what is needed to be able to cope at work. Health professionals seem to underestimate the importance of factors that are considered important from the patients' perspective. Because these differences in perspectives may affect the effectiveness of interventions (Kikkert et al., 2006), it is relevant to increase our knowledge regarding the various stakeholder perspectives.

So the aim of this article is to assess: (1) what are considered to be the most important factors promoting return to work after sick leave due to depression; (2) what can be seen as the most important summarizing clusters for return to work, and (3) what are the differences in stakeholder views (patients, supervisors and occupational physicians) regarding these factors and clusters?

## **Methods**

### ***Concept mapping***

To collect information on potential facilitating factors for return to work, from the perspectives of patients, supervisors, and occupational physicians, concept mapping was applied. Concept mapping is a structured conceptualisation process that provides a visual representation of relationships among ideas. It involves statistical analyses of qualitative data, and results in a pictorial map that displays the interrelationships among ideas expressed by the various stakeholders (Kane and Trochim, 2007; Trochim and Kane, 2005; Trochim, 1989).

The concept mapping procedure consists of six steps:

1. *Preparation*: concept mapping started with a focal question which for this study was: ‘Which factors (work -, personal - and other characteristics) have supported return to work (or expanding work) in patients suffering from depression?’. For patients this is limited to their own experience, for professionals this refers to their experience as professional. Professionals can refer to more than one case, mostly they have several patients/employees on their caseload who had a successful return to work.

2. *Generating statements*: participants were asked to generate statements pertaining to this focal question. This was done in three different stakeholder groups separately: for patients in a group brainstorm session and by telephone; for supervisors and occupational physicians by e-mail and by telephone. The statements of the three stakeholder groups were combined into one list. Next, the number of generated statements was reduced to 50-60, in order to control the complexity

of the following steps (Nabitz et al., 2005). This was done by two groups of researchers, who independently (a) eliminated statements which were not understandable and not related to the focal question, for example the statement “security, a search to the family feeling” was deleted, and who (b) eliminated redundant statements, i.e. statements that were the same, similar or had the same meaning, for example the statements “psychiatrist”, “discussions with psychiatrist”, “insightful discussions with psychiatrist”, “discussions with psychiatrist, mainly the structure during discussion” were summarized into: “consults with the psychiatrist”. In a meeting both groups (three members each) presented the results of the cleaning phase to each other. In case of differences a consensus decision was made.

The final set of statements can be considered as factors promoting return to work. For comparability with other studies we will refer to these factors as statements throughout the article.

3. *Structuring the statements*: prioritizing and grouping of the remaining statements was done individually by each stakeholder. Prioritizing implies that respondents rate the importance for return to work of each statement on a 1 (‘least important’) to 5 (‘most important’) scale. Grouping means that respondents put together those statements which, in their opinion, are similar in content.

4. *Statistical analysis*: We used a three-step procedure as proposed by Kane and Trochim (2007) to create a concept. In the first step a similarity matrix is constructed based on the sort data. In the second step we conducted a two dimensional non-metric scaling procedure on this similarity matrix. This resulted in two coordinates for each statement. With these coordinates the statements can be projected in a two dimensional point map. Statements that are close to each other are statements that are frequently sorted together by participants. In the third stage the coordinates are the input of a Wards hierarchical scaling program. This results in non-overlapping clusters. The relative importance of the statements and clusters is based on the priority rating. The priority rating of a specific item is the average priority given by the participants. The priority rating of a cluster is the average priority of the constituting statements. Priority ratings range from 1 (=low priority) to 5 (= high priority). All concept map analyses were done with the Ariadne computer

program (Severens, 1995). Differences between clusters and between stakeholders were tested with Analyses of Variance (ANOVA's) using SPSS, version 18.

5. *Interpreting the concept map*: This step consisted of determining the number of clusters, labelling the clusters, labelling the axes of the cluster map and defining the quadrants of the cluster map. Labelling the clusters was based on the content of the statements comprising the clusters. Labelling the axes and quadrants of the map was based on the names of statements comprising the cluster map.

6. *Utilisation*: The findings are documented, discussed and published to contribute to the evidence base body of knowledge about resuming work by patients suffering from depression. Furthermore the results are used to formulate policies, to develop reintegration programs and to specify evaluation measurements.

### ***Participants***

Participants were purposively sampled from the three stakeholder groups involved in the return to work process: patients, supervisors and occupational physicians. In the Netherlands these three stakeholder groups are the main ones involved in the return to work process. Employees are considered to adopt an active role in his reintegration; this implies that they have to do everything in their power to support reintegration. Supervisors are responsible for developing and monitoring a reintegration plan and occupational physicians determine the patient's capability for return to work and to what extent (e.g. for how many hours). They also recommend the appropriate care for the employee and advise the supervisor with respect to the return to work process.

To meet the inclusion criteria for this study, patients had to: a) be diagnosed by a psychiatrist with major depression, b) have a paid job, c) have been on sick leave for at least 25% of their contract hours at the start of treatment, and d) have been successful in their return to work. Based on the percentage sick leave at the start of their treatment, patients were divided into 4 categories: working 0-25%, working 25-50%, working 50-75% and working 75-100% of their



contract. Patients were considered successful in terms of return to work if, one year after the start of treatment, they had improved by at least two categories or worked again 100% of their contract hours. Patients in this article are also employee, as they were working at the time we involved them for this research. To avoid misunderstanding, we will mention them in this article further as employee. Occupational physicians were identified through patients involved in this study. They were included if they had experience with a patient who restarted work after sick leave due to depression in the preceding two years. Supervisors were identified through occupational physicians involved in this study. Supervisors were included if they had directly supervised a patient who restarted work after sick leave due to depression in the preceding two years.

In total, 32 participants generated the statements in step 2 of the concept mapping process, while 41 participants carried out the sorting task (Table 1). For employees, group sessions were organised; 21 employees were invited and 19 of them participated in the statement generation session. We contacted 22 supervisors by phone and e-mail for statement generation. Of these, 6 finally participated. Occupational physicians were also contacted by phone and e-mail; 22 were approached, of which 7 occupational physicians generated the statements. To generate statements we used the focal question mentioned above. For the prioritizing and grouping task, 13 employees and 9 occupational physicians participated. For supervisors we scheduled an educational session about the subject “Work and Depression” which was combined with the sorting task. This approach was successful: of the 22 invited supervisors, 19 participated. Although the number of patients, supervisors and occupational physicians in brainstorming differs from that in the prioritizing and clustering, this does not influence the results. Participants for brainstorming and prioritizing / clustering do not have to be the same in person and in number (Kane and Trochim, 2007).

**Table 1** Participants

Participants	Statement Generating		Prioritizing and Clustering	
	n	%	n	%
Employee	19	59	13	32
Supervisors	6	19	19	46
Occupational physicians	7	22	9	22
Total	32	100	41	100

# Results

## *Statements*

Statement generation of all participants resulted in 328 statements. Fifty-five statements were eliminated because they were either not understandable or unrelated to the focal question.

In addition, 213 redundant statements were eliminated. This procedure resulted in 60 unique statements that facilitate return to work. These statements are presented as numbers in the concept map (Figure 1) and as statements in Table 2.

The ten most important statements for each stakeholder group are presented in order of importance, based on the mean priority rating of all participants in Table 3. These statements pertain to: (A) Work adaptations; “stress reduction by temporarily eliminating stressful tasks” (st. 8), “adjusting the workload in relation to the tasks and/or amount of work” (st. 4), and “adjustment of complexity and responsibility at work” (st. 42); (B) Employee’s perspective and functioning; “feeling of being taken seriously” (st 57) and “restoration of energy level” (st. 2); (C) Healthcare; “adequate coordination between clinician, occupational physician, supervisor and employee” (st. 34), “adequate assessment and referral to appropriate treatment by occupational physician” (st. 17) and (D) Communication between these stakeholders, “regular communication between supervisor and employee with respect to progress” (st. 24), “clarity regarding tasks and expectations at work” (st. 10) and “understanding on the part of the supervisor”(st. 36).

**Table 2 Clustering and statements**

statement nr	Cluster with Statements	Mean all participants	Mean patients	Mean supervisors	Mean occupational physician	P
<b>Cluster 1</b>	<b>Positive and valid self-perception</b>	<b>3.56</b>	3.5	3.51	3.69	0.746
57	Feeling of being taken seriously	4.01	4.46	3.58	4.00	
49	Employee is aware of, and expresses his limits.	3.62	3.23	3.79	3.84	
56	Being aware of future possibilities	3.50	3.15	3.68	3.67	
50	Ability to put work into perspective	3.12	3.15	3.00	3.22	
<b>Cluster 2</b>	<b>Adaptation of work</b>	<b>3.30</b>	3.03	3.25	3.62	0.029
8	Stress reduction by temporarily eliminating stressful tasks	4.07	3.62	4.11	4.47	
4	Adjusting the workload in relation to the tasks and/or amount of work	4.04	3.23	4.11	4.78	
10	Clarity regarding tasks and expectations at work	3.77	3.08	4.23	4	
42	Simplifying the tasks and adjusting the responsibility at work	3.96	3.85	3.58	4.44	
15	A good working climate, pleasant work atmosphere	3.42	3.46	3.47	3.33	
52	Resuming with familiar, uncomplicated tasks	3.36	3.08	3.32	3.67	
33	Employee sets own work pace and organises own tasks	3.21	3	2.84	3.78	
22	Having a work environment without an excess of stimuli	3.22	2.62	3.16	3.89	
45	Adjustment of working hours	2.89	3	2.89	2.78	
58	Becoming involved in various activities at work.	2.57	3	2.26	2.44	
16	Tackling performance issues	2.43	2.54	1.74	3	
<b>Cluster 3</b>	<b>Understanding and support in the workplace</b>	<b>3.22</b>	2.9	3.46	3.29	0.009
24	Regular communication between supervisor and employee with respect to progress	3.94	3.23	4.26	4.33	
36	Understanding on the part of the supervisor	3.72	3.62	4.11	3.44	
28	Express mutual trust between supervisor and employee	3.50	3	4.16	3.33	
43	The reintegration process is clear to the employee	3.63	3	3.68	4.22	
47	Understanding and support from colleagues	3.35	3.08	3.74	3.22	
38	Employee receives compliments/ appreciation from colleagues and supervisor	3.28	3.46	3.16	3.22	
39	Transparency towards colleagues about the employee's situation	2.91	2.31	2.63	3.78	
30	To be aware of the commute to and from work as part of the re-integration process	1.78	1.62	1.95	1.78	

**Table 2 Clustering and statements**

statement nr	Cluster with Statements	Mean all participants	Mean patients	Mean supervisors	Mean occupational physician	P
<b>Cluster 4 Competence in self-management</b>		<b>3.10</b>	3.3	3.11	2.89	0.311
23	To be able to set goals compatible with the energy required for the task	3.46	3.23	3.47	3.67	
25	Sufficient peace of mind to resume work.	3.27	4.23	3.26	2.33	
44	Ability to identify one's problems	3.20	3.08	3.42	3.11	
54	Self-confidence	3.24	3.46	3.16	3.11	
35	Persistence	3.03	3.31	3.11	2.67	
29	Allowing yourself to make mistakes	2.92	3.15	2.95	2.67	
51	Ability to reduce the need to control one's life	2.57	2.62	2.42	2.67	
<b>Cluster 5 Supportive healthcare</b>		<b>2.95</b>	3.12	2.87	2.86	0.354
34	Adequate coordination between clinician, occupational physician, supervisor and employee	4.00	3.69	4.21	4.11	
17	Adequate assessment and referral to appropriate treatment by occupational physician	3.95	4.31	3.53	4	
14	Support from professionals (psychologist, general physician) involved to facilitate resuming work	3.59	3.69	3.42	3.67	
46	Appropriate guidance by occupational physician	3.52	3.46	3.42	3.67	
32	Trusting the health professionals involved	3.29	3.00	3.16	3.56	
12	Employee is able to ask for professional help	3.19	2.69	3.11	3.78	
27	Consultations with the psychiatrist	2.67	3.46	2.21	2.33	
31	Occupational therapy intervention at the AMC	2.52	2.85	2.37	2.33	
7	Medication	2.42	2.62	2.42	2.22	
3	Intervention with the occupational therapist at the AMC	2.21	2.69	2.05	1.89	
18	Consultation with the general physician	1.76	1.77	1.95	1.56	

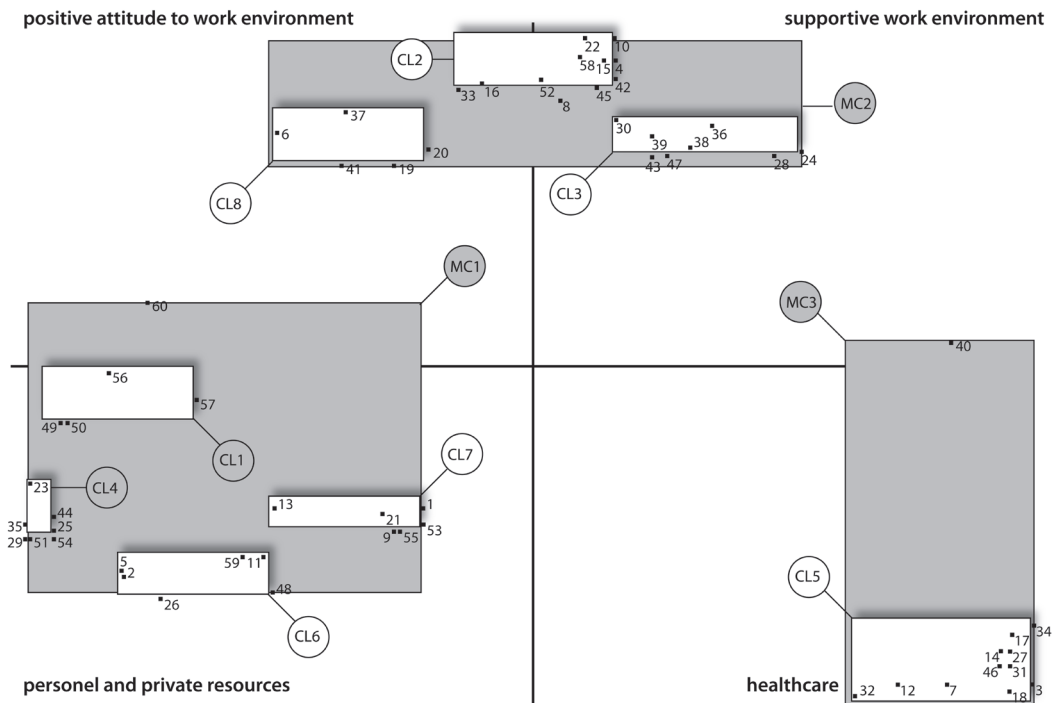
**Table 2 Clustering and statements**

statement nr	Cluster with Statements	Mean all participants	Mean patients	Mean supervisors	Mean occupational physician	P
<b>Cluster 6</b>	<b>Positive level of energy</b>	<b>2.77</b>	2.91	2.68	2.72	0.448
2	Restoration of energy level	3.80	3.85	4	3.56	
5	Relaxation through engaging in sports (for example)	3.37	3	3.26	3.84	
48	Reduction of (depressive) symptoms	2.99	3.15	3.05	2.78	
26	Gaining self awareness, e.g. by recalling life story	2.40	3.15	2.21	1.84	
11	To avoid filling the week with too many social activities	2.15	2.23	2	2.22	
59	To distance self from private problems	1.89	2.08	1.58	2	
<b>Cluster 7</b>	<b>Supportive home environment</b>	<b>2.67</b>	2.87	2.57	2.56	0.441
13	Improving the balance between home and work.	3.27	3.08	2.95	3.78	
1	Support and understanding from those at home	2.94	3.34	3.37	2.11	
9	Being able to talk with people in the home environment	2.95	3.46	2.95	2.44	
21	No tension in the home-environment	2.68	3.15	2.79	2.11	
53	Good support at home, relief from household chores by family	2.60	2.42	2.05	3.33	
55	Performing household chores that are fulfilling	1.47	1.54	1.32	1.56	
<b>Cluster 8</b>	<b>Positive work experience</b>	<b>2.43</b>	2.58	2.47	2.24	0.370
37	Employee enjoys his work	3.62	3.92	3.37	3.56	
6	Pacing of your work	3.28	3.69	3.47	2.67	
41	Being able to resume work quickly	2.19	1.85	2.95	1.78	
20	Taking a different job with the same supervisor	1.61	1.85	1.32	1.67	
19	Looking for another job	1.48	1.62	1.26	1.56	
	<b>- Not clustered statements</b>					
40	Educating supervisors about depression and functioning at work	2.71	2.69	2.68	2.00	
60	Adjusting one-self to the work situation	1.67	1.77	2.26	1.89	

## Clusters

To identify the most important clusters pertaining to successful return to work we have to consider the cluster map (Figure 1). This figure represents two dimensions, four poles and quadrants, three meta-clusters, eight clusters, and the positioning of the 60 statements. The position of statements is based on the result of multidimensional scaling and clustering. Statements that participants sorted together more frequently are positioned closer to each other. The circular structure of the location of the statements with its empty centre shows that there is little ambiguity about the positioning of the statements among participants (Kane and Trochim, 2007). This means that they agree about the reciprocal relation of statements. In case of ambiguity, statements would be located in the centre of the map. The statistical analyses of multidimensional scaling and cluster analyses are an overall representation of the conceptual framework which is empirically deduced and allows a convincing interpretation on different levels.

**Figure 1** Concept map, statements, clusters and meta-clusters promoting return to work



First, the two axes or dimensions were defined by rotating the distribution of the statements on the map. The y-axis of the concept map represents the dimension Environment, with the poles Work environment versus Private environment. The x-axis represents the dimension Support, with the poles Self-support versus Care-support. The concept map is divided by these two axes into four quadrants which can be labelled as: Positive attitude to work environment, Supportive work environment, Healthcare and coordination and Personal and private resources. The labelling is based on the statements included in these quadrants.

Next the clusters were determined. The hierarchical cluster analyses yielded two meaningful solutions. A three-cluster solution and an eight-cluster solution. We will refer to the clusters found in the three-cluster solution as meta-clusters. The eight-cluster solution will be used to give more meaning to the meta-clusters.

The numbering of the eight clusters is based on their relative importance as defined by their mean item score. The clusters with their statements are presented in Table 2. Within each cluster, statements are also presented in order of importance. Although cluster one can be considered as most important and cluster eight as least important, the lesser importance of the clusters six, seven and eight is mainly due to the low score of a few statements in these clusters: one very low score (<2.00) in cluster six and seven, and two low scores in cluster eight.

Two statements are not clustered; they are shown as single statements in the cluster map. These are “Educating supervisors about depression and functioning at work” (st. 40) and “Adjusting oneself to the work situation” (st. 60). They have an in-between position which is seen as an artefact position.

The above mentioned eight clusters are grouped into three meta-clusters when we chose three instead of an eight cluster solution in the hierarchal cluster analysis step of the Ariadne program: Meta-cluster Work (A) consists of three work related clusters (Cl. 2, 3 and 8), covers two quadrants, and ranges from pure individualistic positive experiences at work (Cl. 8), via work

adaptations due to depressive symptoms (Cl. 2), to the cluster that focuses on support from colleagues and supervisors (Cl. 3). The Person related meta-cluster (B) consists of four clusters (Cl. 1, 4, 6 and 7) and pertains to positive self-perception (Cl. 1), coping and self-management skills (Cl. 4), a positive level of energy (Cl. 6), and a positive home situation (Cl. 7). They are all found into the quadrant personal and private resources. Finally, the third meta-cluster, Healthcare (C) contains only one cluster (Cl. 5), comprising all health-care activities. All statements of this cluster are in the quadrant healthcare.

### ***Main differences between stakeholder groups***

The third research question pertained to differences between the three stakeholders groups in statements considered important for return to work. We will first present the main differences at cluster level, next at statement level.

At cluster level, the main differences between stakeholder groups were found in the work related clusters 2 and 3 (Table 2). Cluster 2, “Adaptation of work”, with statements regarding adaptation of the work tasks, was considered more important by occupational physicians when compared to employees. Cluster 3, “Understanding and support in the workplace” was considered more important by supervisors when compared to employees. This cluster comprises statements regarding communication, understanding by the supervisor, mutual trust, understanding and support from colleagues and a clear re-integration process. All other clusters, “Competence in self-management” (Cl 4), “Supportive healthcare” (Cl 5), “Positive level of energy” (Cl 6), “Supportive home environment” (Cl 7) and “Positive work experience” (Cl 8), seemed more important to employees, although none of these differences were statistical significant. Cluster one, “Positive and valid self-perception”, is of equal importance to the three stakeholder groups. In summary, the clusters in the upper right quadrant, ‘supportive work environment’ (Figure 1) are more important to supervisors and occupational physicians. Clusters in the other three quadrants, except cluster 1, are more important to employees.



**Table 3 Main statements**

st nr	Statements	Mean all participants	Ranking	Mean Employees	Ranking	Mean supervisors	Ranking	Mean occupational physician	Ranking	P
8	Stress reduction by temporarily eliminating stressful tasks	4.07	1	3.62	10	4.11	5	4.47	2	<b>0.08</b>
4	Adjusting the workload in relation to the tasks and/or amount of work	4.04	2	3.23	20	4.11	6	4.78	1	<b>0.00</b>
57	Feeling of being taken seriously	4.01	3	4.46	1	3.58	13	4	7	0,1
34	Adequate coordination between clinician, occupational physician, supervisor and employee	4.00	4	3.69	7	4.21	3	4.11	6	0.34
42	Simplifying the tasks and adjusting the responsibility at work	3.96	5	3.85	5	3.58	14	4.44	3	<b>0.01</b>
17	Adequate assessment and referral to appropriate treatment by occupational physician	3.95	6	4.31	2	3.53	15	4	8	0,24
24	Regular communication between supervisor and employee with respect to progress	3.94	7	3.23	21	4.26	1	4.33	4	<b>0.02</b>
2	Restoration of energy level	3.80	8	3.85	6	4.00	8	3.56	20	0,62
10	Clarity regarding tasks and expectations at work	3.77	9	3.08	34	4.23	2	4.00	9	<b>0.07</b>
36	Understanding on the part of the supervisor	3.72	10	3.62	11	4.11	7	3.44	21	0,24
43	The reintegration process is clear to the Employee.	3.63	11	3	35	3.68	10	4.22	5	<b>0.08</b>
49	Employee is aware of and expresses his limits	3.62	12	3.23	22	3.79	9	3.84	10	0,35
37	Employee enjoys his work	3.62	13	3.92	4	3.37	22	3.56	23	0,35
14	Support from treating health professional (psychologist, general physician, etc) during work resumption	3.59	14	3.69	8	3.42	19	3.67	19	0,81
28	Express mutual trust between supervisor and Employee	3.50	17	3	38	4.16	4	3.33	25	<b>0.03</b>
6	Pacing of your work	3.28	24	3.69	9	3.47	16	2.67	36	0,11
25	Sufficient peace of mind to resume work.	3.27	25	4.23	3	3.26	25	2.33	42	<b>0.00</b>

Differences between stakeholder groups regarding the 10 most important statements are shown in Table 3. The main differences can be summarized as follows: employees emphasize their feelings and attention for their complaints (“Feeling of being taken seriously”, st. 57; “Pacing of your work”, st. 6 and “Sufficient peace of mind to resume work”, st. 25), while supervisors emphasize clarity regarding the possibilities of the employee (“Regular communication between supervisor and employee with respect to progress”, st. 24; “Clarity regarding tasks and expectations at work”, st. 10 and “Express mutual trust between supervisor and employee”, st. 28). Finally, occupational physicians emphasize adjustment of work tasks (“Stress reduction by temporarily eliminating stressful tasks”, st. 8; “Adjusting the workload in relation to the tasks and/or amount of work”, st. 4 and “Simplifying the tasks and adjusting the responsibility at work”, st. 42). Differences in statements considered important for return to work between supervisors and occupational physicians were smaller than between employees and the other two stakeholder groups.

## **Discussion**

Our study regarding factors that facilitate return to work after depression-related absenteeism resulted in a two-dimensional cluster map comprising 60 statements. These statements generated eight clusters, which could be combined into the three meta-clusters: Work, Person and Healthcare. The three meta-clusters could be conceptualized as the basis of a framework for interventions aimed at return to work. Consistent with the Work meta-cluster, interventions should pay attention to (a) adaptation of work, (b) understanding and support in the workplace, and (c) positive work experience. Consistent with the Person meta-cluster, interventions should pay attention to (a) positive self-perception, (b) competence in self-management, (c) a positive level of energy and (d) a supportive home environment. Consistent with the Healthcare meta-cluster, interventions should address the issue of appropriate healthcare. The statements within these clusters suggest which specific elements can be addressed. Results of this study can be seen as a checklist of topics and elements of importance for guiding depressed employees in their return to work.

Do stakeholders - employees, supervisors and occupational physicians – have different views on

these issues? Although stakeholders generally agreed about the statements and clusters considered important for return to work, they differed regarding the relative importance of these statements and clusters. While employees emphasized statements relating to their feelings, supervisors emphasized statements pertaining to clarity about the work potential of the employee, and occupational physicians, in turn, emphasized adaptation of the work situation. Furthermore, the perspectives of supervisors and occupational physicians are generally more similar to each other than to the employees' perspectives.

A better understanding of the different perspectives of these stakeholder groups can facilitate the return to work process. Issues pertaining to tasks at work are not relevant for employees if they do not feel taken seriously. For supervisors, it is difficult to guide an employee when he is not able to discuss tasks and expectations. For an occupational physician, it is important to be able to discuss adjustments in the number of tasks and the possibilities to eliminate stressful tasks. Professionals guiding employees in their return to work should be aware of these different stakeholder perspectives and promote the communication among the various stakeholders regarding these differences in perspectives.

Despite the increasing emphasis on cooperation among stakeholders within Dutch national policies, communication among the various stakeholders remains often insufficient. For example, due to time constraints, supervisors and occupational physicians fail to sufficiently discuss re-integration issues with the employee. Special attention should be paid to the role of the depressed employee in his or her own re-integration process. Related to their psychopathology, they often feel dependent and not competent in this process. The cognitive symptoms of depression, such as feelings of guilt and shame, concentration problems, and problems with getting an overview of more complex practical and interpersonal situations, can make it more difficult for them to go through the re-integration process. One employee stated this in the following way: "I would have been very pleased to have a guide from the moment I got depressed until now, the moment I functioned well again". "Feelings of being taken seriously", the main statement according to employees that facilitated a return to work, also points at the importance of this topic.

Previous studies regarding the relationship between work-related circumstances and depression found an increased occurrence of depression in work situations that were characterized by high (psychological) demands, low reward, low social support, low decision latitude, work-related stressful experiences, and not having appropriate work tasks (Bonde, 2008; Netterstrom et al., 2008), whereas the occurrence of depression decreased in case of social support and a high level of decision latitude. Other studies on the relationship between work related circumstances and return to work for employees on sick leave due to somatic diseases, showed that lower physical and psychological demands at work, higher decision latitude at work, higher job satisfaction (Slebus et al., 2007), a supportive organisation (D'Amato and Zijlstra, 2010), employers' participation (Williams and Westmorland, 2002) and job satisfaction (Fayad et al., 2004) were promoting factors for return to work. These findings corroborate the work related clusters found in this study.

Concept mapping studies regarding return to work in employees with diabetes mellitus (Detaille et al., 2006) and rheumatoid arthritis (Varekamp et al., 2005) show comparable work related clusters (e.g. "Adaptation at the workplace", "Suitable work conditions", "Support from colleagues health professionals and employees" and "Support on the part of supervisors for their careers"). Considering this literature, organising the meta-cluster Work into the three clusters mentioned in this study, gives a comprehensible overview of the factors that enhance the probability of a successful return to work. This may provide insight and offer ways to the supervisors to successfully adapt the employee's work situation. When doing so, he should not only focus on changing work circumstances (cluster 2), but also on support (cluster 3) and positive experiences (cluster 8). Special attention should be given to the view of the employee and the depression symptoms that interfere with the employee's functioning. The supervisor can obtain these by thoroughly questioning the employee and carefully considering the employees answers. The clearer the outcome is to the supervisor, the better he will be able to adjust the workplace according to the needs and capabilities of the employee.

The employee's attitude towards work resumption is also important for return to work. A "sick role" and an "off work identity" decreases the probability of returning to work (Millward et

al., 2005), whereas optimism (Kronstrom et al., 2011) and feeling of self efficacy increases this probability. The severity of (depression) symptoms influences the level of success in returning to work. More depressive symptoms decrease the probability of return to work (Blank et al., 2008). In patients with somatic illness, co-morbid depression (O'Neil et al., 2010), severity of symptoms, illness duration, poorer general health (Fayad et al., 2004), and sleep disturbances (Salo et al., 2010) decrease the probability of return to work. These findings were also found in our study. They pertain to cluster 1 "Valid self perception" and cluster 6 "positive level of energy". "Self perception" and "level of energy" is often seen as fixed. Nevertheless these issues may be influenced by the personal related cluster found in our study: cluster 4 "Competence in self management". Awareness of the capability of this cluster can help the employee to minimize the off work identity and help him to manage his depression symptoms.

An interesting finding regarding the healthcare cluster pertains to the aim of healthcare. Instead of the type of treatment, stakeholders found an adequate coordination and guidance/ support during the work resumption process most important. Our results demonstrated that the importance of healthcare did not primarily pertain to medication, psychiatric treatment or to occupational therapy. Rather, it pertained to an adequate coordination between various stakeholders, appropriate guidance and support during the work resumption process. Perhaps in addition to (or instead of) the regular types of intervention, a new type of intervention for depressed employees is needed, that focuses mainly on support and guidance during the return to work process, comparable to interventions already proven effective for employee's suffering from physical health disorders (Briand et al., 2007). These elements are also main ingredients of Supported Employment (Cook et al., 2005) and Individual Placement and Support (Latimer et al., 2006) both successful interventions for return to work in severe mental illness, and refer to a more work related and multidisciplinary approach.

Our study has some limitations. A total of 32 participants took part in the statement generation and 41 in the prioritizing and clustering phase. Although these numbers are within an acceptable range for concept mapping (Trochim and Kane, 2005), the total number pertains to the combined

stakeholder groups. The number of participants within each stakeholder group is smaller, which makes that one has to be careful with conclusions based on comparisons between stakeholder groups. This is especially true for the Anova results. Furthermore the participating employees all had white-collar jobs; we do not know whether these results may be generalized to blue-collar workers. Nevertheless, the majority of employees suffering from mental health problems in Holland, do work in finance, education and healthcare (Spreeuwers et al., 2005) and in the UK in public administration and health and social work (Jones et al., 2006). Finally, for practical reasons the statement generation and the sorting and rating of the statements has not been done in the same way in the different stakeholder groups. We cannot rule out that this may have influenced the results.

In future research, specific operationalisations of statements found in this study warrant further investigation. For example, more research regarding the specific components of adequate health care essential for employees with depression during their reintegration, is needed. In addition, current study results should be compared to similar studies that investigate promoting statements for return to work in other diseases, in order to build an integrated model with a homogeneous vocabulary for the factors that can guide a return to work after sick leave.

Return to work after severe mental illness is a complex process. Concept mapping offered a comprehensible framework comprising all influencing factors. This framework can support professionals involved in the return to work process, and can also help employees to understand this complex process and to obtain tools to deal with it.

### **Role of the funding source**

This study was financially supported by the Netherlands Foundation for Mental Health (Fonds Psychische Gezondheid) and the National Institute for Patient Benefit Schemes (UWV). These funders had no further role in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication.

## **Acknowledgements**

We thank all participants for their contribution in this study. We also thank students of the occupational therapy department of the Hogeschool van Amsterdam, for their support in organizing this study.

## References

- Blank L, Peters J, Pickvance S, Wilford J, Macdonald E, (2008). A systematic review of the factors which predict return to work for people suffering episodes of poor mental health. *J Occup Rehabil*, 18 (1): 27–34.
- Bonde JP, (2008). Psychosocial factors at work and risk of depression: a systematic review of the epidemiological evidence. *Occup Environ Med*, 65 (7): 438–445.
- Briand C, Durand MJ, St-Arnaud L, Corbiere M, (2007). Work and mental health: learning from return-to-work rehabilitation programs designed for workers with musculoskeletal disorders. *Int J Law Psychiatry*, 30 (4–5): 444–457.
- Burnand YD, Andreoli A, Kolatte E, Venturini A, Rosset N, (2002). Psychodynamic psychotherapy and clomipramine in the treatment of major depression. *Psychiatr Serv*, 53: 351–362.
- Cook JA, Leff HS, Blyler CR, Gold PB, Goldberg RW, Mueser KT, Toprac MG, McFarlane WR, Shafer MS, Blankertz LE, Dudek K, Razzano LA, Grey DD, Burke-Miller J, (2005). Results of a multisite randomized trial of supported employment interventions for individuals with severe mental illness. *Arch Gen Psychiatry*, 62 (5): 505–512.
- D'Amato A, Zijlstra F, (2010). Toward a climate for work resumption: the nonmedical determinants of return to work. *J Occup Environ Med* 52 (1): 67–80.
- de Vente W, Kamphuis JH, Emmelkamp PM, Blonk RW, (2008). Individual and group cognitive-behavioral treatment for work-related stress complaints and sickness absence: a randomized controlled trial. *J Occup Health Psychol*, 13 (3): 214–231.
- Detaille SI, Haafkens JA, Hoekstra JB, van Dijk FJ, (2006). What employees with diabetes mellitus need to cope at work: views of employees and health professionals. *Patient Educ Couns*, 64 (1–3): 183–190.
- Elinson L, Houck P, Marcus SC, Pincus HA, (2004). Depression and the ability to work. *Psychiatr Serv*, 55 (1): 29–34.
- Fayad F, Lefevre-Colau MM, Poiraudeau S, Fermanian J, Rannou F, Wlodyka DS, Benyahya R, Revel M, (2004). Chronicity, recurrence, and return to work in low back pain: common prognostic factors. *Ann Readapt Med Phys*, 47 (4): 179–189.
- Goldner E, Bilsker D, Gilbert M, Myette L, Corbiere M, Dewa CS, (2004). Disability management, return to work and treatment. *Healthc Pap*, 5 (2): 76–90.
- Grossi G, Santell B, (2009). Quasi-experimental evaluation of a stress management programme for female county and municipal employees on long-term sick leave due to work-related psychological complaints. *J Rehabil Med*, 41 (8): 632–638.



- Jones JR, Huxtable CS, Hodgson JT, (2006). Self-reported work-related illness in 2004–2005: Results from the labour force survey. Health and Safety Executive. Ref Type: Report.
- Kane M, Trochim WMK, (2007). Concept mapping for planning and evaluation. London: Sage Publications Inc.
- Kikkert MJ, Schene AH, Koeter MW, Robson D, Born A, Helm H, Nose M, Goss C, Thornicroft G, Gray RJ, (2006). Medication adherence in schizophrenia: exploring patients', carers' and professionals' views. *Schizophr Bull*, 32 (4): 786–794.
- Kronstrom K, Karlsson H, Nabi H, Oksanen T, Salo P, Sjosten N, Virtanen M, Pentti J, Kivimaki M, Vahtera J, (2011). Optimism and pessimism as predictors of work disability with a diagnosis of depression: a prospective cohort study of onset and recovery. *J Affect Disord*, 130 (1–2): 294–299.
- Kupfer DJ, (1991). Long-term treatment of depression. *J Clin Psychiatry*, 52 (Suppl): 28–34.
- Lagerveld SE, Bultmann U, Franche RL, van Dijk FJ, Vlasveld MC, van der Feltz-Cornelis CM, Bruinvels DJ, Huijs JJ, Blonk RW, van der Klink JJ, Nieuwenhuijsen K, (2010). Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil*, 20 (3): 275–292.
- Larisch M, Joksimovic L, von dem Knesebeck O, Starke D, Siegrist J, (2003). Effort reward imbalance at work and depressive symptoms—a cross-sectional investigation of middle-aged employees. *Psychother Psychosom Med Psychol*, 53 (5): 223–228.
- Latimer EA, Lecomte T, Becker DR, Drake RE, Duclos I, Piat M, Lahaie N, St-Pierre MS, Therrien C, Xie H, (2006). Generalisability of the individual placement and support model of supported employment: results of a Canadian randomised controlled trial. *Br J Psychiatry*, 189: 65–73.
- Melchior M, Caspi A, Milne BJ, Danese A, Poulton R, Moffitt TE, (2007). Work stress precipitates depression and anxiety in young, working women and men. *Psychol Med*, 37 (8): 1119–1129.
- Millward LJ, Lutte A, Purvis RG, (2005). Depression and the perpetuation of an incapacitated identity as an inhibitor of return to work. *J Psychiatr Men Health Nurs*, 12 (5): 565–573.
- Nabitz U, Brink W van den, Jansen P, (2005). Using concept mapping to design an indicator framework for addiction treatment centres. *Int J Qual Health Care*, 17 (3): 193–201.
- Netterstrom B, Conrad N, Bech P, Fink P, Olsen O, Rugulies R, Stansfeld S, (2008). The relation between work-related psychosocial factors and the development of depression. *Epidemiol Rev*, 30: 118–132.
- Nieuwenhuijsen K, Bultmann U, Neumeyer-Gromen A, Verhoeven AC, Verbeek JH, van der Feltz-Cornelis CM, (2008). Interventions to improve occupational health in depressed people. *Cochrane Database Syst Rev*, 2 CD006237.

- O'Neil A, Sanderson K, Oldenburg B, (2010). Depression as a predictor of work resumption following myocardial infarction (MI): a review of recent research evidence. *Health Qual Life Outcomes*, 8: 95.
- Plaisier I, de Bruijn JG, de Graaf R, ten Have M, Beekman AT, Penninx BW, (2007). The contribution of working conditions and social support to the onset of depressive and anxiety disorders among male and female employees. *Soc Sci Med*, 64 (2): 401–410.
- Salo P, Oksanen T, Sivertsen B, Hall M, Pentti J, Virtanen M, Vahtera J, Kivimaki M, (2010). Sleep disturbances as a predictor of cause-specific work disability and delayed return to work. *Sleep*, 33 (10): 1323–1331.
- Schene AH, Koeter MW, Kikkert MJ, Swinkels JA, McCrone P, (2007). Adjuvant occupational therapy for work-related major depression works: randomized trial including economic evaluation. *Psychol Med*, 37 (3): 351–362.
- Severens P, (1995). Handbook concept mapping. Amsterdam: Talcott, National Center of Mental Health.
- Simmons LA, Swanberg JE, (2009). Psychosocial work environment and depressive symptoms among US workers: comparing working poor and working non-poor. *Soc Psychiatry Psychiatr Epidemiol*, 44 (8): 628–635.
- Slebus FG, Kuijjer PP, Willems HJ, Sluiter JK, Frings-Dresen MH, (2007). Prognostic factors for work ability in sicklisted employees with chronic diseases. *Occup Environ Med*, 64 (12): 814–819.
- Spreeuwers D, Braam ITJ, Bulten Y, van der Laan G, Lenderink A, Pal TM, Zweerman PG, (2005). Nederlands centrum voor beroepsziekten. Jaarverslag 2004. Amsterdam: Nederlands Centrum voor Beroepsziekten.
- Tennant C, (2001). Work-related stress and depressive disorders. *J Psychosom Res*, 51 (5): 697–704.
- Trochim WMK, (1989). An introduction to concept mapping for planning and evaluation. *Eval Program Plann*, 12: 1–16.
- Trochim W, Kane M, (2005). Concept mapping: an introduction to structured conceptualization in health care. *Int J Qual Health Care*, 17 (3): 187–191.
- Varekamp I, Haafkens JA, Detaille SI, Tak PP, van Dijk FJ, (2005). Preventing work disability among employees with rheumatoid arthritis: what medical professionals can learn from the patients' perspective. *Arthritis Rheum*, 53 (6): 965–972.
- Williams RM, Westmorland M, (2002). Perspectives on workplace disability management: a review of the literature. *Work*, 19 (1): 87–93.





# Chapter 4

**Perceived impeding factors for return-to-work after long-term sickness absence due to major depressive disorder: a concept mapping approach**

Gabe de Vries, Hiske L Hees, Maarten WJ Koeter, Suzanne E Lagerveld, Aart H Schene

PLoS ONE, 2014; 9(1): e85038

## **Abstract**

### **Objectives**

The purpose of the present study was to explore various stakeholder perspectives regarding factors that impede return-to-work (RTW) after long-term sickness absence related to major depressive disorder (MDD).

### **Methods**

Concept mapping was used to explore employees', supervisors' and occupational physicians' perspectives on these impeding factors.

### **Results**

Nine perceived themes, grouped in three meta-clusters were found that might impede RTW: Person, (personality / coping problems, symptoms of depression and comorbid (health) problems, employee feels misunderstood, and resuming work too soon), Work (troublesome work situation, too little support at work, and too little guidance at work) and Healthcare (insufficient mental healthcare and insufficient care from occupational physician). All stakeholders regarded personality/coping problems and symptoms of depression as the most important impeding theme. In addition, supervisors emphasized the importance of mental healthcare underestimating the importance of the work environment, while occupational physicians stressed the importance of the lack of safety and support in the work environment.

### **Conclusions**

To prevent long-term sickness absence, more attention is needed, in addition to the reduction of symptoms, on coping with depressive symptoms and personality problems in the work environment.

## Background

Major Depressive disorder (MDD) is a major cause of long-term sickness absence (LTSA) (Nielsen et al., 2012; Roelen et al., 2012; Vlasveld et al., 2012; Nieuwenhuijsen et al., 2006; Hensing et al., 2006), and permanent work disability (Lépine and Briley, 2011; Bultman et al., 2008, Goetzel et al., 2002; Glozier, 2002). In addition, MDD contributes to prolonged sick leave duration due to physical conditions such as low back pain and heart disease (O'Neil et al., 2010; Hansson and Hansson, 2006). MDD not only has adverse consequences for the individual employee, but also for their employer and society, due to costs related to loss of productivity, sickness absence, disability benefits and higher unemployment rates (Lerner and Henke, 2008; Wang et al., 2004).

Despite increasing efforts to help sick-listed employees with MDD to return-to-work (RTW), about 25% to 30% are still absent from work after one year (Roelen et al., 2012; Koopmans et al., 2008). One explanation of this prolonged sick leave duration may be the course of MDD over time. Of the patients diagnosed with MDD about 21-37% will have a recurrent course within the first year while another 20% will not recover from MDD within two years (Hardeveld et al., 2010; Spijker et al., 2004) and are diagnosed with chronic depression.

The duration of sickness absence related to MDD is predicted by several disease characteristics, such as an early age of onset, the duration and severity of MDD, and co-morbidity (i.e. anxiety, physical complaints and substance abuse) (Hees et al., 2012; Lagerveld et al., 2010; van der Werff et al., 2010). However, findings indicate that these disease characteristics alone are not sufficient for explaining the negative RTW outcomes (OECD, 2012). A recent study showed that, although MDD symptom severity was one of the main predictors of disability, it could only explain 10% of the variance in disability outcome (van der Werff et al., 2010). In addition, 50% of employees diagnosed with MDD through self-report were able to continue working, despite their symptoms (OECD, 2012; Elinson et al., 2004).

Furthermore, findings suggest that symptom recovery will not directly translate to improved RTW outcomes. This is illustrated by a Cochrane review, showing that regular mental health care only has limited effects on RTW, while these interventions are effective in reducing depressive symptoms (Nieuwenhuijsen et al., 2008). In our own study aiming to identify factors that predict long-term RTW in employees on sick leave due to MDD, we found that in addition to health factors (i.e. MDD severity and co-morbid anxiety disorder), work (i.e. work motivation) and personal (i.e. conscientiousness) also predicts long-term RTW (Hees et al., 2012). Therefore, in sick-listed employees with MDD, multiple factors may play a role in explaining LTSA.

Previous studies have conceptualized work disability as the outcome of interactions between health, personal- and environmental conditions (ICF, 2001; Waddell and Burton, 2005). Regarding personal factors, studies in common mental disorders (CMD's), such as anxiety disorders, somatoform disorders, and mild depression, have shown that a low level of education, a history of sickness absence, low self-esteem, low social functioning, older age (>50 years), and negative expectation regarding RTW all play a role in the duration of sickness absence (Cornelius et al., 2011; Lagerveld et al., 2010; Blank et al., 2008), although findings are not always consistent (Hees et al., 2012; Nielsen et al., 2011; Lagerveld et al., 2010). In addition environmental factors, such as high job stressors (Blank et al., 2008), level of social support from colleagues and supervisor (Cornelius et al., 2011), and the possibility of accommodations at work (Andersen et al., 2012) have been shown to influence the duration of sickness absence in CMD's. Surprisingly, personal and environmental factors that influence the duration of sickness absence specifically for MDD have hardly been studied (Lagerveld et al., 2010).

In order to gain more insight in modifiable personal and environmental factors (Lagerveld et al., 2010; Dekkers et al., 2011) that impede RTW in employees with LTSA related to MDD, we examined the perspectives of employees, supervisors, and occupational physicians regarding these factors. Multiple perspectives were included because earlier work showed that stakeholders may vary in their views as to what they regard as important (de Vries et al., 2012; Hees et al., 2012).



For this study we used a combination of qualitative and quantitative research methods, a mixed-method design, which may be more suitable to capture the dynamic and complex nature of the RTW process (Andersen et al., 2012). The findings of the present study may help to identify employees with MDD who are at risk for LTSA in an earlier stage, and may improve professional support by the development and tailoring of RTW interventions.

## **Method**

### *Study design*

Stakeholder perspectives on impeding factors for RTW were identified by concept mapping (Kane and Trochim, 2007), a structured conceptualisation method, designed to organise and represent ideas regarding a specific theme. In addition, this method allows for the identification of similarities and differences between various stakeholder perspectives. Concept mapping combines qualitative individual and group processes with multivariate statistical analyses to help a group of individuals describe their views on a topic of interest and represent them visually. Concept mapping has proven to generate valid and reliable results (Rosas and Kane, 2012). The combination of both qualitative and quantitative analyses makes it more data-driven than other qualitative research methods.

We submitted this research to the medical ethical committee of the Academic Medical Centre (Medisch Ethische Toetsingscommissie; MEC 06/258# 10.17.0923, date 18 June 2010). They declared that this research did not need an approval of this committee, because a medical intervention was not part of research. As no written informed consent was required, each participant was asked if he/she wanted to participate in this study.

## ***Participants***

Participants were purposively sampled from the three key stakeholder groups who are directly involved in the RTW process: employees, supervisors and occupational physicians (OP's) (Williams and Westmorland, 2002). To meet the inclusion criteria for this study, employees had to: a) be diagnosed by a psychiatrist with a Major Depressive Disorder (MDD) according to DSM-IV criteria, b) have a paid job, and c) have been on 100% sick leave for at least one year. The one-year criterion was chosen in order to select employees who were unable to RTW, even though they received mental healthcare for a substantial period of time. In addition, duration of absenteeism is negatively related to the probability of a successful RTW (Roelen et al., 2012; The Stress Impact Consortium, 2006). Employees were recruited through two large mental health care centres in the Amsterdam area. All employees we contacted participated in the study. Supervisors and OP's were included if they had directly supervised employees who did not RTW after sick leave due to MDD within one year. They were identified through their contact with the employees selected in our study (25% of the participating supervisors and 36% of the participating OP's). In addition, we recruited supervisors by contacting four companies (an elementary school, a high school, a prison and two healthcare institutions), who all selected one supervisor. Finally, OP's were also recruited by contacting two healthcare services with a response rate of 10% and 50%. Main reasons for non-response were due to either a lack of experience with this specific patient population and/or a lack of time to participate in this study.

## ***Data collection***

The concept mapping procedure comprises of five steps:

1. Focus question and sampling of participants; Concept mapping starts with a single-focus question, described in the present study as: "Which factors (work, personal and/or other factors) have contributed to the fact that you have (or your employee/patient has) not been able to return-to-work within one year of being on sick leave?" For employees, the focal question pertained to their own experience, for supervisors and OP's, the focal question

1. referred to their experience as a professional. Professionals could refer to more than one case, as they usually had had experiences with several employees in their caseload who did not return-to-work within one year.
2. Generation of statements; Next, participants were asked to generate statements pertaining to the focal question, based on their own experiences. All statements were written down by the researcher as they were expressed by participants. Two groups of researchers, two researchers each, then independently eliminated (a) statements that were unclear or unrelated to the focal question, and (b) redundant statements. In a consensus meeting, both groups of researchers presented the results of the cleaning phase to each other. In case of differences, a consensus decision was made. Reduction of statements was done in order to control for the complexity of the following steps (Nabitz et al., 2005)
3. Prioritization and categorization; Prioritization and categorization of the final set of statements was done individually by each participant. Prioritization implies that respondents prioritize statements by dividing them into five groups of equal size. Group one was defined as least important impediment on RTW and group five as most important impediment on RTW. Categorization means that participants were asked to put together those statements that, in their opinion, were similar in content. For this task, statements had to be distributed over more than one group. There was no restriction for the number of statements pertaining to one group.
4. Statistical analyses; These analyses were performed using Ariadne, a computer programme specifically designed to support concept mapping (Severens, 1995). First, the arithmetic mean of the priorities that the participants assigned to each statement was calculated. This resulted in a list with ratings of statements. Then, a multidimensional scaling followed by hierarchical cluster analyses was used on the basis of a matrix of the categorizing results (i.e. how often two statements were placed together in the same category by participants). This resulted in a final set of clusters.
5. Interpretation of the concept map; This step consisted of determining the number of clusters and labelling the clusters, conducted by two independent researchers. Labelling was based on the content of the statements comprising the clusters.

The study has been designed as a qualitative study. The main criterion for the number of participants in qualitative studies is saturation. From this perspective about 10 to 20 persons are considered sufficient for the statement generating phase (step 2) in concept mapping (Kane and Trochim, 2007). For the prioritization/categorization of statements (step 3) it is advised to have at least the same number of participants, but groups of step 2 and 3 do not have to include the same persons (Kane and Trochim, 2007).

Given the fact that our study is basically a qualitative study, we decided to start with a qualitative interpretation of our results. A strict qualitative approach of these data, however, will result in considerable loss of information. Therefore this was followed by quantitative testing, keeping in mind that the latter is hindered by low statistical power. For this reason we did not correct for multiple testing. Differences between mean priority ratings of stakeholders were tested with analysis of variance followed in case of a significant overall F test by multiple comparisons using Tukey method. All analyses were done with SPSS-18.

## **Results**

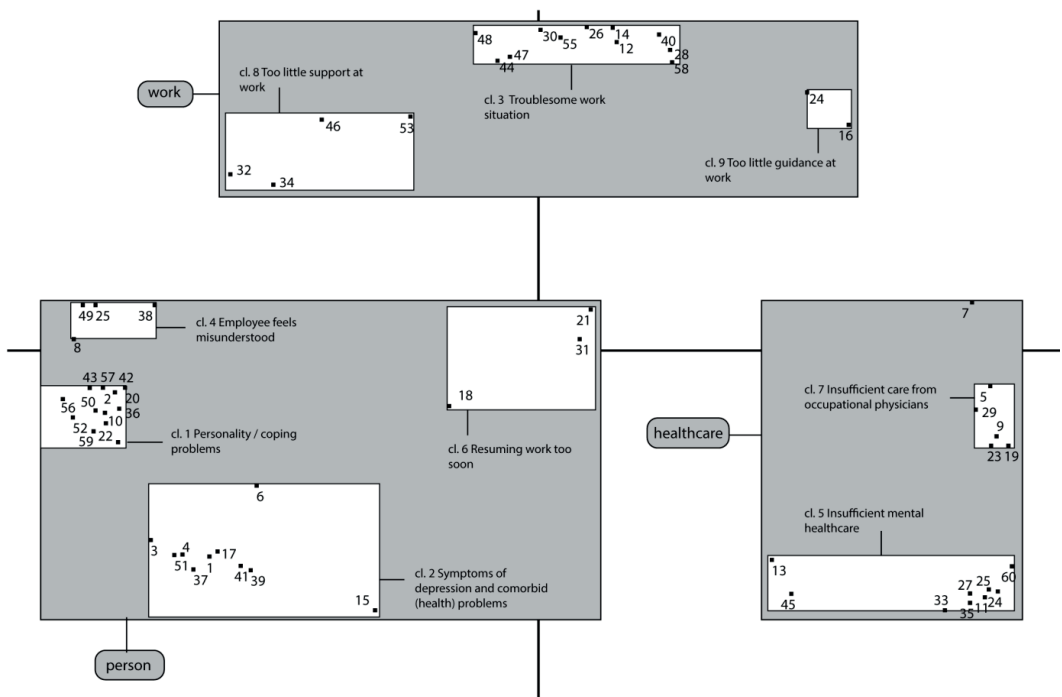
For the statement generation phase, 34 participants were invited to participate, of which 32 participants (94%) took part. For the prioritization and categorization phase, a total of 54 participants were invited to participate, of which 38 participants (70%) took part (Table 1). Participating employees and supervisors were working in healthcare (24%), finance (20%), education (16%), industry (12%) or other jobs (28%).

In total, participants generated 373 statements. The number of statements varied between participants and was on average 11. After elimination of redundant, unrelated or unclear statements, a final set of 60 statements remained. These statements are presented as numbers in Figure 1 and written out in Table 2.

**Table 1. Participants**

	Generation of statements	Categorizing and prioritizing
Participants	n (% men)	n (% men)
Employees	13 (46)	14 (43)
Supervisors	8 (38)	11 (45)
Occupational physicians	11 (36)	13 (54)
Total	32 (41)	38 (47)

**Figure 1.** Concept map: Impeding factors for return-to-work (RTW) in employees with long-term sickness absence related to major depressive disorder (MDD); Statement numbers, clusters and meta-clusters.



## *Clusters*

The hierarchical cluster analysis conducted by the Ariadne program resulted in two meaningful cluster solutions (Figure 1): a three- and a nine-cluster solution. We will refer to the clusters in the three-cluster solution as meta-clusters, described in Figure 1 as (A) Person, (B) Work and (C) Healthcare, and the clusters in the nine-cluster solution as clusters. The nine-cluster solution provides additional meaning to the three meta-clusters. The labeling of the clusters was based on the statements that comprised this cluster, with emphasis on the statements with the highest priority score. Numbering of the clusters is in order of their importance, which is based on the mean priority score of all statements within this cluster. Thus, cluster 1, “Personality/coping problems”, can be considered as the most important impeding cluster for RTW, and cluster 9, “Employer is unable to shape support sufficiently” can be considered as the least important cluster for impeding RTW. The score of the statements is based on the mean priority score over all participants.

Meta cluster A, “Person”, contains 29 statements grouped into four clusters, which all pertain to the individual employee (Table 2). Cluster 1, “Personality/coping problems”, comprises statements that refer to problems related to personality and coping that may impede the employee’s RTW, such as perfectionism (st.42), difficulty to act assertively (st.36), avoidance/reluctance to RTW (st.43), and externalization of problems (st.59). Cluster 2, “Symptoms of depression and other comorbid (health) problems”, comprises of statements that refer to symptoms such as depressive feelings (st.1), cognitive problems (st.3) and low energy (st.4), and to comorbid health problems such as other psychiatric problems (st.39), problems with addiction (st.41), and physical complaints (st.17). Cluster 4, “Employee feels misunderstood”, refers to the employees’ experiences that there is too less notion of the employee’s opinion (st.8) and opportunities (st.25). Finally, cluster 6, “Resuming work too soon” refers to a too soon work resumption (st.18) and the lack of opportunity to recover mentally (st.31) as impeding RTW. Although cluster 4 and 6 were grouped in the meta-cluster Person, they were positioned in the quadrant nearby clusters that referred to the meta-cluster work environment, indicating that they pertain to the person but are also related to the work environment.

Meta-cluster B, “Work”, contains 17 statements grouped into three clusters, which all pertained to the work environment (Table 2). Cluster 3 “Troublesome work situation”, comprises statements that could lead to a wish to terminate employment, such as the employer who wants to get rid of the employee (st.26), the presence of a (dormant) work dispute (st.30), the employee who does no longer fit within the organisation (st.48), or a supervisor who is too demanding (st.14). Cluster 8, “Too little support at work”, refers to the employee experiencing an unsafe work environment (st.32), a lack of structure (st.46), and a lack of support from colleagues (st.34). Cluster 9, “Too little guidance at work”, refers to the inability of the employer to provide adequate guidance (st.24, 16).

Meta-cluster C, “Healthcare”, contains 14 statements grouped into two clusters, which pertain to mental- and occupational healthcare (Table 2). Cluster 5, “Insufficient mental health care”, refers to insufficient treatment (st.35), negative psychiatric advice to resume work (st.33), insufficient attention for RTW in mental health care (st.11), and insufficient cooperation and collaboration between various healthcare professionals (st.54, 60). These statements may be considered as statements in which healthcare was unaware of, or inadequate in dealing with the demands of the work situation. Cluster 7, “Insufficient care from OP”, comprises statements that pertain to a lack of collaboration between the OP and employer (st.9) and a lack of support from the OP (st.19, 5).

**Table 2. Meta clusters, clusters and statements**

Number	Clusters and Statements	Mean
<b>Mcl. A</b>	<b>Person</b>	<b>3.1</b>
<b>Cl. 1</b>	<b>Personality / coping problems</b>	<b>3.2</b>
42	Employee is hindered by factors such as being too demanding, too perfectionistic or having too little self-confidence	3.8
43	Employee is reluctant and avoids work resumption	3.6
36	Employee feels inferior, insecure and does not dare to assert himself	3.5
50	Employee feels ashamed, a failure and is reluctant to return to work	3.5
57	Employee has difficulty facing problems and reflecting on his behavior, which hinders recovery	3.5
2	Employee does not accept his functioning is (has become) limited	3.2
20	There is lack of understanding and support from home (loneliness, relationship problems)	3.1
59	Employee externalizes the origin of his problems	3.1
10	Employee has difficulty indicating his needs	3.0
22	The employee has additional pressures at home (e.g. care for sick child, partner or parent)	3.0
52	Employees is not able to discuss his own functioning	2.8
56	Employees does not feel competent	2.8
<b>Cl. 2</b>	<b>Symptoms of depression and comorbid (health) problems</b>	<b>3.2</b>
1	Employee is still too depressed	4.1
3	Employee suffers from worrying, concentration or memory problems	3.7
4	Employee is too tired, has low energy	3.7
39	Besides depression employee has other psychiatric problems	3.5
51	Employee has had several periods of depression	3.4
41	Besides depression employee has also had problems with addiction	3.0
6	There are too many problems	2.8
17	Employee is also suffering from physical complaints	2.7
15	Employee suffers from side effects of medication	2.6
37	There are residual problems with a grieving process	2.5
<b>Cl. 4</b>	<b>Employee feels misunderstood</b>	<b>3.0</b>
25	Employee experiences too little protection and support	3.3
8	Employee does not feel understood	3.2
49	Employee feels to be put under pressure	2.8
38	Employee needs too much support	2.6
<b>Cl. 6</b>	<b>Resuming work too soon</b>	<b>2.7</b>
18	Employee resumes work too soon to succeed	3.4
31	Employee does not have the opportunity to recover mentally	2.7
21	Employee feels abandoned by employer and/or social legislation	2.0



**Table 2. Meta clusters, clusters and statements**

Number	Clusters and Statements	Mean
<b>Mcl. B</b>	<b>Work</b>	2.9
<b>Cl. 3</b>	<b>Troublesome work situation</b>	3.1
26	Employer wants to get rid of employee	3.5
30	There is a (dormant) work dispute	3.4
47	Employee receives little support with his problems at work	3.3
48	Employee no longer fits into the organization	3.2
14	Supervisor demands too much from the employee	3.2
44	Employee is put under pressure at work	3.1
40	Employer does not offer suitable employment	3.1
58	Employer does not feel competent about the supervision process	2.9
55	Reorganizations at work	2.8
12	Employee and employer have discontinued their work relationship	2.8
28	Employer is not well informed enough and is therefore unable to support the employee adequately	2.3
<b>Cl. 8</b>	<b>Too little support at work</b>	2.6
32	Employee experiences an unsafe work environment	3.1
46	Employee receives too little structure and guidance	2.9
34	Employee receives little support from colleagues	2.8
53	Employee is too old	1.8
<b>Cl. 9</b>	<b>Too little guidance at work</b>	2.5
24	Supervisor is not able to shape guidance sufficiently	3.2
16	Employer is hindered by legislation in the provision of appropriate work	1.7
<b>Mcl. C</b>	<b>Healthcare</b>	2.9
<b>Cl. 5</b>	<b>Insufficient mental health care</b>	3.0
35	Treatment is insufficient or does not meet the need	3.2
33	Psychiatric advice not to resume work	3.2
54	The multi-professional team does not work together well enough	3.1
11	There is too little attention to work and return to work in mental health care	3.0
27	Health care starts too late, e.g. due to long waiting lists	2.9
45	Health care does not suit employees from ethnic minorities	2.9
60	There is insufficient collaboration in mental health care	2.7
13	Employee does not experience support from OP* and/or psychiatrist	2.7
<b>Cl. 7</b>	<b>Insufficient care from occupational physician</b>	2.6
9	There is insufficient collaboration between the employer and the OP	3.2
19	OP does not intervene adequately	2.9
5	Reintegration is slowed down due to lack of support from supervisor and OP	2.8
23	OP is not familiar with work environment	2.5
29	There is lack of support from social legislation	1.9
	<b>Not clustered statement</b>	<b>3.0</b>
7	No proper monitoring of the integration process	3.0

OP= Occupational physician

**Table 3. Most important impeding factors for return-to-work (RTW) after long-term sickness absence related to major depressive disorder (MDD; i.e. statements with a priority of  $\geq 3.5$  as rated by at least one stakeholder group) <sup>a</sup>.**

nr	Statement	Mean Empl.	Mean Superv.	Mean OP's <sup>b</sup>	p	F(2,35)	Tukey
<b>Mcl.</b>	<b>Person</b>	3.2	3.1	3.1	0.65		
<b>Cl. 1</b>	<b>Personality / coping problems</b>	3.2	3.2	3.3	0.95	0.05	
42	Employee is hindered by factors such as being too demanding, too perfectionistic or having too little self-confidence	<b>4.1</b>	3.2	<b>4.2</b>	0.08	2.79	
36	Employee feels inferior, insecure and does not dare to assert himself	<b>3.9</b>	3.2	<b>3.5</b>	0.35	1.09	
43	Employee is reluctant and avoids work resumption	<b>3.6</b>	<b>3.5</b>	<b>3.6</b>	0.96	0.04	
50	Employee feels ashamed, a failure and is reluctant to return to work	3.3	<b>3.9</b>	3.4	0.47	0.52	
2	Employee does not accept his functioning is (has become) limited	3.1	<b>3.5</b>	2.9	0.66	0.41	
20	There is lack of understanding and support from home (loneliness, relationship problems)	3.0	<b>3.5</b>	2.8	0.44	0.85	
57	Employee has difficulty facing problems and reflecting on his behavior, which hinders recovery	2.9	<b>3.8</b>	<b>3.9</b>	0.14	2.92	
<b>Cl. 2</b>	<b>Symptoms of depression and comorbid (health) problems</b>	3.3	3.0	3.2	0.39	0.97	
3	Employee suffers from worrying, concentration or memory problems	<b>4.4</b>	3.1	<b>3.7</b>	0.11	2.33	
4	Employee is too tired, has low energy	<b>4.4</b>	3.2	<b>3.5</b>	0.07	2.90	
1	Employee is still too depressed	<b>4.3</b>	<b>4.1</b>	<b>3.9</b>	0.67	0.28	
6	There are too many problems	<b>3.7</b>	2.3	2.5	<b>0.01</b>	5.60	(1-2;1-3)
51	Employee has had several periods of depression	<b>3.6</b>	<b>3.6</b>	3.0	0.52	0.67	
39	Besides depression employee has other psychiatric problems	2.9	3.4	<b>4.3</b>	<b>0.05</b>	3.29	(1-3)
41	Besides depression employee also has problems with addiction	1.7	3.0	<b>4.2</b>	<b>&lt;0.01</b>	10.92	(1-3)
<b>Cl. 4</b>	<b>Employee feels misunderstood</b>	2.9	3.0	3.1	0.65	0.44	
25	Employee experiences too little protection and support	3.1	2.7	<b>4.1</b>	<b>0.03</b>	4.04	(2-3)
<b>Cl. 6</b>	<b>Resuming work too soon</b>	3.2	2.8	2.2	<b>&lt;0.01</b>	7.70	(1-3;2-3)
18	Employee resumes work too soon to succeed	<b>4.3</b>	<b>3.5</b>	2.5	<b>0.01</b>	5.39	(1-3)
<b>Mcl.</b>	<b>Work</b>	2.9	2.9	2.9	0.95		
<b>Cl. 3</b>	<b>Troublesome work situation</b>	3.0	3.1	3.1	0.88	0.12	
26	Employer wants to get rid of employee	3.4	<b>3.5</b>	<b>3.5</b>	1.00	<0.01	
47	Employee receives little support with his problems at work	3.2	3.0	<b>3.8</b>	0.27	1.34	
44	Employee is put under pressure at work	2.9	2.9	<b>3.5</b>	0.32	1.17	
30	There is a (dormant) work dispute	2.6	<b>3.6</b>	<b>4.0</b>	<b>0.05</b>	3.25	(1-3)
<b>Cl. 8</b>	<b>Too little support at work</b>	2.9	2.3	2.7	0.27	1.37	
32	Employee experiences an unsafe work environment	3.2	2.3	<b>3.8</b>	<b>0.05</b>	3.33	(2-3)
<b>Cl. 9</b>	<b>Too little guidance at work</b>	2.4	2.6	2.5	0.74	0.30	
24	Supervisor is not able to shape guidance sufficiently	3.0	3.0	<b>3.6</b>	0.28	1.32	

**Table 3. Most important impeding factors for return-to-work (RTW) after long-term sickness absence related to major depressive disorder (MDD; i.e. statements with a priority of  $\geq 3.5$  as rated by at least one stakeholder group) <sup>a</sup>.**

nr	Statement	Mean Empl.	Mean Superv.	Mean OP's <sup>b</sup>	p	F(2,35)	Tukey
<b>Mcl.</b>	<b>Healthcare</b>	2.7	3.0	2.9	0.40		
<b>Cl. 5</b>	<b>Insufficient mental health care</b>	2.6	3.2	3.2	<b>0.02</b>	4.19	(1-2;1-3)
33	Psychiatric advice not to resume work	3.1	<b>3.9</b>	2.7	0.15	2.03	
11	There is too little attention to work and RTW in mental health care	2.8	2.8	<b>3.5</b>	0.29	1.29	
35	Treatment is insufficient or does not meet the need	2.7	<b>3.7</b>	3.3	0.14	2.12	
54	The multi-professional team does not work together well enough	2.6	<b>3.5</b>	3.2	0.34	1.10	
45	Health care does not suit employees from ethnic minorities	2.1	2.9	<b>3.7</b>	<b>0.01</b>	5.11	(1-3)
27	Health care starts too late, e.g. due to long waiting lists	2.2	3.0	<b>3.5</b>	<b>0.04</b>	3.41	(1-3)
<b>Cl. 7</b>	<b>Insufficient care from occupational physician</b>	2.9	2.7	2.3	0.29	1.29	

<sup>a</sup>. Statements are first ordered by meta-cluster, second by cluster, and third by highest mean score of the employee stakeholder group.

<sup>b</sup>. OP = occupational physician.

### *Differences between stakeholders*

First we compared the percentage of most important statements (i.e. statements with a mean priority rating  $\geq 3.5$ ; these statements will further be referred to as ‘important statements’) pertaining to the meta-clusters and clusters (Table 3). Employees rated 9 statements as important statements, supervisors 13, and OP’s 19. Employees put most emphasis on the meta-cluster “Person”: All their important statements pertained to this meta-cluster (100%). This was only the case for 60% of the supervisors and 52% of the OP’s. Within the meta-cluster “Person”, employees and OP’s considered more statements in cluster 2 (i.e., “Symptoms of depression and comorbid (health) problems”) important compared to supervisors. Supervisors considered more statements important that pertained to cluster 1, “Personality/coping problems”.

Supervisors and OP’s also rated some statements of the meta-clusters “Work” and “Healthcare” as important. OP’s put more emphasis on the meta-cluster “Work” compared to supervisors; relatively more of their important statements pertained to this cluster (31/15%).

In addition, all statements ranked important by supervisors in the “Work” meta-cluster pertained to cluster 3, “Troublesome work situation”. Statements in this meta-cluster considered important by OP’s also pertained to cluster 8 (“Too little support at work”) and cluster 9 (“Too little guidance at work”).

Although both supervisors and OP’s considered three statements important from the meta-cluster “Healthcare” (i.e. cluster 5 “Insufficient mental healthcare”), the percentage of their important statements pertaining to this meta-cluster was higher for supervisors than for OP’s (23/16%). This is due to the larger total number of statements considered important by OP’s.

Next we examined statistical differences in mean priority rating between stakeholders in meta-clusters, clusters and important statements (Table 3). No significant differences in mean priority rating were found between stakeholders at meta-cluster level. At cluster level, cluster 6 (“Resuming work too soon”) was considered more important by employees than by OP’s ( $p < 0.01$ ). Cluster 5 (“Insufficient mental health care”) was more important for supervisors ( $p = 0.05$ ) and OP’s ( $p = 0.04$ ) than for employees.

The higher importance of ‘Too soon work resumption’ by employees compared to OP’s is reflected by differences in the mean priority rating of statement 18 (“Employee resumes work too soon to succeed”;  $p = 0.01$ ) and statement 6 (“There are too many problems”), which was considered more important to employees than to OP’s ( $p = 0.03$ ) and to supervisors ( $p = 0.01$ ). This suggests that experienced problems might be more important for employees than for supervisors and OP’s.

The higher importance of insufficient healthcare by OP’s compared to employees is reflected by differences in mean priority rating on the following main statements: “Healthcare doesn’t suit employees from ethnic minorities” (st.45,  $p = 0.01$ ) and “Healthcare starts too late” (st.27,  $p = 0.04$ ). In addition, OP’s considered other psychiatric problems (st.39,  $p = 0.04$ ), problems with addiction (st.41,  $p < 0.01$ ) and a (dormant) work dispute (st.30,  $p = 0.05$ ) more important than employees.

Furthermore, they considered “Employee experiences too little protection and support” (st.25,  $p=0.03$ ) and “Employee experiences an unsafe work environment” (st.32,  $p=0.04$ ) as more important than supervisors. This suggests that although experienced problems of employees are also of main importance for OP’s, they do not focus on experienced problems but rather on diagnosis, insufficient healthcare, and insufficient support from the work environment.

## **Discussion**

### ***General findings***

This study examined what factors impede return-to-work (RTW) in employees with long-term sickness absence (LTSA) related to Major Depressive Disorder (MDD), from the perspectives of three key stakeholder groups; employees, supervisors and occupational physicians (OP’s). In total, 60 statements were generated, grouped into nine clusters and three meta-clusters (Person, Work and Healthcare). Impeding clusters pertaining to the meta-cluster “Person” were: “Personality / coping problems”, “Symptoms of depression and comorbid (health) problems”, “Employee feels misunderstood”, and “Resuming work too soon”. Impeding clusters pertaining to the meta-cluster “Work” were: “Troublesome work situation”, “Too little support at work” and “Too little guidance at work”. Impeding clusters pertaining to the meta-cluster “Healthcare” were: “Insufficient mental healthcare” and “Insufficient care from occupational physician”. The high number and wide range of impeding factors mentioned in the current study underline the multi-factorial nature and complexity of the RTW process after LTSA related to MDD (Franche and Krause, 2002).

Although stakeholders agreed on the importance of most clusters and statements, the present findings also indicate perceived differences in factors that contribute to a delayed RTW. All statements regarded as important ( $\geq 3.5$ ) by employees pertained to the meta-cluster Person (i.e., the clusters “Symptoms of depression” and “Personality/coping problems”). Of these, employees put most emphasis on the cluster “Symptoms of depression”, in particular on too many problems (cl.2, st.6) and a too soon work resumption (cl.6, st.18).

Although supervisors also considered most statements pertaining to this meta-cluster important, they put most emphasis on personality problems (cl.1). In addition, supervisors also considered statements related to the Work and Healthcare meta-cluster as important. Finally OP's also put most emphasis on the meta-cluster Person in particular on co-morbidity (st.31, 41) and too little protection and support (st.25). Other important statements pertain to the Work meta-cluster, in particular a work dispute (st.30) and an unsafe work environment (st.32) and Mental healthcare meta-cluster i.e. too less attention for ethnic minorities (st.45) and too long waiting lists (st.27).

### ***Personality***

Personality characteristics and coping style of the individual employee (i.e., cluster 1 “Personality/coping problems”) are regarded as an important impeding factor for RTW in sick-listed employees with MDD according to all three stakeholder groups. Personality traits such as little self-confidence (st.42, 50), feelings of inferiority (st.36, 56), and externalizing the origin of problems (st.59, 52) may be related to an avoidant and dependent personality, and may be indicative of Cluster C personality disorders on Axis II of the DSM-IV. Furthermore, these personality traits may affect coping strategies, thereby reinforcing the impediments on RTW (Andersen et al., 2012). These findings are consistent with previous studies in various health conditions, where low self-esteem, high neuroticism, low extraversion, perfectionism and external locus of control were found as predictors of long-term sickness absence (Roelen et al., 2012; Lagerveld et al., 2012; Noordik et al., 2011; Vlasveld et al., 2013) and are risk factors for decreased work functioning (Vlasveld et al., 2013; Michon et al., 2008). These impeding factors should be addressed by mental healthcare.

### ***Severity of depression***

The present findings emphasize the importance of depressive symptoms and co-morbid health problems, impeding RTW. This is also supported by previous literature (Vlasveld et al., 2012; Hees et al., 2012; Lagerveld et al., 2010; Bultman et al., 2008) showing that symptom severity (e.g., concentration problems, low energy) and co-morbidity (e.g., anxiety or substance abuse) are important predictors of unsuccessful RTW. Care providers, however, should realize that symptom

reduction will not lead to better RTW outcomes per se. A focus on symptoms can reinforce the illness identity and off-work identity of the employee, which in turn can have a negative effect on the RTW process (Andersen et al., 2012). In addition, the state of the art treatment of chronic diseases supporting RTW prescribes a focus on the ability to cope with symptoms related limitations within the (work) environment, alongside medical treatment, as for example proven by Individual Placement and Support (IPS), the most effective RTW method for severe mental health disorders (Latimer et al., 2006). Because recurrence of MDD is high (Hardelveld et al., 2010), it is argued that MDD, especially persistent MDD, should be treated as a chronic disease (Andrews, 2001). In extent, work participation may have a positive effect on health (Lagerveld et al., 2012; Huijs et al., 2012; Schuring et al., 2011), as it has a positive effect on perceived health for unemployed citizens receiving social security benefits (Schuring et al., 2011) and for employees suffering from MDD (Hees et al. 2013). Furthermore, work participation did not worsen the health status for employees suffering from severe mental health (Bond et al., 2012).

### ***Work relationship***

Within the work environment, a troublesome relationship and too little support and guidance at work were found as important impeding factors for RTW in employees with long-term sickness absence related to MDD. Interestingly, these impeding factors are not consistent with work characteristics that refer to the amount and severity of tasks, which are affecting the incidence of MDD (i.e., high (psychological) work demands and low decision latitude; Bonde, 2008; Netterstrøm et al., 2008) and adjustment of tasks promoting RTW (i.e., adjusting tasks and positive work experiences; de Vries et al., 2012). Rather, these impeding factors are more related to work characteristics that pertain to social support. Indeed in literature, low social support was found to increase the incidence of depression (Bonde, 2008; Netterstrøm et al., 2008), and previous studies also show that a good relationship, such as goodwill and trust (MacEachen et al., 2006), safety feelings (Franche et al., 2005), and perceived support from the supervisor (Briand et al., 2008) are important factors for achieving successful RTW in other (mental) health conditions. Support from the supervisor and the relationship between employee and supervisor may not only be hindered by

the employee's personality (e.g. the employee's lack of assertiveness or reluctance to RTW) but also by the supervisor's negative judgment about the employee's competence, as this competence may be negatively influenced by the symptoms of depression. Therefore, with delayed RTW, guidance should also focus on improving support and work relationships.

### ***Mental healthcare***

From the perspective of supervisors and OP's, insufficient mental healthcare also contributed to a delayed RTW. They addressed the importance of having more attention for the work situation and RTW in mental healthcare (st.11, 33, 35), improved cooperation between different healthcare professionals (st.54), having more attention for ethnic minorities (st.45), and shortening of waiting lists (st.27). The importance of cooperation and attention for RTW in healthcare is also found in studies with other populations such as musculoskeletal conditions (Briand et al., 2008), and is one of the main elements of IPS for employees with severe mental health problems (Bond et al., 2012). In addition, still about half of employees suffering from severe mental health disorders do not receive mental health at all, and if they did, many do not receive adequate treatment in line with minimum clinical guidelines (OECD, 2012). Therefore, both the quantity and quality of mental healthcare can be improved, in particular for employees who are at risk for delayed RTW.

### ***Strengths and limitations***

The strength of this study is the focus on the varying perspectives of different key stakeholders involved: employees, supervisors and OP's. Their personal experiences give insight into a wide range of factors that may impede the RTW process. To our knowledge, sick-listed employees with MDD have rarely been asked open-ended questions as to what they see as impediments for their RTW. In addition, the present study improves our knowledge by highlighting differences in key stakeholder perspectives.



Nevertheless, the current study also has some limitations. Although the number of participants is more than sufficient for the concept mapping procedure (Kane and Trochim, 2007), caution should be exercised for generalizing differences between stakeholder groups, as the number of participants within each stakeholder group is relatively small. Second, although personality/coping and depression symptoms were separated in two different clusters, with the current data, it cannot be concluded to what extent these personality traits/coping styles are related to the severity of MDD, or whether these traits exist independently of the MDD. Finally, when interpreting the current study findings, one should take into account that the legislative context in the Netherlands differs from other countries, which may have influenced study results (D'Amato and Zijlstra, 2010). Dutch legislation already has an active focus on RTW: after 6 weeks of sickness absence, the employee and supervisor are obligated to make a reintegration plan and OP's advice is required. In addition, in the Netherlands, the employer is legally obligated to pay at least 70% of the employee's salary during the first two years of sickness absence. Therefore, supervisors and OP's may have already used a relatively active approach for achieving RTW. The absence of this active approach may be a main impeding factor in other countries.

### ***Conclusion***

In conclusion, the presence of depressive symptoms, personality/coping problems, a disturbed relationship at work and too little attention for the work environment in healthcare were perceived by stakeholders as the main impeding factors for RTW after long-term sickness absence (LTSA) related to major depressive disorder (MDD). Attention for these impeding factors in earlier phases of the RTW process may increase the opportunity to improve this RTW process, thereby preventing LTSA as well as unnecessary personal grief and loss of employee's social value.

## References

- Andersen MF, Nielsen KM, Brinkmann S, (2012). Meta-synthesis of qualitative research on return to work among employees with common mental disorders. *Scand J Work Environ Health*, 38: 93-104.
- Andrews G (2001). Should depression be managed as a chronic disease? *BMJ*, 322: 419-421.
- Blank L, Peters J, Pickvance S, Wilford J, Macdonald E, (2008). A systematic review of the factors which predict return to work for people suffering episodes of poor mental health. *J Occup Rehabil*, 18: 27-34.
- Bond GR, Drake RE, Becker DR, (2012). Generalizability of the Individual Placement and Support (IPS) model of supported employment outside the US. *World Psychiatry*, 11: 32-39.
- Bonde JP (2008). Psychosocial factors at work and risk of depression: a systematic review of the epidemiological evidence. *Occup Environ Med*, 65: 38-445.
- Briand C, Durand MJ, St-Arnaud L, Corbière M, (2008). How well do return-to-work interventions for musculoskeletal conditions address the multicausality of work disability? *J Occup Rehabil*, 18: 207-217.
- Bültmann U, Christensen KB, Burr H, Lund T, Rugulies R, (2008). Severe depressive symptoms as predictor of disability pension: a 10-year follow-up study in Denmark. *Eur J Public Health*, 18: 232-234.
- Cornelius LR, van der Klink JJ, Groothoff JW, Brouwer S, (2011). Prognostic factors of long term disability due to mental disorders: a systematic review. *J Occup Rehabil*, 21: 259-274.
- D'Amato A, Zijlstra F, (2010). Toward a climate for work resumption: the nonmedical determinants of return to work. *J Occup Environ Med*, 52: 67-80.
- Dekkers-Sánchez PM, Wind H, Sluiter JK, Hw Frings-Dresen MH, (2011). What promotes sustained return to work of employees on long-term sick leave? Perspectives of vocational rehabilitation professionals. *Scand J Work Environ Health*, 37: 481-493.
- Elinson L, Houck P, Marcus SC, Pincus HA, (2004). Depression and the ability to work. *Psychiatr Serv*, 55: 29-34.
- Franche RL, Baril R, Shaw W, Nicholas M, Loisel P, (2005). Workplace-based return-to-work interventions: optimizing the role of stakeholders in implementation and research. *J Occup Rehabil*, 15: 525-542.

- Franche RL, Krause N, (2002). Readiness for return to work following injury or illness: conceptualizing the interpersonal impact of health care, workplace, and insurance factors. *J Occup Rehabil*, 12: 233-256.
- Glozier N, (2002). Mental ill health and fitness for work. *Occup Environ Med*, 59: 714-720.
- Goetzel RZ, Ozminkowski RJ, Sederer LI, Mark TL, (2002). The business case for quality mental health services: why employers should care about the mental health and well-being of their employees. *J Occup Environ Med*, 44: 320-330.
- Hees HL, Nieuwenhuijsen K, Koeter MW, Bultman U, Schene AH, (2012). Towards a new definition of return-to-work outcomes in common mental disorders from a multi-stakeholder perspective. *Plos One*, 7: 1-7.
- Hansson E, Hansson T, Jonsson R, (2006). Predictors for work ability and disability in men and women with low-back or neck problems. *Eur Spine J*, 15: 780-793.
- Hardeveld F, Spijker J, De Graaf R, Nolen WA, Beekman ATF, (2010). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta Psychiatr Scand*, 122: 184-191.
- Hensing G, Andersson L, Brage S, (2006). Increase in sickness absence with psychiatric diagnosis in Norway: a general population-based epidemiologic study of age, gender and regional distribution. *BMC Med*, 4: 19-28.
- Hees HL, Koeter MW, Schene AH, (2012). Predictors of long-term return to work and symptom remission in sick-listed patients with major depression. *J Clin Psychiatry*, 73:e1048-1055.
- Hees HL, Vries G de, Koeter MW, Schene AH, (2013). Adjuvant occupational therapy improves long-term depression recovery and return-to-work in good health in sick-listed employees with major depression: results of a randomised controlled trial. *Occup Environ Med*, 70: 252-260.
- Huijs JJM, Koppes LJ, Taris TW, Blonk RWB, (2012). Differences in Predictors of Return to Work Among Long-Term Sick-Listed Employees with Different Self-Reported Reasons for Sick Leave. *J Occup Rehabil*, 22: 301-311.

- Integrated report of Stress Impact: On the impact of changing social structures on stress and quality of life: Individual and social perspectives (2006). The Stress Impact Consortium Work Package 8 Integrated report. Available: [www.Surrey.ac.uk/Psychology/stressimpact](http://www.Surrey.ac.uk/Psychology/stressimpact).
- International Classification of Functioning, Disability, and Health (2001). ICF full version. Geneva, Switzerland: World Health Organization.
- Kane, M., Trochim, WMK, (2007). Concept mapping for planning and evaluation. London: Sage Publications Inc.
- Koopmans PC, Roelen CA, Groothoff JW, (2008). Sickness absence due to depressive symptoms. *Int Arch Occup Environ Health*, 81: 711-719.
- Lagerveld SE, Blonk RW, Brenninkmeijer V, Wijngaards-de Meij L, Schaufeli WB, (2012). Work-focused treatment of common mental disorders and return to work: a comparative outcome study. *J Occup Health Psychol*. 17: 220-34.
- Lagerveld SE, Bültmann U, Franche RL, van Dijk FJ, Vlasveld MC, van der Feltz-Cornelis CM, Bruinvels DJ, Huijs JJ, Blonk RW, van der Klink JJ, Nieuwenhuijsen K, (2010). Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil*, 20: 275-292.
- Latimer EA, Lecomte T, Becker DR, Drake RE, Duclos I, Piat M, Lahaie N, St-Pierre MS, Therrien C, Xie H, (2006). Generalisability of the individual placement and support model of supported employment: results of a Canadian randomised controlled trial. *Br J Psychiatry* 189: 65-73.
- Lépine JP, Briley M, (2011). The increasing burden of depression. *Neuropsychiatr Dis Treat*, 7(Suppl 1): 3-7.
- Lerner D, Henke RM, (2008). What does research tell us about depression, job performance, and work productivity? *J Occup Environ Med*, 50: 401-410.
- MacEachen E, Clarke J, Franche RL, Irvin E, (2006). Workplace-based Return to Work Literature Review Group Systematic review of the qualitative literature on return to work after injury. *Scand J Work Environ Health*, 32: 257-269.
- Michon HW, ten Have M, Kroon H, van Weeghel J, de Graaf R, Schene AH, (2008) Mental disorders and personality traits as determinants of impaired work functioning. *Psychol Med* 38: 1627-1637.
- Nabitz U, van Den Brink W, Jansen P, (2005). Using concept mapping to design an indicator framework for addiction treatment centres. *Int J Qual Health Care*, 17: 193-201.

- Netterstrøm B, Conrad N, Bech P, Fink P, Olsen O, Rugulies R, Stansfeld S, (2008). The relation between work-related psychosocial factors and the development of depression. *Epidemiol Rev*, 30: 118-132.
- Nielsen MB, Bültmann U, Madsen IE, Martin M, Christensen U, Diderichsen F, Rugulies R, (2012). Health, work, and personal-related predictors of time to return to work among employees with mental health problems. *Disabil Rehabil*, 34: 1311-1316.
- Nielsen MB, Madsen IE, Bültmann U, Christensen U, Diderichsen F, Rugulies R, (2011). Predictors of return to work in employees sick-listed with mental health problems: findings from a longitudinal study. *Eur J Public Health*, 21: 806-811.
- Nieuwenhuijsen K, Bultmann U, Neumeyer-Gromen A., Verhoeven AC, Verbeek JH, van der Feltz-Cornelis CM, (2008). Interventions to improve occupational health in depressed people. *Cochrane. Database. Syst Rev*, 2 CD006237.
- Nieuwenhuijsen K, Verbeek JH, de Boer AG, Blonk RW, van Dijk FJ, (2006). Predicting the duration of sickness absence for patients with common mental disorders in occupational health care. *Scand J Work Environ Health*, 32: 67-74.
- Noordik E, Nieuwenhuijsen K, Varekamp I, van der Klink JJ, van Dijk FJ, (2011). Exploring the return-to-work process for workers partially returned to work and partially on long-term sick leave due to common mental disorders: a qualitative study. *Disabil Rehabil*, 33: 1625-1635.
- OECD Sick on the Job? Myths and Realities about Mental Health and Work, *Mental Health and Work*, (2012). OECD Publishing. Available: <http://dx.doi.org/10.1787/9789264124523-en>.
- O'Neil A, Sanderson K, Oldenburg B, (2010). Depression as a predictor of work resumption following myocardial infarction (MI): a review of recent research evidence. *Health Qual Life Outcomes*, 8: 95.
- Roelen CA, Norder G, Koopmans PC, van Rhenen W, van der Klink JJ, Bültmann U, (2012). Employees sick-listed with mental disorders: who returns to work and when? *J Occup Rehabil*, 22: 409-417.
- Rosas SR, Kane M, (2012). Quality and rigor of the concept mapping methodology: a pooled study analysis. *Eval Program Plann*, 35: 236-245.

- Schuring M, Mackenbach J, Voorham T, Burdorf AJ, (2011). The effect of re-employment on perceived health. *Community Health*, 65: 639-644.
- Severens P (1995) *Handbook Concept mapping*. Amsterdam: Talcott, National Centre of Metal Health.
- Spijker J, Graaf R, Bijl RV, Beekman AT, Ormel J, Nolen WA, (2004). Functional disability and depression in the general population. Results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Acta Psychiatr Scand*, 110: 208-214.
- Vlasveld MC, van der Feltz-Cornelis CM, Bültmann U, Beekman AT, van Mechelen W, Hoedeman R, Anema JR, (2012). Predicting return to work in workers with all-cause sickness absence greater than 4 weeks: a prospective cohort study. *J Occup Rehabil*, 22: 118-126.
- Vlasveld MC, van der Feltz-Cornelis CM, Anema JR, van Mechelen W, Beekman AT, van Marwijk HW, Penninx BW, (2013). The associations between personality characteristics and absenteeism: A cross-sectional study in workers with and without depressive and anxiety disorders. *J Occup Rehabil*, 23 :309- 317.
- Vries G de, Koeter MW, Nabitz U, Hees HL, Schene AH, (2012). Return to work after sick leave due to depression; a conceptual analysis based on perspectives of patients, supervisors and occupational physicians. *J Affect Disord*, 136: 1017-1026.
- Waddell G, Burton AK, (2005). Concepts of rehabilitation for the management of low back pain. *Best Pract Res Clin Rheumatol*, 19: 655-670.
- Wang PS, Beck AL, Berglund P, McKenas DK, Pronk NP, Simon GE, Kessler RC, (2004). Effects of major depression on moment-in-time work performance. *Am J Psychiatry*, 161: 1885-1891.
- Werff E van der, Verboom CE, Penninx BW, Nolen WA, Ormel J, (2010). Explaining heterogeneity in disability associated with current major depressive disorder: effects of illness characteristics and comorbid mental disorders. *J Affect Disord*, 127: 203-210.
- Williams RM, Westmorland M, (2002). Perspectives on workplace disability management: a review of the literature. *Work*, 19: 87-93.







# Chapter 5

## Depression and return to work; cultural differences in stakeholder perception

Gabe de Vries, Maarten WJ Koeter, Indra Boedjarath, Ricardo Th Haarloo, Aart H Schene

Article submitted

# **Abstract**

## **Background**

The number of non-western employees in western society with depression will increase, but there is a lack of knowledge on the effectiveness of return to work (RTW) strategies in the presence of cultural differences. This study identifies differences and similarities in perceived promoting factors for return to work, between the Netherlands and Suriname, after sick leave due to depression. Findings may increase understanding in how to improve RTW strategies for employees with a different cultural background.

## **Method**

Concept mapping, a mixed qualitative/quantitative method, was used to identify perceived promoting factors for return to work in Suriname. Findings were compared with those of a similar study carried out in the Netherlands. A total of 90 participants (employees, supervisors and occupational physicians), in Suriname and the Netherlands, took part.

## **Results**

A comparable framework of eight clusters and three meta-clusters (Person, Work and Healthcare/ Mental strength and support) was found, but they differ in their content and meaning. Insight gained through experience, a stepwise return to work and mutual trust between professional, supervisor and employee, are the main promoting factors for RTW from a Dutch perspective. In Suriname, the context of problems, to maintain harmony, mediation from supervisor and professionals with respect for the employees' position, trust from home environment and religion are more important.

## **Conclusion**

Cultural differences can explain barriers in RTW for non-western employees in a western society and emphasise the need for culturally sensitive strategies for RTW, in particular in a multicultural workplace.

## Introduction

Major depressive disorder (MDD) has a high prevalence among the working population (Kessler et al., 2008) and is the most important predictor of delayed return to work (RTW) among employees with mental health disorders (Nielsen et al., 2012). Immigrants in particular are a vulnerable group. They are at a higher risk for mental disorders (Carta et al., 2005; Lindert et al., 2008), their sickness absence is more frequent and duration is longer (Johansson et al., 2012). Considering that most migration flows are from non-western to western countries and will increase in the near future (UN, 2008), the need for support in RTW will most likely increase.

Factors that promote RTW for migrant workers may differ from workers with a Western European background (Meershoek et al., 2011). Occupational Physicians (OP) for instance, feel less able to use the RTW strategies they normally use, when working with non-western migrants. They experience communication barriers, less involvement and empathy and sometimes a negative attitude from supervisors (Meershoek and Krumeich, 2009; Poppel and Kamphuis, 2003). The main reason for this difference might be that RTW strategies are based on western values and fail to take cultural differences into account.

A culturally sensitive approach may increase the effectiveness of interventions in ethnic minority populations for depression treatment (van Loon et al., 2013). Cultural competence however, a method for this approach, is too generic to provide a clear direction for professional support and for setting clear targets (Kitayama et al., 2010; Seeleman et al., 2000). A focus on socio-cultural pathways may be more useful for this purpose. Two main socio-cultural pathways have been identified: independence and interdependence (Kitayama et al., 2010). The independent mode of being, which is fostered in western cultures, emphasises the pursuit of personal goals and a sense of the self as efficacious and in-control. The interdependent mode of being, which is fostered in non-western cultures, highlights responsiveness to the needs and expectations of others and a sense of the self as harmoniously connected to others, with minimal stress or anxiety.

So far, RTW intervention studies for common mental health disorders (Klink et al., 2001), adjustment disorders (Arends et al., 2012) or depression (Nieuwenhuijsen et al., 2008), have failed to take cultural differences into account. The same applies to prediction studies, where RTW is seen as a multi-factorial outcome, predicted by a combination of clinical, socio-demographic, personality and work-related factors (Cornelius et al., 2011; Blank et al., 2008). Given the apparent lack of information on supporting migrant workers in their RTW (Côté, 2013), we decided to contribute to filling this knowledge gap.

Therefore, to improve the effectiveness of RTW interventions for migrant workers with a non-western background and to increase professional support, we repeated in Suriname our earlier study carried out in the Netherlands (de Vries et al., 2012) on perceived promoting factors by the main stakeholders (employee, supervisor and OP) and explored similarities and differences. We chose Suriname because quite a number of Dutch employees have, due to the historical ties between both countries, a Surinamese background. Furthermore, Suriname has a more interdependent culture compared to the Netherlands (Hofstede et al., 2010) and it uses the same native language as the Netherlands, which diminishes bias through translation.

## **Method**

### ***Participants***

Employees in the Netherlands were approached when they received psychiatric treatment at the Department of Psychiatry of the Academic Medical Centre (AMC) in Amsterdam. In Suriname, employees receiving psychiatric treatment at the Psychiatric Centre Suriname (PCS) in Paramaribo were approached. Eligibility criteria for both studies were the same. Employees were eligible if they were aged 18-65 years, diagnosed with MDD according to DSM-IV criteria, absent from work related to MDD and returned to work or expanded work, in the preceding year. Expanding work means an increase of at least 50% of contract hours for the Dutch study and for Surinamese study an increase from phased (working from 7.00 -12.00) to full RTW (working from 7.00-15.00). For both studies, participants with a diagnosis of alcohol or drug dependence, bipolar

disorder, depression with psychotic characteristics, or an indication for inpatient treatment were excluded from the study.

Supervisors and OP's were included if they had directly supervised an employee who restarted work after sick leave due to depression (in accordance with the former definition) in the preceding two years. In the Netherlands OP's were identified through employees involved in this study and supervisors were identified through employees' OP's. In Suriname supervisors and OP's were identified through employees involved in this study, colleagues of these OP's were also approached.

### ***Method***

Concept mapping (Kane and Trochim, 2007), a qualitative method with quantitative methodology in the analysis stage, was used to combine ideas from different stakeholders and form a common framework. This method has been shown to generate valid and reliable results (Rosas and Kane, 2012).

First, participants were encouraged to generate statements by answering a single focal question:

*“Which factors have supported return to work (or expanding work) in patients suffering from depression?”* For employees the focal question referred to their own experience. For supervisors and OP's it referred to their professional experience. Statement generation took place in group-sessions for Dutch employees and individually for other participants.

Subsequently, a research group removed redundant statements. In the Dutch study the research group comprised five researchers with a Dutch background and in the Surinamese study one researcher with a Dutch, and three with a Surinamese background.

Second, participants individually prioritised and categorised the final set of statements.

Prioritising implied ranking all statements from 1 ('least important') to 5 ('most important').

Categorising implied that respondents put together those statements which, in their opinion, were similar in content.

Third, statistical analysis was performed using the Ariadne software package (Severens, 1995). The mean priority score was calculated for each statement. In addition, a similarity matrix was computed, based on how often two statements were placed together in the same category by participants in the categorising step. Multidimensional scaling was used on this similarity matrix followed by hierarchical cluster analysis. The categories constructed are referred to as clusters. The relative importance of a cluster is the mean of all priority scores of the statements within each cluster. Labelling the clusters was based on the content and the priority scores of the statements comprising the clusters.

Finally, to identify similarities and differences between perspectives of Dutch and Surinamese stakeholder groups, clusters and ratings of both groups were compared by three researchers in two group sessions (Varekamp et al., 2005), based on the concept maps that were conducted separately but carried out identically in both, the Netherlands (2010) and Suriname (2011).

For the Dutch study, no written informed consent was required (Medisch Ethische Toetsingscommissie; MEC 06/258# 10.17.0923, date 18 June 2010); nevertheless each participating employee was asked if he/she wanted to participate in this study. For the Surinamese study, permission was obtained from the Ministry of Health (dossier nr. VG 003-010, 22 July 2010) and participating employees signed an informed consent statement.

**Table 1. Participants**

Participants	The Netherlands % (N)	Suriname % (N)
Generating statements	100 (32)	100 (39)
<i>Employees</i>	59	56
<i>Supervisors</i>	19	31
<i>Occupational physicians</i>	22	13
Categorising and Prioritising	100 (41)	100 (49)
<i>Employees</i>	32	47
<i>Supervisors</i>	46	29
<i>Occupational physicians</i>	22	24
Gender		
<i>Male</i>	49	43
Workplace of employees		
<i>Finance</i>	45	0
<i>Healthcare</i>	17	30
<i>Administration</i>	8	22
<i>Education</i>	0	13
<i>Security</i>	0	9
<i>Transport</i>	8	9
<i>Other</i>	22	17
Cultural background		
<i>Dutch</i>	93	2
<i>Hindustani</i>		35
<i>Creole</i>		24
<i>Javanese</i>		8
<i>Mix*</i>		27
<i>Other</i>	7	4

\* Parents with different cultural background

## Results

In the Dutch study 32 participants completed the generating task and 41 completed the prioritising and categorising tasks. In the Surinamese study 39 participants completed the generating task and 49 completed the prioritising and categorising tasks (Table 1). About 10 to 20 persons are considered sufficient for the generating task. For the prioritisation and categorisation task it is advised to have at least the same number, but the groups for the first and second task do not have to include the same number and same participants (Kane and Trochim, 2007).

Concept mapping resulted in a final set of 60 statements in the Dutch-, and 75 in the Surinamese study. Hierarchical cluster analysis yielded two meaningful cluster solutions for each study (Figure 1, 2). The first solution leads to three clusters, we refer to as “meta-clusters”. The second solution was made of eight clusters simply called “clusters”. Table 2 presents the meta-clusters, clusters and statements with their importance score. Clusters within each meta-cluster and statements within each cluster are ranked from highest to least important.



**Table 2. Meta-clusters, Clusters and Statements in the Dutch and Surinamese study\***

The Netherlands			Suriname			
St.nr.	Cluster with Statements	Mean all stakeholders	St.nr	Cluster with Statements	Mean all stakeholders	
<b>A</b>	<b>Person</b>		<b>A</b>	<b>Person</b>		
<b>Cluster 1</b>	<b>Positive and valid self-perception</b>	<b>3.56</b>	<b>Cluster 1</b>	<b>Appreciation and recognition</b>	<b>3.44</b>	
57	Feeling of being taken seriously	4.01	72	Being appreciated for your work	3.90	
49	Employee is aware of and expresses his limits	3.62	61	Feeling welcome and accepted at work	3.88	
56	Being aware of future possibilities	3.50	74	Feeling respected	3.69	
50	Ability to put work into perspective	3.12	59	Getting support and appreciation from colleagues	3.41	
<b>Cluster 4</b>	<b>Competence in self-management</b>	<b>3.10</b>	39	Employee has passion for his work	3.29	
23	Learning how to set goals that are attainable with regard to the energy required	3.46	23	Feeling needed at work	2.49	
25	Sufficient peace of mind to resume work.	3.27	<b>Cluster 5</b>	<b>Ability to cope with problems</b>	<b>2.97</b>	
54	Self confidence	3.24	22	Employee must learn to let go of problems (work through them)	3.55	
44	Ability to define one's problems	3.20	26	Learning to solve problems and conflicts and stand up	3.29	
35	Persistence	3.03	73	Employee feels responsible towards his family	3.24	
29	Allowing yourself to make mistakes	2.92	64	You need money	2.47	
51	Willingness to exercise less control over life	2.57	68	Stop taking additional work and accept less money is	2.31	
<b>Cluster 6</b>	<b>Positive level of energy</b>	<b>2.77</b>	<b>Cluster 6</b>	<b>Motivation</b>	<b>2.96</b>	
2	Restoration of energy level	3.80	19	Being willing to work	3.94	
5	Relaxation through engaging in sports (for example)	3.37	33	Willing to define the problem and to discuss this	3.51	
48	Reduction of (depressive) symptomatology	2.99	70	Being acknowledged for who and what you are	3.43	
26	Acquiring insight about yourself by telling your life story (for example)	2.40	41	Employee must be willing to solve his problems	3.27	
11	Not over scheduling social obligations during the week	2.15	37	Employee has to learn to take his own responsibility	3.16	
59	Being able to set aside private problems	1.89				

**Table 2. Meta-clusters, Clusters and Statements in the Dutch and Surinamese study\***

The Netherlands			Suriname			
St.nr.	Cluster with Statements	Mean all stakeholders	St.nr	Cluster with Statements	Mean all stakeholders	
<b>Cluster 7</b>	<b>Supportive home environment</b>	2.67	27	Employee must be willing to learn from the past	2.96	
13	Improving the balance between home and work.	3.27	66	Fearing dismissal	2.88	
9	Being able to talk with people in the home environment	2.95	30	Learning to see work as a business	2.63	
1	Understanding from home	2.94	60	Fear of redundancy	2.57	
21	No tension in the home-environment	2.68	13	Wanting to fulfil 40 years of service	2.14	
53	Good support at home. relief from household chores by family	2.60	42	Employee accepts that what has happened has meaning	2.02	
55	Performing household chores that give a fulfilling feeling	1.47				
<b>B</b>	<b>Work</b>		<b>B</b>	<b>Work</b>		
<b>Cluster 2</b>	<b>Adaptation of work</b>	3.30	<b>Cluster 2</b>	<b>Supportive work environment</b>	3.14	
8	Stress reduction by temporarily eliminating stressful tasks	4.07	31	A safe and pleasant work environment	4.14	
4	Adjustment of workload regarding amount and tasks	4.04	29	Creating a calm work environment	3.35	
42	Adjustment of complexity and responsibility at work	3.96	8	Career opportunities at work	3.33	
10	Clarity regarding tasks and expectations at work	3.77	21	Being given responsibility for a task	2.90	
15	A good working climate. pleasant work atmosphere	3.42	9	Someone who is able to support employee for return to work	2.86	
52	Work resumption with familiar. uncomplicated tasks	3.36	45	Stop bullying and discrimination in the workplace	2.80	
33	Employee is able to determine his/her own workplace and is able to organise his/her work tasks	3.21	62	Well paid, at least above minimum wage	2.59	
22	Having a work environment without an excess of stimuli	3.22	<b>Cluster 7</b>	<b>Supervisor support</b>	2.79	
45	Adjustment of work-hours	2.89	71	Consultation between supervisor and employee to prevent feelings of embarrassment by employee	4.14	
58	Becoming involved in various functions at work.	2.57	67	A supervisor who discusses and facilitates solutions	3.61	
16	Tackling performance issues	2.43	49	Management pays attention to their personnel	3.57	

Table 2. Meta-clusters, Clusters and Statements in the Dutch and Surinamese study\*

The Netherlands			Suriname			
St.nr.	Cluster with Statements	Mean all stakeholders	St.nr	Cluster with Statements	Mean all stakeholders	
<b>Cluster 3</b>	<b>Understanding and support in the workplace</b>	3.22	69	Frequent interviews	3.33	
24	Regular communication between supervisor and employee with respect to progress	3.94	63	A supervisor who protects his employee but also expects them to be realistic	3.22	
36	Understanding on the part of the supervisor	3.72	6	A supervisor who asks the opinion of the employee	3.02	
43	The reintegration process is clear to the employee	3.63	43	Providing information to all staff about depression	2.90	
28	Express mutual trust between supervisor and employee	3.50	53	Tasks are adjusted for the employee	2.82	
47	Understanding and support from colleagues	3.35	47	Training for HRM en supervisors to improve social	2.63	
38	Employee receives compliments/ appreciation from colleagues and supervisor	3.28	57	Employer provides varied work (active and seated)	2.61	
39	Openness to colleagues at work regarding the employee's situation	2.91	51	Supervisor sets clear tasks for the employee that	2.49	
30	Paying attention to the commute to work during re-integration process	1.78	65	Supervisor informs colleagues to give employee space and time to function	2.45	
<b>Cluster 8</b>	<b>Positive work experience</b>	2.43	4	Supervisor advises employee to get appropriate help	2.43	
37	Employee enjoys his work	3.62	11	Someone who takes care of the employee	2.41	
6	Pacing of your work	3.28	75	An independent union for employees to support problems	2.12	
41	Being able to resume work quickly	2.19	55	Employee gets a new job	2.04	
20	Taking another function with the same employer	1.61	1	Another supervisor	1.63	
19	Looking for another job	1.48	<b>Cluster 8</b>	<b>Communication between</b>	2.80	
			12	Effective liaison between	3.24	
			10	Effective communication between employer and intervening professionals	3.02	
			18	Employee is seen by professional who regards cultural differences	2.14	

Table 2. Meta-clusters, Clusters and Statements in the Dutch and Surinamese study\*

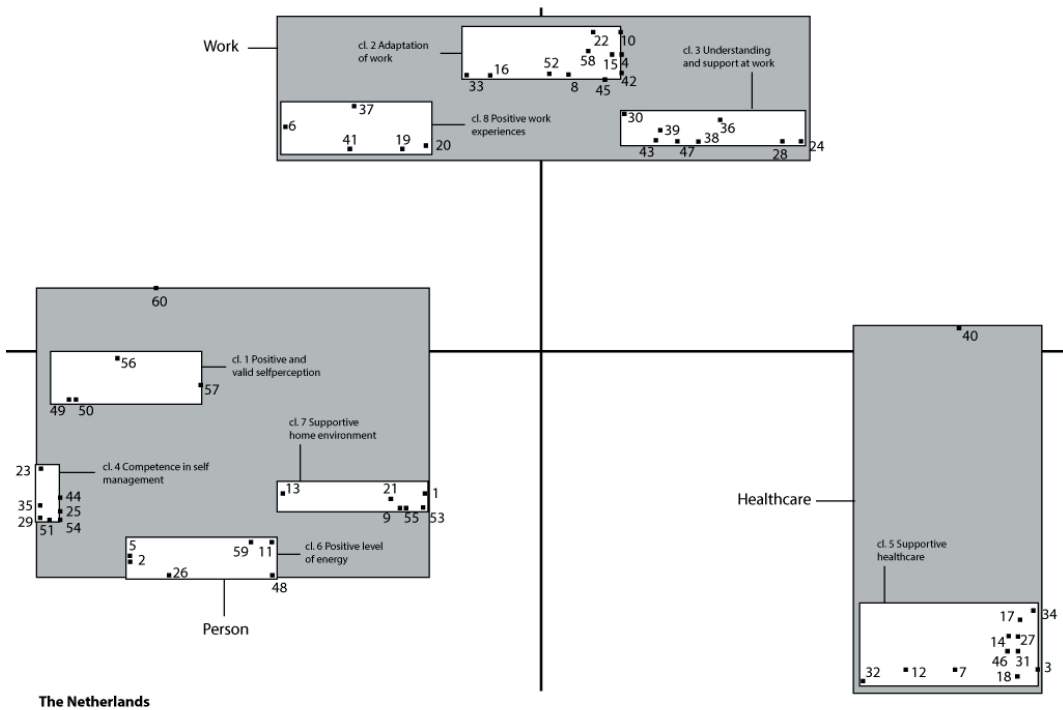
The Netherlands			Suriname		
St.nr.	Cluster with Statements	Mean all stakeholders	St.nr	Cluster with Statements	Mean all stakeholders
<b>C</b>	<b>Mental Healthcare</b>		<b>C</b>	<b>Mental strength and support</b>	
<b>Cluster 5</b>	<b>Supportive healthcare</b>	2.95	<b>Cluster 3</b>	<b>Inner strength</b>	3.05
34	Adequate coordination between clinician, occupational physician, employer and employee	4.00	25	Having self confidence	4.14
17	Adequate diagnostic assessment and referral to appropriate treatment by occupational physician	3.95	2	Support from wife/husband	3.86
14	Support from treating health professional (e.g. psychologist, general physician) during work resumption	3.59	50	A strong inner will	3.84
46	Appropriate guidance by occupational physician	3.52	35	Learning to discuss personal obstacles	3.65
32	Trusting the treating professional	3.29	3	Understanding and support from family and friends	3.55
12	Employee is able to ask for professional help	3.19	7	Feeling protective towards the children	3.43
27	Consults with the psychiatrist	2.67	56	Feeling able to survive	3.18
31	Occupational therapy intervention at the AMC	2.52	48	Having faith in better times	3.06
7	Medication	2.42	17	Conquer fear for return to work	2.98
3	Sessions with the occupational therapist at the AMC	2.21	5	Solving relationship problems	2.96
18	Consultation with the general physician	1.76	36	There is a plan determining how to continue	2.94
	<b>Not clustered statements</b>		34	To learn to deal with fear of failure	2.94
40	Educating supervisors about depression and work functioning	2.71	38	To see life as a gift and feeling able to deal with that	2.57
60	Adjusting oneself to the work situation	1.67	32	Homework to take better care of yourself	2.57
			52	To see what is happening to you as something with which you can communicate	2.27
			58	Occupy oneself at home with activities that offer diversion	2.27
			15	The ability to imagine a positive future	1.78

**Table 2. Meta-clusters, Clusters and Statements in the Dutch and Surinamese study\***

The Netherlands	Suriname		
	<b>Cluster 4</b>	<b>Mental healthcare and support</b>	3.02
	24	Understanding the origin of the depression	3.98
	14	Discuss problems with a trusted person	3.84
	20	Obtaining tools to cope with the depression and with problems	3.73
	28	Psychotherapy	3.61
	46	To pray	3.22
	16	Medication	2.86
	40	Support from church community	2.55
	44	Yoga/Meditation	1.94
	54	A Wassie (ritual bathing)	1.47

\*Clusters are ordered in the meta-clusters (A, B, C) where they pertain to and within these meta-clusters ranked in order of importance, based on the mean priority score of statements within this cluster. Statements within the cluster are ranked in order of importance, based on the mean priority score of participants

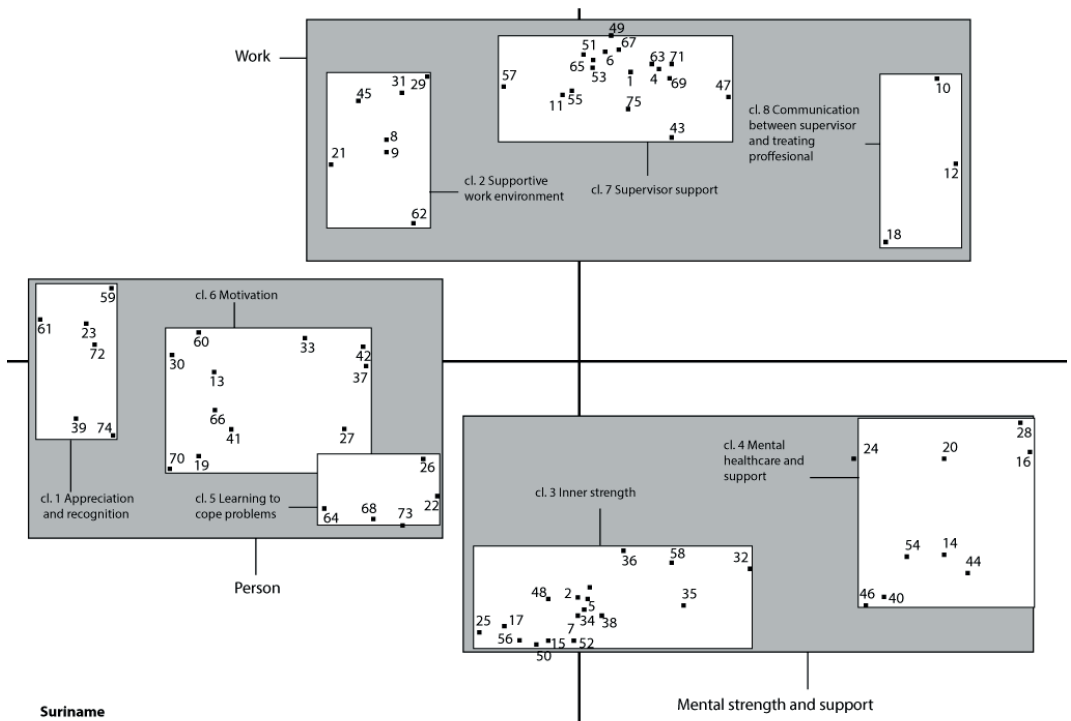
**Figure 1.** Ariadne composed Concept Map of Dutch study, comprising meta-clusters, clusters and statement numbers.



### Comparing meta-clusters and clusters

In both countries we found a meta-cluster “Person” comprising clusters and statements that refer to personal attitude, skills and supportive home environment, and a meta-cluster “Work” comprising clusters and statements that refer to adaptation and support in the work environment. In addition we found a meta-cluster “Healthcare” comprising clusters and statements that refer to supportive (mental) care in the Netherlands and a meta-cluster “Mental strength and support” in Suriname, comprising clusters and statements that refer to inner strength, support from social network and religion and to mental health care. Although we gave the first two meta-clusters the same name in both countries, they do differ to some extent in content and meaning.

**Figure 2.** Ariadne composed Concept Map of Surinamese study, comprising meta-clusters, clusters and statement numbers.



*Person*

Cluster 1 in the Dutch study, “Positive and valid self-perception”, is comparable with cluster 1 in the Surinamese study, “Appreciation and recognition”. Both identify self-esteem as an important factor in promoting RTW. The difference has to do with the context in which this self-esteem has to be achieved; in the Dutch study the focus is on the employee as an individual (st.57, 49, 56), while in Suriname the focus is on the employee’s role in the group, feeling accepted and respected as a person (st.72, 61, 74, 59).

Cluster 4 in the Dutch study, “Competence in self-management”, is comparable to the Surinamese clusters 5, “Learning to cope with problems” and 6, “Motivation”. Both clusters comprise statements that refer to coping skills. In the Dutch study, emphasis is on how the employee can manage his problems (st.23, 25, 44, 35, 29) whereas in the Surinamese study, emphasis is on the employee’s willingness to solve own problems (cl.5: st.22, 26; cl.6: st.33, 41, 37, 27).

Cluster 6 in the Dutch study, “Positive level of energy”, comprises statements about the employee’s physical (st.2, 5, 48) and mental ability (st.26, 11, 59) to resume work. In Suriname mental ability is crucial but is expressed in terms of “Inner Strength” (cluster 3, located in the third meta-cluster), with statements such as “self-confidence” (st.25), “strong inner will” (st.50), “feeling able to survive” (st.56) and “faith in better times” (st.48).

Cluster 7 in the Dutch study, “Supportive home environment” comprises statements that refer to balance (st.13) and understanding (st.9, 1, 21, 53). In Suriname support from home is also important (cl.3: st.2, 3, located in the third meta-cluster) but the focus is on the employee’s responsibilities towards domestic environment (cl.5: st.73; cl.3: st.7).

### *Work*

In the Dutch study cluster 2, “Adaptation of work”, comprises statements that pertain to adjustment in the work environment to decrease work pressure and is formulated in detail (st.8, 4, 42, 52, 22, 45). Within the Surinamese study, cluster 2 “Supportive work environment” and partly cluster 7, ”Supervisor support”, also pertain to adjustment in the work environment, but its focus is on a general result (cl.2: st.31, 29; cl.7: st.53).

Cluster 3 “Understanding and support in the workplace” in the Dutch study comprises statements that refer to communication, understanding and mutual trust (st.24, 36, 43, 28, 47, 39, 30). Support in the workplace in the Surinamese study is not a mutual responsibility, but a responsibility of the employer (cl.7); he needs to prevent feelings of embarrassment (st.71), facilitate solutions (st.67) and be attentive to the employee’s needs (st.49, 63, 6, 43).



In Cluster 8, “Positive work experience” in the Dutch study, personal satisfaction is important (st.37, 6). This is comparable to statements in cluster 2 in the Surinamese study, though personal satisfaction has a more social perspective: career opportunities, payment and job responsibility (st.8, 62, 21).

In the Surinamese study cluster 8, “Communication between supervisor and professionals”, is also a work related cluster. In the Dutch study these statements pertain to cluster 5 “Supportive healthcare” (st.34), which is part of the meta-cluster “Healthcare”. The difference is the role of the employee in this communication. In the Surinamese study, communication takes place between the supervisor and professional (st.12, 10), in the Netherlands the employee is also involved (st.34).

#### *Healthcare versus Mental strength and support*

In the Dutch study, the meta-cluster “Healthcare” comprises one cluster (cl.5) of which the statements refer to supportive (mental) healthcare, with an emphasis on professional support (st.14, 46, 32, 27, 31) and coordination (st.34, 17). In the Surinamese study the third meta-cluster “Mental strength and support” comprise two clusters. The first, “Mental healthcare and support” (cl.4) pertains also to professional support but more to non-professional support: e.g. spiritual support from church community (st.46, 40, 44, 54) and social support from a trusted person (st.14). The second cluster, “Inner strength” (cl.3), with quite a number of statements, is harbouring a strong inner will (st.25, 50, 56, 48) and social support (st.2, 3). This cluster is statistically closely pointed to the meta-cluster “Person”, and is therefore in terms of interpretation also related to this meta-cluster.

#### *Comparing important statements*

To further clarify differences in promoting factors on RTW, we compared the statements considered important (mean  $\geq 3.5$ ) in both studies (Table 3).

**Table 3. Statements with a mean  $\geq 3.5$  in the Dutch and Surinamese study**

The Netherlands			Suriname		
St. nr.	Statements pertaining to meta-cluster	Mean	St. nr.	Statements pertaining to meta-cluster	Mean
<b>Person</b>			<b>Person</b>		
57	Feeling of being taken seriously	4.01	19	Being willing to work	3.94
2	Restoration of energy level	3.80	72	Being appreciated for your work	3.90
49	Employee is aware of, and expresses his limits.	3.62	61	Feeling welcome and accepted at work	3.88
56	Being aware of future possibilities	3.50	74	Feeling respected	3.69
<b>Work</b>			<b>Work</b>		
8	Stress reduction by temporarily eliminating stressful tasks	4.07	22	Employee must learn to let go of problems (work through them)	3.55
4	Adjustment of workload regarding amount and tasks	4.04	33	Willing to define the problem and to discuss this	3.51
42	Adjustment of complexity and responsibility at work	3.96	<b>Work</b>		
24	Regular communication between supervisor and employee with respect to progress	3.94	31	A safe and pleasant work environment	4.14
10	Clarity regarding tasks and expectations at work	3.77	71	Consultation between supervisor and employee to prevent feelings of embarrassment by employee	4.14
36	Understanding on the part of the supervisor	3.72	67	A supervisor who discusses and facilitates solutions	3.61
43	The reintegration process is clear to the employee.	3.63	49	Management pays attention to their personnel	3.57
37	Employee enjoys his work	3.62	<b>Mental strength and support</b>		
28	Express mutual trust between supervisor and employee	3.50	25	Having self confidence	4.14
<b>Mental Healthcare</b>			24	Understanding the origin of the depression	3.98
34	Adequate coordination between clinician, occupational physician, employer and employee	4.00	2	Support from wife/husband	3.86
17	Adequate diagnostic assessment and referral to appropriate treatment by occupational physician	3.95	50	A strong inner will	3.84
14	Support from treating health professional (psychologist, general physician) during work	3.59	14	Discuss problems with a trusted person	3.84
46	Appropriate guidance by occupational physician	3.52	20	Obtaining tools to cope with the depression and with problems	3.73
			35	Learning to discuss personal obstacles	3.65
			28	Psychotherapy	3.61
			3	Understanding and support from family and friends	3.55

Important statements pertaining to the Person meta-cluster differ in content. In the Dutch study they refer to personal development (st.57, 56) and ability (st.2, 49). In the Surinamese study they refer to respect (st.72, 61, 74) and willingness to solve problems (st.22, 19, 33).

Important statements pertaining to the Work meta-cluster differ between the studies in number (NL:9 / Sr:4) but also in content. In the Dutch study, these statements pertain to the adjustment of tasks (st.42, 8, 4) and to communication between stakeholders focusing on mutual trust, support, and clarity (st.36, 24, 10, 28, 43). In the Surinamese study these statements pertain to a safe work environment (st.31) and communication with the supervisor who has to facilitate solutions (st.71, 67).

Important statements pertaining to the meta-cluster “Mental Healthcare” in the Dutch study and to the meta-cluster “Mental strength and support” in the Surinamese study differ also in number (NL:4 / Sr:9) and content. Statements in the Dutch study all pertain to professional support. In the Surinamese study they also pertain to problem solving (st.35, 20), mental strength (st.25, 50) and support from social network and religion (st.14, 2, 3).

## **Discussion**

This study examined the differences in perceived promoting factors for return to work after sick leave due to depression between Dutch and Surinamese stakeholders. Within a largely comparable framework of three meta-clusters and eight clusters, differences between Dutch and Surinamese stakeholders were found in the meaning and interpretation of the (meta-) clusters. Emphasis in the first meta-cluster “Person”, in the Dutch study, is on employees’ personal development, while in the Surinamese study it is on being accepted and respected within a group of colleagues. In the second meta-cluster “Work” in the Dutch study, emphasis is on a supervisor who creates a stepwise RTW plan in consultation with the employee, based on adjustments in the work environment, shared responsibility and openness. In the Surinamese study, a RTW plan is the responsibility of the

supervisor; he mediates with respect to employees' safety, social position and career opportunities. The third meta-cluster "Healthcare" in the Dutch study comprised only professional support. In Suriname this third meta-cluster "Individual strength and external support" comprised professional support, but also had an emphasis on social and spiritual support, and on inner mental strength.

This study is the first exploring and comparing perceived promoting factors by stakeholders with a different cultural background. But there are some limitations to our study that need to be considered. Although the total number of participants was sufficient for concept mapping, caution is needed when generalising the results for the two different countries, because of the small numbers in each stakeholder group. Moreover, cultural factors might even differ within one country or community (Hamamura, 2012). Differences in the social economic situation, the social security system and effort on RTW between the Netherlands and Suriname might also have an impact on RTW process (D'Amato and Zijlstra, 2010) and therefore also have influenced the results of our study.

The emphasis on personal development in the Netherlands and on workers group position in Suriname corresponds with the differences between an independent versus an interdependent cultural pathway (Kitayama et al., 2010; Hofstede et al., 2010). A comparable cultural difference was also found in differences in satisfaction between Western German workers and immigrants: job control was important for German workers whereas supervisor support and co-worker support were more important for immigrants (Hoppe, 2011). Dutch employees on sick leave are challenged to openly discuss their (dis)abilities with their supervisor and OP (Haafkens et al., 2011). This is in line with our finding about the importance of communication and mutual trust between employees and their supervisor/OP. Restraint in discussing personal problems with professionals in Suriname, has also been found in Surinamese patients with diabetes in the Netherlands (Kohinor et al., 2011) and in non-western countries in general (Meeuwesen et al., 2009). Serious emotional problems in interdependent cultures are referred to in euphemistic terms or in a generic way in order to protect one's position in a group or as self-protection (Hoopman et al., 2009). These differences might contribute to the experienced communication problems between Western European professionals

and migrant workers and therefore impede the RTW process (Meershoek et al., 2011; Meershoek and Krumeich, 2009).

Somatic complaints frequently accompany depression in Latin America, including Suriname (Yusim et al. 2009) and ethno cultural groups in Europe (Kamperman et.al., 2007; Deisenhammer et al., 2012). Interestingly in the Surinamese study no statements taken from participants mentioned recovery from somatic complaints, as a promoting factor to RTW. Apparently recovery from physical complaints is not associated with the ability to RTW.

Our findings indicate that professionals in a Western European society, when supporting a non-western employee, should be aware of cultural differences in factors that might promote RTW for employees suffering from depression. For western employees, supervisors need to incorporate personal development, and encourage employees to actively engage with the RTW process. For non-western employees however, supervisors need to mediate and create solutions with respect for the employee's position in a group. Furthermore, professionals must be aware that emotional support is important for western employees. Non-western employees expect solutions or mediation from professionals but might be less open about their inabilities, as emotional support is expected more from social networks and religion. Professionals therefore should incorporate differences in expectation and the influence of a social network in their strategies.

Immigrants cannot be seen as a homogeneous group. One person is usually influenced by a mix of western and non-western norms and values, in relation to variables such as: motivation for migration, distance from the host culture, extent of acculturation, ability to develop social networks and legal residential status (Kamperman et al., 2007; Carta et al., 2005). Therefore further study is needed to identify if, and in what way this could influence the RTW process. Moreover, as company strategies are less effective when not corresponding to the background of the employee (Hofstede, 1980), studies should focus on improving diversity sensitive RTW strategies, in particular in a multicultural workplace. This study may provide information to generate a multicultural framework for RTW after sick leave due to depression.

## **Acknowledgment**

We thank the responsible counter partners Marianne de Jong and Herman Jintie for the partnership between the PCS in Suriname and Arkin in the Netherlands, for facilitating this research, and the PCS for their support during this research in Suriname.

## References

- Arends I, Bruinvels DJ, Rebergen DS, Nieuwenhuijsen K, Madan I, Neumeyer-Gromen A, Bültmann U, Verbeek JH, (2012). Interventions to facilitate return to work in adults with adjustment disorders. *Cochrane Database Syst Rev*, CD006389.
- Blank L, Peters J, Pickvance S, Wilford J, Macdonald E, (2008). A systematic review of the factors which predict return to work for people suffering episodes of poor mental health. *J Occup Rehabil*, 18: 27-34.
- Carta MG, Bernal M,Hardoy MC, Haro-Abad JM, (2005). Migration and mental health in Europe. *Clin Pract Epidemiol Ment Health*, 1: 13.
- Cornelius LR, Klink JLL, Groothoff JW, Brouwer S, (2011). Prognostic Factors of Long Term Disability Due to Mental Disorders: A Systematic Review. *J Occup Rehabil*, 21: 259–274.
- Côté D, (2013). Intercultural communication in health care: challenges and solutions in work rehabilitation practices and training; a comprehensive review. *Disabil Rehabil*, 35: 153-63.
- D'Amato A, Zijlstra F, (2010). Toward a climate for work resumption: the nonmedical determinants of return to work. *J Occup Environ Med*, 52: 67-80.
- Deisenhammer EA, Çoban-Başaran M, Mantar A, Prunnlechner R, Kemmler G, Alkın T, Hinterhuber H, (2012). Ethnic and migrational impact on the clinical manifestation of depression. *Soc Psychiatry Psychiatr Epidemiol*, 47: 1121-1129.
- Haafkens JA, Kopnina H, Meerman MGM, Dijk FJH van, (2011). Facilitating job retention for chronically ill employees: perspectives of line managers and human resource managers. *BMC Health Serv Res.*, 11: 104.
- Hamamura T, (2012). Are cultures becoming individualistic? A cross-temporal comparison of individualism-collectivism in the United States and Japan. *Pers Soc Psychol Rev*, 16: 3-24.
- Hofstede G, (1980). Motivation, leadership and organization: Do American theories apply abroad? *Organizational Dynamics*, 9: 42-63.
- Hofstede G, Hofstede GJ, Minkov M, (2010). *Cultures and Organizations: Software of the Mind*. Revised and expanded 3rd Edition. New York: McGraw-Hill USA.

- Hoopman R, Terwee CB, Muller MJ, Ory FG, Aaronson NK, (2009). Methodological challenges in quality of life research among Turkish and Moroccan ethnic minority cancer patients: translation, recruitment and ethical issues. *Ethnicity & health*, 14: 237-25.
- Hoppe A, (2011). Psychosocial working conditions and well-being among immigrant and German low-wage workers. *J Occup Health Psychol*, 16: 187-201.
- Johansson B, Helgesson M, Lundberg I, Nordquist T, Leijon O, Lindberg P, Vingård E, (2012). Work and health among immigrants and native Swedes 1990-2008: a register-based study on hospitalization for common potentially work-related disorders, disability pension and mortality. *BMC Public Health*, 12: 845
- Kamperman AM, Komproe IH, de Jong JT, (2007). Migrant mental health: a model for indicators of mental health and health care consumption. *Health Psychol*, 26: 96-104.
- Kane M, Trochim WMK. (2007). *Concept mapping for planning and evaluation*. London: Thousand Oaks: Sage Publication, Blackwell.
- Kessler RC, Merikangas KR, Wang PS, (2008). The Prevalence and Correlates of Workplace Depression in the National Comorbidity Survey Replication. *JOEM*, 50: 381-390.
- Kitayama S, Karasawa M, Curhan KB, Ryff CD, Markus HR, (2010). Independence and interdependence predict health and wellbeing: divergent patterns in the United States and Japan. *Front Psychol*, 1: 163.
- Klink JJJ van der, Blonk RWB, Schene AH, Dijk FJH van, (2001). The Benefits of Interventions for Work-Related Stress. *Am J Public Health*, 91: 270-276.
- Kohinor MJ, Stronks K, Haafkens JA, (2011). Factors affecting the disclosure of diabetes by ethnic minority patients: a qualitative study among Surinamese in the Netherlands. *BMC Public Health*, 11: 399.
- Lindert J, Brähler E, Wittig U, Mielck A, Priebe S, (2008). Depression, Anxiety and Posttraumatic Stress Disorders in Labor Migrants, Asylum Seekers and Refugees A Systematic Overview. *Psychother Psych Med*, 58: 109-122.
- Loon A van, van Schaik A, Dekker J, Beekman A, (2013). Bridging the gap for ethnic minority adult outpatients with depression and anxiety disorders by culturally adapted treatments. *J Affect Disord*. 2013;147:9-16



- Meershoek A, Krumeich A, (2009) Multiculturalism and the construction of ethnic identities in Labour and Health Practices: Avoiding the culturalistic fallacy in applied research. *Health Care Anal*, 17: 173-197.
- Meershoek A, Krumeich A, Vos R, (2011). The construction of ethnic differences in work incapacity risks: Analysing ordering practices of physicians in the Netherlands. *SocSci Med*, 72: 15-22.
- Meeuwesen L, Brink-Muinen A van den, Hofstede G, (2009). Can dimensions of national culture predict cross-national differences in medical communication? *Patient Educ Couns*, 75: 58-66.
- Nielsen MB, Bültmann U, Madsen IE, Martin M, Christensen U, Diderichsen F, Rugulies R, (2012). Health, work, and personal-related predictors of time to return to work among employees with mental health problems. *Disabil Rehabil*, 34: 1311-1316.
- Nieuwenhuijsen K, Bultmann U, Neumeyer-Gromen A, Verhoeven AC, VerbeekJH, Feltz-Cornelis CM van der, (2008). Interventions to improve occupational health in depressed people. *Cochrane Database Syst Rev*, CD006237.
- Poppel J van, Kamphuis P, (2003). Social medical support of employees with non-western background, study of literature (article in Dutch: Sociaal medische begeleiding van allochtone werknemers, een literatuurstudie). *Tijdschrift voor bedrijfs- en verzekeringsgeneeskunde*, 6: 164-168.
- Rosas SR, Kane M, (2012). Quality and rigor of the concept mapping methodology: A pooled study analysis. *Evaluation and Program Planning*, 35: 236–245.
- Seeleman C, Suurmond J, Stronks K, (2000) . Cultural competence: a conceptual framework for teaching and learning. *Med Educ*, 43: 229-237.
- Severens P, (1995). *Handbook Concept mapping*. National Centre of Mental Health. Amsterdam: Talcott.
- United Nations, Department of Economic and Social Affairs, Population Division. *Trends in International Migrant Stock: The 2008 Revision*. United Nations database, POP/DB/MIG/Stock/Rev.2008.

- Varekamp I, Haafkens JA, Detaille SI, Tak PP, Dijk FJ van, (2005). Preventing work disability among employees with rheumatoid arthritis: what medical professionals can learn from the patients' perspective. *Arthritis Rheumatism*, 53: 965-972.
- Vries G de, Koeter MWJ, Nabitz U, Hees HL, Schene AH, (2012). Return to work after sick leave due to depression; A conceptual analysis based on perspectives of patients, supervisors and occupational physicians. *J Affect Disord*, 136: 1017-1026.
- Yusim A, Anbarasan D, Hall B, Goetz R, Neugebauer R, Ruiz P, (2009). Somatic and cognitive domains of depression in an underserved region of Ecuador: some cultural considerations. *World Psychiatry*, 8: 178-180





# **Chapter 6**

## **Predictors of impaired work functioning in employees remitted from major depression**

Gabe de Vries, Maarten WJ Koeter, Karen Nieuwenhuijsen, Hiske L Hees, Aart H Schene  
Journal of Affective Disorders, 2015; 185: 180–187

## **Abstract**

### ***Objectives***

This study aims to (i) assess work functioning in employees returning to work with a major depression in remission, (ii) study the predictors of impaired work functioning.

### ***Methods***

Participants diagnosed with major depressive disorder (MDD), on long term sick leave (mean 27 weeks) and treated in a specialized mental healthcare setting, were selected from an intervention study sample. They were eligible for this study if they were remitted from their depression and had returned to work for at least 50% of their contract hours at 18-month follow-up. Work functioning was assessed with the Work Limitations Questionnaire (WLQ) and the Need For Recovery scale (NFR). Potential predictors of impaired work functioning were demographic characteristics (assessed at baseline), health characteristics (assessed at baseline, six- and twelve-month follow-up), and personality- and work characteristics (assessed at eighteen-month follow-up).

### ***Results***

After their return to work with MDD in remission, employees were on average still impaired in their work functioning. Personality characteristics were the strongest predictor of this impaired work functioning, followed by health and work characteristics. In the final prediction model, only a passive reaction coping style remained as predictor.

### ***Limitations***

We used self-report data with respect to work functioning and work characteristics and not an assessment by a supervisor.

### ***Conclusions***

Personality trait, coping style, and ability to manage the work environment should be addressed

in mental health and return-to-work interventions. Subsequent improved work functioning may be beneficial for mental health and may reduce societal costs.

## **Introduction**

Major depression (MDD) is a prevalent mental health problem in the working population (Kessler et al., 2008; Blackmore et al., 2007) which can have important adverse effects on employee's work performance, both due to reduced work functioning and frequent or long-term absenteeism (Lépine and Briley, 2011; McIntyre et al., 2011; Lerner and Henke, 2008). Over the past two decades, interest in reduced functioning has increased because of the great financial consequences for society, which have now been calculated in more detail (de Graaf et al., 2012; Goetzl et al., 2004; Stewart et al., 2003). These economic consequences are also referred to as the hidden costs of MDD (McIntyre et al., 2011).

Treatment and subsequent symptomatic improvement may improve work functioning (Dewa et al., 2011; Lagerveld et al., 2010). However, other studies show that even after achieving remission from depression, impaired work functioning may still persist (Trivedi, 2013; Lerner and Henke, 2008; Gilmour and Patten, 2007). Studies that examine the relationship between depression and return to work (RTW) in more detail, including intervention studies that consider work functioning as an outcome measure are scarce (Nieuwenhuijsen et al., 2014; Lagerveld et al., 2010). To our knowledge none examined the limitations in work functioning in employees with MDD in remission, a phenomenon known as presenteeism (Koopman et al., 2002).

Work functioning refers to the capacity of an individual employee to adequately meet work responsibilities (Boezeman et al., 2015; Abma et al., 2012; Lerner et al., 2010). Impaired work functioning refers to the experienced work limitations by an individual worker (Abma et al., 2012; Lerner et al., 2010). Alongside experienced work limitations, workers with MDD may be able to achieve normal productivity, but this may require elevated physiological and / or psychological effort (Dewa and Lin, 2000). This extra effort results in an elevated and excessive need for recovery from work after work hours. This need for recovery can be distinguished from the fatigue we know as a

symptom of depression; the latter is a generic feeling that does not only occur at the end of a working day and is often more severe in the morning. Therefore, it seems important to use a definition of work functioning that not only includes work limitations, but also takes the need for recovery into account.

Literature, discusses several reasons as to why employees who are in remission from their MDD may still experience reduced work functioning. First, residual symptoms of a depressive episode that persist over time may result in impaired work functioning (Spijker et al., 2004). Second, reduced work functioning, which increases during MDD, may return to its premorbid but already impaired level after remission (Ormel et al., 2004). Finally, exposure to (renewed) work stress in combination with residual symptoms or impaired premorbid work functioning may lead to additional work limitations (Lerner et al., 2010; Wang et al., 2010; Gilmour and Patten, 2007).

In addition to RTW, sustained RTW or return to work in good health (MDD in remission) may be relevant outcomes both from a health and an economic perspective. This holds in particular for MDD, because of its long-term course with different levels of residual or subclinical symptoms, a high rate of recurrence (ten Doeschate et al., 2010; Hardeveld et al. 2010) and sickness absence (Endo et al., 2012). However, studies focusing on these outcomes are scarce (Hees et al., 2013; Hees et al., 2012; Virtanen et al., 2011; Arends et al., 2014). Moreover, previous studies on the relationship between depression and work functioning did not distinguish between patients with MDD and patients with MDD in remission, or only focused on a specific category of predictors (e.g. illness characteristics or work characteristics) (Trivedi et al., 2013; Lerner et al., 2012; Lerner et al., 2010; Lagerveld et al., 2010).

In the present study, we investigated a sample of employees that were in good health, which means in remission after being adequately treated for MDD, and on RTW for at least 50%. We assessed their level of work functioning and aimed to predict this level by variables across four different categories; socio-demographic, clinical, personal, and work-characteristics.



## Method

### *Participants*

Data were obtained from patients that participated in a randomized controlled study on the effectiveness of adding occupational therapy intervention to regular outpatient clinical care, for sick-listed employees with MDD (n=117) (Hees et al., 2010; Hees et al., 2013). This study was approved by the medical ethics committee of the Academic Medical Center in Amsterdam, the Netherlands (MEC 06/285) and registered with the Dutch Trial Register (NTR2057). Written informed consent was obtained from all participants in the study.

Participants were eligible for this study if they were aged 18-65 years, diagnosed with MDD according to DSM-IV criteria, and were absent from work in relation to MDD for at least 25% of their contract hours. In addition, the duration of MDD had to be at least three months or the duration of sickness absence had to be at least eight weeks, in order to ensure that only those with a more severe and non-self-limiting type of MDD were included. Participants with a diagnosis of alcohol or drug dependence, bipolar disorder, psychotic disorder, depression with psychotic characteristics, or an indication for inpatient treatment were excluded from the study. Participants were referred by occupational physicians from several occupational health services in the Amsterdam area. They received treatment as usual (TAU) or treatment as usual plus occupational therapy (TAU + OT). Participants had four assessments: at baseline and at 6-, 12- and 18- month follow-up.

For the present study participants were eligible if (a) at 18-month follow-up MDD was in remission as defined by a score  $\leq 7$  on the Hamilton Rating Scale for Depression (HRSD) and (b) at 18-month follow-up they were at work for at least 50% of their contract hours. In total, 68 participants fulfilled these criteria and were included in the current analysis.

### *Dependent variables*

Work functioning in this study refers to the experienced work limitations, assessed with the Work Limitation Questionnaire (WLQ, Lerner et al., 2001) and the need for recovery, assessed with the Need For Recovery scale (NFR, van Veldhoven and Broersen, 2003). Both were assessed at 18-month follow-up.

The WLQ is a validated self-report questionnaire to assess the impact of health problems, including depression, at-work performance and productivity (Lerner et al., 2001; Lerner et al., 2003). The WLQ has four scales that cover dimensions of performance: (1) time management (e.g. performing required hours), (2) physical tasks (e.g. ability to perform required sitting or standing period of time), (3) mental-interpersonal tasks (e.g. ability to concentrate and support colleagues), and (4) output tasks (e.g., handling the workload and finishing work on time). Scale scores range from 0% (limited none of the time) to 100% (limited all of the time). The index score is the weighted sum of the four scale scores, with a range from 0 (no limitations) to 28.6 (limited all of the time). The WLQ has good reliability (Cronbach  $\alpha$  for all sub scales  $\geq 0.84$ ) and concurrent validity (Lerner et al., 2001).

The NFR scale items assess fatigue effects of work-induced efforts and is a subscale of the Dutch Questionnaire on the Experience and Evaluation of Work (Dutch abbreviation: VBBA; van Veldhoven et al., 2002). The concept covered by the NFR scale has been deduced from the effort-recuperation model by Meijman and Mulder (1998) and refers to the extent of necessary recuperation from work-induced effort. The NFR scale comprises 11 dichotomous items assessing the occurrence of temporary feelings of overload, irritability, social withdrawal, lack of energy and reduced performance. Because participants were asked to answer the questions with respect to a regular working day, it is believed to measure the actual effect of work on the respondent representing a different underlying concept (Jansen et al, 2002). The NFR total score ranges between 0-100 with a higher score referring to an increased need for recovery. The NFR scale has good reliability (Cronbach  $\alpha=0.88$ ) and concurrent validity (van Veldhoven and Broersen, 2003).

### ***Potential predictors***

Based on previous research (Merril et al., 2012; Verboom et al., 2011; Cocker et al., 2011; Lagerveld et al., 2010; Wang et al., 2010; Lerner et al., 2010) potential predictors were categorized into four categories: demographic, clinical, personality and work characteristics (Table 1).

#### *Demographic characteristics*

Socio-demographic characteristics included gender, age, marital status (living alone /together) highest education level completed (medium / high) and income. Medium educational level was defined as primary school, lower vocational education, lower secondary school, intermediate vocational education and upper secondary school; and high educational level as university applied sciences or university.

#### *Clinical characteristics*

Depression severity assessed at baseline, 6-, and 12-month follow-up, with the Hamilton Rating Scale for Depression (HRSD), a semi-structured clinical interview (Hamilton, 1960). A total score  $\leq 7$  is qualified as 'remitted', 8–13 as 'mild', 14–18 as 'moderate', 19–22 as 'severe' and  $\geq 23$  as 'very severe'. The number of depressive episodes and presence of a co-morbid anxiety disorder were assessed with the Structured Clinical Interview for DSM-IV Axis-I (SCID-I; First et al., 1997) during the psychiatric intake at baseline.

#### *Personality characteristics*

Personality characteristics include personality traits and coping style. Neuroticism, conscientiousness and extraversion personality traits were assessed at 18-month follow-up with the Dutch version of the NEO-Five Factor Inventory (NEO-FFI; Hoekstra et al., 1996; Costa and McCrae, 1992). To reduce the possibility that the assessment of personality characteristics was biased by symptoms of depression (Renner et al., 2013; Karsten et al., 2012), we used 18-month follow-up score. NEO-FFI items are 5-point Likert items ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating a more pronounced personality trait. The total

score for each personality dimension is the sum of the 12 item scores comprising that scale. The used NEO-FFI scales have good internal reliability (Cronbach's  $\alpha=0.84 - 0.96$ , studied in Dutch population) and satisfactory to excellent construct validity in the general population samples (Hoekstra et al., 1996).

Coping with work situations was assessed at 18 month follow-up, with an adapted version of the Utrecht Coping List (UCL). In contrast to the 'regular' UCL that refers to the way a person copes in general, the adapted version refers to coping with work-related problems. In line with the personality assessment, we used the 18-month follow-up scores in order to prevent bias by symptoms of depression. We used three UCL-subcales: 'Active problem focusing' (seven items; e.g., being goal-directed, thinking of several solutions to a problem), 'Avoidance behavior' (eight items; e.g., withdrawing from problematic situations, accepting the state of affairs), and 'Passive reaction' (seven items; e.g., problems overwhelm me, problems tend to make me pessimistic). All items were rated on a four-point scale, ranging from 1 ('seldom or never') to 4 ('very frequently'). A high score means that the employee frequently uses that coping style. According to the test manual, the scales we used of the 'regular' UCL have satisfactory reliability (Cronbach's  $\alpha 0.64-0.82$ ) and predictive and concurrent validity (Schreurs et al., 1993).

### *Work characteristics*

Work characteristics were assessed at 18-month follow-up with subscales of the Dutch Questionnaire on the Experience and Evaluation of Work (Dutch abbreviation: VBBA, van Veldhoven et al., 2002). We used the subscales workload (11 items), decision latitude (8 items), autonomy (11 items), supervisor support (9 items), co-worker support (9 items) and job insecurity (4 items). All subscale scores were transformed to the same range with a minimum score of 0 and a maximum score of 100, with higher scale scores indicating less favorable working characteristics. VBBA subscales used in this study, have good reliability (Cronbach's  $\alpha=0.85-0.95$ ) and concurrent validity (van Veldhoven et al., 2002).

## *Statistical analysis*

We used multiple imputation (5 imputed datasets) to adjust for potential selection bias caused by selective loss to follow-up. Effect estimates (regression coefficients and standard error) of the five imputation sets were pooled using Rubin's rules (Enders, 2010). Under the assumption that the data are missing at random (MAR), this results in unbiased or less biased effect estimates and standard errors. All analyses were conducted with SPSS for windows, version 22.

The relationship between our outcomes (work limitations and need for recovery) and the selected predictors were assessed with a separate multiple linear regression analysis for each outcome. To take into account the fact that three quarters of our participants' sample had also received an occupational therapy (OT) intervention, we first assessed for each predictor whether OT had a modifying effect on the relationship between the predictor and outcome variables (i.e. work limitations and need for recovery) with a two-way treatment x predictor interaction. If the relationship was modified by OT ( $p$  interaction  $\leq 0.05$ ), the treatment x predictor interaction term was retained in the logistic regression analyses, which meant a separate effect estimate was calculated for the control and experimental condition.

To study the strength of the association between our predictors and the two dependent variables (work limitations, need for recovery), we used a three step procedure proposed by Hosmer and Lemeshow (1989). First, for each predictor, a separate univariate linear regression analysis was conducted for each dependent variable: work limitations and need for recovery. All predictors with  $p \leq 0.20$  were selected for the second step. In the second step, for each category, all predictors selected in the first step were entered in a multiple linear regression model. A backward elimination strategy was used to achieve the most parsimonious model within each category using a significance threshold of  $p \leq 0.01$ . In the final step, the remaining predictors of all categories were combined in a multiple linear regression model. Comparable to step 2, a backward elimination strategy was used to achieve the most parsimonious model using a significance threshold of  $p \leq 0.01$ . In case of interaction terms, the main effects were only removed after the interaction term was removed. When an interaction term remained in the model, so were its constituting main effects, irrespective of their p-values.

In addition to this three step procedure the multiple  $R^2$  for each outcome variable of the full model for each category was calculated in step 2 and the multiple  $R^2$  for each outcome variable of the final model was calculated in step 3. Confidence intervals were calculated with a statistical confidence interval calculator (<http://www.danielsoper.com/statcalc3/calc.aspx?id=28>, Cohen et al., 2003).

## Results

### *Sample characteristics*

At baseline, the mean age of the participants was 43.5 (SD 9.5), 55% were male and 56% were married / living together. Also at baseline (not presented), participants had a mean number of contract hours of 34.4 per week (SD 5.1) and experienced on average 26.8 hours of sickness absence per week (SD 9.8), which was about 78% of their contract hours, and on sickness absence between 3 and 143 weeks with a median value of 17 weeks. At 18-month- follow-up, mean sickness absence was reduced to 8% (mean 2.7 hours, SD 6.0), accounting for a mean RTW of 92% of their original contract hours. At that point they reported a mean work limitation score of 7.2 (SD 4.0) and a mean need for recovery score of 40.0 (SD 29.9) (Table 1). In addition, half of the participants (50%) reported a need for recovery score above 45, indicating an increased need for recovery, and one third (32%) of participants reported a need for recovery score above 54, indicating an increased risk for occupational and health problems.

### *Predictors of work limitations*

The univariate analysis (step 1, Table 2) resulted in ten predictors with p-values  $<0.01$ ; one demographic predictor (education level), two clinical predictors (depression severity at 6- and at 12-month follow-up), five personality predictors (neuroticism, conscientiousness, extraversion, active problem solving and passive reaction), and two work predictors (decision latitude and autonomy). The significant predictor x OT treatment interaction indicates that the effect of education level, conscientiousness, and autonomy on the level of impaired work limitation was modified by OT treatment. For employees in the treatment as usual group, being higher educated

( $b=-4.79$ ,  $se(b)=1.80$ ,  $p=0.008$ ), having higher conscientiousness personality trait ( $b=-0.62$ ,  $se(b)=0.20$ ,  $p=0.002$ ), and experiencing more autonomy ( $b=0.18$ ,  $se(b)=0.06$ ,  $p=0.004$ ), are predictors for less impairment by work limitations.

The level of impaired work limitations was best explained by personality characteristics ( $R^2=0.39$ , 95% CI=0.23- 0.554) followed by health characteristics ( $R^2=0.24$ , 95% CI=0.07- 0.40), demographic characteristics ( $R^2=0.06$ ; 95% CI= 0-0.16) and work characteristics ( $R^2=0.06$ ; 95%CI= 0-0.16). Within each group of predictors, linear regression analysis with backward elimination (step 2) resulted in one clinical predictor (depression severity at 12 months) and one personality predictor (passive reaction coping style at 18 months).

The final step, using the remaining predictors of step 2 resulted in a final prediction model for work limitations with a passive reaction coping style remaining as predictor ( $b=0.66$ ,  $se(b)=0.16$ ,  $p<0.001$ ), which explained 21,4% of the variance of work limitation at 18 months (95% CI  $R^2=0.05-0.39$ ).

### ***Predictors of need for recovery***

The univariate analysis (step 1; Table 3) resulted in 4 potential predictors with a p-value  $<0.01$ ; two clinical predictors (depression severity at 6 and 12 months) and two personality predictors (extraversion and passive reaction).

The level of impaired need for recovery was best explained by personal characteristics ( $R^2=0.36$ ; 95% CI=0.20-0.53) followed by health characteristics ( $R^2=0.26$ , 95% CI=0.09-0.42), work characteristics ( $R^2=0.11$ , 95% CI=0-0.24) and demographic characteristics ( $R^2=<0.02$ , 95% CI=0-0.07). Backward elimination in multivariate analysis of each group of predictors (step 2) resulted in two predictors for need for recovery: severity of depression at 12 months and a passive reaction coping style. The final step, using the former predictors, resulted in a final prediction model for need for recovery, with one predictor, passive reaction coping style ( $b=6.25$ ,  $se(b)=1.16$ ,  $p<0.001$ ), which explained 26.0% of the variance of need for recovery at 18 months (95% CI= 0.10-0.43).

**Table 1. Potential predictors assessed in the present study (n=68)**

<b>Dependent variables at 18 months FU</b>		<b>Reference value</b>
Work limitations (WLQ ) mean (SD)	7.2 (4.0)	
Need for recovery (VBBA) mean (SD)	40.0 (29.9)	25.3 <sup>a</sup>
<b>Independent variables</b>		
Demographic characteristics at BL		
Gender, male (%)	55	
Age	43.5 (9.5)	
Marital status, living together (%)	56	
Educations level, high (%)	41	
Monthly net income (Euro)	2368 (1008)	
Clinical characteristics		
Depression severity (HRSD, mean (SD)) BL	17.5 (4.4)	
6 months FU	9.2 (5.1)	
12 months FU	4.4 (4.6)	
Previous depressive episodes (% >1) BL	50	
Comorbid anxiety disorder (% yes) BL	21	
Personality characteristics at 18 months FU, mean (SD)		
Neuroticism (Neo-FFI)	33.2 (7.5)	31.1 (8.2) <sup>b</sup>
Conscientiousness (Neo-FFI)	44.3 (4.5)	45.3 (5.6) <sup>b</sup>
Extraversion (Neo-FFI)	37.3 (6.1)	40.1 (6.6) <sup>b</sup>
Active problem solving (UCL)	19.1 (3.4)	15-20 <sup>c</sup>
Avoidance behavior (UCL)	16.2 (3.2)	12-17 <sup>c</sup>
Passive reaction (UCL)	11.9 (2.7)	9-12 <sup>c</sup>
Work characteristics at 18 months FU, mean (SD)		
Workload (VBBA)	36.1 (12.7)	42.6 <sup>a</sup>
Decision latitude (VBBA)	51.2 (19.5)	46.6 <sup>a</sup>
Autonomy (VBBA)	36.4 (18.1)	42.0 <sup>a</sup>
Co-worker support (VBBA)	22.4 (12.6)	21.2 <sup>a</sup>
Supervisor support (VBBA)	21.6 (16.0)	21.1 <sup>a</sup>
Job insecurity (VBBA)	34.6 (28.0)	29.7 <sup>a</sup>

<sup>a</sup> Average score for a sample of 97.123 Dutch employees

<sup>b</sup> Average score for the general Dutch population (sample of 2415 participants)

<sup>c</sup> Average score for male employees at Dutch railway company (sample of 1493 employees)

Abbreviations: ; BL=baseline; FU=follow up; HRSD=Hamilton Rating Scale for Depression; NEO-FFI= NEO Five-Factor Inventory; UCL= Utrecht Coping List; VBBA=Questionnaire on the Experience and Evaluation of Work; WLQ = Work Limitations Questionnaire



**Table2. Predictors for work limitations at 18 months follow up**

Predictors	Step 1		Step 2		Step 3	
	Univariate regression		Multiple regression by cluster <sup>a</sup>		Multiple regression final model <sup>b</sup>	
	B (SE)	P	B (SE)	P	B (SE)	P
<b>Demographics (BL)</b>						
Age	-0.01 (0.05)	0.806				
Gender, male	-0.087 (0.99)	0.378				
Marital status, living together	-1.60 (0.96)	0.096	-			
Education level, high		0.047 <sup>c</sup>				
Education level in TAU	-4.79 (1.80)	0.008	-			
Education level in TAU+OT	-0.63 (1.07)	0.556				
Income	-0.00 (0.00)	0.803				
<b>Health characteristics</b>						
Depression severity (HDRS) BL	0.11 (0.11)	0.312				
6 months FU	0.25 (0.08)	0.002	-			
12 months FU	0.35 (0.10)	<0.001	0.35 (0.09)	<0.001	-	
Previous depressive episode (>1)	-0.14 (0.24)	0.558				
Comorbid anxiety disorder BL	1.49 (1.16)	0.198	-			
<b>Personality characteristics (18 months FU)</b>						
Neuroticism (NEO-FFI)	0.21 (0.06)	0.001	-			
Conscientiousness (NEO-FFI)		0.029 <sup>c</sup>				
Conscientiousness in TAU	-0.62 (0.20)	0.002	-			
Conscientiousness in TAU+OT	-0.12 (0.13)	0.387				
Extroversion (NEO-FFI)	-0.24 (0.07)	0.001	-			
Avoidance (UCL)	0.20 (0.15)	0.198	-			
Active problem solving (UCL)	-0.47 (0.13)	<0.001	-			
Passive reaction (UCL)	0.66 (0.16)	<0.001	0.66 (0.16)	<0.001	0.66 (0.16)	<0.001
<b>Work characteristics (VBBA, 18 months FU)</b>						
Work pace and workload	0.08 (0.04)	0.051	-			
Decision latitude	0.07 (0.02)	0.003	-			
Autonomy		0.013 <sup>c</sup>				
Autonomy in TAU	0.18 (0.06)	0.004	-			
Autonomy in TAU+OT	0.01 (0.03)	0.647				
Relation with colleagues	0.05 (0.04)	0.188	-			
Relation with supervisor	0.07 (0.03)	0.027	-			
Job insecurity	-0.04 (0.02)	0.017	-			

a. Only predictors with a univariate P < 0.20 are included in the multiple regression analyses

b. Backward elimination with only predictors P < 0.01

c. Interaction effect P < 0.05

Abbreviations: BL=baseline; FU=follow up; HRSD=Hamilton Rating Scale for Depression; NEO-FFI= NEO Five-Factor Inventory; UCL= Utrecht Coping List; VBBA=Questionnaire on the Experience and Evaluation of Work  
R<sup>2</sup> demographic=0.063; R<sup>2</sup> health characteristics=0.235; R<sup>2</sup> personal characteristics=0.391; R<sup>2</sup> work characteristics=0.062; R<sup>2</sup> final model=0.214

**Table3. Predictors for need for recovery at 18 months follow up**

Predictors	Step 1 Univariate regression		Step 2 Multiple regression by cluster <sup>a</sup>		Step 3 Multiple regression final model <sup>b</sup>	
	B (SE)	P	B (SE)	P	B (SE)	P
<b>Demographic characteristics BL</b>						
Age	0.02 (0.38)	0.951				
Gender, male	-0.51 (7.18)	0.943				
Marital status, living together	-9.17 (7.11)	0.197	-			
Education level, high	-9.30 (7.14)	0.193	-			
Income	0.01 (0.01)	0.262				
<b>Health characteristics</b>						
Depression severity (HRSD) BL	1.01 (0.80)	0.169	-			
6 months FU	1.57 (0.59)	0.008	-			
12 months FU	2.42 (0.72)	0.001	2.42 (0.71)	0.001		-
Previous depressive episode (>1) BL	3.12 (1.73)	0.071	-			
Comorbid anxiety disorder BL	-6.92 (8.58)	0.420				
<b>Personality characteristics (18 months FU)</b>						
Neuroticism (NEO-FFI)	1.57 (0.45)	0.147	-			
Conscientiousness (NEO-FFI)	-0.94 (0.80)	0.239				
Extroversion (NEO-FFI)	-1.60 (0.54)	0.003	-			
Avoidance (UCL) <sup>a</sup>	2.57 (1.14)	0.024	-			
Active problem solving (UCL)	-2.02 (1.07)	0.059	-			
Passive reaction (UCL)	6.25 (1.17)	<0.001	6.25 (1.16)	<0.001	6.25 (1.16)	<0.001
<b>Work characteristics (VBBA, 18 months FU)</b>						
Work pace and workload	0.42 (0.29)	0.147	-			
Decision latitude	0.27 (0.19)	0.147	-			
Autonomy	0.23 (0.20)	0.267				
Relation with colleagues	-0.24 (0.29)	0.410				
Relation with supervisor	-0.08 (0.23)	0.734				
Job insecurity	-0.01 (0.13)	0.977				

a. Only predictors with  $P < 0.20$  in step 1 are included in multiple regression analyses

b. Backward elimination with only predictors  $P < 0.01$

Abbreviations: ; BL=baseline; FU=follow up; HRSD=Hamilton Rating Scale for Depression; NEO-FFI= NEO Five-Factor Inventory; UCL= Utrecht Coping List; VBBA=Questionnaire on the Experience and Evaluation of Work

$R^2$  demographic=0.016;  $R^2$  health characteristics=0.255;  $R^2$  personal characteristics=0.362;  $R^2$  work characteristics=0.112;

$R^2$  final model=0.260

## Discussion

We studied work functioning (work limitations and need for recovery) among 68 employees who had been treated for MDD in specialized mental health care after a prolonged period of absenteeism (mean 27 weeks,  $SD=27$ ). Eighteen months after starting treatment, they had all reached symptomatic remission and reached a RTW with a mean of 92% ( $SD=14$ ) of their original contract hours. At that point, participants still showed impaired work functioning. Work limitations and need for recovery were elevated, compared to healthy controls. Health- (MDD symptom severity at 6 and 12 months FU), personality- (neuroticism, conscientiousness, extraversion, active problem solving, passive reaction), and work characteristics (work pace and workload, decision latitude, autonomy, relations with supervisor and job insecurity) predicted elevated work limitations. Health- and personality characteristics predicted also elevated need for recovery, but not work characteristics. For both, personality characteristics were the strongest predictors. In the final prediction model, a passive reaction coping style predicted both aspects of impaired work functioning (work limitations and need for recovery).

Findings indicate that employees with depression in remission still show signs of impaired work functioning, i.e. elevated work limitations and need for recovery. Elevated work limitations at 18-month follow-up in our study ( $WLQ=7.2$ ) are comparable with findings of Lerner et al., (2010) at 18-month follow-up ( $WLQ=6.7$ ) among employees diagnosed with MDD, and those were substantially higher compared to healthy controls in that study ( $WLQ=2.2$ ). Mean need for recovery ( $NFR=40.2$ ) was also elevated compared to the benchmark of a general population of Dutch employees ( $NFR=25.0$ ; SKB, 2012) and a validity study of the NFR scale ( $NFR=27.3$ ,  $SD=29.6$ , van Veldhoven and Broersen, 2003), and slightly elevated compared to findings in a cohort study of a general population with Dutch employees ( $NFR=36.0$ ,  $SD=26.0$ , Mohren et al., 2010). Furthermore, half of the participants in our study had a score above 45, which is the first cut-off point indicating a higher than average need for recovery and a need for effective prevention strategies. One third reached above the second cut-off point, indicating an increased risk of absenteeism, (mental) health problems and accidents at work (Boschman et al., 2012; Kiss

et al., 2008; Swaen et al., 2003; van Amelsvoort et al., 2003; Croon et al., 2003; Janssen et al., 2003; van Veldhoven and Broersen, 2003; Sluiter et al., 2003) meaning that additional support is recommended.

The influence of personality characteristics (personality trait and coping style) on work functioning is supported by other studies among employees with depression. In these studies personality characteristics (neuroticism, openness and conscientiousness) were associated with impaired work functioning (Verboom et al., 2011) and coping (believing that depressive symptoms are caused by factors outside of their control) with impaired general functioning (Brown et al. 2007). Personality characteristics (neuroticism, external locus of control and lower self-esteem) were also more important than having a mental disorder (mood disorder, anxiety disorder and substance-use disorder) in predicting work functioning in a general Dutch population (Michon et al., 2008). Personality (neuroticism) was also the most important predictor for impaired social functioning among respondents in the Dutch general population who met criteria for MDD at baseline, but whose MDD remitted within the three-year follow-up (Rhebergen et al., 2010). Although this literature refers to different types of functioning (work functioning, functioning in general and social functioning), impaired general functioning and social functioning may also affect work functioning. Personality can thus be considered an important predictor for work functioning among employees who have suffered from MDD.

Work characteristics were found to affect the incidence of depression (Bonde, 2008; Netterstrom et al., 2008) and may therefore influence subsequent work functioning. Our results suggest however that these work characteristics may be less important in explaining impaired work functioning among employees in remission from MDD than expected. The importance of other characteristics above work characteristics on work function is supported by other studies reporting that health characteristics (severity of MDD symptoms) are more important in predicting impaired work functioning than work characteristics (Lerner et al., 2010; Wang et al., 2010). Over an 18-month follow-up period, improvements in work functioning are predicted by a decrease in MDD symptom severity but not by changes in work demands (Lerner et al., 2010). In a study

among chronically ill workers, including employees with MDD, fatigue at work, a concept that is comparable to need for recovery, is affected less by work characteristics compared to workers without a chronic illness (Donders et al., 2007). Our findings underline that while work characteristics may have an effect on work functioning, this effect seems to be less important than other characteristics correlating to the chronic course of depression, i.e. residual symptoms or premorbid vulnerability.

Impaired work-functioning may be in particular related to personality characteristics that may have already been present before MDD started, and therefore support the hypothesis of pre-morbid vulnerability. Residual symptoms may add to this impact, as we saw that depression severity at six and twelve months influenced work functioning. To improve work functioning, mental healthcare should address these personality traits and coping style aiming to improve the ability to manage the work environment. In addition, the occupational physician, supervisor and / or RTW coordinator should address the employees' ability in managing his work environment, in particular among employees with a passive reaction coping style.

Finally, impaired work functioning may be a predictor of the recurrence of MDD, as Solomon et al. (2004) stated that psychosocial impairment (work, interpersonal relations, recreation and overall satisfaction), a concept related to impaired work functioning, predicts recurrence of MDD. Improvement of work functioning might therefore be a relevant outcome from both a health and economic perspective, in particular due to the high recurrence rates of MDD and subsequent sickness absence (Hardeveld et al., 2010; Endo et al., 2012).

An asset of this study is that we assessed work functioning among employees with MDD in remission, which has not been done before. Diagnosis and depression severity was determined by well-trained psychiatrists and we assessed possible explanatory factors in multiple categories. There are also some limitations that need to be considered. Apart from psychopathology, we used mainly self-report data. Self-report data may be confounded with other variables. For instance a neurotic person might perceive his or her level of work functioning to be lower than it actually is.

This may have biased our effect estimate of neuroticism on work functioning upwards. This study included employees on part-time and full-time RTW. Employees on part-time RTW may still suffer from residual depressive symptoms, as they have not reached full time RTW yet, which may influence results. However additional analysis among employees who have returned to full time work only (data not presented), resulted in the same predictors. Finally, other modifiable predictors not included in the current study may also have influenced work functioning, such as stigma (Jenkins and Carpenter-Song, 2009), difficulty in re-establishing good work habits (Noordik et al., 2011), or organizational barriers to modify work arrangements.

This study revealed that employees, although fully recovered from depression, still may show impaired work functioning, affected by a passive reaction coping style. Further research should examine if professional support, focusing on these issues, indeed improves work functioning. Moreover future studies should investigate whether improvements in work functioning prevent recurrences of MDD and sickness absence, and may therefore be identified as a relevant outcome for sustained return to work.

## **Funding**

This study was financially supported by the Netherlands Foundation for Mental Health (Fonds Psychische Gezondheid) (grant no. 20035713) and the National Institute for Patient Benefit Schemes (UWV) (grant no. 5002002). These funders had no further role in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication.

## **Acknowledgment**

We thank SKB for sharing their benchmark reference values regarding the Questionnaire on the Experience and Evaluation of Work.

## References

- Abma FI, Klink JJ van der, Terwee CB, Amick BC, Bültmann U, (2012). Evaluation of the measurement properties of self-reported health-related workfunctioning instruments among workers with common mental disorders. *Scand J Work Environ Health*, 38 (1): 5–18.
- Amelsvoort LG van, Kant IJ, Bültmann U, Swaen GM, (2003). Need for recovery after work and the subsequent risk of cardiovascular disease in a working population. *Occup Environ Med*, 60 (Suppl 1): i83–i87.
- Arends I, van der Klink JJ, van Rhenen W, de Boer MR, Bültmann U, (2014). Predictors of recurrent sickness absence among workers having returned to work after sickness absence due to common mental disorders. *Scand J Work Environ Health*, 40 (2): 195–202.
- Benchmark VBBA 1.0 (2005–2009), (2012). Amsterdam: SKB.
- Blackmore ER, Stansfeld SA, Weller I, Munce S, Zagorski BM, Stewart DE, (2007). Major depressive episodes and work stress: results from a national population survey. *Am J Public Health*, 97 (11): 2088–2093.
- Boezeman EJ, Nieuwenhuijsen K, de Bekker-Grob EW, Akker-van Marle ME van den, Sluiter JK, (2015). The relative importance of the domains of work functioning: evaluations of health-impaired employees, healthy employees and employers. *J Occup Environ Med*, 57 (4): 361–366.
- Bonde JP, (2008). Psychosocial factors at work and risk of depression: a systematic review of the epidemiological evidence. *Occup Environ Med*, 65: 438–445.
- Boschman JS, Molen HF van der, Frings-Dresen MH, Sluiter JK, (2012). The impact of common mental disorders on work ability in mentally and physically demanding construction work. *Int Arch Occup Environ Health*, 87 (1): 51–59.
- Brown C, Battista DR, Sereika SM, Bruehlman RD, Dunbar-Jacob J, Thase ME, (2007). Primary care patients' personal illness models for depression: relationship to coping behavior and functional disability. *Gen Hosp Psychiatry*, 29 (6): 492–500.
- Cocker F, Martin A, Scott J, Venn A, Otahal P, Sanderson K, (2011). Factors associated with presenteeism among employed Australian adults reporting lifetime major depression with 12-month symptoms. *J Affect Disord*, 135 (1–3): 231–240.
- Cohen J, Cohen P, West SG, Aiken LS, (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, 3rd edition. New York: Lawrence Earlbaum Associates.
- Costa PT, McCrae RR, (1992). *NEO-PI-R Professional Manual: Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI)*. Florida: Psychological Assessment Resources.
- Croon EM de, Sluiter JK, Frings-Dresen MH, (2003). Need for recovery after work predicts sickness absence: a 2-year prospective cohort study in truck drivers. *J Psychosom Res*, 55: 331–339.

- Dewa CS, Lin E, (2000). Chronic physical illness, psychiatric disorder and disability in the workplace. *Soc Sci Med* 51 (1): 41–50.
- Dewa CS, Thompson AH, Jacobs P, (2011). The association of treatment of depressive episodes and work productivity. *Can J Psychiatry*, 56 (12): 743–750.
- Doesschate MC ten, Bockting CL, Koeter MW, Schene AH, DELTA Study Group, (2010). Prediction of recurrence in recurrent depression: a 5.5-year prospective study. *J Clin Psychiatry*, 71 (8): 984–991.
- Donders NC, Roskes K, Gulden JW van der, (2007). Fatigue, emotional exhaustion and perceived health complaints associated with work-related characteristics in employees with and without chronic diseases. *Int Arch Occup Environ Health*, 80 (7): 577–587.
- Enders CK, (2010). *Applied Missing Data Analysis*, 1st ed. New York: Guildford Press.
- Endo M, Haruyama Y, Muto T, Yuhara M, Asada K, Kato R, (2012). Recurrence of sickness absence due to depression after returning to work at a Japanese IT company. *Ind Health*, 51 (2): 165–171.
- First MB, Spitzer RL, Gibbon M, Williams JBW, (1997). *Structured Clinical Interview for DSM IV-Axis I Disorders (SCID I)*. New York: Biometric Research Department.
- Gilmour H, Patten SB, (2007). Depression and work impairment. *Health Rep*, 18 (1): 9–22.
- Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W, (2004). Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. *J Occup Environ Med*, 46 (4): 398–412.
- de Graaf R, Tuithof M, van Dorsselaer S, Have M ten, (2012). Comparing the effects on work performance of mental and physical disorders. *Soc Psychiatry Psychiatr Epidemiol*, 47 (11): 1873–1883.
- Hamilton M, (1960). A rating scale for depression. *J Neurol Neurosurg Psychiatry*, 23: 56–62.
- Hardeveld F, Spijker J, Graaf R de, Nolen WA, Beekman AT, (2010). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta Psychiatr Scand* 122 (3): 184–191.
- Hees HL, Koeter MW, Schene AH, (2012). Predictors of long-term return to work and symptom remission in sick-listed patients with major depression. *J Clin Psychiatry*, 73 (8): e1048–e1055.
- Hees HL, Vries G de, Koeter MW, Schene AH, (2013). Adjuvant occupational therapy improves long-term depression recovery and return-to-work in good health in sick-listed employees with major depression: results of a randomized controlled trial. *Occup Environ Med*, 70 (4): 252–260.



- Hees HL, Koeter MW, Vries G de., Ooteman W, Schene AH, (2010). Effectiveness of adjuvant occupational therapy in employees with depression: design of a randomized controlled trial. *BMC Public Health*, 17 (10): 558.
- Hoekstra HA, Ormel J, Fruyt F de, (1996). Dutch Manual of NEO-PI-R & NEO-FFI. Lisse, The Netherlands: Swets & Zeitlinger.
- Hosmer DW, Lemeshow S, (1989). *Applied Logistic Regression*. Wiley Series in Probability and Mathematical Statistics London. UK: John Wiley and Sons.
- Jansen NW, Kant IJ, van den Brandt PA, (2002). Need for recovery in the working population: description and associations with fatigue and psychological distress. *Int J Behav Med*, 9 (4): 322–340.
- Janssen N, Kant IJ, Swaen GM, Janssen PP, Schröer CA, (2003). Fatigue as a predictor of sickness absence: results from the Maastricht cohort study on fatigue at work. *Occup Environ Med*, 60 (Suppl 1): i71–i76.
- Jenkins JH, Carpenter-Song EA, (2009). Awareness of stigma among persons with schizophrenia: marking the contexts of lived experience. *J Nerv Ment Dis* 197 (7): 520–529.
- Karsten J, Penninx BW, Riese H, Ormel J, Nolen WA, Hartman CA, (2012). The state effect of depressive and anxiety disorders on big five personality traits. *J Psychiatr Res* 46 (5): 644–650.
- Kessler RC, Merikangas KR, Wang PS, (2008). The prevalence and correlates of workplace depression in the national comorbidity survey replication. *J Occup Environ Med*, 50 (4): 381–390.
- Kiss P, Meester M de, Braeckman L, (2008). Differences between younger and older workers in the need for recovery after work. *Int Arch Occup Environ Health*, 81 (3): 311–320.
- Koopman C, Pelletier KR, Murray JF, Sharda CE, Berger ML, Turpin RS, Hackleman P, Gibson P, Holmes DM, Bendel T, (2002). Stanford presenteeism scale: health status and employee productivity. *J Occup Environ Med*, 44 (1): 14–20.
- Lépine JP, Briley M, (2011). The increasing burden of depression. *Neuropsychiatr Dis Treat*, 7 (Suppl 1): S3–S7.
- Lagerveld SE, Bültmann U, Franche RL, van Dijk FJ, Vlasveld MC, van der Feltz-Cornelis CM, Bruinvels DJ, Huijs JJ, Blonk RW, van der Klink JJ, Nieuwenhuijsen K, (2010). Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil*, 20 (3): 275–292.

- Lerner D, Henke RM, (2008). What does research tell us about depression, job performance, and work productivity? *J Occup Environ Med*, 50 (4): 401–410.
- Lerner D, Rogers WH, Chang H, (2003). Scoring the Work Limitations Questionnaire (WLQ) Scales and the WLQ Index for Estimating Work Productivity Loss, Boston, Mass: New England Medical Center.
- Lerner D, Amick BC, Rogers WH, Malspeis S, Bungay K, Cynn D, (2001). The work limitations questionnaire. *Med Care*, 39 (1): 72–85.
- Lerner D, Adler DA, Rogers WH, Chang H, Lapitsky L, McLaughlin T, Reed J, (2010). Work performance of employees with depression: the impact of work stressors. *Am J Health Promot*, 24 (3): 205–213.
- Lerner D, Adler D, Hermann RC, Chang H, Ludman EJ, Greenhill A, Perch K, McPeck WC, Rogers WH, (2012). Impact of a work-focused intervention on the productivity and symptoms of employees with depression. *J Occup Environ Med*, 54 (2): 128–135.
- McIntyre RS, Liauw S, Taylor VH, (2011). Depression in the workforce: the intermediary effect of medical comorbidity. *J Affect Disord*, 128 (Suppl 1): S29–S36.
- Meijman TF, Mulder G, (1998). Psychological aspects of workload. In: Drenth PJD, Thierry H (Eds.), *Handbook of Work and Organizational Psychology*. Vol. 2: Work psychology. Psychology, Hove, England, pp. 5–33.
- Merrill RM, Aldana SG, Pope JE, Anderson DR, Coberley CR, Whitmer RW, (2012). Presenteeism according to healthy behaviors, physical health, and work environment. *Popul Health Manag*, 15 (5): 293–301.
- Michon HW, Have M ten, Kroon H, Weeghel J van, Graaf R de, Schene AH, (2008). Mental disorders and personality traits as determinants of impaired work functioning. *Psychol. Med*, 38 (11): 1627–1637.
- Mohren DC, Jansen NW, Kant I, (2010). Need for recovery from work in relation to age: a prospective cohort study. *Int Arch Occup Environ Health*, 83 (5): 553–561.
- Netterstrøm B, Conrad N, Bech P, Fink P, Olsen O, Rugulies R, Stansfeld S, (2008). The relation between work-related psychosocial factors and the development of depression. *Epidemiol Rev*, 30: 118–132.
- Nieuwenhuijsen K, Faber B, Verbeek JH, Neumeyer-Gromen A, Hees HL, Verhoeven AC, Feltz-Cornelis CM van der, Bültmann U, (2014). Interventions to improve return to work in depressed people. *Cochrane Database Syst Rev*, 3, 12 CD006237.
- Noordik E, Nieuwenhuijsen K, Varekamp I, Klink JJ van der, Dijk FJ van, (2011). Exploring the return-to-work process for workers partially returned to work and partially on long-term sick leave due to common mental disorders: a qualitative study. *Disabil Rehabil*, 33 (17–18): 1625–1635.

- Ormel J, Oldehinkel AJ, Nolen WA, Vollebergh W, (2004). Psychosocial disability before, during, and after a major depressive episode: a 3-wave population based study of state, scar, and trait effects. *Arch Gen Psychiatry*, 61 (4): 387–392.
- Renner F, Penninx BW, Peeters F, Cuijpers P, Huibers MJ, (2013). Two-year stability and change of neuroticism and extraversion in treated and untreated persons with depression: findings from the Netherlands Study of Depression and Anxiety (NESDA). *J Affect Disord*, 150 (2): 201–208.
- Rhebergen D, Beekman AT, de Graaf R, Nolen WA, Spijker J, Hoogendijk WJ, Penninx BW, (2010). Trajectories of recovery of social and physical functioning in major depression, dysthymic disorder and double depression: a 3-year follow-up. *J Affect Disord*, 124 (1–2): 148–156.
- Schreurs PJG, van de Willige G, Tellegen B, Brosschot JF, (1993). *Herziene handleiding Utrechtse Coping Lijst (UCL)*. Lisse: Swets & Zeitlinger B.V.
- Sluiter JK, de Croon EM, Meijman TF, Frings-Dresen MH, (2003). Need for recovery from work related fatigue and its role in the development and prediction of subjective health complaints. *Occup Environ Med*, 60 (Suppl 1): i62–i70.
- Solomon DA, Leon AC, Endicott J, Mueller TI, Coryell W, Shea MT, Keller MB, (2004). Psychosocial impairment and recurrence of major depression. *Compr Psychiatry*, 45 (6): 423–430.
- Spijker J, Graaf R de, Bijl RV, Beekman AT, Ormel J, Nolen WA, (2004). Determinants of persistence of major depressive episodes in the general population. Results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *J Affect Disord*, 81 (3): 231–240.
- Stewart WF, Ricci JA, Chee E, Hahn SR, Morganstein D, (2003). Cost of lost productive work time among US workers with depression. *JAMA* 289 (23), 3135–3144.
- Swaen GM, Amelsvoort LG van, Bültmann U, Kant IJ, (2003). Fatigue as a risk factor for being injured in an occupational accident: results from the Maastricht Cohort Study. *Occup Environ Med*, 60 (Suppl 1): i88–i92.
- Trivedi MH, Morris DW, Wisniewski SR, Lesser I, Nierenberg AA, Daly E, Kurian BT, Gaynes BN, Balasubramani GK, Rush AJ, (2013). Increase in work productivity of depressed individuals with improvement in depressive symptom severity. *Am J Psychiatry*, 170 (6): 633–641.

- Veldhoven M van, Broersen S, (2003). Measurement quality and validity of the “need for recovery scale”. *Occup Environ Med*, 60 (Suppl 1): i3–i9.
- Veldhoven M van, Meijman TF, Broersen JPJ, Fortuin RJ, (2002). *Manual VBBA*. Amsterdam: SKB Vragenlijst Services.
- Verboom CE, Sentse M, Sijtsema JJ, Nolen WA, Ormel J, Penninx BW, (2011). Explaining heterogeneity in disability with major depressive disorder: effects of personal and environmental characteristics. *J Affect Disord*, 132 (1–2): 71–81.
- Virtanen M, Kawachi I, Oksanen T, Salo P, Tuisku K, Pulkki-Råback L, Pentti J, Elovainio M, Vahtera J, Kivimäki M, (2011). Socio-economic differences in long-term psychiatric work disability: prospective cohort study of onset, recovery and recurrence. *Occup Environ Med*, 68 (11): 791–798.
- Wang J, Schmitz N, Smailes E, Sareen J, Patten S, (2010). Workplace characteristics, depression, and health-related presenteeism in a general population sample. *J Occup Environ Med*, 52 (8): 836–842.





# **Chapter 7**

## **General discussion**

## General discussion

This thesis aims to gain more insight into factors that promote return to work (RTW) of employees on sick leave with major depressive disorder (MDD). A better understanding of these factors can stimulate the further development of more effective interventions, aiming to reduce sick leave duration and improve long-term health and work functioning outcomes. Five studies were conducted, investigating: (a) the effectiveness of an occupational therapy (OT) intervention developed in the Program for Mood Disorders at the Academic Medical Centre; (b) the assessment of factors that promote and (c) impede RTW; (d) the comparison of promoting factors for RTW among employees with a different cultural background; and (e) the assessment of factors associated with impaired work functioning among employees with MDD in remission who returned to work.

This chapter starts with a brief summary of the main findings of these studies, listed as the five research questions in the introduction. Next, the results are discussed and strategies on how to improve RTW are presented, together with the potential contribution of OT to these improvements. Finally, methodological considerations and implications for future research and clinical practice are discussed.

### ***Main Findings***

*Research question 1; Is occupational therapy additional to treatment as usual (TAU+OT) more effective than standard clinical treatment (TAU) in improving adverse work outcomes and depression outcomes in employees on sick leave due to MDD?*

A total of 117 patients with MDD were randomised to treatment-as-usual (TAU, n=39) and TAU plus occupational therapy (TAU+OT, n=78). Work outcomes were: time taken to RTW, either part-time or full-time, and level of work functioning. Health outcomes were defined by depression severity and health related quality of life.



Intermediate outcomes were work-related coping and self-efficacy. Assessments took place at baseline, and at 6, 12 and 18-month follow-up.

Both groups significantly decreased their hours of absenteeism ( $p < 0.001$ ), with the largest decrease between 6 and 12 month follow up ( $p < 0.001$ ). The study revealed no significant differences between groups in time to RTW, either part-time or full-time. The median number of days until partial RTW in TAU+OT was 80 (IQR: 42–172) and in TAU 166 (IQR: 67–350). For full RTW, the median number of days in TAU+OT was 315 (IQR: 165–540) and in TAU 361 (IQR: 151–540). During the 18-month study period, 91% of participants achieved at least partial RTW (TAU+OT=92%; TAU=89%), and 63% full RTW (TAU+OT=66%; TAU=56%).

Health outcomes showed a greater improvement in depression severity in TAU+OT ( $p = 0.03$ ) as well as an increased probability of long-term symptom remission ( $p=0.05$ ) when compared to participants in TAU. In addition, the percentage of patients that attained sustained remission (defined as remission longer than six months) was significantly larger in TAU+OT compared to TAU (91.6% versus 69.0%;  $p=0.04$ ). The probability of return to work in good health (i.e. full return to work while being in remission from depression) also improved more in the TAU+OT condition ( $p=0.02$ ). During the 18-month study period, patients in TAU+OT used fewer sessions with a psychiatrist ( $M=10.6$ ,  $SD=6.3$ ) than those in TAU ( $M=14.5$ ,  $SD=8.4$ ;  $p=0.005$ ) and they were less likely to enrol in day treatment or in-patient treatment (17%) than those in TAU (21%).

Regarding potential therapeutic working mechanisms, no differences were found between groups on coping and self-efficacy, although both groups improved in their active coping ( $p < 0.001$ ) and self-efficacy ( $p < 0.001$ ) and showed a reduction in their passive coping strategies (passive reaction:  $p < 0.001$ , avoidance:  $p=0.05$ ).

In summary, in this highly impaired population (at baseline over 60% was absent from work for more than three months and more than two third was depressed for longer than six months)

adjuvant OT improved recovery from depression and the probability of returning to work in good health.

*Research question 2; Which factors promote RTW of employees on sick leave with MDD, as perceived by employees, supervisors and occupational physicians and what are the differences in perception between these stakeholders?*

To learn more about factors that promote RTW, stakeholders who had experience with a successful RTW (employees/patients, supervisors and occupational physicians) were invited to participate in a concept mapping procedure. These different stakeholder participants (n=32) generated 60 statements as an answer to the question: ‘Which factors (work -, personal - and other characteristics) have supported return to work (or expanded working hours) of patients suffering from depression?’. Prioritising and clustering of these statements by participants (n=41) yielded a concept map with eight clusters which were grouped in three meta-clusters. The first meta-cluster “Work” comprised three clusters: “Adaptation of work”, “Understanding and support in the workplace” and “Positive work experiences”. The second meta-cluster “Person” comprised four clusters: “Positive and valid self-perception”, “Competence in self-management”, “Positive level of energy” and “Supportive home environment”. The third meta-cluster “Healthcare” comprised one cluster: “Supportive healthcare”.

Although stakeholders agreed on the relative importance of clusters and meta-clusters, differences emerged when they were asked to rate the importance of each of the 60 single statements. Within the 10 most important statements according to each of the stakeholder groups, employees put more emphasis on ‘Feeling of being taken seriously’ and ‘Sufficient peace of mind to resume work’, while supervisors put more emphasis on ‘Clarity regarding tasks and expectations at work’ and ‘Express mutual trust between supervisor and employee’, and occupational physicians on ‘Stress reduction by temporarily eliminating stressful tasks’, ‘Adjusting the workload in relation to the tasks and/or amount of work’ and ‘Regular communication between supervisor and employee with respect to progress’.

These findings indicate that promoting factors for RTW cover three types; personal, work and health factors. A successful RTW process therefore should try to cover those three categories. Because stakeholders may differ in their perception of importance of those factors, differences should be discussed between stakeholders in order to prevent hampering of the RTW process.

*Research question 3; Which factors impede the RTW among employees on sick leave with MDD, as perceived by employees, supervisors and occupational physicians?*

Next we used a concept mapping procedure to increase our understanding of factors that delay RTW. Here participants (n=32) comprised of employees, supervisors and occupational physicians, who themselves or whose employees/patients had experienced an inability to RTW within one year after starting sick leave because of MDD. The question: “Which factors (work, personal and/or other factors) contributed to the fact that you have (or your employee/patient has) not been able to return-to-work within one year of being on sick leave?” generated 60 statements.

Prioritising and clustering of statements by participants (n=38) yielded a concept map with a nine cluster and three meta-cluster solution as best fit. The first meta-cluster “Person” comprised four clusters: “Personality/coping problems”, “Symptoms of depression and co-morbid (health) problems”, “Employee feels misunderstood” and “Resuming work too soon”. The second meta-cluster “Work” comprised three clusters: “Troublesome work situation”, “Too little support at work” and “Too little guidance at work”. The third meta-cluster “Healthcare” comprised two clusters: “Insufficient mental healthcare” and “Insufficient care from occupational physician”.

The three stakeholder groups most frequently ranked statements as important ( $\geq 3.5$  on 5 point Likert scale) which were included in the clusters “Symptoms of depression” and “Personality/coping problems”. Within these clusters, employees put most emphasis on “Symptoms of depression” (e.g. ‘Employee suffers from worrying, concentration or memory problems’, or ‘Employee is too tired, has low energy’). Supervisors did so on “Coping problems” (e.g.

‘Employee feels ashamed, a failure and is reluctant to return to work’ or ‘Employee has difficulty facing problems and to reflect on his behaviour, which hinders recovery’). Compared to employees, the supervisors and occupational physicians ranked more frequently statements pertaining to the meta-clusters “Work” and “Healthcare” as important. Within these meta-clusters, supervisors put more emphasis on insufficient healthcare (e.g. ‘Psychiatric advice not to resume work’) and occupational physicians on a lack of support in the work situation (e.g. ‘There is a (dormant) work dispute’).

The relationship between promoting and impeding factors discussed in Research Question 2 and 3 needs some explanation. With respect to the “Work” meta-cluster, some factors are only promoting (e.g. ‘Clarity regarding tasks and expectations at work’), some are only impeding (e.g. ‘Employer does not feel competent about the supervision process’). But often distinction is not clear because factors are in some way related to each other. For instance, factors promoting RTW (e.g. ‘Express mutual trust between supervisor and employee’) may also occur as impeding factors, but more extensively described (e.g. ‘Employer wants to get rid of employee’, ‘There is a (dormant) work dispute’, ‘Employee receives little support with his problems at work’, ‘Employee no longer fits into the organisation’, ‘Supervisor demands too much from the employee’, ‘Employee is put under pressure at work’). Therefore, the RTW process, alongside promoting factors, should also consider impeding factors. Attention to those factors should be offered at an early stage of the sick leave period to prevent a delayed RTW.

*Research question 4; What are the similarities and differences in perceived promoting factors for RTW of employees on sick leave due to MDD, between Dutch (western) and Surinamese (non-western) stakeholders (employees, supervisors and occupational physicians)?*

In the Netherlands the number of employees with a non-western background is increasing, but there is a lack of knowledge on the method and effectiveness of return-to-work interventions for those employees once on sick leave due to MDD. To improve this knowledge, we studied

factors that promote RTW in Suriname, a non-western country. There we repeated the concept mapping procedure on promoting factors for RTW after sick leave due to MDD as carried out in the Netherlands (stated as a western country). In Suriname, stakeholders (n=39) generated 75 statements after being asked the focal question “Which factors have supported return to work (or expanding work) in patients suffering from depression?”. The prioritising and clustering procedure (n=49) yielded a largely comparable framework of three meta-clusters and eight clusters.

We also found some interesting differences between Dutch and Surinamese stakeholders in the meaning and interpretation of these (meta-) clusters. In the Dutch study, the emphasis in the meta-cluster “Person”, lies on the employee’s personal development, while in the Surinamese study it is on being accepted and respected within a group of colleagues. In the meta-cluster “Work”, the emphasis in the Dutch study is on a supervisor who creates a stepwise RTW plan in consultation with the employee, based on adjustments in the work environment, shared responsibility and openness. In the Surinamese study the emphasis in this meta-cluster is on the supervisor’s responsibility to create a RTW plan, in which he has to mediate, with respect to the employees’ safety, social position and career opportunities. In the last meta-cluster “Healthcare”, the emphasis in the Dutch study is on professional support. In Suriname, in this meta-cluster “Individual strength and external support”, the emphasis is on professional support, but also on social support, spiritual support and on inner mental strength.

This study reveals that cultural differences may influence perceived promoting factors of the RTW process and provides knowledge to make RTW interventions ‘diversity proof’. Because RTW strategies are more effective when they suit personal expectations, professionals should try to be aware of these differences. This may be of particular interest for companies comprising of employees with different cultural backgrounds, but further assessment should reveal to what extent these cultural differences may have diminished, for instance by acculturation process.

*Research question 5; At what level of work functioning are employees with MDD in remission, who returned to work, performing, and what factors (demographic, health, personality and work characteristics) influence impaired work functioning?*

We assessed work functioning among employees for whom MDD was again in remission and who returned to work for at least 50% of their original contract hours (n=68). We used data from the OT intervention study (n=117, Chapter 2). Although employees had recovered (MDD in remission), and were working for a substantial part (M=92%) of their original contract hours, their work functioning was still impaired. On average they scored higher both on the Work Limitation Questionnaire [WLQ], in comparison with a healthy control group described in a Canadian study, and on the Need For Recovery scale [NFR], in comparison with the Dutch reference score. Moreover, one third of the NFR scores exceeded the second cut-off point (>54), which indicates an increased risk for (mental) health problems, absenteeism and accidents at work.

The strongest predictors for work limitations were personality factors (measured at 18-month follow-up), followed by health factors (measured at 6 and 12-month follow-up) and work factors (measured at 18-month follow-up). After a stepwise procedure, only one personality factor remained as a predictor, i.e. a passive reaction coping style to work related problems. Because of the increased risk for negative health and work outcomes among employees, additional support is needed for those vulnerable to persisting impaired work functioning, in particular those with a persisting passive reaction coping style. Mental health interventions should take this into account and RTW professionals (occupational physician, RTW coordinator or supervisor) should support the employee in his impaired ability to manage his work environment.

## **Additional value of OT on RTW and health outcomes**

### ***Comparison of RTW outcomes***

Earlier studies show considerable differences in RTW outcomes, i.e. mean time to RTW and percentage RTW at one-year follow-up. With respect to time to RTW (see Table 1) 91% of participants in our intervention study reached partial RTW and 63% reached full RTW at 18-month follow-up. Comparable figures are found in a study among employees diagnosed with MDD (Vlasveld et al., 2013a), where 61% reached full RTW at 12-month follow-up, and in studies including employees diagnosed with depressive symptoms (no MDD) by occupational physicians (Brenninkmeijer et al., 2008; Roelen et al., 2012), where more than 70% reached full RTW at 12-month follow-up. This percentage goes to 90% in a study on participants diagnosed by occupational physicians with depressive disorders, but excluding participants with co-morbidity (Flach et al., 2011).

With respect to the duration of the RTW period, our OT intervention study revealed a mean time to partial RTW of 15 weeks and 54 weeks for full RTW. In other studies among employees with MDD, time to full RTW was shorter (25-30 weeks), but those participants were diagnosed by an occupational physician (Vlasveld et al., 2013a; Koopmans et al., 2008) or by a self-rating scale (Nielsen et al., 2012). In a Finish population study including fulltime employees, the median time to RTW after depression-related absence was considerable shorter, accounting for a median of 34 days (IQR; 20–69) (Ervasti et al., 2015), but in this study employees with distress may also have been diagnosed with depression. It has been suggested that these differences might be explained by symptom severity and sickness absence period (Cornelius et al., 2011; Nielsen et al., 2010; Brouwers et al., 2009).

In addition, symptom severity partly explains RTW outcomes (Werff et al., 2010; Timbie et al., 2006) and duration of sick leave may add to this impact (Brouwers et al., 2009; Roelen et al., 2012).

**Table 1. Mean time to full RTW and percentage full RTW at one-year follow-up, in patients diagnosed with distress and MDD and with variable periods of sickness absence before inclusion<sup>1</sup>**

Author	Diagnosis	Diagnosis by	Sickness absence period for inclusion (weeks)	Mean time to full RTW (weeks)	RTW after one year (%)
Flach et al., 2011	Distress	OP	0	-	100
Ervasti et al., 2015	Depression related disorders	Records	> 1	8 <sup>2</sup>	92
Flach et al., 2011	Depressive disorders	OP	0	-	90
Roelen et al., 2012	Emotional disturbance	OP	0	10	95
Ervasti et al., 2015	Depression related disorder with psychiatric co-morbidity	Records	> 1	8	85
Nielsen et al., 2012	Mental health disorders	Self report	0-12	21	85
Nielsen et al., 2012	MDD	Self report	0-12	25	-
Koopmans et al., 2008	Depressive symptoms	OP	0	30	76
Brenninkmeijer et al., 2008	Mental health problems	Self report	12-20	-	76
Roelen et al., 2012	Mood disorders	OP	0	30	70
Hees et al., 2013	MDD	Psychiatrist	31 <sup>2</sup>	54	63 <sup>3</sup>
Vlasveld et al., 2013a	MDD	OP	4-12	28	61

<sup>1</sup> Ranked in % that achieved full RTW at one-year follow-up

<sup>2</sup> Median

<sup>3</sup> Measured at 18-month follow-up

Abbreviations: MDD=Major depressive disorder; OP=Occupational physician; RTW= Return to work; SA=Sickness absence

As revealed in our study on impeding factors (Chapter 3), in particular personality factors are likely to play a role in the decision about returning to work. Avoidant and catastrophising coping strategies, in particular among workers who believe that their work has either caused their health problem or made it worse, may induce the fear that symptoms get worse by going back to work. Fear on how to re-establish relationships with colleagues and supervisor may add to this impact (Henderson et al., 2011). This may be more pronounced among employees already on long-term sickness absence because they have lost contact with the work environment. Therefore, the reason for a longer RTW period in our study may be due to the severity of the depression (78% were depressed for more than six months; more than 50% had experienced at least two depressive episodes) and a longer period of sickness absence before the start of treatment



(median 19 weeks, 63% were absent for more than 13 weeks and 17% longer than one year), as both influence the RTW period.

### ***Comparison with interventions studies improving RTW***

Two recent systematic reviews examined the effectiveness of interventions for depressed workers with respect to work outcomes (Furlan et al., 2012; Nieuwenhuijsen et al., 2014). Furlan et al. (2012) assessed 12 studies aiming to improve management of depression in the workplace. Studies revealed that clinical interventions and interventions specifically directed towards work functioning (cognitive behavioural therapy by labour expert, guideline adherence and stress reduction programmes) do improve work outcomes. However our study is difficult to compare with these studies because they included employees still at work, having less severe mental health or psychological problems.

Recently, Nieuwenhuijsen et al. (2014) included in a review 23 studies, comprising also clinical interventions and work-directed interventions for patients with depressive disorders. First, no differences in results on sickness absence were found for different types of antidepressant medication. Second, improvements on RTW were a result of psychological interventions, i.e. cognitive behaviour therapy provided by telephone, online or computerised (Bee et al., 2010; Hollinghurst et al., 2010; McCrone et al., 2004), and a structured telephone outreach and care management programme (Wang et al., 2007). In addition to our two studies in which we added OT to TAU, only three other work directed interventions were included in this review. These three studies showed mixed results on RTW. Comparison with former studies, however, is difficult because they included participants with other diagnoses apart from MDD, such as dysthymia, anxiety disorder and adjustment disorder (Lerner et al., 2012; Noordik et al., 2011). Furthermore employees included were only on short-term sick leave (Vlasveld et al., 2013a; Bee et al., 2010), or were still (partly) at work (Lerner et al., 2012; Hollinghurst et al., 2010; Wang et al., 2007; McCrone et al., 2004).

### *Comparison with previous occupational therapy intervention*

In the past decades our research group executed two intervention study with addition of OT to TAU; the first, #1 (Schene et al., 2007; de Vries and Schene, 2003; Kikkert et al., 2002) and the second, described in Chapter 2, #2. Both studies included a high number of employees who experienced recurrence of depression at baseline (#1: 55%; #2: 53%) and a long duration of sickness absence (#1: M=34 weeks, SD=24 weeks; #2: Median=19 weeks, IQR=10-41 weeks). Comparisons of outcomes of these two OT interventions are presented in Table 2. Although not described in this thesis, we also measured satisfaction with regard to the interventions on a ten point satisfaction scale. Patients satisfaction of both OT interventions was comparable (#1: M=8.5 and #2: M=7.1). Health outcomes (depression symptoms and symptom remission) did not improve in #1 between 0-12 months follow-up, but did improve between the 13-42 months follow-up. Health outcomes also improved in #2. RTW outcomes (time to RTW and the amount of hours worked) did improve in #1 between the 0-18 follow-up period, but did not hold on for the 19–42-month follow-up period. RTW outcomes did not improve in #2. Coping style was affected in #1 (palliative reaction, and comforting thoughts), but not in #2.

Table 2. Comparison of the present study and previous study on addition of occupational therapy to care as usual

	Addition of OT	Addition of previous OT
	18-month follow-up	12/ 24-months follow-up
Satisfaction (mean, range 1-10)	7.1	8.5
Health outcomes	+	- / +
RTW outcomes	-	+ / -
Coping style	-	+

Several factors may explain the differences in improvement of RTW outcomes in the two studies. First, political and societal change since early 2000, such as the installation of the gatekeeper Act, increased recognition that early RTW facilitates recovery from depression and subsequent changes of attitudes of professionals. This increased attention for RTW may decrease the additional value of OT, because there is also more focus on RTW in the control condition.

Second, both interventions were developed at the Academic Medical Centre. This development creates an increased climate of interest for RTW among treating health professionals over time. Their increased attention for RTW may also influence the employee's mind set on RTW, resulting in an improved RTW (Millward et al., 2005; Elinson et al., 2004). Again this increased attention may reduce the added value of OT on RTW. Third, treatment in the TAU condition may also have improved in the period between the research period in early 2000 (previous-OT) and early 2010 (Chapter 2), for instance due to the different research programs that were carried out by this department. This may have diminished the contrast between TAU+OT compared to the TAU condition. Fourth, the difference in intervention may also explain difference in outcomes: the previous-OT intervention took more sessions and the focus, apart from the work environment, was also on personality and home environment.

### ***Improved health outcomes***

Interestingly, both our OT interventions showed improved health outcomes compared to TAU although these were not reflected in RTW outcomes. Improvement of health outcomes may therefore rely more on the OT interventions and OT professionals. Our interventions include an activating approach combined with generating group support; both are common therapeutic strategies in the treatment for depression (Multidisciplinaire richtlijn, 2013; Riet et al., 2003). Furthermore our OT professionals were specialized in treatment of patients with depression because they were connected to the Mood Disorder Program.

Improved health outcomes were also found in work-directed interventions discussed in previous reviews (Vlasveld et al., 2013a; Lerner et al., 2012; Kawakami et al., 1997). Symptom severity therefore may also improve by efforts aimed to improve RTW. The OT intervention and statements that promote RTW (Chapter 3) comprise elements that are also used in strategies to improve symptom severity (Schoevers and Parmentier, 2015) e.g. stress reduction (i.e. statement 'Stress reduction by temporarily eliminating stressful tasks' or 'Improving the balance between home and work'), influencing negative thoughts (i.e. 'Feeling of not being taken seriously', 'Employee

is hindered by factors such as being too demanding, too perfectionistic or having too little self-confidence’) and a physical approach (i.e. ‘Relaxation through engaging in sports’). Because the addition of OT to TAU improved health outcomes, and also counted for lower healthcare costs throughout the 18month study period for participants in TAU+OT condition (Hees et al., in progress), the addition of OT should be preferred in terms of both health outcomes and healthcare costs, even if RTW results are mixed.

### **Strategies for RTW improvement and contribution of OT**

This thesis revealed that RTW outcomes after sick leave due to MDD are affected by health-, personal-, and work-factors. This is in accordance with the WHO’s International Classification of Functioning, Disability and Health (ICF), which states that in addition to health characteristics, personal and environmental characteristics are also important in the RTW process (Schneider et al., 2003). This finding is supported by studies among employees with depression and mental health problems (Andersen et al., 2012; Lagerveld et al., 2010; Verboom et al., 2011; Cornelius et al., 2011; Werff et al., 2010) and in accordance with experiences among employees on sick leave due to other health problems, such as back pain (Loisel et al., 1994), chronic low back pain (Kuijjer et al., 2006), work related injury (Krause et al., 2001), musculoskeletal conditions (Wilkie et al., 2012) and employees on sick leave in general (Dekkers-Sánchez et al., 2011). However, this multifactorial approach in assessment and support of RTW, makes the RTW strategy for employees with MDD a rather complex process. Results of this thesis provide tools to improve a multifactorial approach (piece of advice, a checklist and a guideline) and may suggest a stepwise approach.

#### *Multifactorial approach*

Statements on promoting factors for RTW (Chapters 3 and 5) can be used as *piece of advice*. They may generate ideas and enable employees to decide what is most important for them to reach a successful RTW. Employees experienced these statements as a useful tool for themselves to gain

more insight on how to further improve their RTW process. Statements were also adapted by an occupational health service where they were used as a supportive tool for employees to improve their RTW process. Because symptoms of depression may affect the ability of decision making and expressing needs, this may be a particularly useful tool for employees affected by MDD.

The statements from the different studies (Chapter 3, 4 and 5) can also be used as a *checklist*. For developing this checklist we changed impeding statements into promoting ones and removed redundant statements of the three studies (Appendix 1). This resulted in a checklist that enables a RTW coordinator to make sure that all factors that may promote or impede RTW are covered. It may also clarify differences in perspectives between stakeholders when the importance of different factors is discussed.

Based on the themes representing statements that support (Chapters 3 and 5) or impede RTW (Chapter 4), we developed a *guideline* (appendix 2). This guideline is a more comprehensive instrument, based on the clustering of statements. It enables stakeholders to discuss the importance of different themes important for RTW and may result in a RTW strategy. It may subsequently improve a multidisciplinary approach and better communication between stakeholders, which enables them to adapt strategies to each other. A good cooperation is defined as a vehicle for RTW, and may also decrease the gap between intention and implementation, (Andersen et al., 2012; MacEachen et al., 2006; Franche et al., 2005), important for a sustained RTW.

### *Stepwise approach*

Stressors in the work environment increase the incidences of MDD (see introduction). In turn reduction of work stressors may improve RTW, but, the importance of influencing work environment may be more important for employees with less severe symptoms compared to employees with severe symptoms (Klink and Terluin, 2005). This may also declare the limited result on RTW for employee with MDD in our OT intervention study and comparable work-directed interventions (Vlasveld et al., 2013; Noordik et al., 2013) and more favourable RTW

outcomes of work-directed interventions in studies including also employees with less severe symptoms (Lerner et al., 2012; Rebergen et al., 2009; Blonk et al., 2006; Kawakami et al., 1997). This finding should also be incorporated in RTW strategies.

Previous studies on improving RTW after sick leave due to low back pain, recommended to distinguish three disability phases defined by the number of days off work: acute (up to 1 month), sub-acute (2–3 months), and chronic (more than 3 months) (Franche and Krause, 2002). It is suggested that health factors are determining predictors of disability in the acute phase, whereas psychosocial factors have a stronger predictive value in the chronic phases of disability. This suggestion is underlined in Dutch studies among employees with low back pain; a work place oriented intervention only (instead of the addition of graded activity) improved RTW among employees on short-term sickness absence (< 6 weeks) while integrated care (workplace intervention and the addition of a graded activity program) improved RTW for those on long-term sickness absence (Anema et al., 2007; Lambeek et al., 2010).

Interestingly in our study, the addition of OT showed promising results for RTW among those on short-term sickness absence (< 3 months), but their number was too small to reach significance (Hees et al., 2011). With respect to long-term sickness absence, in our study carried out in 2000, the addition of previous-OT improved RTW. The focus of this previous-OT intervention was apart from work environment, also on personality and home environment. This finding underlines that a workplace intervention may be beneficial only for those affected by short-term sick leave and that additional support is needed for those on long-term sickness absence.

A stepwise approach therefore may be useful for employees on sick leave due to MDD. In line with Loisel et al. (1994) in the context of lower back pain, we suggest a three-step approach:

- 1) Detection of cases at risk of chronicity
- 2) Workplace intervention
- 3) Additional or Rehabilitation intervention

Early detection of risk for chronicity means to define: 1) if the employee may return to work within the first six weeks of a sickness absence period, 2) if the employee may return within the short-term sickness absence period (< 3 months), or 3) if the employee is vulnerable to long-term sickness absence (> 3 months). Based on former studies, employees vulnerable to long-term sickness absence can be distinguished by health characteristics (severity of symptoms, co-morbidity and frequent periods of MDD), personal characteristics (personality traits, absence of leisure time activity, stress events in personal situation) and work characteristics (burdening work environment, frequent sickness absence periods), (Endo et al., 2015; de Vries et al., 2014; Vlasveld et al., 2013b; Norder et al., 2012; Hjarsbech et al., 2011; Koopmans et al., 2008). This detection should be offered through a multidisciplinary approach (occupational physician, medical specialist, employer and employee) to cover the multifactorial approach.

The addition of a workplace intervention to clinical treatment may be recommended, for employees who should be able to return to work within a three months period. The OT intervention discussed in this thesis may suit at this stage. CBT interventions that incorporate RTW may also suit at this stage. For employees vulnerable to long-term sickness absence, the RTW process should include, in addition to treatment for depression and a workplace intervention, efforts to cope with personality problems and coping problems and unsettled work-home balance. For this, elements of our previous OT-intervention can be used. In addition, treatment should be offered as integrated care, in consultation with the work environment, instead of additional care, to ensure that stakeholders work together properly.

Vocational rehabilitation may be offered when the employer is not capable of creating a good fit between employee and workplace.

Based on clinical evaluation of the results of the intervention study, this was often a reason for the inability to reach RTW. An Individual Placement and Support (IPS) approach, the most successful intervention for achieving RTW for patients with severe mental illness (Bond et al., 2012), may suit in this situation. It is also possible to create collaboration with other employers, to achieve exchange for employees who do not fit in within the former company.

### *Methodological considerations*

This thesis has several strengths. First, for all studies, the study population consisted of a homogeneous group of employees, all diagnosed with MDD by a psychiatrist. Second, for evaluating the effectiveness of adjuvant OT, a randomised controlled study was used which is considered the gold standard for evaluating the effectiveness of an intervention. Third, we combined quantitative and qualitative research. In the latter, we built on direct experience of not only health professionals, but also the experience of patients and supervisors, who are the immediate stakeholders. Adding qualitative research helps to better understand both therapeutic and return to work processes. Fourth, for assessing work functioning, the assessment included multiple factors, covering health, personal and work characteristics.

However, there are also some limitations to be considered.

### *Severity*

Employees participating in the OT intervention study were all referred to the Academic Medical Centre and received high quality psychiatric care. Because only 50-64 percent of participants with MDD in developed countries and 15-24 percent in less-developed countries receive treatment (Lépine and Briley, 2011; Prins et al., 2008; Kessler et al., 2008; Dewa et al., 2011) this may indicate that we only included highly impaired employees, which affects generalisability of our findings. Indeed, as discussed earlier, participating employees showed long absence periods (63% longer than three months), long MDD duration (69% were depressed for more than six months),



and 54% had at least one previous absence period due to MDD. This severity may also have reduced the additional value of OT.

### *Short and long-term*

It is also suggested that there is a difference in factors that improve RTW for those on short-term sick leave (< 3 months) and long-term sick leave (> 3 months), (Franche and Krause, 2002; Loisel et al., 1994). Because both groups were included in the interventions study, this may have reduced the effect of the addition of OT as this intervention may improve RTW in particular among those with short-term sick leave (Hees et al., 2011).

### *Quality of TAU*

Participating employees all received high quality care, including cognitive and behavioural techniques. This care showed improved remission rates (m=47% at 12-month follow-up in TAU) compared to a comparative study on cognitive-behavioural therapy and psychodynamic therapy (m=23% at 12-month follow-up), (Driesen et al., 2013). Moreover, TAU includes cognitive behavioural techniques. All staff members were trained in those techniques and were part of TAU protocol. These techniques also improve RTW (Nieuwenhuijsen et al., 2014) and may therefore reduce the additional value of OT.

### *Differences in background*

Differences in social background, value orientation, attitude to mental health and the legislative context influence the RTW process (D'Amato and Zijlstra, 2010; Evans-Lacko and Knapp, 2014) and may influence results and generalisation of the findings. Our two OT interventions are based on the Dutch culture values such as openness and communication. On the one hand, in countries with less openness and communication regarding sick leave due to mental health disorders, this strategy may be inappropriate.

On the other hand, it is also possible that addition of OT is more effective in countries with less openness on mental health problems, precisely because the intervention forces employee and supervisor to discuss limitations with respect to progress. These differences occur between countries, but also within one country, for instance due to differences in process of acculturation (Hofstede and Hofstede, 2009). Because differences in social background were not part of the assessment within the Dutch studies, we do not know to what extent discussed promoting or impeding pertain to Dutch employees with a different background.

### *Perspectives of recovery*

Full RTW may be the aim from an occupational perspective, but this may be conflicting with the aim from a healthcare perspective. For instance, instead of reaching full RTW, having more time for other suitable activities may be of higher importance from a healthcare perspective. In addition, perspectives of successful RTW differ among stakeholders (Hees et al., 2012); besides time to partial or full RTW also sustainability, at work functioning, job satisfaction and work-home balance were noticed as aims of interest by employees, supervisors and occupational physicians. Assessing those latter outcomes may influence results of both quantitative and qualitative studies.

### ***Recommendations for future research***

#### *Quantitative examination of the hypotheses*

Qualitative studies performed in this thesis (Chapters 3, 4 and 5) were useful to help expand our understanding of the RTW process. Although qualitative studies are more suitable to capture the complex processes characterising RTW compared to quantitative research (Andersen et al., 2012), results have to be validated with further quantitative research. Due to the high number of promoting and impeding factors, selection of the most important factors that promote, impede, or are associated with cultural differences on RTW, should be part of further hypothesis testing research.

### *The effect of cultural differences on RTW*

In 2009, ten percent of the Dutch workforce had a non-western background (Bouma et al., 2011). Apart from employees with a Surinamese background, employees with a Moroccan and Turkish background were the largest groups. These groups have an increased probability of receiving disability benefit (Dautzenberg et al., 2005). Because those groups differ in cultural background, it would be recommended to study perceived promoting factors among employees from Morocco and Turkey. Acculturation may differ within these groups when participating in a western culture. Further research should explore to what extent cultural background still involves RTW perception of those employees. Finally, research should assess to what extent the same or different cultural background between employee and supervisor/employer affects the process RTW.

### *Sustainability*

MDD shows high recurrence rates and subsequent sickness absence (Endo et al., 2013; Hardeveld et al., 2010). Sustained RTW should therefore be part of future research. Work functioning may be one of the predictors because impaired function is a predictor of negative health and work outcomes. Still 50% of employees with MDD are able to continue working despite their symptoms (Laitinen-Krispijn and Bijl, 2000). Factors that enable this continuation may also influence sustained RTW. A comparable study was carried out among employees with non-specific musculoskeletal pain (de Vries et al., 2012), which reveals that those who stayed at work showed an improved ability to cope with symptoms in the work environment. This may also apply for employees suffering from MDD. For this purpose follow-up periods of three to five years are recommended, because among employees with MDD 85% show recurrence of sickness absence within three years, and 60% of those treated in mental health show recurrence of MDD within five years (Endo et al., 2013; Hardeveld et al., 2010).

### *Stepped care and/or multifactorial approach*

The addition of OT intervention with its focus on work environment, did not improve RTW in the research population, but appeared more favourable among those employees on short-term sick leave. The former OT intervention, which besides work, also focussed on personality and work-home balance, improved RTW. These findings should be part of further research by introducing a stepwise model and focus on vulnerability for short- and long-term sickness absence. Although symptom severity, personality and a troublesome work situation may be predictors, further exploration of differences between these groups is needed. Within these different groups, further assessment should reveal the additional value of OT interventions. To improve a multifactorial approach, the additional value of a guideline or checklist should be part of further research. Finally, the differences, or a combination of these approaches, may be further investigated.

### *Work stress*

Work characteristics resulting in increased levels of work stress were found to increase the incidence of depression. Within the intervention study, mean values on work stress measured by the VBBA (work-demands, decision latitude and support) at baseline, were indeed elevated compared to the norm, resulting in elevated levels of need for recovery and impaired work pleasure (Hees et al., 2011). Interestingly, at 18-month follow-up among employees who returned to work, these values were more or less comparable with reference values in general population, although need for recovery was still impaired (Chapter 6). This may indicate that reduction of work stressors is important when an employee is still suffering from depression, but less important for sustained RTW.

### ***Implications for clinical practice***

#### *Multifactorial*

RTW in employees with MDD needs a multifactorial approach, including health, personality and

work factors. Perspectives on the most important factors that promote RTW may differ between involved stakeholders and should be addressed in the RTW process. Coordination of the RTW process means therefore that the different factors involving the RTW process need to be monitored, differences in perspectives need to be assessed and discussed and interventions should be adapted to each other. The use of a multifactorial guideline or use of stepped care may clarify which interventions are needed and improve cooperation and subsequently the process of RTW.

### *Culturally sensitive support*

Stakeholders should be aware of the employee's cultural background and subsequent beliefs regarding RTW, and integrate this in RTW strategies. Healthcare interventions should adapt to different expectations, for instance by incorporating the employee's social network in the RTW strategy among employees with a non-western background. Supervisors must be aware that expectations of employees with a non-western background may differ and realise that an adaptation of their preferred RTW strategy may be more effective. If RTW strategies cannot be adapted, employees with a non-western background may need education on RTW strategies used in western society.

### *Work functioning*

Even when MDD is in remission, employees may still show impaired work functioning which may demonstrate a risk of subsequent recurrence of MDD or sickness absence. In particular personality characteristics are associated with this impaired functioning. This may be more pronounced in partial RTW and when an employee is not yet fully recovered from MDD. Additional and continuing support for those employees on improving the ability to manage the work environment may improve work function and subsequent long-term health and societal outcomes.

## *Occupational therapy*

RTW should be integral to clinical interventions, and not be a separate second stage after ‘treatment’ is completed, as was suggested for employees with low back pain (Waddell and Burton, 2005; Anema, 2012) and employees with severe mental illness (Bond et al., 2012). These interventions should include cooperation with the work environment. Dutch policy aims to decrease the number of treatment sessions for patients/employees with MDD and to encourage early referrals to the “Basis GGZ” or to select this as preferred supplier for health intervention. In order to prevent negative work and health outcomes, work-directed interventions and functional rehabilitation intervention should be added to this basic care and offered as integrated care. It is recommended to offer these interventions by well trained professionals, who are familiar with the work environment (Brouwers et al., 2007; Kendrick et al., 2005). Both our developed OT interventions are useful in this approach although improvements have to be made to cover the multifactorial and stepwise approach. This additional intervention should be financed by a combination of healthcare, social security and workplace, as results are beneficial for all three

## ***Conclusion***

From the present thesis, it can be concluded that successful RTW in employees with MDD relies upon a multifactorial approach, including health, personal and work factors. Stakeholder differences in perceived promoting factors on RTW, their cultural background and a proper cooperation, should be incorporated in this RTW process. Also, more effort is needed to improve impaired work functioning, as it may be a vehicle for sustained RTW. The addition of the OT intervention improves health outcomes and may improve work outcomes. The effectiveness of the OT intervention may rely on the type of intervention and the vulnerability to short- or long-term sickness absence.

## References

- Andersen MF, Nielsen KM, Brinkmann S, (2012). Meta-synthesis of qualitative research on return to work among employees with common mental disorders. *Scand J Work Environ Health*, 38: 93-104.
- Anema H, (2012). De bedrijfsarts: dokter zonder patiëntenzorg? *Ned Tijdschr Geneesk*, 156: A4479.
- Anema JR, Steenstra IA, Bongers PM, de Vet HC, Knol DL, Loisel P, van Mechelen W, (2007). Multidisciplinary rehabilitation for subacute low back pain: graded activity or workplace intervention or both? A randomized controlled trial. *Spine (Phila Pa 1976)*, 32(3): 291-298.
- Bee PE, Bower P, Gilbody S, Lovell K, (2010). Improving health and productivity of depressed workers: a pilot randomized controlled trial of telephone cognitive behavioral therapy delivery in workplace settings. *Gen Hosp Psychiatry*, 32(3): 337-340.
- Blonk RWB, Brenninkmeijer V, Lagerveld SE, Houtman ILD, (2006). Treatment of work-related psychological complaints: a randomized field experiment among self-employed. *Work and Stress*, 20: 129-144.
- Bond GR, Drake RE, Becker DR. (2012) Generalizability of the Individual Placement and Support (IPS) model of supported employment outside the US. *World Psychiatry*, 11(1): 32-39.
- Bouma S, Coenen L, Kerckhaert A, (2011). Arbeidsmarktpositie van nietwesterse Allochtonen, De stand van zaken, Eindrapport. Ministerie van Sociale Zaken Zoetermeer.
- Brenninkmeijer V, Houtman I, Blonk R, (2008). Depressed and absent from work: predicting prolonged depressive symptomatology among employees. *Occup Med (Lond)*, 58(4): 295-301.
- Brouwers EP, de Bruijne MC, Terluin B, Tiemens BG, Verhaak PF, (2007). Cost-effectiveness of an activating intervention by social workers for patients with minor mental disorders on sick leave: a randomized controlled trial. *Eur J Public Health*, 17(2): 214-220.
- Brouwers EP, Terluin B, Tiemens BG, Verhaak PF, (2009). Predicting return to work in employees sick-listed due to minor mental disorders. *J Occup Rehabil*, 19(4), 323-332.
- Cornelius LR, van der Klink JJ, Groothoff JW, Brouwer S, (2011). Prognostic factors of long term disability due to mental disorders: a systematic review. *J Occup Rehabil*, 21: 259-274.

- D'Amato A, Zijlstra F, (2010). Toward a climate for work resumption: the nonmedical determinants of return to work. *J Occup Environ Med*, 52: 67-80.
- Dautzenberg M, Wersch S, Pardoel K, (2005). Preventie van langdurig ziekteverzuim onder allochtone werknemers. IVA, Tilburg.
- Dekkers-Sánchez PM, Wind H, Sluiter JK, Hw Frings-Dresen MH, (2011). What promotes sustained return to work of employees on long-term sick leave? Perspectives of vocational rehabilitation professionals. *Scand J Work Environ Health*, 37: 481-493.
- Dewa CS, Thompson AH, Jacobs P, (2011). The association of treatment of depressive episodes and work productivity. *Can J Psychiatry*, 56(12): 743-750.
- Driessen E, Van HL, Don FJ, Peen J, Kool S, Westra D, Hendriksen M, Schoevers RA, Cuijpers P, Twisk JW, Dekker JJ (2013). The efficacy of cognitive-behavioral therapy and psychodynamic therapy in the outpatient treatment of major depression: a randomized clinical trial. *Am J Psychiatry*, 170(9):1041-50.
- Elinson L, Houck P, Marcus SC, Pincus HA, (2004). Depression and the ability to work. *Psychiatr Serv*, 55(1): 29-34.
- Endo M, Muto T, Haruyama Y, Yuhara M, Sairenchi T, Kato R, (2015) Risk factors of recurrent sickness absence due to depression: a two-year cohort study among Japanese employees *Int Arch Occup Environ Health*, 88(1): 75-83.
- Endo M, Haruyama Y, Muto T, Yuhara M, Asada K, Kato R, (2013). Recurrence of sickness absence due to depression after returning to work at a Japanese IT company. *Ind Health*, 51(2): 165-171.
- Ervasti J, Vahtera J, Pentti J, Oksanen T, Ahola K, Kivekäs T, Kivimäki M, Virtanen M, (2015). Return to work after depression-related absence by employees with and without other health conditions: a cohort study. *Psychosom Med*, 77(2): 126-135
- Evans-Lacko S, Knapp M, (2014). Importance of Social and Cultural Factors for Attitudes, Disclosure and Time off Work for Depression: Findings from a Seven Country European Study on Depression in the Workplace. *PLoS ONE*, 9(3): e91053.



- Flach PA, Groothoff JW, Krol B, Bültmann U, (2011). Factors associated with first return to work and sick leave durations in workers with common mental disorders. *Eur J Public Health*, 22(3): 440-445
- Franché RL, Krause N, (2002). Readiness for return to work following injury or illness: conceptualizing the interpersonal impact of health care, workplace, and insurance factors. *J Occup Rehabil*, 12(4): 233-256.
- Franché RL, Baril R, Shaw W, Nicholas M, Loisel P, (2005). Workplace-based return-to-work interventions: optimizing the role of stakeholders in implementation and research. *J Occup Rehabil*, 15(4): 525-542.
- Furlan AD, Gnam WH, Carnide N, Irvin E, Amick BC 3rd, DeRango K, McMaster R, Cullen K, Slack T, Brouwer S, Bültmann U (2012). Systematic review of intervention practices for depression in the workplace. *J Occup Rehabil*, 22(3): 312-321.
- Hardeveld F, Spijker J, De Graaf R, Nolen WA, Beekman AT, (2010). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta Psychiatr Scand*, 122(3): 184-191.
- Hees HL, de Vries G, Koeter MW, Schene AH (2013). Adjuvant occupational therapy improves long-term depression recovery and return-to-work in good health in sick-listed employees with major depression: results of a randomised controlled trial. *Occup Environ Med*, 70(4): 252-260.
- Hees HL, Nieuwenhuijsen K, Koeter MW, Bültmann U, Schene AH, (2012). Towards a new definition of return-to-work outcomes in common mental disorders from a multi-stakeholder perspective. *PLoS One*, 7(6): e39947.
- Hees HL, de Vries G, Koeter MWJ, Schene AH, (2011). Depression & Occupation: Intervention Trial, De effectiviteit van ergotherapie voor werknemers die verzuimen wegens depressie Academisch Medisch Centrum (AMC), Universiteit van Amsterdam Afdeling Psychiatrie, Stemmingsstoornissen.
- Hees HL, Dewa CS, Hoch JS, Koeter MW, Blankers M, de Vries G, Schene AH. Cost-effectiveness of adjuvant occupational therapy in sick-listed employees with major depressive disorder. In progress.

- Henderson M, Harvey SB, Overland S, Mykletun A, Hotopf MJR, (2011). Work and common psychiatric disorders. *Soc Med*,104(5): 198-207.
- Hjarsbech PU, Andersen RV, Christensen KB, Aust B, Borg V, Rugulies R, (2011). Clinical and non-clinical depressive symptoms and risk of long-term sickness absence among female employees in the Danish eldercare sector. *J Affect Disord*, 129(1-3): 87-93.
- Hofstede G, Hofstede GJ, (2009). *Allemaal andersdenkenden*. Contact, Antwerpen Amsterdam.
- Hollinghurst S, Peters TJ, Kaur S, Wiles N, Lewis G, Kessler D, (2010). Cost-effectiveness of therapist-delivered online cognitive-behavioural therapy for depression: randomised controlled trial. *Br J Psychiatry*, 197(4): 297-304.
- Kawakami N, Araki S, Kawashima M, Masumoto T, Hayashi T, (1997). Effects of work-related stress reduction on depressive symptoms among Japanese blue-collar workers. *Scand J Work Environ Health*, 23(1): 54–59.
- Kendrick T, Simons L, Mynors-Wallis L, Gray A, Lathlean J, Pickering R, Harris S, Rivero-Arias O, Gerard K, Thompson C, (2005). A trial of problem-solving by community mental health nurses for anxiety, depression and life difficulties among general practice patients. The CPN-GP study. *Health Technol Assess*, 9(37): 1-104, iii.
- Kessler RC, Merikangas KR, Wang PS, (2008). The Prevalence and Correlates of Workplace Depression in the National Comorbidity Survey Replication. *J Occup Environ Med*, 50:381–390.
- Kikkert MJ, Schene AH, Swinkels JA, Koeter MWJ, (2002). *Ergotherapeutische interventie voor patienten met een arbeidsgerelateerde depressie: een kosteneffectiviteitsstudie*. Amsterdam: Academisch Medisch Centrum bij de Universiteit van Amsterdam, Zorgprogramma Stemmingsstoornissen & afdeling ergotherapie.
- Klink JJL van der, Terluin B, (2005). *Psychische problemen en werk. Handboek voor een activerende begeleiding door huisarts en bedrijfsarts*. Houten: Bohn Stafleu Van Loghum.
- Koopmans PC, Roelen CA, Groothoff JW, (2008). Sickness absence due to depressive symptoms. *Int Arch Occup Environ Health* 81: 711-719.
- Krause N, Frank JW, Dasinger LK, Sullivan TJ, Sinclair SJ, (2001). Determinants of Duration of Disability and Return-to-Work After Work-Related Injury and Illness: Challenges for Future Research. *Am Jour of Ind Med*, 40: 464-484.

- Kuijer W, Groothoff JW, Brouwer S, Geertzen JHB, Dijkstra PU, (2006). Prediction of Sickness Absence in Patients with Chronic Low Back Pain: A Systematic Review. *J Occup Rehabil*, 16: 439–467.
- Lagerveld SE, Bültmann U, Franche RL, van Dijk FJ, Vlasveld MC, van der Feltz-Cornelis CM, Bruinvels DJ, Huijs JJ, Blonk RW, van der Klink JJ, Nieuwenhuijsen K, (2010). Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil*, 20: 275-292.
- Lambeek LC, van Mechelen W, Knol DL, Loisel P, Anema JR, (2010). Randomised controlled trial of integrated care to reduce disability from chronic low back pain in working and private life. *BMJ*, 340: c1035.
- Laitinen-Krispijn S, Bijl RV, (2000). Mental disorders and employee sickness absence: the NEMESIS study. Netherlands Mental Health Survey and Incidence Study. *Soc Psychiatry Psychiatr Epidemiol*, 35(2): 71-77.
- Lépine JP, Briley M, (2011). The increasing burden of depression. *Neuropsychiatr Dis Treat*, 7(Suppl 1): 3-7.
- Lerner D, Adler D, Hermann RC, Chang H, Ludman EJ, Greenhill A, Perch K, McPeck WC, Rogers WH, (2012). Impact of a work-focused intervention on the productivity and symptoms of employees with depression. *J Occup Environ Med*, 54(2): 128-135.
- Loisel P, Durand P, Abenhaim L, Gosselin L, Simard R, Turcotte J, Esdaile JM, (1994). Management of occupational back pain: the Sherbrooke model. Results of a pilot and feasibility study. *Occup Environ Med*, 51(9): 597-602.
- McCrone P, Knapp M, Proudfoot J, Ryden C, Cavanagh K, Shapiro DA, Ilson S, Gray JA, Goldberg D, Mann A, Marks I, Everitt B, Tylee A, (2004). Cost-effectiveness of computerised cognitive-behavioural therapy for anxiety and depression in primary care: randomised controlled trial. *Br J Psychiatry*, 185: 55-62.
- MacEachen E, Clarke J, Franche RL, Irvin E, (2006). Workplace-based Return to Work Literature Review Group Systematic review of the qualitative literature on return to work after injury. *Scand J Work Environ Health*, 32(4), 257-269.

- Millward LJ, Lutte A, Purvis RG, (2005). Depression and the perpetuation of an incapacitated identity as an inhibitor of return to work. *J. Psychiatr. Ment Health Nurs*, 12(5), 565-573.
- Multidisciplinaire richtlijn Depressie (Derde revisie) (2013). Spijker J, Bockting CLH, Meeuwissen JAC, van Vliet IM, Emmelkamp PMG, Hermens MLM, van Balkom ALJM, namens de Werkgroep Multidisciplinaire richtlijnonwikkeling Angststoornissen/Depressie. Richtlijn voor de diagnostiek, behandeling en begeleiding van volwassen patiënten met een depressieve stoornis. Utrecht: Trimbos-instituut.
- Nielsen MB, Bültmann U, Madsen IE, Martin M, Christensen U, Diderichsen F, Rugulies R, (2012). Health, work, and personal-related predictors of time to return to work among employees with mental health problems. *Disabil Rehabil*, 34: 1311-1316.
- Nielsen MB, Madsen IE, Bültmann U, Christensen U, Diderichsen F, Rugulies R, (2010). Predictors of return to work in employees sick-listed with mental health problems: findings from a longitudinal study. *Eur J Public Health*, 21: 806-811.
- Nieuwenhuijsen K, Faber B, Verbeek JH, Neumeyer-Gromen A, Hees HL, Verhoeven AC, van der Feltz-Cornelis CM, Bültmann U (2014). Interventions to improve return to work in depressed people. *Cochrane Database Syst Rev*, 3 (12): CD006237.
- Norder G, Roelen CA, van Rhenen W, Buitenhuis J, Bültmann U, Anema JR, (2012). Predictors of recurrent sickness absence due to depressive disorders-a Delphi approach involving scientists and physicians. *PLoS One*, 7(12): e51792.
- Noordik E, Nieuwenhuijsen K, Varekamp I, van der Klink JJ, van Dijk FJ, (2011). Exploring the return-to-work process for workers partially returned to work and partially on long-term sick leave due to common mental disorders: a qualitative study. *Disabil Rehabil* 33: 1625-1635.
- Prins MA, Verhaak PFM, Bensing JM, Van der Meer K, (2008). Health beliefs and perceived need for mental health care of anxiety and depression, the patients' perspective explored. *Clinical Psychology Review*, 28: 1038-1058.
- Rebergen DS, Bruinvels DJ, Bezemer PD, van der Beek AJ, van Mechelen W, (2009). Guideline-based care of common mental disorders by occupational physicians (CO-OP study): a randomized controlled trial. *J Occup Environ Med*, 51(3): 305-312.

- Riet P, Snoeij K, de Vries G, (2003). Ergotherapie bij depressie, protocollen programma stemmingsstoornissen. Amsterdam: programma stemmingsstoornissen AMC/De Meren.
- Roelen CA, Norder G, Koopmans PC, van Rhenen W, van der Klink JJ, Bültmann U, (2012). Employees sick-listed with mental disorders: who returns to work and when? *J Occup Rehabil*, 22(3): 409-417.
- Schene AH, Koeter MW, Kikkert MJ, Swinkels JA, McCrone P, (2007). Adjuvant occupational therapy for work-related MDD works: randomized trial including economic evaluation. *Psychol Med*, 37: 351–362.
- Schneidert M, Hurst R, Miller J, Ustün B, (2003). The role of environment in the International Classification of Functioning, Disability and Health (ICF). *Disabil Rehabil*, 25(11-12): 588-595.
- Schoevers R en Parmentier S, (2015). Diagnose depressieve. Steenwijk:Balans.
- Timbie JW, Horvitz-Lennon M, Frank RG, Normand ST, (2006). A meta-analysis of labour supply effects of interventions for major depressive disorder. *Psychiatric Services*, 57: 212–218.
- Verboom CE, Sentse M, Sijtsma JJ, Nolen WA, Ormel J, Penninx BW, (2011). Explaining heterogeneity in disability with major depressive disorder: effects of personal and environmental characteristics. *J Affect Disord*, 132(1-2): 71-81.
- Vlasveld MC, van der Feltz-Cornelis CM, Adèr HJ, Anema JR, Hoedeman R, vanMechelen W, Beekman ATF, (2013-a). 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. *Occup Environ Med*, 70: 223–230.
- Vlasveld MC, van der Feltz-Cornelis CM, Anema JR, van Mechelen W, Beekman AT, van Marwijk HW, Penninx BW, (2013-b). The associations between personality characteristics and absenteeism: A cross-sectional study in workers with and without depressive and anxiety disorders. *J Occup Rehabil*, 23: 309-317.
- de Vries G, Hees HL, Koeter MW, Lagerveld SE, Schene AH, (2014). Perceived impeding factors for return-to-work after long-term sickness absence due to major depressive disorder: a concept mapping approach. *PLoS One*, 9(1): e85038.

- de Vries G, Schene AH, (2003). *Arbeidshulpverlening bij depressie, protocollen programma stemmingsstoornissen*, Amsterdam, Programma Stemmingsstoornissen AMC/De Meren.
- de Vries HJ, Reneman MF, Groothoff JW, Geertzen JH, Brouwer S, (2012). Workers who stay at work despite chronic nonspecific musculoskeletal pain: do they differ from workers with sick leave? *J Occup Rehabil*, 22(4): 489-502.
- Waddell G, Burton AK, (2005). Concepts of rehabilitation for the management of low back pain. *Best Pract Res Clin Rheumatol*, 19(4): 655-670.
- Wang PS, Simon GE, Avorn J, Azocar F, Ludman EJ, McCulloch J, Petukhova MZ, Kessler RC, (2007). Telephone screening, outreach, and care management for depressed workers and impact on clinical and work productivity outcomes: a randomized controlled trial. *JAMA*, 298(12): 1401-1411.
- van der Werff E, Verboom CE, Penninx BW, Nolen WA, Ormel J, (2010). Explaining heterogeneity in disability associated with current major depressive disorder: effects of illness characteristics and comorbid mental disorders. *J Affect Disord*, 127: 203-210.
- Wilkie R, Pransky G, (2012). Improving work participation for adults with musculoskeletal conditions. *Best Practice & Research Clinical Rheumatology*, 26: 733–742.

Appendix 1. Checklist on factors that promote RTW after sick leave due to depression

Name		True				False
Person		1	2	3	4	5
<b>Self-esteem</b>	Employee has self-confidence					
	Employee feels taken seriously and acknowledged					
	Employee feels understood					
	Employee has a strong inner will and feels able to survive					
	Employee feels secure and is assertive					
	Employee does not feel ashamed, or a failure					
	Employee is not hindered by factors such as being too demanding or too perfectionistic					
	Employee is not reluctant with respect to return to work					
	Employee has faith in better times					
<b>Coping ability</b>	Employee is able to identify his problems and his needs					
	Employee is aware of, and expresses his limits					
	Employee is able to set goals compatible with the energy required for the task					
	Employee is able to reflect on his behaviour and to discuss his own functioning					
	Employees is willing to take responsibility					
	Employee does not externalises the origin of his problems					
	Employee is able to deal with fear of failure					
	Employee expresses persistence					
	Employee is able to put work into perspective					
<b>Balanced work / home situation</b>	There is a balanced work/home situation					
	Employees experiences understanding and support from family and/ or friends					
	Employees is able to talk with people in the home environment					

Appendix 1. Checklist on factors that promote RTW after sick leave due to depression

Appendix 1. Checklist on factors that promote RTW after sick leave due to depression						
	The employee is not hindered by additional responsibilities at home (e.g. care for sick child, partner or parent)					
	Employee experiences support from (church) community					
	Employees does not fill the week with too many social activities					
	Employee undertakes restoring activities such as sport and relaxation					
Work		1	2	3	4	5
<b>Adaptation of work environment</b>	Stress is reduced by eliminating stressful tasks					
	Workload is adjusted in relation to the tasks, responsibilities and/or amount of work					
	Supervisor creates suitable solutions with respect to employee's position					
	There is a work environment without an excess of stimuli					
	Employee is offered a suitable employment					
	Employee is able to set own work pace and to organise own tasks					
	Supervisor does not demand too much from employee					
	There is clarity regarding tasks and expectations at work					
	Employee does not need too much support					
<b>Support in work environment</b>	There is a safe working climate, pleasant work atmosphere					
	Employee feels accepted and respected at work					
	Employees is not hindered by feelings of embarrassment					
	There is understanding and support from colleagues					
	There is understanding and support on the part of the supervisor					
	There is regular communication between supervisor and employee with respect to progress					
	Supervisor and employee have expressed mutual trust					
	Employee receives enough structure and guidance from work environment					
<b>Positive work experiences</b>	Employee has passion for his work					



Appendix 1. Checklist on factors that promote RTW after sick leave due to depression

Appendix 1. Checklist on factors that promote RTW after sick leave due to depression						
	There is no (dormant) work dispute					
	Employer does not want to get rid of employee					
	Employee did not resume work too soon to succeed					
	The reintegration process is not hindered by reorganisations at work					
<b>Healthcare</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Restore</b>	Employee has sufficient peace of mind to resume work					
	There is a suitable reduction of (depressive) symptoms					
	Employees has suitable level of energy for the required tasks					
	Employee does not suffers anymore from worrying, concentration or memory problems					
	Besides depression employee is not hindered by other (psychiatric) problems					
<b>Supportive Healthcare</b>	There has been adequate assessment and referral to appropriate treatment by occupational physician					
	There is adequate coordination between clinician, occupational physician, supervisor and employee					
	Treatment is sufficient and meets the need					
	The reintegration process is clear to the employee					
	Employee has understanding of the origin of the depression					
	Employee experiences support from involved medical professionals (psychologist, general physician)					
	Employee obtains tools to cope with the depression and with problems					
	Employee is not hindered by side effects of healthcare interventions (e.g. medication advice)					
<b>Conclusion</b>						

	Theme	Promoting in Western culture	Promoting in non-western culture	Impediments
Employee	Self-esteem and acknowledgement	Employee experiences taken seriously and recognitions for his personal goals	Employee experiences acknowledgement for his work and there is attention for reinforcement of his group position	There is attention for employee's feelings of shame, feeling a failure or too little self confidence
	Coping ability	Employee is able to state goals, to state his limits and to discuss his abilities	Employee feels responsibility and requires tools to solve problems	There is attention for employee's reluctance and inability to discuss own functioning
	Positive level of energy	Employee experiences a reduction of symptoms and improved energy level	Employee experiences sufficient mental strength and willingness for RTW	There is attention for employee's experienced symptom severity and co-morbidity (addiction, personality or physic)
	Work/home balance	Employee experiences a supportive home environment to affect work environment	Employee experiences responsibilities towards family for RTW	There is attention for employee's experienced disruptive home environment
Work	Adaptation of tasks	Tasks are adapted in accordance with employee and fitting employee's ability	Supervisor has created a safe work environment	There is attention for employee's experience to be put under pressure
	Support	There is an open communication and employee experiences support from supervisor and colleagues	Employee experiences that he is accepted and respected by colleagues.	There is attention for supervisors (in)ability to support employee
	Prospect	Employee experiences pleasant work	Employee experiences a positive position in organization	There is attention for the possibility that the employer wants to get rid of employee

Appendix 2. Guide on promoting RTW after sick leave due to depression

	Theme	Promoting in Western culture	Promoting in non-western culture	Impediments
Care	Healthcare	There is sufficient treatment and support to RTW adapted to other involved stakeholders. Employee experiences support from healthcare professional, based on shared responsibility	Employee experiences supportive mediation and treatment by professionals and support from social network and religion	There is attention for a lack of communication or cooperation between all involved stakeholders



# Summary

Major Depressive Disorder (MDD) is a major public and occupational health problem, which is associated with a high burden to patients, families and society. In the Dutch working population, annually more than 5% are affected and of those half are on sick leave. Once on sickness absence, MDD is associated with long term sickness absence, with on average 100-200 days and an increased risk for disability pension. Work characteristics affect the aetiology of depression i.e. high work demands, low decision latitude, low support and low occupational resources. Although work circumstances may contribute to the aetiology of depression, positive circumstances may also reinforce recovery. Return to work (RTW) therefore is not only of societal interest but is also of health and personal interest.

To improve health outcomes and return to work, we developed an occupational therapy intervention (OT) in the late 1990's, which was improved in 2000, and is assessed in this thesis. For a better understanding of the RTW process after sick leave due to MDD we also assessed perceived promoting and impeding factors on RTW. Because usual strategies on RTW do not fit completely for employees with a non-western background, we assessed the similarities and differences on perceived promoting factors for RTW between a western (the Netherlands) and non-western culture (Suriname). Finally, once on RTW and recovered from MDD, the level of functioning and predictors for impaired function were also part of our interest.

Chapter 2 describes the result of the addition of occupational therapy to treatment as usual on work and health outcomes. Employees on sick leave due to MDD, with at least a MDD duration of three months (mean 7.7 months, SD 4.0-13.5) or sickness absence for at least 8 weeks (median 4.8 months, IQR 2.6-10.1) were randomised to treatment as usual (TAU, n=39) and TAU plus occupational therapy (TAU+OT, n=78). Work, health and intermediate outcomes were evaluated at baseline and 6, 12, and 18 months follow up. Analyses revealed no significant benefit of adjuvant OT for improving time to partial ( $p=0.14$ ) or full RTW ( $p=0.79$ ). However, adjuvant OT did increase long-term depression recovery (MDD in remission,  $p=0.05$ ), improved sustainable remission ( $p=0.04$ ) and long term return to work in good health (i.e. full return to work while being remitted from MDD,  $p=0.02$ ). No significant intermediate outcomes were found in work related

coping and self-efficacy. It was concluded that although adjuvant OT was not significantly more effective than TAU in improving overall work participation, it did increase depression recovery and the probability of returning to work in good health in a highly impaired population.

Chapter 3 describes the perceived promoting factors for RTW in employees on sick leave due to MDD. With concept mapping procedure employees, supervisors and occupational physician (n=32) generated 60 statements on the question: ‘Which factors (work -, personal - and other characteristics) have supported return to work (or expanding work) in patients suffering from depression?’. The clustering and prioritising procedure yielded a three meta-cluster and eight cluster solution. The first meta-cluster “Work” comprised three clusters: ‘Adaptation of work’, ‘Understanding and support in the workplace’ and ‘Positive work experiences’. The second meta-cluster “Person” comprised four clusters: ‘Positive and valid self-perception’, ‘Competence in self-management’, ‘Positive level of energy’ and ‘Supportive home environment’. The third meta-cluster “Healthcare” comprised one cluster: ‘Supportive healthcare’. Results reveal that a wide range of factors improve RTW. Although stakeholders in general agreed on importance of meta-clusters and clusters, differences emerged in some statements. These differences pertain to perspectives of stakeholders.

Chapter 4 describes the perceived impeding factors for RTW in employees on sick leave with MDD. We examined if impeding factors are the same as the absence or the opposite of promoting factors, and also if other factors are involved. With the concept mapping procedure, participants (patients, supervisors and occupational physicians; n=32) yielded 60 statements on the question “Which factors (work, personal and/or other factors) have contributed to the fact that you have (or your employee/patient has) not been able to return-to-work within one year of being on sick leave”. The prioritising and clustering step by participants (n=38) yielded a three meta-clusters and eight clusters solution as best fit. The first meta-cluster “Person” comprised four clusters: ‘personality/coping problems’, ‘Symptoms of depression and comorbid (health) problems’, ‘Employee feels misunderstood’ and ‘Resuming work too soon’. The second meta-cluster “Work” comprised three clusters: ‘Troublesome work situation’, ‘Too little support at work’ and ‘Too

little guidance at work'. The third meta-cluster "Healthcare" comprised two clusters: 'Insufficient mental healthcare' and 'Insufficient care from occupational physician'. The highest number of statements ranked as important, pertained to the clusters 'Symptoms of depression and comorbid (health) problems' and 'Personality / coping problems' and 'Insufficient mental healthcare'. The opposite of perceived promoting factors were indeed found as impeding factors, but also additional factors were found, in particular factors that pertain to the clusters "Personality/coping problems" and "Symptoms of depression and comorbid health problems".

Chapter 5 describes similarities and differences in perceived promoting factors for RTW between Dutch and Surinamese stakeholders. For this purpose we also carried out our concept mapping study on promoting factors for RTW in Suriname. Surinamese stakeholders (n=39) yielded 70 statements. Prioritising and clustering session (n=49) resulted in a largely comparable framework of three meta-clusters and 8 clusters. Differences can be traced back to the interpretation of the meta-clusters. In the Dutch study the emphasis in the meta-cluster "Person" is on the employee's personal development, while in the Surinamese study it is on being accepted and respected within a group of colleagues. In the second meta-cluster "Work" in the Dutch study, the emphasis is on a supervisor who creates a stepwise RTW plan in consultation with the employee, while in the Surinamese study the emphasis is on the supervisor's responsibility to create a RTW plan, with respect to employee's safety, social position and career opportunities. In the third meta-cluster "Healthcare" in the Dutch study, the emphasis is on professional support while in the Suriname study it is on employee's inner strength, professional's ability to mediate, and support gained by spiritual beliefs and social network. Findings reveal differences in perceived promoting factors for RTW which may subsequently affect the RTW process.

Chapter 6 describes the level of work functioning and its negative predictors, among employees (n=68) recovered from depression (HDRS<7) and who returned to work for almost their original contract hours (92%). On average employees showed impaired work functioning as assessed with the work limitations scale and the need for recovery scale. One-third reached the level of increased risk for recurrence of sickness absence and impaired health outcomes. Personality factors were



the strongest predictors of this impairment, followed by work and health factors. After backward elimination only a passive reaction coping style remained as predictor. Results underline the need for support to improve work functioning in particular for those with persistent impaired work functioning and passive reaction coping style.

In Chapter 7 the main findings of this thesis are discussed. Addition of OT does improve health outcomes, but it does not improve RTW outcomes for employees on sickness absence due to MDD in general, although it may improve RTW for those on short term sickness absence. Because there may be a difference between interventions needed for those on short term sickness absence (<3months), compared to those vulnerable for- or on long term sickness absence (>3 months), we recommend a stepped care approach. Selection should be offered by a multidisciplinary approach. This may contribute to a proper analysis, but may also improve cooperation. Further research should assess the additional value of a stepped approach.

Different health, personal and work factors affect RTW. These factors, both promoting and impeding, should be assessed during RTW in order to promote RTW, but also to prevent an impeding RTW. These factors can be used as a checklist, supporting guidance for RTW. The factors and perceived difference in importance by stakeholders should be discussed, in order to improve cooperation and effectiveness of the interventions. In addition, employees with a non-western background may have a different perception on factors that promote their RTW which western stakeholders are not familiar with. Because interventions are more effective when they match the employee's background, supervisors, occupational physicians or other professionals involved in the RTW process, should be aware of these differences and take those into account in their RTW strategy. Further quantitative research is needed on assessing the generalisability of promoting and impeding factors and on the additional value of the modification of these factors in the RTW process.

Among employees on RTW in good health (MDD in remission) work functioning may still be impaired. A passive reaction coping style is the most important reason for this impairment. There is an increased possibility that this affects long term work and health outcomes. Employees with

persistent impaired work functioning should be supported in coping with the challenges they experience in the work environment. Further assessment should reveal if improved functioning also prevents recurrences of sickness absence and MDD.

# Samenvatting

Depressie is een veel voorkomende aandoening. Ruim 5% van de werkende populatie in Nederland krijgt er jaarlijks mee te maken en bijna 20% eens in hun leven. Van hen meldt ruim de helft zich ziek. Depressie leidt vervolgens veelal tot langdurig verzuim, met verzuimperiodes van gemiddeld 100-200 dagen. Ruim een kwart van de mensen lukt het niet om na één jaar het werk te hervatten. Depressie leidt ook tot verminderd functioneren. De kosten van verminderde productiviteit zijn zelfs groter dan de kosten van verzuim en gezondheidszorgkosten bij elkaar. De verminderde productiviteit wordt veroorzaakt door verminderd cognitief, sociaal en emotioneel functioneren. Vooral de kosten van verzuim en verminderde productiviteit, maken dat depressie, in vergelijking met andere chronische aandoeningen, een ziekte is met één van de hoogste maatschappelijke kosten.

Werk heeft ook invloed op het ontstaan en het voortduren van de depressie. Een hoge werkdruk, weinig regelruimte, weinig sociale steun en een tekort aan energiebronnen in vergelijking met de geleverde inzet, zijn hiervan de belangrijkste oorzakelijke werkfactoren. Echter werk kan ook een bijdrage leveren aan het herstel; het geeft o.a. structuur, zingeving en kan fungeren als bescherming tegen depressieve klachten. Het hervatten van werk is daarmee van zowel maatschappelijk, medisch als persoonlijk belang.

Op de afdeling ergotherapie, binnen het programma Stemmingsstoornissen van het Academisch Medisch Centrum in Amsterdam, hebben we vaak te maken met patiënten met een arbeidscontract. De ervaring heeft geleerd, dat het herstellen van de depressieve klachten niet automatisch leidt tot hervatten van het werk. Om deze reden werd eind jaren 90 een ergotherapie interventie ontwikkeld om deze groep mensen te ondersteunen in het hervatten van het werk. Naar aanleiding van bemoedigende onderzoeksresultaten is deze interventie in 2000 aangepast op basis van nieuwe maatschappelijke inzichten, resulterend in een interventie van kortere duur en start van werkhervatting bij aanvang van deze interventie.

Werkhervatting na depressie is een complex proces. Om dit proces beter te begrijpen hebben we ons een aantal vragen gesteld:

1. Wat is het resultaat van de additie van de ergotherapie interventie aan de gebruikelijke ambulante behandeling van depressie op werkhervatting en gezondheid?
2. Welke factoren worden als ondersteunend ervaren in het hervatten van het werk na verzuim door een depressie door werknemers, werkgevers en bedrijfsartsen?
3. Welke factoren worden als belemmerend ervaren voor de werkhervatting na verzuim door een depressie door werknemers, werkgevers en bedrijfsartsen?
4. Wat zijn de overeenkomsten en verschillen tussen Nederland (als westers land) en Suriname (als niet-westers land) in bevorderende factoren voor werkhervatting, volgens betrokkenen in het werkhervattingproces (werknemers, werkgevers en bedrijfsartsen)?
5. Wat is het niveau van werk-functioneren van werknemers op het werk nadat zij hersteld zijn van hun depressie en welke factoren zijn van invloed op dit functioneren?

Antwoorden op deze vragen zijn hieronder samengevat.

*Wat is het resultaat van de additie van de ergotherapie interventie aan de gebruikelijke ambulante behandeling van de depressie, op werkhervatting en gezondheid?*

In een gerandomiseerde gecontroleerde studie werden 117 werknemers geïncludeerd. Deze werknemers moesten werk verzuimen als gevolg van een depressie en langer dan drie maanden depressief zijn (gemiddeld 7,7 maanden) of minimaal 8 weken verzuimen (mediaan 4,8 maanden). Geïncludeerde werknemers werden vervolgens gerandomiseerd naar een reguliere behandeling (RB, n=39) en een RB plus ergotherapie (RB+ET, n=78). Uitkomstmaten waren werkparticipatie, werk functioneren, depressieve klachten en kwaliteit van leven. Er is eveneens gekeken naar de invloed op werk gerelateerde coping en zelfeffectiviteit, omdat dit mogelijk één van de werkingsmechanismen is van de additie van ergotherapie. Deze maten zijn bij beide condities gemeten bij aanvang van de studie en na 6, 12 en 18 maanden.

Er werd geen meerwaarde gevonden van toevoeging van de ET interventie naar part-time werkhervatting (gemiddeld 80 dagen in ET+RB conditie en 166 dagen in RB conditie,  $p=0,14$ )

en volledige werkhervatting (gemiddeld 361 dagen in ET+RB behandeling en 405 dagen in RB behandeling,  $p=0,79$ ). Toevoeging van ET gaf echter wel een groter kans op herstel van de depressie ( $p=0,03$ ) en verminderde de kans op terugval naar depressie ( $p=0,05$ ). Tevens bleek dat werknemers in de RB+ET conditie vaker full time en weer volledig hersteld terugkeerden naar hun werk ( $p=0,02$ ). Er werd geen verschil gevonden in de overige uitkomst maten. [Hoofdstuk 2]

*Welke factoren worden als een bijdrage ervaren in het hervatten van het werk na verzuim door een depressie door werknemers, werkgevers en bedrijfsartsen?*

Deze vraag hebben we voorgelegd aan werknemers die hier zelf ervaring mee hebben en aan leidinggevend en bedrijfsartsen die hier als professional ervaring mee hebben ( $n=32$ ). Zij kwamen tot een lijst van 60 unieke factoren. Vervolgens hebben zij deze factoren ingedeeld in mate van belangrijkheid en gegroepeerd. Met behulp van de concept mapping procedure zijn deze factoren vervolgens ingedeeld in drie hoofdgroepen (werk, persoon en gezondheidszorg) en 8 subgroepen. De benaming van de groepen is gekozen op basis van de factoren die in deze groepen zijn ingedeeld.

De hoofdgroep “Werk” heeft drie subgroepen: ‘Aanpassen van het werk’, ‘Begrip en ondersteuning op het werk’ en ‘Positieve ervaring op het werk’. De hoofdgroep “Persoon” heeft vier subgroepen: ‘Zelfwaardering’, ‘Vaardig in zelfmanagement’, ‘Positief energie niveau’ en ‘Ondersteuning vanuit de thuis situatie’. De hoofdgroep “Gezondheidszorg” bestaat uit één subgroep, ‘Ondersteunende gezondheidszorg’. Hoewel werknemers, leidinggevend en bedrijfsartsen over het algemeen hoofdgroepen en subgroepen even belangrijk vonden, waren er wel verschillen in de mate van belangrijkheid van de afzonderlijke factoren. Deze verschillen kunnen herleid worden vanuit het perspectief van de deelnemers. Zo is bijvoorbeeld de factor “Voldoende rust in je hoofd om werk op te pakken” meer belangrijk voor werknemers, “Uitspreken van wederzijds vertrouwen tussen werkgever en werknemer” meer belangrijk voor leidinggevend en “Aanpassen van het werk in hoeveelheid en/of taken” meer belangrijk voor bedrijfsartsen.

Dit onderzoek geeft aan dat er een veelheid is aan factoren die van belang zijn voor het bevorderen van de werkhervatting na uitval door een depressie. Deze hebben betrekking op zowel de persoon,

de werkomgeving als de gezondheidszorg. De factoren kunnen gebruikt worden als een verzameling tips voor het bevorderen van de werkhervatting. De gevonden factoren kunnen ook dienen als een checklist voor werkhervatting. Indien deze checklist door de verschillende betrokkenen bij het werkhervattingsproces wordt ingevuld, kan het ook inzicht geven in verschillen in belang die de betrokkenen toekennen aan de verschillende factoren. Het bespreekbaar maken van deze verschillen kan de samenwerking tussen betrokkenen verder optimaliseren. [Hoofdstuk 3]

*Welke factoren worden als belemmerend ervaren voor de werkhervatting na verzuim door een depressie door werknemers, werkgevers en bedrijfsartsen?*

Werknemers, leidinggevenden en bedrijfsartsen, die hebben ervaren dat het de werknemer niet lukte om het werk binnen een jaar te hervatten deden mee aan dit onderzoek (n=38). Hen werd gevraagd factoren aan te geven die maakten dat het niet gelukt is om binnen een jaar het werk te hervatten. Met behulp van de concept mapping procedure, leidde dit tot 60 unieke uitspraken die vervolgens met behulp van deze methode zijn gegroepeerd tot drie hoofdgroepen (persoon, werk en gezondheidszorg) en negen subgroepen. De benaming van deze groepen is weer gekozen op basis van de inhoud van de factoren die tot deze groep behoren.

De hoofdgroep “Persoon” omvat vier subgroepen: ‘Persoonskernmerken en coping problemen’, ‘Symptomen van depressie en andere gezondheidsproblemen’, ‘Werknemer voelt zich onbegrepen’ en ‘Te snel hervatten van het werk’. De hoofdgroep “Werk” omvat drie subgroepen: ‘Een verstoorde werksituatie’, ‘Te weinig steun op het werk’ en ‘Te weinig begeleiding op het werk’. De hoofdgroep “Gezondheidszorg” omvat twee subgroepen: ‘Ontoereikende geestelijke gezondheidszorg’ en ‘Ontoereikende zorg van de bedrijfsarts’. Van de factoren die als belangrijk werden gescoord, behoorden de meeste tot de groep van “Persoonlijkheidsfactoren en coping problemen” en op “Symptomen van depressie en andere gezondheidsproblemen”.

Als we deze resultaten nu vergelijken met de studie naar bevorderende factoren, dan blijkt dat het ontbreken van, dan wel het tegenovergestelde van bevorderende factoren, zoals verwacht, ook gezien kan worden als belemmerde factoren voor het hervatten van werk. Aanvullend is dat

de belemmerende factoren meer preciezer aangeven waar de problemen liggen. Bijvoorbeeld, de factor 'het vermogen om je problemen te kunnen benoemen' werd gezien als een bevorderende factor voor werkhervatting. Factoren die een belemmering waren en hier betrekking op hadden, waren o.a. 'moeite om problemen onder ogen te zien', 'werknemer heeft moeite met accepteren dat hij een aantal dingen niet meer kan', 'werknemer legt de oorzaak van de problemen buiten zichzelf', 'werknemer kan moeilijk aangeven wat hij nodig heeft' en 'werknemer kan eigen functioneren niet bespreekbaar maken'. Het vroeg herkennen en beïnvloeden van deze problemen is belangrijk om het proces van werkhervatting niet onnodig te vertragen. [Hoofdstuk 4]

*Wat zijn de overeenkomsten en verschillen tussen Nederland, (als westers land) en Suriname (als niet-westers land) in bevorderende factoren voor werkhervatting, volgens betrokkenen in het werkhervatting proces (werknemers, werkgevers en bedrijfsartsen)?*

We hebben ons deze vraag gesteld om meer zicht te krijgen op de invloed van de culturele achtergrond op werkhervatting na verzuim door een depressie. Voor het beantwoorden van deze vraag hebben we het onderzoek naar bevorderende factoren voor werkhervatting in Nederland ook uitgevoerd in Suriname. Vervolgens hebben we de resultaten met elkaar vergeleken. De belangrijkste gevonden verschillen tussen de Nederlandse en Surinaamse studie kunnen herleid worden tot de drie eerder gevonden hoofdgroepen: persoon, werk en gezondheidszorg.

Ten aanzien van factoren die betrekking hebben op de persoon, ligt in de Nederlandse studie het accent op de ontwikkeling van het individu, terwijl in de Surinaamse studie het accent ligt op geaccepteerd en gerespecteerd worden door collega's. Ten aanzien van factoren die betrekking hebben op werk ligt in de Nederlandse studie het accent op het doen van aanpassingen in de werkomgeving ná goed overleg tussen werkgever en werknemer. In de Surinaamse studie ligt het accent op de verantwoordelijkheid van werkgever; het is zijn taak om een plan te maken voor werkhervatting, waarbij hij goed rekening moet houden met de sociale positie van de werknemer in de groep. Ten aanzien van factoren die betrekking hebben op de gezondheidszorg ligt in de Nederlandse studie het accent op verkrijgen van een vertrouwensrelatie tussen werknemer en professional en op het verkrijgen van steun van de professionals. In de Surinaamse studie wordt



van de professional bemiddeling verwacht en het verkrijgen van handvaten in het omgaan met de depressie. Persoonlijke ondersteuning wordt verwacht vanuit het geloof en het eigen sociale netwerk. Verder wordt in Suriname veel waarde gehecht aan de eigen innerlijke kracht die nodig is om het werk weer te (kunnen) hervatten.

Gezien de gevonden verschillen is het van belang dat er aandacht is voor culturele verschillen in het proces van werkhervatting en dat interventies zo nodig worden aangepast aan de culturele achtergrond van de werknemer. Dit is vooral van belang in organisaties met werknemers met een verschillende etnische achtergrond. [Hoofdstuk 5]

*Hoe functioneren werknemers op het werk nadat zij hersteld zijn van hun depressie en welke factoren voorspellen een verminderd functioneren?*

Bij werknemers die hersteld waren van hun depressie en het werk gemiddeld vrijwel geheel hadden hervat (n=68), hebben we het niveau van functioneren op het werk onderzocht. Het bleek dat deze werknemers gemiddeld minder goed functioneerden in vergelijking met gezonde werknemers zonder een voorgeschiedenis met depressie. Een derde had gezien hun niveau van functioneren een verhoogd risico om weer te verzuimen en het verkrijgen van gezondheidsklachten. Persoonlijkheidskenmerken waren hiervoor de belangrijkste voorspellers, gevolgd door werk- en gezondheidskenmerken. Uit verdere analyse bleek een passief reactie patroon ten aanzien van problemen op het werk de belangrijkste voorspeller voor dit verminderd werk functioneren. Dit zijn werknemers die zich bij problemen in meerdere mate door de situatie in beslag laten nemen, de zaak somber inzien, piekeren over het verleden en zich niet in staat voelen om deze problemen op te lossen. Gezien de verwachte negatieve invloed van verminderd functioneren op het behoud van werk en gezondheid, is het van belang werknemers te ondersteunen die een grote kans hebben op aanhoudend verminderd functioneren. Vooral ondersteuning in het omgaan met en het oplossen van problemen op het werk zijn hierin van belang. [Hoofdstuk 6]

In hoofdstuk 7 zijn de belangrijkste resultaten samengevat en in perspectief van de huidige stand van de wetenschap geplaatst. Verder zijn aanbevelingen gedaan voor de praktijk en toekomstig onderzoek. De belangrijkste conclusies van dit onderzoek zijn:

- 1 De additie van ergotherapie is niet effectief in het hervatten van het werk, maar wel in duurzaam herstel van de depressie en werk functioneren van werknemers die hersteld zijn, bij een populatie met ernstige klachten en langdurig verzuim. Aanbevolen wordt om in vervolg onderzoek onderscheid te maken in werknemers die meer kwetsbaar zijn voor kort verzuim en langdurend verzuim omdat de effectiviteit en de vorm van interventie hier mogelijk mee samenhangt.
- 2 Het proces van werkhervatting is multifactorieel, zowel ten aanzien van bevorderende en belemmerende factoren als t.a.v. de culturele verschillen. Het is dan ook van belang dat zowel de persoonskenmerken, als de werkomgeving en de gezondheidszorg wordt betrokken in het proces van werkhervatting én dat er een zorgvuldige afstemming met alle betrokken partijen plaats vindt. Aanbevolen wordt om met partijen gezamenlijk te komen tot een analyse van het probleem en een voorstel voor herstel. Een checklist, waarin alle bevorderende en belemmerende factoren zijn samengevat, kan hierbij behulpzaam zijn. Deze kan eveneens gebruikt worden om de voortgang van het werkhervattingsproces te monitoren en, door betere afstemming, de samenwerking tussen partijen te verbeteren.
- 3 Herstel van depressieve klachten betekent niet automatisch ook herstel van functioneren. Moeite in het omgaan met problemen op het werk is hiervan de belangrijkste voorspellende factor. Het is aan te raden werknemers die weliswaar hersteld zijn van de depressie, maar kwetsbaar zijn voor aanhoudend verminderd functioneren, voor een langere periode te ondersteunen. Vervolg onderzoek moet aantonen in welke mate deze inspanning bijdraagt aan het verbeteren van het functioneren van werknemers, maar ook in welke mate dit bijdraagt aan het voorkomen van een recidiverende depressie en/of terugkerend verzuim.

# Portfolio

PhD student: Gabe de Vries

PhD period: September 2009 – April 2016

PhD supervisors: Prof. dr. Aart H. Schene & Dr. Maarten W.J. Koeter

## 1. Publications

### Publications in Thesis

#### *Accepted/Published*

de Vries G, Koeter MW, Nieuwenhuijsen K, Hees HL, Schene AH. Predictors of impaired work functioning in employees with major depression in remission. *Journal of Affective Disorders* 2015; 185: 180-187

de Vries G, Hees HL, Koeter MW, Lagerveld SE, Schene AH. Perceived impeding factors for return-to-work after long-term sickness absence due to major depressive disorder: a concept mapping approach. *PLoS One* 2014; 9(1): e85038

Hees HL, de Vries G, Koeter MW, Schene AH. Adjuvant occupational therapy improves long-term depression recovery and return-to-work in good health in sick-listed employees with major depression: results of a randomised controlled trial. *Occupational and Environmental Medicine* 2013; 70(4): 252-260

de Vries G, Koeter MWJ, Nabitz U, Hees HL, Schene AH. Return to work after sick leave due to depression; A conceptual analysis based on perspectives of patients, supervisors and occupational physicians. *Journal of Affective Disorders* 2012; 136(3): 1017-1026

#### *In preparation/Submitted*

de Vries G, Koeter MJ, Haarloo RTh, Boedjarath I, Schene AH. Cultural differences in need for support on return to work after sick leave due to depression. Submitted

## Other Publications

- de Vries G, Hees H, Frans A, Teunissen S, Stor L. Terugkeer naar werk bij depressie; Ergotherapie draagt bij aan activering en begeleiding naar werk. *Ergotherapie Magazine* 2014; 3: 22-28
- de Vries G. Module Ergotherapie, Werkhervatting bij depressie (herziene versie 2008). Academisch Medisch Centrum bij de Universiteit van Amsterdam, Zorgprogramma Stemmingsstoornissen, Afdeling ergotherapie en Roads, Amsterdam, 2015
- de Vries G, Haarloo RTh, Jintie J, Jong ME de, Muntslag IRS. Werkhervatting na depressie, in Suriname en Nederland, vanuit multicultureel perspectief. Arkin, Amsterdam; PCS, Paramaribo, 2012
- Schene AH, de Vries G. Uit de kliniek: Depressieve stoornissen en arbeid: een complexe relatie. *Tijdschrift voor Bedrijfs- en Verzekeringsgeneeskunde* 2012; 15(7): 338-341
- Hees HL, de Vries, G, Koeter MWJ, Schene AH. Depression & Occupation: Intervention Trial. De effectiviteit van ergotherapie voorwerknemers die verzuimen wegens depressie. Academisch Medisch Centrum (AMC), Universiteit van Amsterdam Afdeling Psychiatrie, Stemmingsstoornissen, 2011
- Hees HL, Koeter MW, de Vries G, Ooteman W, Schene AH. Effectiveness of adjuvant occupational therapy in employees with depression: design of a randomized controlled trial. *BMC Public Health* 2010; 10: 558
- Varekamp I, Heutink A, Landman S, Koning C, de Vries G, van Dijk F. Facilitating Empowerment in Employees with Chronic Disease: Quality analysis of the Process of Change. *Journal of Occupational Rehabilitation* 2009; 19: 394-408
- Varekamp I, de Vries G, Heutink A, van Dijk FJ. Empowering employees with chronic diseases; development of an intervention aimed at job retention and design of a randomised controlled trial. *BMC Health Services Research* 2008; 8: 224
- de Vries G. Kom ik nog aan het werk?, voorspellende factoren werkhervatting bij cliënten met een depressie. *AD visie* 2007, 29(3): 12-14
- de Vries G, Schene AH. Arbeidshulpverlening bij depressie, protocollen programma stemmingsstoornissen, Programma Stemmingsstoornissen AMC/De Meren, Amsterdam, 2003
- van Riet P, Snoeij K, de Vries G. Ergotherapie bij depressie, protocollen programma stemmingsstoornissen. Programma Stemmingsstoornissen AMC/De Meren, Amsterdam, 2003

- de Vries G, Kikkert MJ, Schene AH, Swinkels J. Helpt arbeidshulpverlening bij patiënten met een depressie. Nederlands tijdschrift voor ergotherapie 2003; 31(3): 103-108
- de Vries G, Schene AH. Protocol Arbeidshulpverlening voor patiënten met een depressie en arbeidsproblematiek. MFO Psychiatrie AMC / De Meren, Amsterdam, 2001
- de Vries G, Ammeraal M. Arbeidsanamnese in de Psychiatrie. Nederlands tijdschrift voor ergotherapie 2001; 29: 48-52
- de Vries G, Kikkert M, Schene A, Swinkels J. Van experiment naar onderzoeksproject. Nederlands tijdschrift voor ergotherapie 2001; 1: 9-13
- de Vries G, Dietz C. Depressiehandelingslijst ergotherapie, de ontwikkeling van een ergotherapeutische handelingslijst voor patiënten met een depressie. Acta Belgica 1997; 4: 20-23
- Dietz C, de Vries G. De ergotherapeutische behandeling van patiënten met een depressie. Nederlands tijdschrift voor ergotherapie 1997; 25: 146-150

### ***Book chapters***

- Schene AH, Hees HE, de Vries G. Werk, werkomstandigheden en depressie. Handboek depressieve stoornissen (in druk). Editors Schene AH, Sabbe B, Spinhoven Ph, Ruhe E. Utrecht, De Tijdstroom.
- de Vries G, Schene AH. Reintegrating people suffering from depression in the workplace. International handbook of occupational therapy interventions. Second edition Edited by Ingrid Söderback. Springer, Cham Heidelberg, New York, Dordrecht, London, 2015
- Schene AH, Hees HL, Koeter MWJ, de Vries G. Work, mental health and depression; chapter 11. Improving Mental Health Care: The Global Challenge, First Edition. Edited by Graham Thornicroft, Mirella Ruggeri and Sir David Goldberg. © 2013 John Wiley & Sons, Ltd. Published 2013 by John Wiley & Sons, Ltd
- de Vries G, Schene AH. Restart to work among people suffering from depression; International Handbook of Occupational therapy Intervention. Edited by Ingrid Söderback. Springer, Dordrecht, Heidelberg, London, New York, 2008.
- de Vries G, van Beek E. Omgaan met anderen, sociale vaardigheden in een dagbehandelingsproject. In: Voor de dag komen. Utrecht, Uitgeverij SWP, 1993.

## 2. Parameters of Esteem

Grants	Year	Amount
LISV, together with A.H. Schene. Effectiviteit module werkhervatting bij depressie.	1997	205.200

## 3. Teaching

### Presentations

Kom ik nog aan het werk, kansen en belemmeringen. Depressie en werk(loos)heid. Utrecht, 2015

Culturele verschillen in bevorderende factoren werkhervatting na depressie, Goed gestemd aan het werk. Amsterdam, 2014

Bevorderende en belemmerende factoren werkhervatting. Participatie in de stad. Amsterdam, 2014

Depressie in de spreekkamer; probleem of uitdaging?! Kringavond Amsterdam. Hoofddorp, 2013

Werkhervatting bij depressie. Depressie en werk. Amsterdam, 2012

Werkhervatting na depressie in Nederland en Suriname vanuit multicultureel perspectief. Lustrum samenwerking GGZ Arkin-PCS. Amsterdam, 2012

Culturele factoren bij werkhervatting na depressie. Skuchamie. Curaçao, 2012

Module werkhervatting na depressie. Voorjaarscongres Nederlandse Vereniging voor Psychiatrie. Amsterdam, 2011

Bevorderende en belemmerende factoren voor werkhervatting bij depressie. Goed gestemd. Amsterdam, 2010

Depressie op de werkvloer. Depressie de nog niet (h)erkende pandemie. Paramaribo, 2010

Depressie en werkhervatting. Onderzoek werkhervatting bij depressie. Amsterdam, 2009

Depressie en arbeidsparticipatie. Lezingen cyclus Corus. IJmuiden, 2007

Veranderen door handelen. Place-then-train. Amsterdam, 2006

Arbeidshulpverlening bij depressie. Depressie. Den Bosch, 2006

Behandeling en werkherhvatting bij patiënten met een arbeid gerelateerde depressie. Weer aan het werk.  
Amsterdam, 2002

Research, work rehabilitation for patients with depression. European congress of Occupational Therapists. Paris,  
2000

Work rehabilitation for patients with major depression. 1st North West European Congress on Psychiatric  
Rehabilitation. Amsterdam, 1999

The development of a diagnostic tool consisting of a list to observe activity. WFOT congress. Madrid, 1996

## **Other**

Guest teacher Dutch School of Public and Occupational Health (NSPOH) (2001-2014)

Guest teacher school for Occupational Therapy (HvA), Amsterdam (2003-2006)

## **4. PhD training**

<b>General courses</b>	<b>Year</b>	<b>Workload</b>
• Concept Mapping master class, Introduction to the Analysis by WM Trochim, Utrecht	2015	8
• SPSS, Amsterdam	2013	32
• Pub Med, Amsterdam	2012	8
• Research methodology and statistics, Zaltbommel	2006	40
• Grant writing, Den Haag	2003	16
• Project management, Amsterdam	2001	24



## **About the author**

Gabe de Vries was born in Janum on August 6, 1959. After graduation in 1983 as an Occupational Therapist, he started his working career in a mental health setting. A few years later worked as a trainer in a centre for people with drug addictions. During these years, he learned the importance of regular daily activities and the barriers clients experience with this. In 1987 he started working as an educational therapist in a social setting for adolescents who had dropped out of school, in The Hague. He experienced how a lack of emotional development affects the decision making process in adolescent's working career. To increase his knowledge on this topic, he started with the MO-Orthopedagogiek in 1992 and graduated in 1994. In this setting he developed several training programmes to improve skills for the work environment.

In 1993 he started working as an occupational therapist at the Academic Medical Centre in Amsterdam. Here he became more interested in employees with mental health conditions and their working career. To gain insight into work related stress and its relationship with mental health, he started the Master's degree in Stress management and reintegration in 2004 and graduated in 2007. With colleagues, he developed an Occupational Therapy programme for patients with depression, an intervention focused on work and daily activities for patients with personality disorders, and two return to work (RTW) interventions for employees with depression.

After several years as a therapist, he became supervisor of the Occupational Therapy department in 1999 and in 2000 also coordinator of a healthcare programme for outpatients with severe mental illness, at the Academic Medical Centre / De Meren. Within the same company, he became manager of a growing department, encompassing different disciplines responsible for developing daily activities, financial support and return to work programmes, in 2001. Since 2011 he is manager at Roads, which is a brand name of the holding Arkin, comprising social firms, at work programmes, walk-in facilities, trainers and RTW-coaches. It is the aim of Roads to improve perspectives on participation and return to work for people affected by mental illness.

Alongside this working career he was also a mentor of adolescents who moved into independent living (1983-1986), a mentor for occupational therapy trainees at the school for occupational

therapy (1996-2000), a committee member for the social firm Steengoed (2002-2004), a guest lecturer at the school for occupational therapy (HVA) (2003-2006) and a guest lecturer at the Dutch School of Public and Occupational Health (NSPOH) (2001-2010).

In 1990 Gabe married Grietje Wiersma. They have a son, Sybren and a daughter, Neeltje.



# Dankwoord

Wie had ooit gedacht dat ik een proefschrift zou schrijven. Ik in ieder geval niet. Maar ik ben bijzonder blij dat ik deze kans heb gekregen. Ik wil graag een aantal mensen noemen die dit mogelijk hebben gemaakt.

Allereerst wil ik mijn promotor, Aart Schene, en copromotor Maarten Koeter bedanken. Aart, vanaf de eerste dag heb je mijn promotie als een haalbaar traject gezien, hoewel mijn loopbaan niet de meest gangbare is. Hierover heb je nooit enige twijfel getoond. Ik wil je ook bedanken voor je altijd opbouwende kritiek en de zorgvuldigheid waarmee je mijn stukken beoordeelde.

Maarten, je bent vanaf het begin vol achter het project gaan staan. Jouw betrokkenheid heb ik zeer gewaardeerd. Ik kon altijd bij je terecht met moeilijke maar ook met eenvoudige vragen. Helaas ben je niet meer onder ons.

Nadrukkelijk wil ik de cliënten bedanken voor hun bijdrage. Zonder jullie input was het schrijven van de interventie onmogelijk geweest. Onderdelen van de interventie heb ik met velen van jullie kunnen bespreken en jullie zijn altijd open geweest in wat voor jullie goed voelde en wat niet. Dit heeft mij gestimuleerd als professional en maakte dat ik jullie steeds beter ging begrijpen. Voor velen van jullie betekende meedoen aan dit onderzoek een extra belasting. Daarom mijn hartelijke dank voor jullie medewerking. Jullie zijn de meest cruciale schakel in het resultaat.

Ik wil graag mijn collega's bedanken die hebben bijgedragen aan de ontwikkeling van de interventie. Ada, Ingrid, Lea, Marion en Sylvia, collega ergotherapeuten, heel erg bedankt voor de vele discussies over mogelijke verbeteringen. Hiske, ik wil je hartelijk bedanken voor jouw bijdrage aan de artikelen en voor onze samenwerking in de DoIt studie.

Dit proefschrift heeft mij de kans geboden om onderzoek te doen in Suriname. Ik wil Marianne de Jong, Herman Jintie, Ricardo Haarloo en Imro Muntslag bedanken omdat jullie dit mogelijk hebben gemaakt. Jullie medewerking en bereidheid om mij op mijn gemak te stellen in een voor mij onbekende omgeving heeft mede gemaakt dat dit onderzoek tot een succes is geworden.

Daarnaast wil ik ook graag de psychiaters van het PCS, de medewerkers van het PCS, de cliënten, de bedrijfsartsen en leidinggevenden van diverse bedrijven in Suriname bedanken voor hun bijdrage.

Ik wil de leden van de promotie commissie bedanken voor het kritisch beoordelen van het manuscript en deelname aan de oppositie: Prof. dr. J.J.M. Dekker, Prof dr. F.J.H. van Dijk, Prof. dr. L. de Haan, Prof. dr. J.J.L. van der Klink en dr. K. Nieuwenhuijsen. Een aantal van jullie heb ik in het verleden regelmatig ontmoet en ik heb veel bewondering voor jullie kennis van zaken. Ik waardeer het zeer dat ik mijn werk voor jullie mag verdedigen.

Verder wil ik mensen bedanken die om verschillende redenen van cruciaal belang zijn geweest. Het was voor mij niet altijd gemakkelijk om een Engels woord te vinden voor datgene wat ik bedoelde of datgene wat door cliënten werd bedoeld. Fransje, ik wil jou bedanken voor je bereidheid om uren telefonisch te overleggen op zoek naar de juiste woorden. Je bent na de opleiding ergotherapie naar Engeland vertrokken. Het was fijn om te merken dat er ondanks deze afstand niets aan onze verstandhouding is veranderd. Marianne Haages, jouw overtuiging in de waarde van ergotherapie is aanstekelijk, je inzet om vragen en formuleren adequaat af te handelen is bewonderingswaardig en jouw bijdrage in het hele proces was onmisbaar. Er zijn ook veel mensen, zonder dat ik ze bij naam ga noemen, die van belang zijn geweest zonder dat zij zich dit wellicht realiseren. Het waren hun opmerkingen, enthousiasme of luisterend oor die mij mede gestimuleerd hebben om dit pad te volgen.

Tot slot lieve Grietje, Sybren en Neeltje, vaak hebben jullie je afgevraagd of dit traject voor mij nou zo nodig was. Ik werd er in jullie ogen niet beter of slechter van. Gelukkig maar. Toch gaven jullie mij ook de ruimte om op zondagmiddag maar weer eens achter de pc te duiken. Deze onvoorwaardelijke steun was onmisbaar voor het slagen van dit project.





