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Chapter 1

General introduction

Chapter 1

Case description

Sophie is a young woman who lives with her boyfriend Henrie in a nice home in a medium-sized city in the Netherlands. Sophie has studied Human Resource Management and about two years ago she switched jobs from a small retail organization to the Human Resource department of a large banking company. She has to travel 50 kilometers to work each day, but she doesn't mind as she loves her job. She is very ambitious and works hard. Henrie is an engineer, but recently lost his job due to bankruptcy of the company he worked for. Several months ago, Sophie started to feel restless and she experiences low mood. However, she doesn't feel like this all the time, there are also times in which she feels like her normal self. In the past weeks the periods of depressed mood have become more frequent. She also has problems sleeping, she is worrying about many things and when Henri asks something she responds with agitation. She also experiences difficulties in her work; she has problems concentrating and she feels incompetent. She is, however, afraid to talk to her line manager about her recent state of mind and her feelings of incompetency at work. Sophie feels and knows that she is not doing well, but does not know what to do about it. She has considered talking to her general practitioner about her problems, but decided not to because of her busy schedule at work and because she has to take time off from work to meet with him. What can Sophie do? Are there treatments available for people like Sophie? Is it possible to effectively treat people with mild symptoms of depression who are not on sick-leave, people like Sophie, with the web-based guided self-help intervention Happy@Work? This is the central question of this dissertation.

Background

Depressive disorders are highly prevalent in both the general [1-3] and the working [4, 5] population, affecting around 340 million persons worldwide [6]. The probability of developing a depression during lifetime is estimated to be between 12-17 % [2, 7] and the prevalence rates are highest during working life (age between 30-60 years) [7]. Every year, 4.2% of the working population in the Netherlands suffers from a depression and mild forms of depression, called minor depressions, and depressive symptoms are even more prevalent [8, 9]. Furthermore, the recurrence rate of depression is high; almost 80% of people who has recovered from a depression will experience a new episode of depression within five years [10].

Both depressive disorders and depressive symptoms have a major impact on many aspects of a persons' life. Depression is currently the fourth disorder worldwide in terms of disease burden, and is expected to be the disorder with the highest disease burden in 2030 [11]. Furthermore, several studies have shown that the quality of life of people suffering from depression or depressive symptoms is low [12, 13]. Depression also has a major impact

on the working life of a person. Depression is related to frequent and long term sickness absence and poor work functioning [14-16]. Not being able to work due to depressive symptoms also results in the loss of the positive aspects of work, such as the meaning of work to a persons' life, interpersonal contacts, and time structure [17, 18].

Economic costs of depression

The adverse impact of depression on daily life functioning also results in substantial economic costs [19-24]. Smit et al. [23] calculated and compared the total costs of common mental disorders, such as mood disorders, anxiety disorders, and alcohol disorders, in a Dutch population-based cohort study. Mood disorders showed to have the highest total costs of all common mental disorders. The per-person excess costs for a mood disorder were €5009 annually. This sums to €311 million per one million persons aged 18-65 years. The largest share of the total costs of depression is due to sickness absence, work impairment, and loss of work productivity with estimates ranging between 70-85% of the total costs [9, 23, 25]. These costs are called productivity costs. In the European Union (EU), the annual productivity costs are estimated at €72 billion for depression [26]. In a recent Dutch cohort study the total annual costs of work absenteeism due to depressive disorders were estimated at €242 million per 1 million employees, which equals €1.8 billion for the entire Dutch working population [20]. The productivity costs are directly paid for by companies. This means that they pay the largest part of the total costs of depression. Several researchers and international organizations, such as the World Health Organisation (WHO) and the Organisation for Economic Co-operation and Development (OECD) [5, 18, 27-29], have stressed the importance of investing more in research that examines how these costs can be prevented. It is therefore of importance to also study the main cost drivers of depression.

Due to the high prevalence, severe disease burden, and excessive economic costs, the treatment of depression is of great importance.

Treatment of depression

The majority of people who suffer from a depression are treated in mental health care. In 2005, the Dutch guideline for treatment of depression became available [30]. This guideline recommends that depressions that last at least three months are treated with pharmacotherapy and/or psychotherapy. Recommended psychotherapies are Cognitive Behavioral Therapy (CBT), Behavioral Therapy (BT), Problem Solving Therapy (PST), or Interpersonal Psychotherapy (IPT). In 2009 the guideline was revised [31]. In the revised guideline recommendations for the treatment of depression that lasts less than three

months were added. These recommendations were a stepped-care approach and the possibilities of treatment via the Internet. Both guidelines are based on numerous meta-analyses and studies showing the effectiveness of pharmacotherapy and psychotherapy for depression [32-39].

Employees with depression, or other common mental disorders, can also be treated in occupational health care. These treatments are usually provided by the occupational physician and focus on the return to work process of the employee, because most of the employees are seen by the occupational physician once they have reported sick from work. The occupational physician can use an evidence-based guideline to treat the employee [40]. This guideline contains different approaches and techniques, for example CBT techniques, which can be used and information about referral to a psychologist or general practitioner in case of severe cases of common mental disorders.

However, even though it is known that depression can be treated effectively with pharmacotherapy and/or psychotherapy, more than 50% of the people who suffer from a depression do not receive any professional care for their mental health problems [41]. Reasons for not receiving professional care are the refusal of medication or poor compliance with medication [42] and the perceived ineffectiveness of treatment [43]. People with milder forms of depression more often experience a low level of perceived need for care compared to people with severe forms of depression [43]. For example, a study by Lexis et al. [44] showed that around 30% of the employees with mild depressive symptoms had the intention to seek help. Structural and attitudinal barriers to professional care include financial barriers, wanting to handle the problem on their own, the idea that "talking" does not help, and fear of stigma [43, 45, 46].

Furthermore, several researchers and international organizations have stressed the necessity to intervene in an early stage of development of mental health problems since mental health problems are currently often recognized and treated when they are already very severe [5, 18, 27-29]. A recent publication by the OECD also stated that is of great importance to integrate work-related factors into treatment of mental health problems and to focus on intervening in the workplace. However, till now, integration of work-related factors and intervening in the workplace has not often occurred. Intervening in the workplace could result in a "win-win" situation; one might be able to treat employees with mental health problems in an early phase, via multiple methods employees with mental health problems could be detected more easily (i.e. regular screening, preventive medical examinations etc), and it could be easier to include work-related factors in the treatment [5].

Researchers are challenged with developing accessible, low-intensity, and cost-saving interventions for people with depression that can overcome these barriers and that reach those people who are not reached in the current health care system. Several options have been suggested, such as using the Internet to treat depression, adapting interventions to

the needs of specific subpopulations such as adolescents or employees, and more emphasis on treating depression in primary care instead of in mental health care [45]. The revised Dutch guideline for treatment of depression has already included several of these solutions such as a stepped-care approach in primary care and the use of the Internet [31].

E-mental health

Using the Internet in the health care system is a promising approach for the Netherlands. Over 90% of the Dutch population has access to Internet [47] and use of the Internet in daily and working life has become common. Not surprisingly, use of the Internet in (mental) health care has grown in recent years. Use of the Internet in mental health care is also known as e-mental health and is defined as “the use of information and communication technologies to improve psychological care” [48]. Almost all mental health care institutions in the Netherlands now use some form of e-mental health [49]. However, implementation of evidence-based e-mental health in mental health care is still in its infancy [48-50]. Numerous advantages of e-mental health have been reported, such as: reach of other, more difficult to reach, groups of patients; cost savings; more efficient use of health care; extending treatment options; increased user control of the intervention; reduction of therapist time; increasing accessibility of health care [49-52]. However, several possible risks and negative consequences of e-mental health have been reported as well, such as unintended adverse effects (for example, due to non-user friendly software the patient becomes unmotivated), security problems or malfunctioning of websites, and issues concerning treatment responsibilities if patients are anonymous [49, 53].

Treatment of (mental) health problems via the Internet are also called Internet interventions or web-based interventions and are defined as “treatments, typically behaviorally based, that are operationalized and transformed for delivery via the Internet. Usually, they are highly structured; self-guided or partly self-guided; based on effective face-to-face interventions; personalized to the user; interactive; enhanced by graphics, animations, audio, and video; and tailored to provide follow-up and feedback” [54].

In the past twenty years, more and more research on the effectiveness of web-based interventions has been conducted. Several meta-analyses have been published showing moderate effect sizes of web-based interventions for several mental health problems [55-59]. These web-based interventions are often based on psychotherapies which have been proven effective in face-to-face settings, such as CBT and PST. A recent study by Donker et al. [60] also showed the effectiveness of Internet IPT. From the previous meta-analyses one can also conclude that web-based interventions with support from a professional, such as a coach or therapist, are more effective compared to web-based interventions without support from a professional [55-59].

Treatment of depressed employees; occupational e-mental health

As described above, the OECD has stated that it is of great importance to test interventions for mental health problems in a workplace context and to include work-related factors into treatment, but that this is currently not often the case [5]. Occupational e-mental health, e.g. e-mental health which focuses on the working population, could be a possible solution for this problem. A specific focus on the working population is needed because the prevalence of depression is high in the working population [4, 5], prevalence rates are highest during working life (age between 30-60 years) [7], and excessive costs are associated with depression [19-24], of which the majority is paid for by the employer [9, 23, 25] as was described earlier in this introduction. The advantages of e-mental health, which have been described above, also apply to the use of e-mental health in the working population and some of the advantages may even be of greater profit to the working population, such as high accessibility since the employee will not lose work hours due to therapist visits outside the workplace.

In occupational e-mental health one could either use general web-based interventions with a sole focus on the reduction of depressive symptoms or worker-directed interventions. A worker-directed intervention is an intervention that focuses on the reduction of symptoms and also explores and is focused on the work-related factors that could have caused or perpetuate the depressive symptoms, such as high job demands and work-private-life imbalance. This specific attention to work-related factors was recommended by the OECD [5] and is necessary in the treatment of depression because we know from previous research that work-related factors can play an important role in the development and perpetuation of depression [27, 61]. Work-related factors, such as job demands, can have a negative effect on symptom severity, and symptom severity can have a negative effect on work elements, such as job performance. For this reason, a web-based intervention directed at the worker in his context could be of greater benefit to an employee with depressive symptoms than a general web-based intervention without any focus on work-related factors.

Occupational e-mental health is still in its infancy and there are only a limited number of studies published on this topic. Two of the conducted studies were general web-based interventions [62, 63] and four were worker-directed web-based interventions [64-67]. These studies focused on employees with stress and/or burnout symptoms and all reported positive outcomes of the web-based interventions on symptom reduction directly after the intervention. However, these studies were heterogeneous, for example, the severity of the symptoms differed per study and only three studies were guided web-based interventions [63, 65, 66].

Recently, two general web-based interventions for depressive symptoms were tested in a workplace context [68, 69]. Phillips et al. [68] studied the effectiveness of the program MoodGYM, a web-based CBT intervention, in a workplace context in the UK. Participants

in the control group received weekly e-mails with links to websites with information about mental health problems. Both groups received weekly telephone calls to maintain engagement, but there was no online guidance in the MoodGYM intervention. The researchers did not find differences between the MoodGYM intervention and the control group. Ebert et al. [69] studied the effectiveness of a web-based PST intervention among teachers with mild depressive symptoms. The intervention was guided by professional coaches and was compared to a waiting list control group. The researchers found positive effects on the depressive symptoms directly after the intervention and six months later. Furthermore, the intervention also showed positive effects directly after treatment and at six months follow-up on general and work-specific self-efficacy, worrying, stress symptoms, and problem solving skills. The effects on burnout symptoms were less clear and no significant effects were found on duration of absenteeism.

Indicated prevention of depression

Several researchers and international organizations have also stressed the necessity to intervene in an early stage of development of mental health problems since mental health problems are currently often recognized and treated when they are already very severe [5, 18, 27-29]. In case of the working population with mental health problems, this early intervention should be before employees have to take sick-leave [5]. Furthermore, previous studies have shown that severity and duration of depressive symptoms are predictors for sickness absence [70-71]. In most of the occupational e-mental health studies from above, participants were not sick-listed, or the majority of the participants were not sick-listed (except for one study [62]), but none of these studies specifically aimed for employees who were not on sick-leave.

Providing preventive interventions in an early stage of mental health problems is also called indicated prevention. If such an indicated preventive intervention would be able to prevent worsening of depressive symptoms and sickness-absence this would be of great benefit in terms of for example, cost-savings, reduction of disease burden, etc. Two studies [72-74] on indicated prevention interventions for depression showed, however, that indicated prevention in the workplace is a difficult process. One of these studies tested the effectiveness of a face-to-face intervention [72] and one of these studies also contained e-mental health interventions [73]. Both studies used a screening questionnaire and included employees with only mild depressive symptoms. Both studies found positive results on the reduction of symptoms [72, 74] and the study by Lexis et al. [72] also showed positive results on the total sickness absence duration after 12 months. However, uptake of the intervention was very low in both studies. This raises questions like 'In which stage of the development of the mental health symptoms should an intervention be provided?' and 'What kind of treatment in this stage of development of mental health problems is best?'

Challenges remained

Despite the growing knowledge on indicated prevention of depression and the effectiveness of web-based interventions, many challenges still remain.

The first challenge is related to the limited knowledge on the long-term effects of web-based interventions. The majority of the studies on web-based interventions have only tested the direct effects of the web-based intervention. Fewer studies have examined the effects over longer periods of time. Recently, Richards and Richardson [58] conducted the first meta-analysis in which long-term effects were assessed as well. They reported the results of 14 studies that included a long-term follow-up assessment, mainly up to 6 months with few studies reporting outcomes up to 12 months. They showed a small but significant effect of web-based CBT interventions on depression ($d=0.20$), but stressed that more studies are needed to confirm the benefits of web-based interventions at the long-term follow-up. This need has been reported by other researchers as well [56, 59].

Second, there are almost no studies available on web-based interventions that have also performed an economic evaluation expressed in terms of, for example, cost-effectiveness. To the best of my knowledge, only four studies have published cost-effectiveness results of web-based interventions [75-78]. All these studies were conducted alongside randomized controlled trials. Advocates of e-health interventions frequently mention its cost saving abilities due to more efficient use of health care [52]. However, till now, there is little evidence to support this notion.

The third challenge is related to the low adherence to both indicated preventive interventions and web-based interventions. Many studies on the effectiveness of web-based interventions for mental health problems are faced with a substantial number of participants who drop out from the intervention [79-82]. Several methods to increase adherence rates have been suggested, such as further increase of user control [50], individually-tailored interventions [83], text-messages by phone [84], increased use of persuasive technology elements [85], and telephone calls to participants [86]. However, it is not yet known what the effects of these methods are [82].

The fourth challenge is related to the predictors of outcome of web-based interventions. There is yet no established knowledge about the predictors of outcome of web-based interventions [87]. In a recent individual patient data (IPD) meta-analysis Donkin et al. [88] studied moderators of outcome in web-based guided self-help interventions for depression. In an IPD meta-analysis datasets of individual studies are all analyzed together, which increases the statistical power of the moderator effects. Donkin et al. [88] found that participants with higher depression severity scores at baseline were more likely to benefit from guided web-based interventions. This IPD meta-analysis was based on only 18 studies and has several limitations. It is therefore not yet possible to draw valid conclusions on predictors of outcome of web-based interventions.

And finally, based on the studies by Lexis et al. [72] and Gartner et al. [73, 74] we know that indicated preventive interventions of mental health problems have the potential to prevent sickness absence and to reduce symptoms in an early stage of development. However, both studies included employees with very mild symptom severity and were both faced with a low uptake of the intervention. This stresses the questions whether employees with such mild symptoms experience the need to receive a preventive intervention in such an early stage of mental health problems or whether one should perhaps focus on employees with already more severe symptoms because they might experience more need to receive professional help for their problems [89]. There is more research needed to answer these questions.

Objectives of this dissertation

From the information above we can now summarize and conclude the following: depression is a highly prevalent disorder with a severe disease burden. Despite the availability of effective treatments for depression, many people with depression do not seek or receive the professional care they need for their symptoms. We also know that depression prevalence rates are highest during working life and that the highest part of the total costs of depression are related to work; absenteeism and loss of work productivity. Therefore, a focus on depression treatment in the workplace seems a logical step and has been recommended by many researchers and organizations. One of the options to get more people with depression into treatment has been to use web-based interventions. We know that these web-based interventions can be an effective type of treatment and they have also been found effective in the working population (occupational e-mental health). If one wants to decrease the excessive costs of depression one needs to focus on prevention. If one can treat mental health problems in an early stage (this is called indicated prevention) one might be able to prevent worsening of depressive symptoms. In turn, this may reduce sickness absence and loss of work productivity, which will result in cost savings for the employer.

This dissertation builds on this knowledge and aims to examine the clinical and cost-effectiveness of a worker-directed indicated preventive web-based guided self-help intervention, called *Happy@Work*, in people with mild, moderate, or severe depressive symptoms who were not on sick-leave. This dissertation describes the development, feasibility, clinical and cost-effectiveness, of this intervention. It describes both the short-term and long-term effects of the intervention and contains a full economic evaluation.

A second aim of this thesis is to gain more insight in the main cost drivers of mental health problems. Since the economic burden of mental health problems is substantial, it is important to know which factors contribute to these costs and to what extent. These factors could be, for example age or symptoms severity. When significant cost drivers can be identified, it might be possible to ameliorate these factors before costs are generated, so the costs can

then be prevented. Knowledge on this topic is of particular interest in occupational health care research, since employers pay the largest part of the economic costs of mental health problems. It could be possible that, for example, people with high job demands produce more productivity costs.

The intervention Happy@Work

This section contains some information about the theoretical background of the intervention, the integration of the existing knowledge into the intervention, and the design of the trial.

Happy@Work

Happy@Work is an indicated preventive web-based guided intervention for employees with depressive symptoms who are not on sick-leave. Happy@Work is based on Problem Solving Treatment (PST), Cognitive Therapy (CT), and a guideline for employees to help them to prevent work-related stress [90, 91]. In PST, it is assumed that depressive symptoms can be caused by practical problems that people face in their daily lives. It is believed that, when people learn how to deal with their problems, their symptoms of depression will decrease [92, 93]. Sometimes, however, problem solving can be disrupted by automatic thoughts such as "I am too weak to solve this problem" or "I will fail solving this problem". PST may not be sufficient to change these automatic thoughts. Therefore, CT information and assignments were incorporated in the intervention to change these automatic thoughts [94]. Happy@Work includes one lesson that specifically focuses on work-related problems as some of the problems that people face are likely to be work-related, such as an imbalance between work- and private-life. These problems are sometimes more difficult for people to comprehend [90, 91]. Happy@Work primary focus is on the depressive symptoms of the employee, but it also incorporates psycho-education and assignments related to dealing with stress and burnout symptoms, since there is a clear relationship between the different constructs [27, 95-98].

The intervention consists of six weekly lessons with an option of one week extra time in case of delay. Each lesson has a different theme, but always follows the same structure: information about the theme, examples from fictitious participants, and assignments. In addition, participants are given the opportunity to keep a daily mood diary throughout the intervention, which is common in CT. Every participant is guided by a trained coach throughout the intervention. The coach provides feedback on the assignments, answers questions, and gives feedback on the mood diary if the participant wants to.

Integrating existing knowledge in the intervention

As described above, Happy@Work consists of evidence-based interventions. Since drop-out from web-based interventions is common [82], we tried to keep participants engaged by using motivational and empathic strategies in the feedback. Furthermore, e-mail reminders were sent when deadlines were not met.

Design of the trial

The primary aim of the study was to examine if the intervention could more effectively reduce depressive symptoms compared to care-as-usual. It is postulated that in turn this may reduce work absenteeism and loss of work productivity, which will result in cost savings for the employer. Since the primary focus of the intervention was on the reduction of depressive symptoms, the power calculation of this study was based on depressive symptoms (see also Chapter 2).

Care-as-usual control group

As described in the beginning of this introduction, the majority of the employees with depressive symptoms are treated by the occupational physician when they are reported sick from work. There is also a guideline available for occupational physicians about depression prevention [99]. However, the majority of the employees visit the occupational physician once they have more severe symptoms and have reported sick from work. Therefore, there is no standard treatment available for employees with depressive symptoms who have not (yet) reported sick from work. Since there are treatment options available for this group, we advised employees randomized to the control group to go and look for professional help for their symptoms. Several examples of professional health care providers were suggested in the e-mail with randomization outcome, such as visiting the general practitioner, occupational physician, and psychologist.

Recruitment

Happy@Work was designed to be used within occupational health care. For this reason, employees were recruited via participating companies and not via, for example, mass media or primary care recruitment. Happy@Work can also be applied in mental health care or in primary care, but this was not the aim of the study. Since Happy@Work is a preventive intervention, and most employees visit the occupational physician once they have reported sick from work, recruitment via the occupational physician of the company was not possible. A more general recruitment strategy was therefore used within the companies; recruitment took place via different banners on the intranet, posters and (digital) pamphlets. In order to recruit the desired study population, recruitment texts focused on those employees who experienced "low mood and/or feelings of stress" and the pamphlets contained information

that the intervention was aimed to help them reduce these feelings. Afterwards, employees were included based on a cut-off score of a questionnaire; ≥ 16 CES-D. This cut-off indicates that the employee has at least mild symptoms of depression, but the higher the score, the more severe the symptoms are.

Coaches

In the original design of the study, occupational social workers of the occupational safety and health service of the participating companies would be trained as Happy@Work coaches. Occupational social workers have a lot of experience with employees with depressive symptoms and the company, they are accessible, and are less expensive than an occupational physician or organizational psychologist. Furthermore, coaching by occupational social workers within the RCT would be closely related to use of Happy@Work in routine practice. A RCT design of a study is a very strong design to test the effectiveness of an intervention, but it is often not very realistic to routine practice. Through direct recruitment via companies and coaching via occupational social workers we tried to design a study that was more realistic to routine practice. However, in practice coaching via occupational social workers appeared not to be feasible due to limited availability of occupational social workers within the companies. Therefore, psychology students at Master level were trained as Happy@Work coaches.

Outline of this dissertation

Chapters 2 to 6 contain the development and results from the randomized controlled trial (RCT) which was conducted. Chapter 2 describes the design of this study that evaluates Happy@Work compared to care-as-usual. Chapter 3 presents the feasibility of the intervention which was studied in a process evaluation that was conducted alongside the trial. Chapter 4 presents the results of the short-term effects of the intervention, Chapter 5 describes the effects of the intervention over the period of one year, i.e. the long-term results. In Chapter 6 the economic evaluation of the Happy@Work intervention is presented. The chapters have some overlap, as they were written as separate articles for scientific journals. Chapter 7 describes the results of a study on cost drivers of mental health problems based on data of the Netherlands Study of Depression and Anxiety (NESDA), a large cohort study in the Netherlands. This study examined how various predictors and subgroups of respondents contributed to the prediction of health care costs and productivity costs in a cohort of employees. The dissertation concludes with a general discussion in Chapter 8. Finally, this dissertation contains a summary in English and Dutch.

References

1. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51:8-19.
2. Alonso J, Angermeyer MC, Bernert S, et al. Prevalence of mental disorders in Europe: results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatr Scand*. 2004;109:21-27.
3. Waraich P, Goldner EM, Somers JM, Hsu L. Prevalence and incidence studies of mood disorders: a systematic review of the literature. *Can J Psychiatry*. 2004;49:124-138.
4. Wang JL, Adair CE, Patten SB. Mental health and related disability among workers: A population-based study. *Am J Ind Med*. 2006;49:514-522.
5. Organisation for Economic Co-operation and Development (OECD). *Sick on the job? Myths and realities about mental health and work*. Paris: OECD Publishing; 2012.
6. World Health Organisation [WHO]. *Prevention of mental disorders: effective interventions and policy options*. Geneva: World Health Organisation; 2004.
7. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62:593-602.
8. Andrea H, Bültmann U, Beurskens AJHM, Swaen GMH, van Schayck CP, Kant IJ. Anxiety and depression in the working population using the HAD scale. Psychometrics, prevalence and relationships with psychosocial work characteristics. *Soc Psychiatry Psychiatr Epidemiol*. 2004;39:637-646.
9. Cuijpers P, Smit F, Oostenbrink J, de Graaf R, ten Have M, Beekman A. Economic costs of minor depression: a population-based study. *Acta Psychiatr Scand*. 2007;115:229-236.
10. Mueller TI, Leon AC, Keller MB, et al. Recurrence after recovery from major depressive disorder during 15 years of observational follow-up. *Am J Psychiatry*. 1999;156:1000-1006.
11. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med*. 2006;3:e442.
12. Cuijpers P, Schroevers RA. Increased mortality in depressive disorders: a review. *Curr Psychiatry Rep*. 2004;6:430-437.
13. Üstün TB, Ayuso-Mateos JL, Chatterji S, Mathers C, Murray CJ. Global burden of depressive disorders in the year 2000. *Br J Psychiatry*. 2004;184:386-392.
14. Lerner D, Henke RD. What does research tell us about depression, job performance, and work productivity? *J Occup Environ Med*. 2008;50:401-410.
15. Henderson M, Glozier N, Elliott KH. Long term sickness absence is caused by common conditions and needs managing. *BMJ*. 2005;330:802-803.
16. Koopmans PC, Roelen CAM, Groothoff JW. Sickness absence due to depressive symptoms. *Int Arch Occup Environ Health*. 2008;81:711-719.
17. Harnois G, Gabriel P. *Work and Health: impact, issues and good practices*. Geneva: World Health Organization; 2000.
18. Sanderson K, Andrews G. Common mental disorders in the workforce: recent findings from descriptive and social epidemiology. *Can J Psychiatry*. 2006;51:63-75.
19. Berto P, D'Ilario D, Ruffo P, Di Virgilio RF. Depression: cost-of illness studies in the international literature: a review. *J Ment Health Policy Econ*. 2000;3:3-10.
20. de Graaf R, Tuithof M, van Dorsselaer S, ten Have M. *Absenteeism due to psychological or somatic disorders in workers. Results of the 'Netherlands Mental Health Survey and Incidence*

- Study-2' (NEMESIS-2) - Verzuim door psychische en somatische aandoeningen bij werkenden. Resultaten van de 'Netherlands Mental Health Survey and Incidence Study-2' (NEMESIS-2). Utrecht: Trimbos-Instituut; 2011. [in Dutch]*
21. Greenberg PE, Kessler RC, Birnbaum HG, et al. The economic burden of depression in the United States: how did it change between 1990 and 2000? *J Clin Psychiatry*. 2003;64:1465-1475.
 22. Löthgren M. Economic evidence in affective disorders: a review. *Eur J Health Econom*. 2004;Suppl 1:S20-S24.
 23. Smit F, Cuijpers P, Oostenbrink J, Batelaan N, de Graaf R, Beekman A. Costs of nine common mental disorders: implications for curative and preventive psychiatry. *J Ment Health Policy Econ*. 2006;9:193-200.
 24. Verow P, Hargreaves C. Healthy workplace indicators: costing reasons for sickness absence within the UK National Health Service. *Occup Med (Lond)*. 2000;50:251-257.
 25. Thomas CM, Morris S. Cost of depression among adults in England in 2000. *Br J Psychiatry*. 2003;183:514-519.
 26. Gustavsson A, Svensson M, Jacobi F, et al. Costs of disorders of the brain in Europe 2010. *Eur Neuropsychopharmacol*. 2011;21:718-779
 27. Szeto AC, Dobson KS. Mental disorders and their association with perceived work stress: an investigation of the 2010 Canadian Community Health Survey. *J Occup Health Psychol*. 2013;18:191-197.
 28. Järvisalo J, Andersson B, Boedeker W, Houtman I. (Eds.) *Mental disorders as a major challenge in prevention of work disability: experiences in Finland, Germany, the Netherlands and Sweden*. Helsinki: Edita Prima Ltd; 2005.
 29. World Health Organisation [WHO]. *World report on disability*. Geneva: World Health Organisation; 2011.
 30. Kwaliteitsinstituut voor de Gezondheidszorg (CBO). *Multidisciplinaire richtlijn depressie. Richtlijn voor de diagnostiek en behandeling van volwassen cliënten met een depressie - Multidisciplinary guideline depression. Guideline for the diagnosis and treatment of adult clients with depression*. Utrecht: Trimbos-Instituut; 2005. [in Dutch]
 31. Kwaliteitsinstituut voor de Gezondheidszorg (CBO). *Richtlijnherziening van de Multidisciplinaire richtlijn depressie (eerste revisie). Richtlijn voor de diagnostiek, behandeling en begeleiding van volwassen patiënten met een depressieve stoornis - Directive revision of the Multidisciplinary guideline depression (first revision). Guideline for the diagnosis, treatment, and rehabilitation of adult patients with a depressive disorder*. Utrecht: Trimbos-Instituut; 2009. [in Dutch]
 32. Barth J, Munder T, Gerger H, et al. Comparative efficacy of seven psychotherapeutic interventions for patients with depression: a network meta-analysis. *PLoS Med*. 2013;10:e1001454.
 33. Churchill R, Hunot V, Corney R, et al. A systematic review of controlled trials of the effectiveness and cost-effectiveness of brief psychological treatments for depression. *Health Technol Assess*. 2001;5:1-173.
 34. Cuijpers P, Berking M, Andersson G, et al. A meta-analysis of cognitive-behavioural therapy for adult depression, alone and in comparison with other treatments. *Can J Psychiatry*. 2013;58:376-385.
 35. Cuijpers P, Dekker J, Hollon SD, Andersson G. Adding psychotherapy to pharmacotherapy in the treatment of depressive disorders in adults: a meta-analysis. *J Clin Psychiatry*. 2009;70:1219-1229.
 36. Cuijpers P, Geraedts AS, van Oppen P, et al. Interpersonal psychotherapy for depression: a meta-analysis. *Am J Psychiatry*. 2011;168:581-592.
 37. Cuijpers P, van Straten A, Warmerdam L. Problem solving therapies for depression: a meta-analysis. *Eur Psychiatry*. 2007;22:9-15.

38. Dobson KS. A meta-analysis of the efficacy of cognitive therapy for depression. *J Consult Clin Psychol.* 1989;57:414-419.
39. Pinquart M, Duberstein PR, Lyness JM. Treatments for later-life depressive conditions: a meta-analytic comparison of pharmacotherapy and psychotherapy. *Am J Psychiatry.* 2006;163:1493-1501.
40. van der Klink J (Eds). *Management of mental health problems of workers by occupational physicians – Richtlijn handelen van de bedrijfsarts bij werkenden met psychische problemen.* Utrecht: NVAB [Dutch Society of Occupational Medicine]; 2007. [in Dutch]
41. Spijker J, Bijl RV, de Graaf R, Nolen WA. Care utilization and outcome of DSM-III-R major depression in the general population. Results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Acta Psychiatr Scand.* 2001;104:19-24.
42. Simon GE, VonKorff M, Wagner EH, Barlow W. Patterns of antidepressant use in community practice. *Gen Hosp Psychiatry.* 1993;41:45-51.
43. Andrade LH, Alonso J, Mneimneh Z, et al. Barriers to mental health treatment: results from the WHO World Mental Health surveys. *Psychol Med.* 2014;44:1303-1317.
44. Lexis MAS, Jansen NWH, Stevens FCJ, et al. Experience of health complaints and help seeking behavior in employees screened for depressive complaints and risk of future sickness absence. *J Occup Rehabil.* 2010;20:537-546.
45. Cuijpers P, van Straten A, Warmerdam L, van Rooy MJ. Recruiting participants for interventions to prevent the onset of depressive disorders: possible ways to increase participation rates. *BMC Health Serv Res.* 2010;10:181.
46. Prins MA, Verhaak PF, Bensing JM, van der Meer K. Health beliefs and perceived need for mental health care of anxiety and depression—the patients' perspectives explored. *Clin Psychol Rev.* 2008;28:1038-1058.
47. Internet World Stats. *Usage and Population Statistics. Internet usage statistics. The Internet Big Picture. World Internet Users and Population Stats.* [<http://www.internetworldstats.com/stats.htm>].
48. Riper H, Smit F, van der Zanden R, Conijn B, Kramer J, Mutsaers K. *E-mental health: high tech, high touch, high trust.* Utrecht: Trimbos Instituut; 2007. [in Dutch]
49. Blankers M, Donker T, Riper H. E-mental health in the Netherlands. *De Psycholoog.* 2013; 9:12-23. [in Dutch]
50. Sorbi MJ, Riper H. e-Health – health care through the internet. *Psychologie en Gezondheid.* 2009;4:1919-201. [in Dutch]
51. Cuijpers P, van Straten A, Andersson G. Internet-administered cognitive behavior therapy for health problems: a systematic review. *J Behav Med.* 2008;31:169-177.
52. Griffiths F, Lindenmeyer A, Powell J, Lowe P, Thorogood M. Why are health care interventions delivered over the internet? A systematic review of the published literature. *J Med Internet Res.* 2006;8:e11.
53. Ossebaard HC, de Bruijn ACP, van Gemert-Pijnen JEW, Geertsma RE. *Risks related to the use of eHealth technologies. An exploratory study.* Bilthoven: RIVM; 2012. [in Dutch]
54. Ritterband LM, Andersson G, Christensen HM, Carlbring P, Cuijpers P. Directions for the International Society for Research on Internet Interventions (ISRII). *J Med Internet Res.* 2006;8:e23.
55. van't Hof E, Cuijpers P, Stein DJ. Self-help and Internet-guided interventions in depression and anxiety disorders: a systematic review of meta-analyses. *CNS Spectr.* 2009;14:34-40.
56. Andersson G, Cuijpers P. Internet-based and other computerized psychological treatments for adult depression: A meta-analysis. *Cog Beh Therapy.* 2009;38:196-205.

57. Spek V, Cuijpers P, Nyklíček I, Riper H, Keyzer J, Pop V. Internet-based cognitive behaviour therapy for symptoms of depression and anxiety: a meta-analysis. *Psychol Med.* 2007;37:319-328.
58. Richards D, Richardson T. Computer-based psychological treatments for depression: a systematic review and meta-analysis. *Clin Psychol Rev.* 2012;32:329-342.
59. Andrews G, Cuijpers P, Craske MG, McEvoy P, Titov N. Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: a meta-analysis. *PLoS One.* 2010;5:e13196.
60. Donker T, Bennett K, Bennett A, et al. Internet-delivered interpersonal psychotherapy versus internet-delivered cognitive behavioral therapy for adults with depressive symptoms: randomized controlled noninferiority trial. *J Med Internet Res.* 2013;15:e82.
61. Nieuwenhuijsen K, Bültmann U, Neumeyer-Gromen A, Verhoeven AC, Verbeek JH, Feltz-Cornelis CM. Interventions to improve occupational health in depressed people. *Cochrane Database Syst Rev.* 2008 Apr;2:CD006237.
62. Brattberg G. Internet-based rehabilitation for individuals with chronic pain and burnout: a randomized trial. *Int J Rehabil Res.* 2006;29:221-227.
63. Grime PR. Computerized cognitive behavioural therapy at work: a randomized controlled trial in employees with recent stress-related absenteeism. *Occup Med.* 2004;54:353-359.
64. Hasson D, Anderberg UM, Theorell T, Arnetz BB. Psychophysiological effects of a web-based stress management system: a prospective, randomized controlled intervention study of IT and media workers. *BMC Public Health.* 2005;5:78.
65. Ruwaard J, Lange A, Bouwman M, Broeksteeg J, Schrieken B. E-mailed standardized cognitive behavioural treatment of work-related stress: a randomized controlled trial. *Cogn Behav Ther.* 2007;36:179-192.
66. Wolever RQ, Bobinet KJ, McCabe K, et al. Effective and viable mind-body stress reduction in the workplace: a randomized controlled trial. *J Occup Health Psychol.* 2012;17:246-258.
67. Zetterqvist K, Maanmies J, Ström L, Andersson G. Randomized controlled trial of internet-based stress management. *Cogn Behav Ther.* 2003;32:151-160.
68. Phillips R, Schneider J, Molosankwe I, et al. Randomized controlled trial of computerized cognitive behavioural therapy for depressive symptoms: effectiveness and costs of a workplace intervention. *Psychol Med.* 2014;44:741-752.
69. Ebert DD, Lehr D, Doß L, et al. Efficacy of an Internet-based problem-solving training for teachers: results of a randomized controlled trial. *Manuscript under review in Scandinavian Journal of Work, Environment & Health.*
70. Lagerveld SE, Bültmann U, Franche RL, et al. Factors associated with work participation and work functioning in depressed workers: a systematic review. *J Occup Rehabil.* 2010;20:275-292.
71. Lexis MAS, Jansen NWH, van Amelsvoort LGPM, van den Brandt PA, Kant IJ. Depressive complaints as a predictor of sickness absence among the working population. *J Occup Environ Med.* 2009;51:887-895.
72. Lexis MAS, Jansen NWH, Huibers MJH, et al. Prevention of long-term sickness absence and major depression in high-risk employees: a randomised controlled trial. *Occup Environ Med.* 2011;68(6):400-407.
73. Gärtner FR, Ketelaar SM, Smeets O, et al. The Mental Vitality @ Work study: design of a randomized controlled trial on the effect of a workers' health surveillance mental module for nurses and allied health professionals. *BMC Public Health.* 2011;11:290.
74. Ketelaar SM, Nieuwenhuijsen K, Gärtner FR, Bolier L, Smeets O, Sluiter J. Mental Vitality@ Work: the effectiveness of a mental module for workers' health surveillance for nurses and allied health professionals, comparing two approaches in a cluster-randomised controlled trial. *Int Arch Occup Environ Health.* 2013:jul 28 (epub ahead of print)

75. McCrone P, Knapp M, Proudfoot J, et al. Cost-effectiveness of computerised cognitive-behavioural therapy for anxiety and depression in primary care: randomised controlled trial. *Br J Psychiatry* 2004;185:55-62.
76. Gerhards SAH, de Graaf LE, Jacobs LE, et al. Economic evaluation of online computerised cognitive-behavioural therapy without support for depression in primary care: randomised trial. *Br J Psychiatry* 2010;196:310-318
77. Hollinghurst S, Peters TJ, Kaur S, et al. Cost-effectiveness of therapist-delivered online cognitive-behavioural therapy for depression; randomised controlled trial. *Br J Psychiatry* 2010;197:297-304.
78. Warmerdam, Smit F, van Straten A, et al. Cost-utility and cost-effectiveness of internet-based treatment for adults with depressive symptoms: randomized trial. *J Med Internet Res* 2010;12:e53.
79. Eysenbach G. The law of attrition. *J Med Internet Res.* 2005;7:e11.
80. Donkin L, Christensen H, Naismith SL, Neal B, Hickie IB, Glozier N. A systematic review of the impact of adherence on the effectiveness of e-therapies. *J Med Internet Res.* 2011;13:e52.
81. Riper H, Andersson G, Christensen H, Cuijpers P, Lange A, Eysenbach G. Theme issue on E-mental health: A growing field in internet research. *J Med Internet Res.* 2010;12:e74.
82. Melville KM, Casey LM, Kavanagh DJ. Dropout from Internet-based treatment for psychological disorders. *Br J Clin Psychol.* 2010;49:455-471.
83. Carlbring P, Maurin L, Törngren C, et al. Individually-tailored, Internet-based treatment for anxiety disorders: a randomized controlled trial. *Behav Res Ther.* 2011;49:18-24.
84. Heber E, Ebert DD, Lehr D, Nobis S, Berking M, Riper H. Efficacy and cost-effectiveness of a web-based and mobile stress-management intervention for employees: design of a randomized controlled trial. *BMC Public Health.* 2013;13:655.
85. Kelders SM, Kok RN, Ossebaard HC, van Gemert-Pijnen JEW. Persuasive system design does matter: a systematic review of adherence to web-based interventions. *J Med Internet Res.* 2012;14:e152.
86. Carlbring P, Gunnarsdóttir M, Hedensjö L, Andersson G, Ekselius L, Furmark T. Treatment of social phobia: randomised trial of internet-delivered cognitive-behavioural therapy with telephone support. *Br J Psychiatry.* 2007;190:123-228.
87. Andersson G, Hedman E. Effectiveness of guided internet-based cognitive behavior therapy in regular clinical settings. *Verhaltenstherapie.* 2013;23:140-148.
88. Donkin L, Kontopantelis E, Andersson G, et al. Moderators of outcome in internet-based guided self-help treatment for depression: an individual patient data meta-analysis. *Manuscript under review in PLoS Medicine.*
89. Lexis MAS. Prevention of long-term sickness absence and major depression through early intervention. PhD-Thesis. Maastricht University, the Netherlands.
90. Franck E, Wiezer N. *Handleiding Preventie Leidraad - Manual for Prevention Guideline.* Hoofddorp: TNO; 2004.
91. Franck E, Wiezer N. *Ervaringen met de Preventie Leidraad - Experiences with the Prevention Guideline.* Hoofddorp: TNO; 2004.
92. Bowman D, Scogin F, Lyrene B. The efficacy of self-examination therapy and cognitive bibliotherapy in the treatment of mild to moderate depression. *Psychother Res.* 1995;5:131-140.
93. Warmerdam L, van Straten A, Twisk J, Riper H, Cuijpers P. Internet-based treatment for adults with depressive symptoms: randomized controlled trial. *J Med Internet Res.* 2008;10:e44.
94. Beck AT, Rush AJ, Shaw BF, Emery G. *Cognitive therapy of depression.* New York: Guilford Press; 1979.

95. Brenninkmeyer V, van Yperen NW, Buunk BP. Burnout and depression are not identical twins: is decline of superiority a distinguishing feature? *Pers Individ Dif*. 2001;30:873-880.
96. Hakanen JJ, Schaufeli WB. Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. *J Affect Disord*. 2012;141:415-424.
97. Hammen C. Stress and depression. *Annu Rev Clin Psychol*. 2005;1:293-319.
98. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Clin Psychol*. 2001;52:397-422.
99. Loo M, Nauta N. Depression prevention. Guideline for occupational physicians – Depressiepreventie. Handreiking voor bedrijfsartsen. Utrecht: Trimbos Intituut; 2010. [in Dutch]