Psychological Medicine

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Sickness absence: a systematic review and meta-analysis of psychological treatments for individuals on sick leave due to common mental disorders

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Review Article

Cite this article: Salomonsson S, Hedman-Lagerlöf E, Öst L-G (2018). Sickness absence: a systematic review and meta-analysis of psychological treatments for individuals on sick leave due to common mental disorders. *Psychological Medicine* **48**, 1954–1965. https://doi.org/10.1017/S0033291718000065

Received: 27 June 2017
Revised: 22 December 2017
Accepted: 27 December 2017
First published online: 30 January 2018

Key words:
Meta-analysis; sick leave; absenteeism; return-to-work; review; CBT; PST; common mental disorders; anxiety; depression; insomnia; adjustment disorder

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Abstract

Sick leave due to common mental disorders (CMDs) increase rapidly and present a major societal challenge. The overall effect of psychological interventions to reduce sick leave and symptoms has not been sufficiently investigated and there is a need for a systematic review and meta-analysis of the field. The aim of the present meta-analysis was to calculate the effect size of psychological interventions for CMDs on sick leave and psychiatric symptoms based on all published randomized controlled trials. Methodological quality, the risk of bias and publication bias were also assessed. The literature searches gave 2240 hits and 45 studies were included. The psychological interventions were more effective than care as usual on both reduced sick leave ($g = 0.15$) and symptoms ($g = 0.21$). There was no significant difference in effect between work focused interventions, problem-solving therapy, cognitive behavioural therapy or collaborative care. We conclude that psychological interventions are more effective than care as usual to reduce sick leave and symptoms but the effect sizes are small. More research is needed on psychological interventions that evaluate effects on sick leave. Consensual measures of sick leave should be established and quality of psychotherapy for patients on sick leave should be improved.

Introduction

Common mental disorders (CMDs) represent one of the largest burdens of disease in western countries with a point prevalence of 20% (Ohayon, 2002; Kessler *et al.* 2005; Fernandez *et al.* 2012). CMDs lead to a substantial reduction of functioning and quality of life (Wells *et al.* 1989; Comer *et al.* 2011), and cause most long-term sick leave of all medical conditions (Henderson *et al.* 2011). Depression and anxiety are the most prevalent mental disorders (Kessler *et al.* 2005), but insomnia and adjustment disorder have also been found to be highly prevalent (Ohayon, 2002; Carta *et al.* 2009) and important causes of sick leave (Koopmans *et al.* 2011; The Swedish Social Insurance Agency, 2014). Depression and low self-rated health are risk factors for longer sick-leave periods (Nielsen *et al.* 2012) and only 20% of people who have been on sick leave for at least six months will return to work in the following five years. Long periods of sick leave may itself affect a person's wellbeing negatively (Eriksson *et al.* 2008) and put a heavy economic burden on society (Henderson *et al.* 2005). Thus, there is a need for effective treatments for persons with CMDs aimed both at reducing psychiatric symptoms and sick leave.

Clinical guidelines in many countries conclude that psychological treatments, primarily cognitive behavioural therapy (CBT), are effective to treat mental disorders (National Institute for Health & Clinical Excellence [NICE], 2011*a*, *b*). Research on interventions to facilitate patients' return to work (RTW-I) is at an early stage and little is known about effective interventions to prevent sick leave or facilitate a return to work after sick leave. Psychological treatments can reduce symptoms but it is unclear if they affect sick leave. In some studies, psychological treatments have reduced (e.g. Van Der Klink *et al.* 2003) or prevented (Hägglund *et al.* 2014) sick leave, but in other studies they have not (Ejeby *et al.* 2014).

Interventions to prevent or reduce sick-leave differ between published studies. In some studies, the psychological treatment itself is proposed to enhance the patients' health and as a consequence work functioning, and therefore prevent or reduce sick leave. In other studies, a specific intervention is added to the psychological treatment to address work-related issues and facilitate RTW. And in yet other studies RTW-I is the focus of treatment arguing that if problems at work are addressed and RTW occurs, this will also reduce the patient's symptoms.

The topic has been investigated in a recent meta-analysis (Nigatu *et al.* 2016) where RTW after clinical or work-focused interventions was evaluated for patients with CMDs. The meta-analysis included 16 trials with 3345 subjects. The authors found that the interventions

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shortened the time until full RTW by 13 days, but found no support for an effect on the proportion of patients on sick leave. Doki *et al.* (2015), conducted a similar meta-analysis with 1554 workers with mental problems, evaluating the effect on sick leave for interventions by occupational health services on workers with or without sick leave. They found an overall decrease by 6.6 sick days when including workers both with and without prior sick leave, but no effect when analysing the subgroups separately. In another meta-analysis, the effects on RTW after treatment for depression were studied (Nieuwenhuijsen *et al.* 2014). In this meta-analysis, 23 studies were included, with 5996 participants, and results showed that adding a work-directed intervention to a psychological or pharmacological intervention reduced the number of days on sick leave compared with no work-directed intervention (Nieuwenhuijsen *et al.* 2014). They also found that enhancing primary or occupational care with CBT reduced sick leave compared with usual care. A forth meta-analysis investigated the effect on sick leave after psychological treatments of adjustment disorder (Arends *et al.* 2012). In this analysis, 10 studies with 1546 participants were included. This study found that CBT did not significantly reduce days on sick leave compared with no treatment. They found that problem-solving therapy (PST) significantly enhanced partial work resumption at one-year follow-up compared towith non-guideline-based care. Yet, another meta-analysis focused on workplace interventions to prevent work disability in workers on sick leave, including different types of disabilities (Van Vilsteren *et al.* 2015). In this review only five studies concerned mental disorders, interventions were aimed at the workplace, and not symptom reduction. The authors found no effect on sick leave for the interventions and found the evidence to be of low quality.

The results of these meta-analyses are thus somewhat inconsistent, but as additional studies are published in a rapid pace further systematic reviews and meta-analyses are warranted to investigate the effect of psychological treatments on sick leave. In addition, two of the prior meta-analytic studies included solely depression (Nieuwenhuijsen *et al.* 2014) or adjustment disorder (Arends *et al.* 2012) respectively, and not the whole spectrum of CMDs, which could have reduced statistical power in previous studies. A third meta-analysis restricted outcomes to the proportion of employees who returned to work after the intervention and time until full RTW (Nigatu *et al.* 2016), which might exclude studies with other relevant measures of sick leave and RTW. Further, this meta-analysis did not include psychiatric symptoms as an outcome. A forth study restricted the analysis to occupational health services, not including important studies from healthcare services, nor including effects on symptoms (Doki *et al.* 2015). And a fifth meta-analysis also focused on work interventions and only included five studies on mental disorders (Van Vilsteren *et al.* 2015).

In the present meta-analysis we focus on mental disorders, but broaden the clinical picture to include symptoms of depression, anxiety, stress or insomnia. Just as most previous meta-analyses we include both patients diagnosed with a CMD (depression, any anxiety disorder, adjustment disorder, insomnia) and persons with elevated symptoms (Arends *et al.* 2012; Nieuwenhuijsen *et al.* 2014; Doki *et al.* 2015; Van Vilsteren *et al.* 2015) of depression, anxiety, insomnia, stress or burnout. The aim of this study was to investigate the effect of psychological treatments on reducing sick leave among patients fulfilling diagnostic criteria, or non-patients (still working) with symptoms of depression, anxiety, stress or insomnia. We conducted a systematic review and meta-analysis of randomized trials on psychological treatments for CMDs where sick leave or absenteeism was a measured outcome. Psychological treatments aimed at alleviating psychiatric symptoms or at facilitating RTW were included in the present meta-analysis. Thus, the present meta-analysis includes a wider range of symptoms and outcomes related to sick leave compared with previous meta-analyses. This resulted in 45 included studies, compared with 16 studies in Nigatu *et al.* (2016), which therefore constitutes a more comprehensive picture of the topic. Further, it includes an analysis on symptom reduction in addition to sick leave, which from a patient perspective is an equally important outcome.

Methods

Design and selection of studies

This was a systematic review and meta-analysis of original studies investigating the effect of psychological treatments on sick leave for patients with CMDs or non-patients with symptoms of CMDs and at risk for sick leave.

Inclusion criteria

We used the PICO model to define our inclusion criteria. In order to include a study in this meta-analysis the following criteria had to be fulfilled: (1) the *population* consists of adult individuals fulfilling diagnostic criteria for, or having symptoms of depression, anxiety, stress or insomnia; (2) the subjects are randomly allocated to conditions in the trial and receive a psychological *intervention*; (3) there could be any kind of *comparison* condition; (4) the *outcomes* are measures of sick leave or absenteeism from work; and (5) the study is published in an English language journal.

Exclusion criteria

A study was excluded if it: (a) was not a randomized controlled trial, (b) did not have sick leave as outcome measure, (c) was not a treatment study, (d) did not focus on mental disorder or (e) was not the main outcome study from a project.

Search methods

To identify studies systematic searches in PubMed (Medline database) were conducted using various search terms related to mental disorders, such as; Depress* OR dysthym* OR affective* OR mood disorder* OR Stress OR burnout OR anx* OR adjustment disorder* OR insomni* OR emotional OR distress OR Mental* OR psychiatric. These search terms relating to the clinical problem were combined with; Sick days OR Sickness absence OR Return to work OR sick leave OR medical leave OR absenteeism OR vocational OR rehabilitation OR reemployment OR leave benefits OR occupation* OR sick list* OR cost-effectiveness and psychotherap* OR Therap* OR Behavio* AND therap* OR cognitive therap* OR psychological treatment OR psychological intervention OR psychological therapy OR CBT OR Problem solving. To minimize studies with focus on other conditions studies with the following words in title or abstract were excluded; alcohol, dementia, elder*, child*, Schizo*, psychosis*, abuse, back pain, drug*, older, stroke, substance, cancer, smoking, HIV, pain or brain injury. The search filter 'clinical trial' was used. In

https://doi.org/10.1017/S0033291718000065 Published online by Cambridge University Press

addition, reference lists in included studies were checked for potential additional studies. We did not search for unpublished studies. There were no restrictions regarding publication date. Searches were last updated in January 2017. The first author (SS) performed the search. In case of uncertainty regarding inclusion, two researchers read the abstracts independently and discussed it amongst themselves or asked a third researcher for advice. Disagreements were resolved through discussion and advice from a third researcher.

Data extraction process

Background data of the studies were extracted regarding research design (e.g., control condition, length of follow-up), sample (e.g., mean age, type of mental symptoms, symptom severity, sick-leave status), and intervention (e.g., length of intervention, type of intervention, therapy format). Variables were extracted as continuous (e.g., length of intervention, mean age) or categorical (e.g., control condition, disorder, country) as applicable. Means and standard deviations of outcome measures at post and follow-up (when available) were extracted for meta-analytical calculations. We also coded several variables of the studies as potential moderator variables, based on previous literature in the field. A full list of the variables extracted is presented in the Supplementary List of extracted variables and moderators. The data were extracted from each study by the first author. Any uncertainties were discussed with the last author and contact attempts were made to obtain and confirm data from investigators when needed.

Primary outcomes

Measures of sick leave at follow-up, continuous or categorical data were the primary outcomes. There was a wide range of measures on sick leave and these are summarized in Supplement A. Secondary outcomes were ratings of psychiatric symptoms, continuous or dichotomous, at post and follow-up. For dichotomous data, negative measures were reversed so that all categorical data reflected positive response rates; unable to work was reversed to able to work, pension disability to no pension disability, sick leave to no sick leave, recurrence of sick leave to no recurrence of sick leave, and not in remission to in remission.

Statistical analysis

All statistical analyses were conducted using Comprehensive Meta-Analysis software (CMA: Biosoft, version 3). For each study, the measure assessing sick leave and psychological symptom reduction were extracted. Effect sizes were calculated as Hedges' *g*; that is the difference in means between intervention groups and comparison groups were divided by the pooled standard deviation, corrected for sample size, separately for post-and follow-up assessments. A random-effects model was used since it cannot be assumed that all effect sizes come from the same population of effect sizes. The main analysis was between-group effects with follow-up data on measures of sick leave in the intervention group compared with the control condition(s). Assessment of heterogeneity was calculated using I^2, which is the proportion of variance due to true heterogeneity, and Cochran's *Q*, which tests if that heterogeneity is statistically significant. Publication bias was assessed using Egger's *et al.* (1997) regression intercept and Duval & Tweedie's (2000) trim-and-fill-method. Subgroup and meta-regression analyses were conducted to assess whether different category- and continuous variables were related to the effect size. To ensure the validity of the subgroup-and meta-regression analyses, they were only conducted on variables in which ⩾75% of the studies had available data. The full list of pre-specified moderator variables is presented in the Supplementary List of extracted variables and moderators.

Assessment of risk of bias in the included studies

The included studies were assessed for risk of bias using the Cochrane collaboration risk-of-bias criteria (Higgins *et al.* 2011). The following five dimensions were assessed: (1) risk of selection bias due to the method for generating the randomization sequence, (2) risk of selection bias in terms of allocation concealment, i.e. due to foreknowledge of the forthcoming allocations, (3) detection bias in terms of blinding of outcome assessors, (4) attrition bias due to incomplete outcome data, and (5) reporting bias due to selective reporting of results. The bias risk of blinding for performance, relating to masking of participants was not used since that form of masking is seldom possible in the treatments included in this review. The status of the studies was rated using 'low risk', 'high risk' or 'unclear' regarding each dimension. 'Unclear' was used when there was no information to assess the bias in the original article.

Methodological quality

Various scales have been developed to assess methodological quality in randomized trials, e.g. the Jadad criteria (Jadad *et al.* 1996). However, these scales are usually restricted to a few items rated as present, absent or unclear, leading to a small range of scores. Consequently, this makes it difficult to discern a relationship between methodological quality and effect size. In the present study we used the Psychotherapy Outcome Study Methodology Rating Form by Öst (2016) which contains 22 items and has a total score ranging from 0 to 44. The items are: 1. Clarity of sample description; 2. Severity/chronicity of the disorder; 3. Representativeness of the sample; 4. Reliability of the diagnosis in question; 5. Specificity of outcome measures; 6. Reliability and validity of outcome measures; 7. Use of blind evaluators; 8. Assessor training; 9. Assignment to treatment; 10. Design; 11. Power analysis; 12. Assessment points; 13. Manualized, replicable, specific treatment programs; 14. Number of therapists; 15. Therapist training/experience; 16. Checks for treatment adherence; 17. Checks for therapist competence; 18. Control of concomitant treatments; 19. Handling of attrition; 20. Statistical analyses and presentation of results; 21. Clinical significance; 22. Equality of therapy hours (for non-WLC designs only). Each item is rated as 0 = poor, 1 = fair, and 2 = good, and each step has a verbal description of one or more sentences. This instrument has previously been used in meta-analyses evaluating the efficacy of ACT (Öst, 2008, 2014) and cognitive behavioural treatments for OCD (Öst *et al.* 2015, 2016), and anxiety disorders in children (Öst & Ollendick, 2017) among others. It is a valid measure of study quality as demonstrated by significant correlation with risk-of-bias ratings (Öst, 2016).

To assess the inter-rater reliability of the scale in the present review, the first author received 6 h of training in the use of the scale by the last author with various outcome studies as training

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examples. The first author then rated all the studies and a random selection of 20% of the studies was independently rated by another trained rater who had received the same amount of training in using the instrument. The intra-class correlation (ICC 3, 1) for the total score was 0.69.

Results

Studies included in the review

Of 2240 screened studies, 45 met all review criteria and were included in the study. Figure 1 shows a flowchart of the study inclusion process. Of the 45 studies, all investigated some form of psychological intervention for patients or workers with or at risk for psychological problems and its effect on sick leave or absenteeism. The total number of participants was 10 708. The smallest study had 19 participants and the largest 814. The studies were carried out in The Netherlands (21), the Nordic countries (Denmark, Finland, Norway, Sweden) (10), The United States (7), Great Britain (3), Germany (3) and India (1). In 24 studies sick leave was self-reported, and in 21 studies a register was used to provide data on sick leave. Nineteen studies included patients on sick leave, 19 studies included persons at risk of sick leave and seven studies included a combination of persons on sick leave and at risk. The mean age of the samples varied from 32.5 to 54.6 years with a mean of 42.7. In 16 studies, patients with depressive symptoms were included, six studies included patients with stress or burnout, one studied patients with social anxiety disorder, one studied patients with insomnia and in 21 studies patients had a mix of psychological and/or pain symptoms. In 29 studies, inclusion criterion was elevated levels of symptoms, in 15 studies patients fulfilled diagnostic criteria and one study was preventive. Twenty-two studies recruited participants through screening of workers or sick-listed patients, 22 studies included participants from clinical samples or used a mix of self-referral and clinical recruitment and one study treated all students in a class. The follow-up time varied between 2 and 42 months with a mean of 10.6 months. The mean attrition rate was 17% (S.D. = 13.3) with a range of 0–53%. All studies were published between 1998 and 2016. A description of the included studies is presented in Table 1 and treatment data is provided in Table 2.

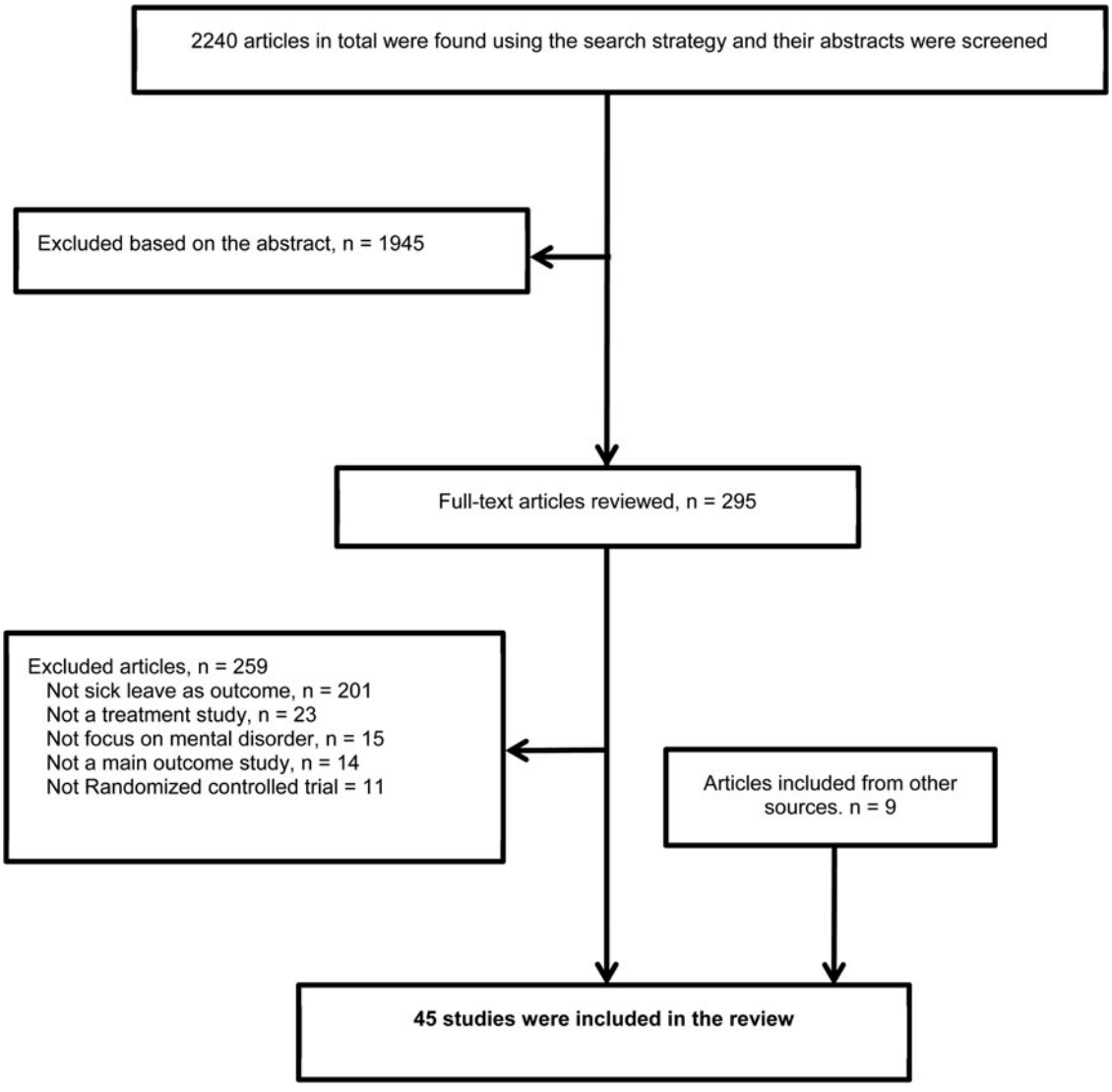

Fig. 1. Study inclusion process throughout the review.

https://doi.org/10.1017/S0033291718000065 Published online by Cambridge University Press

Table 1. Background data of the included studies

Study	Comparison	Country	Type of mental symptoms	Inclusion criterion	*N*	Setting[a]	Mean age	Sick-leave status	Analysis	Referral
Adler, 2015	CAU	USA	Dysthymia	Disorder	167	Occupational	54.6	At risk	ITT	Screening
Arends, 2014	CAU	Netherlands	CMDs	Disorder	158	Healthcare	42.3	Sick-listed	ITT	Referral
Bakker, 2007	CAU	Netherlands	CMDs	Symptoms	433	Healthcare	40.7	Sick-listed	ITT	Screening
Blonk, 2006	CBT	Netherlands	CMDs	Symptoms	122	Occupational	42.0	Sick-listed	ITT	Self-referral
Brouwers, 2006	CAU	Netherlands	CMDs	Disorder	194	Occupational	39.8	Sick-listed	ITT	Screening
Dahl, 2004	CAU	Sweden	Stress and Pain	Symptoms	19	Occupational	40.6	Sick-listed	ITT	Screening
de Boer, 2004	CAU	Netherlands		Symptoms	116	Occupational	53.4	At risk	ITT	Screen
de Vente, 2008	CAU	Netherlands	Stress	Symptoms	82	Healthcare	41.3	Sick-listed	ITT	Referral and advertisement
Duijts, 2008	CAU	Netherlands	CMDs	Symptoms	151	Occupational	42.8	At risk	ITT	Screening
Ebert, 2014	WLC	Germany	Depression	Symptoms	150	Occupational	47.1	At risk	ITT	Advertisement
Ebert, 2016	WLC	Germany	Stress	Symptoms	264	Occupational	42.0	At risk	ITT	Advertisement
Ejeby, 2013	CAU	Sweden	CMDs	Symptoms	245	Healthcare	43.3	At risk	ITT	Referral
Folke, 2012	CAU	Sweden	Depression	Disorder	35	Healthcare	43.2	Sick-listed	ITT	Screening
Geraedts, 2014	CAU	Netherlands	Depression	Symptoms	231	Occupational	43.4	At risk	ITT	Advertisement
Hees, 2013	CAU	Netherlands	Depression	Disorder	117	Occupational	42.7	Sick-listed	ITT	Referral
Hollingshurst, 2010	CAU	Great Britain	Depression	Disorder	297	Healthcare	34.9	Mixed	ITT	Screening
Kant, 2008	CAU	Netherlands	CMDs	Symptoms	299	Occupational	45.5	At risk	ITT	Screening
Kendrick, 2006	CAU	Great Britain	CMDs	Symptoms	247	Healthcare	35.0	Mixed	ITT	Referral
King, 2000	CAU	Great Britain	CMDs	Symptoms	197	Healthcare	37.3	Mixed	ITT	Referral
Lerner, 2013	CAU	USA	Depression	Symptoms	79	Occupational	45.6	At risk	ITT	Screening
Lexis, 2011	CAU	Netherlands	Depression	Symptoms	139	Occupational	47.7	At risk	ITT	Screening
Noordik, 2013	CAU	Netherlands	CMDs	Disorder	160	Occupational	45.5	Sick-listed	ITT	Referral
Nystuen, 2006	CAU	Norway	CMDs	Symptoms	103	Occupational	37.6	Sick-listed	ITT	Screening
Patel, 2017	CAU	India	Depression	Symptoms	492	Healthcare	42.5	Mixed	ITT	Screening
Pedersen, 2015	CAU	Denmark	CMDs	Symptoms	430	Healthcare	43.7	Sick-listed	ITT	Screening
Rebergen, 2009	CAU	Netherlands	CMDs	Symptoms	240	Occupational	39.5	Sick-listed	ITT	Referral
Reme, 2015	CAU	Norway	Mixed	Symptoms	802	Healthcare	40.4	Mixed	ITT	Mixed
Rosen, 2014	CAU	USA	Mixed	Symptoms	77	Healthcare	38.5	At risk	ITT	Referral
Rost, 2004	CAU	USA	Depression	Disorder	326	Occupational	39.0	At risk	ITT	Referral

Schoenbaum, 2001	CAU	USA	Depression	Disorder	814	Healthcare		At risk	ITT	Referral
Shene, 2007	CAU	Netherlands	Depression	Disorder	62	Healthcare	46.0	Sick-listed	ITT	Referral
Simon, 1998	CAU	USA	Depression	Disorder	156	Healthcare		At risk	ITT	Referral
Stenlund, 2009	Physical+ Relaxation	Sweden	Burnout	Symptoms	136	Healthcare	41.6	Sick-listed	ITT	Referral
Svensson, 2009	WLC	Denmark	CMDs	Preventive	668	Occupational	32.5	At risk	ITT	All students
Taimela, 2008	CAU	Finland	CMDs	Symptoms	418	Occupational	47.0	At risk	ITT	Screening
Thiart, 2016	WLC	Germany	Insomnia	Symptoms	128	Occupational	48.0	At risk	ITT	Screening
van der Feltz-Cornelis, 2010	CAU	Netherlands	CMDs	Disorder	60	Occupational	42.0	Sick-listed	ITT	Screening
van der Klink, 2002	CAU	Netherlands	Adjustment Disorder	Disorder	192	Occupational	40.5	Sick-listed	ITT	Referral
van Oostrom, 2010	CAU	Netherlands	CMDs	Symptoms	145	Occupational	48.9	Sick-listed	ITT	Screening
van Rhenen, 2007	Physical+ Relaxation	Netherlands	Stress	Symptoms	242	Occupational	41.1	At risk	ITT	Screening
Vlasveld, 2013	CAU	Netherlands	Depression	Disorder	126	Occupational	43.4	Sick-listed	ITT	Screening
Volker, 2015	CAU	Netherlands	CMDs	Symptoms	220	Occupational	44.5	Sick-listed	ITT	Screening
Wang, 2007	CAU	USA	Depression	Disorder	604	Occupational	41.5	At risk	ITT	Screening
Warmerdam, 2010	WLC	Netherlands	Depression	Symptoms	263	Healthcare		Mixed	ITT	Advertisement
Willert, 2011	WLC	Denmark	Stress	Symptoms	102	Occupational	45.0	Mixed	ITT	Referral

CAU, Care as usual; WLC, Waitlist control; CBT, Cognitive behavioural therapy; CMDs, Common mental disorders.
[a]Refers to where the participants were recruited and treated.

Table 2. Treatment data of the included studies

Study	Subgroup	Format	Weeks of treatment	Number of sessions	Missing data at follow-up (%)	FU time	Sick-leave data
Adler, 2015	RTW-I	Individual	4	8	10	4	Self-reported
Arends, 2014	RTW-I	Individual	12	5	7	12	Register
Bakker, 2007	RTW-I	Individual			14	2	Self-reported
Blonk, 2006	CBT + RTW-I	Individual	6	12	20	6	Register
Brouwers, 2006	RTW-I	Individual	10	5	19	15	Self-reported
Dahl, 2004	ACT	Individual	4	4	0	6	Register
de Boer, 2004	RTW-I	Individual	16	3	21	2	Register
de Vente, 2008	CBT	Individual	16	12	24	6	Self-reported
Duijts, 2008	RTW-I	Individual	26	9	21	12	Self-reported
Ebert, 2014	PST	Individual	6	6	13	6	Self-reported
Ebert, 2016	PST	Individual	7	7	10	4	Self-reported
Ejeby, 2013	MMR	Combined	6	14	0	24	Register
Folke, 2012	ACT	Combined		6	23	18	Register
Geraedts, 2014	CBT + PST	Individual	8	6	26	12	Self-reported
Hees, 2013	RTW-I	Combined	78	18	0	18	Register
Hollingshurst, 2010	CBT	Individual	16	10	53	4	Self-reported
Kant, 2008	RTW-I	Individual			12	12	Register
Kendrick, 2006	PST	Individual	8	5	36	4	Self-reported
King, 2000	CBT	Individual	16	6	20	4	Self-reported
Lerner, 2013	CBT + RTW-I	Individual	8	8	9	4	Self-reported
Lexis, 2011	CBT + PST	Individual		12	29	6	Register
Noordik, 2013	CBT + RTW-I	Individual		4	12	3	Self-reported
Nystuen, 2006	PST	Individual/ group	8	8	37	6	Register
Patel, 2017	CBT	Individual	12	7	06	3	Self-reported
Pedersen, 2015	Psychoeducation	Group	6	6	38	6	Register
Rebergen, 2009	RTW-I	Individual		5	0	12	Employer record
Reme, 2015	CBT + RTW-I	Individual		15	48	12	Register
Rosen, 2014	Benefits counselling	Individual	6	4	14	6	Self-reported
Rost, 2004	Collaborative care	Individual			27	24	Self-reported
Schoenbaum, 2001	Collaborative care	Individual			10	24	Self-reported
Shene, 2007	RTW-I	Combined	24	24	23	42	Self-reported
Simon, 1998	Collaborative care + RTW-I	Individual	5	5	17	7	Interview
Stenlund, 2009	MMR	Group	52	86	14	12	Register
Svensson, 2009	MMR	Combined			14	35	Self-reported
Taimela, 2008	Collaborative care + RTW-I	Individual			8	12	Employer record
Thiart, 2016	CBT	Self-Help	6	7	7	4	Self-reported
van der Feltz-Cornelis, 2010	RTW-I	Individual			27	6	Self-reported

(*Continued*)

https://doi.org/10.1017/S0033291718000065 Published online by Cambridge University Press

Table 2. (*Continued.*)

Study	Subgroup	Format	Weeks of treatment	Number of sessions	Missing data at follow-up (%)	FU time	Sick-leave data
van der Klink, 2003	CBT + RTW-I	Individual	9	9	19	12	Register
van Oostrom, 2010	RTW-I	Individual	8	5	1	12	Register
van Rhenen, 2007	CBT		8	4	0	12	Register
Vlasveld, 2013	PST + RTW-I	Combined	12	12	8	12	Register
Volker, 2015	PST + RTW-I	Self-Help	16	16	2	12	Register
Wang, 2007	Collaborative care	Self-Help			6	12	Self-reported
Warmerdam, 2010	CBT PST	Self-Help	12	9	46	0	Self-reported
Willert, 2011	CBT + RTW-I	Group	12	8	15	12	Register

RTW-I, Return to work intervention; PST, Problem-solving therapy; CBT, Cognitive behavioural therapy; MMR, Multi-modal rehabilitation; ACT, Acceptance and commitment therapy.

Interventions

As in previous meta-analyses a wide range of interventions were used in the studies. Many of the interventions had a clear RTW-focus such as addressing problems at work, developing problem-solving strategies for work issues, teaching graded activity or exposure and applying it to the workplace and conducting a clear plan for RTW. Interventions with a clear work-focus have been grouped as RTW-I in the present study. Some studies had mainly a work-focus (e.g. Brouwers *et al.* 2006; Bakker *et al.* 2010; Van Oostrom *et al.* 2010), other studies had mainly a focus on symptom reduction (e.g. Simon *et al.* 1998; Schoenbaum *et al.* 2001; Rost *et al.* 2004; De Vente *et al.* 2008) and some studies had combined interventions that focused on both RTW and symptom reduction (e.g. Willert *et al.* 2011; Vlasveld *et al.* 2013; Volker *et al.* 2015). Treatments including a focus on symptom reduction were to a large extent either based on PST (e.g. Ebert *et al.* 2014, 2016) or CBT (e.g. Blonk *et al.* 2006; De Vente *et al.* 2008). Yet, other studies had collaborative care with for example psychotherapy, medication and increased follow-up on symptoms (e.g. Simon *et al.* 1998; Wang *et al.* 2007; Taimela *et al.* 2010). In the present meta-analysis, the interventions in 12 studies were categorized as RTW-I, interventions in ten studies as CBT, interventions in four studies as PST and interventions in three studies as collaborative care. The interventions in 12 studies were classified as treatments of symptoms and RTW-I. The interventions benefits counselling and multimodal interventions were not grouped. Psychoeducation and ACT were categorized as CBT-interventions.

The interventions lasted between 4 and 78 weeks, with a mean of 14 weeks and included 3–86 sessions (mean = 10.5). Most treatments were delivered with individual sessions ($n = 30$), three studies had group interventions, four studies used a self-help format and seven studies had a combination or choice of format.

Methodological quality

The average score on the scale of methodological quality (total score range 0–44) was 16.0 (S.D. = 3.8), ranging from 4 to 23. The items yielding the lowest scores were; 'Control of concomitant treatments' (only six studies reported acceptable data) and 'Checks for treatment competence' (only eight studies reported acceptable data). In sum, results of ratings of methodological study quality suggest that the internal validity is rather low in many of the included RCTs.

Assessment of bias

Eleven studies (24%) were judged as having a low risk of bias on all five quality dimensions (Higgins *et al.* 2011). The risk of bias was unclear regarding concealment of random allocation since many studies ($n = 17$; 38%) just described that the participants were randomly allocated without any further information. A low risk of bias was found in 28 studies (62%) concerning blinding of outcome assessment, in 31 studies (69%) regarding incomplete outcome data (they used intent-to-treat analysis) and 29 studies (64%) when it comes to selective reporting. Supplement B summarizes these findings in a methodological quality graph on the bias.

Sick leave

Table 3 shows effect sizes (Hedges' g) on sick leave at follow-up for all studies, divided by comparison conditions, and type of intervention. Supplement C shows a forest plot of effects on sick leave. The mean time to follow-up was 10.6 months. The overall Hedges' g was small (0.15) but significantly different from zero. Both indices of heterogeneity were also significant. For subgroup analysis based on the type of interventions, RTW-I yielded an effect size of 0.18, PST 0.12, Collaborative Care 0.17, and CBT 0.17. A subgroup analysis indicated that there was no significant difference ($Q_{between} = 1.62$, $p = 0.45$) between studies where participants were at risk ($g = 0.21$) and studies where the subjects were on sick-leave ($g = 0.12$).

The analyses of possible publication bias using Egger's regression intercept did not yield a significant intercept (0.70, $t = 1.30$, $p = 0.20$). Also, Duval and Tweedie's trim-and-fill method did not suggest any study to be trimmed.

Responders

Table 4 shows the proportion of responders regarding sick leave at follow-up. Overall, 52% of the patients were considered responders concerning sick leave at follow-up. Both indices of heterogeneity were also significant. For subgroup analysis based on the type of interventions, due to the limited number of studies reporting dichotomous data, PST, CBT and collaborative care

https://doi.org/10.1017/S0033291718000065 Published online by Cambridge University Press

Table 3. Effect sizes (Hedges' *g*) on sick leave at follow-up for all studies, by comparison, conditions and type of intervention

Comparison	*k*	*g*-value	95% CI	*z*-value	*Q*-value	I^2
All studies	42	0.15	0.09–0.21	4.91[d]	67.4[b]	39
All interventions *v.* CAU	35	0.15	0.08–0.22	4.33[d]	61.3[b]	44
All interventions *v.* WLC	3	0.08	−0.04–0.20	1.36	1.6	44
RTW-I	13	0.18	0.06–0.30	2.86[b]	24.1[a]	50
PST	9	0.12	0.02–0.22	2.26[a]	8.1	0
Collaborative care	5	0.17	0.09–0.25	4.17[d]	2.2	0
CBT	15	0.17	0.02–0.32	2.20[a]	30.4[b]	54
All interventions including a RTW-I	21	0.21	0.11–0.32	3.96[d]	45.9[b]	56

CAU, Care as usual; WLC, Waitlist control; RTW-I, Return to work intervention; PST, Problem-solving therapy; CBT, Cognitive behavioural therapy.
k = number of comparisons. A positive g-value means that the first treatment in the comparison is better and a negative that the second is better. [a]$p < 0.05$, [b]$p < 0.01$, [c]$p < 0.001$, [d]$p < 0.0001$.

were grouped as Treatments of symptoms. RTW-I yielded the highest proportion of responders, and treatments of symptoms the lowest, but a subgroup analysis showed no significant differences between the three types if interventions ($Q_{between} = 3.31$, df = 2, $p = 0.19$). All comparisons were significant regarding indices of heterogeneity.

Moderator analyses

Since heterogeneity was significant, moderator analysis in the form of meta-regression was conducted on continuous variables and subgroup analysis on dichotomous data. None of the analyses yielded significant effects.

Psychological symptoms

Table 5 shows the meta-analytic results at post-treatment for all comparisons and divided into different types of comparison conditions at post-treatment. Supplement D shows a forest plot of effect sizes (Hedge's *g*) of interventions on psychiatric symptoms. The overall Hedges' *g* was small (0.21) but significantly different from zero. Indices of heterogeneity were not significant.

Supplement E shows the results of the meta-analysis regarding psychological symptoms at follow-up for all comparisons and divided into different types of comparison conditions at follow-up. The overall Hedges' *g* was small (0.21) but significantly different from zero. Both indices of heterogeneity were also significant.

For dichotomous data, eight studies reported on psychological symptoms post-treatment and ten studies at follow-up. Post-treatment, 38% of the patients were considered responders and 56% at follow-up. The number of studies was too low to conduct subgroup analysis.

Discussion

Main findings

The aim of this meta-analysis was to investigate the effect of psychological treatments on reducing sick leave and psychological symptoms among patients and workers with symptoms of depression, anxiety, stress or insomnia. Altogether, the findings showed a small but significant effect on both sick leave and symptoms. At follow-up, a substantial part of the participants was considered responders concerning sick-leave (52%) and symptoms (56%).

Measures of sick leave and absenteeism varied greatly between studies. Overall there was a small but significant effect on sick leave at follow-up, Hedges' $g = 0.15$ (95% CI: 0.09–0.21). A majority of the studies (36 of 45) compared an intervention with CAU. There were no significant differences in effects between RTW-I, treatments of symptoms or CAU. Nor was there a difference between patients on sick leave and those at risk for sick leave.

The effects on psychological symptoms were also small but significant, both post-treatment (Hedges' $g = 0.21$; CI = 0.13–0.29) and at follow-up (Hedges' $g = 0.21$; CI: 0.13–0.30). The majority of studies compared an intervention to CAU, 26 of 31 studies post-treatment and 31 of 36 at follow-up. Post-treatment, 38% of patients had responded to treatment and 56% had done so at follow-up.

Comparison to previous studies

Previous meta-analyses on the current topic have specifically calculated effects on days until partial or full RTW and not effect

Table 4. Proportions of response on sick leave at follow-up

Comparison	*k*	Proportion (%)	95% CI	*z*-value*	*Q*-value	I^2
All studies	32	52.3	46.1–58.5	0.73	287.1[d]	89
RTW-I	10	60.4	48.4–71.3	1.71	82.0[d]	89
Treatments of symptoms	7	45.1	33.9–56.7	−0.83	46.1[d]	87
CAU	15	51.0	41.1–60.8	0.20	143.3[d]	90

RTW-I, Return to work intervention; CAU, Care as usual.
k = number of comparisons, [a]$p < 0.05$, [b]$p < 0.01$, [c]$p < 0.001$, [d]$p < 0.0001$. *Test if significantly different from 50%.

https://doi.org/10.1017/S0033291718000065 Published online by Cambridge University Press

Table 5. Effect sizes (Hedges' *g*) on psychological symptoms at post-treatment for all studies divided on comparison conditions

Comparison	*k*	*g*-value	95% CI	*z*-value	*Q*-value	I^2
All studies	30	0.21	0.13–0.29	5.16[d]	30.7	24
All interventions *v.* CAU	24	0.19	0.10–0.27	4.37[d]	20.2	10
All interventions *v.* WLC	2	0.49	0.30–0.69	4.89[d]	1.0	2
All interventions *v.* active control	4	0.20	−0.08–0.47	1.41	5.4	45

CAU, Care as usual; WLC, Waitlist control.
k = number of comparisons. A positive *g*-value means that the first treatment in the comparison is better and a negative that the second is better. [a]$p < 0.05$, [b]$p < 0.01$, [c]$p < 0.001$, [d]$p < 0.0001$.

sizes on different measures of sick leave and absenteeism. Results have varied between studies. In Nigatu *et al.* (2016), the meta-analysis of 16 RCTs of patients with CMDs, found a 13 days difference regarding the reduction of sick-leave days until full RTW for the interventions compared with CAU. This is equivalent to an effect size of 0.14 (Cohen's *d*). No difference was found regarding improved RTW-rates. In the meta-analysis of persons with depressive symptoms (Nieuwenhuijsen *et al.* 2014), seven studies of psychological interventions were included, however, these studies were mostly analysed separately due to differences in interventions and comparisons. The authors pooled three studies on enhanced primary care compared with CAU and found no effects on RTW. They reported on specific studies that did not find an effect on RTW for psychological treatments compared with CAU. In the meta-analysis of seven studies on psychological interventions for workers with adjustment disorder (Arends *et al.* 2012), authors reported no differences, based on two studies, between CBT and no care or CAU on either RTW or symptoms at post or follow-up. For PST *v.* CAU, pooled effects of two studies showed the effect on reduced time until partial RTW by 17 days, but no significant difference on time until full RTW or symptoms at follow-up.

The overall effect on sick leave in the present study is similar to that in the Nigatu *et al.* (2016). The effects are significant and small in both meta-analyses and dichotomous data on sick leave did not differ between interventions and CAU. In the two earlier meta-analyses, very few studies were pooled together, probably affecting the overall lack of significant differences. Concerning the study on workers with adjustment disorder, it should be pointed out that we did a different grouping of interventions. In the present study, we focused on interventions including specific modules related to RTW and secondly grouped treatments regarding the nature of the psychological intervention. Some of the studies named PST in the earlier meta-analyses have been grouped RTW-I in the present since they had a clear RTW-focus. In the earlier meta-analyses, there was no group reflecting the RTW-focus (Arends *et al.* 2012; Nieuwenhuijsen *et al.* 2014). As in previous studies, this meta-analysis showed generally small effects on sick leave, but there was a significant effect on sick leave when comparing all interventions to CAU.

Effect sizes on psychological symptoms were small (Hedges' $g = 0.21$) when pooling all treatments. In meta-analyses of CBT for anxiety and depression effect sizes varies between 0.71 and 1.31 when comparing CBT with waitlist. For depression the estimated effect size is $d = 0.71$ (Cuijpers *et al.* 2013), for generalized anxiety disorder $d = 0.87$ (Cuijpers *et al.* 2014), for social anxiety disorder $d = 0.93$ (Mayo-Wilson *et al.* 2014), for panic disorder $d = 1.02$ (Sanchez-Meca *et al.* 2010), for posttraumatic stress disorder $d = 1.22$ (Cusack *et al.* 2016) and for obsessive-compulsive disorder $d = 1.31$ (Öst *et al.* 2015).

There are several possible explanations for the small effects on symptoms for the included interventions in this study. It could be that patients in the present study had less severe symptoms than most studies on psychotherapy for anxiety and depression. There might be a floor effect with less room for improvement when the symptoms are mild at pre-treatment. Another possible explanation is the variation of symptoms and disorders. Many of the studies included patients with elevated levels of stress, anxiety, depression or pain. It could be that this reflects a population with less distinct symptoms for which traditional CBT has not been developed or evaluated. Yet, another possible explanation is that many of the studies do not have the same methodological quality of the psychological treatment as gold standard treatments for anxiety and depression. Many of the studies are conducted in a work setting and the expertise may be better regarding work than psychiatric symptoms. None of the studies describe interventions to be disorder-specific, gold standard CBT with a clear description of the therapists' adherence and competence as is customary in high-quality psychotherapy studies.

Quality of the included studies

Ratings of the included studies showed some risk of bias. However, when using high-quality sick-leave register data, the risk of bias is overall low regarding both incomplete data and blinding of assessors. More emphasis should be put on the use of these registers and sound methods and clear reporting of randomization and allocation. Methodological quality was low overall, especially concerning control of concomitant treatments and checks for treatment competence. This further strengthens the hypothesis that more can be done to raise the quality of the psychotherapy and methodology in studies for patients with CMDs and sick leave.

Clinical implications

The effects on sick leave in the present study are small but significant. As stated in Nigatu *et al.* (2016), a small effect on sick leave could, however, be of importance considering the vast negative effects of sick leave on a nation's economy and peoples' wellbeing. The meta-analysis did not find a significant difference between different types of active interventions. That is, treatments with a focus on RTW, PST, CBT or collaborative care reduced sick leave more than CAU but did not differ between themselves. Interventions varied greatly both between and within these groups of interventions. In sum, one could conclude that many different psychological interventions seem to have a better outcome on both sick leave and symptoms than CAU.

https://doi.org/10.1017/S0033291718000065 Published online by Cambridge University Press

Strengths and Limitations

The present meta-analysis has some strengths including an extensive and systematic literature search. The analysis included the whole width of patients with CMDs and different measures of sick leave and absenteeism, resulting in the inclusion of 45 studies with 10 708 patients which gave good statistical power to many of the analyses. Moreover, the study evaluated both effects of sick leave and psychological symptoms which are highly relevant aspects for these patients and for society. The inclusion of a wide range of symptoms, interventions and outcomes may also be a limitation. Including studies with wide differences may make the results difficult to interpret. Further limitations include a search restricted to only the PubMed database and that only one researcher performed the search in the database. Also, this study focused on psychological interventions, but for example, organizational interventions may also be of high relevance.

Recommendations for future research

Sick leave and CMDs continues to be a great challenge for societies and individuals. More research is needed to evaluate effective interventions. Studies on psychotherapy should add measures of sick leave to evaluate the effect of treatments on RTW. Studies on psychological interventions for RTW should learn from high-quality psychotherapy research regarding training and measurement of therapists' competence and compliance. Further, it would be of most importance to establish common measures of sick leave and RTW to be able to better compare effects from different studies. Days on sick leave 1 year after randomization, and days until full and partial RTW are today the most common measures of sick leave. Lastly, since benefits and regulations vary between countries and seem to greatly affect sick leave (OECD, 2012), it would be of importance to also study the impact of these systems.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0033291718000065.

Acknowledgements. This research was funded by Karolinska Institutet and Stockholm County Council, none of which had any role in the design, execution or publication of the study.

Declaration of interest. None.

References

Arends I, Bruinvels DJ, Rebergen DS, Nieuwenhuijsen K, Madan I, Neumeyer-Gromen A *et al.* (2012) Interventions to facilitate return to work in adults with adjustment disorders. *Cochrane Database Systemic Reviews* **12**, Art. No.: CD006389.

Bakker IM, Van Marwijk HW, Terluin B, Anema JR, Van Mechelen W and Stalman WA (2010) Training GP's to use a minimal intervention for stress-related mental disorders with sick leave (MISS): effects on performance: results of the MISS project; a cluster-randomised controlled trial [ISRCTN43779641]. *Patient Education and Counseling* **78**, 206–211.

Blonk RW, Brenninkmeijer V, Lagerveld SE and Houtman IL (2006) Return to work: a comparison of two cognitive behavioural interventions in cases of work-related psychological complaints among the self-employed. *Work and Stress* **20**, 129–144.

Brouwers EP, Tiemens BG, Terluin B and Verhaak PF (2006) Effectiveness of an intervention to reduce sickness absence in patients with emotional distress or minor mental disorders: a randomized controlled effectiveness trial. *General Hospital Psychiatry* **28**, 223–229.

Carta MG, Balestrieri M, Murru A and Hardoy MC (2009) Adjustment disorder: epidemiology, diagnosis and treatment. *Clinical Practice and Epidemiology in Mental Health* **5**, 1745–0179.

Comer JS, Blanco C, Hasin DS, Liu SM, Grant BF, Turner JB *et al.* (2011) Health-related quality of life across the anxiety disorders: results from the national epidemiologic survey on alcohol and related conditions (NESARC). *Journal of Clinical Psychiatry* **72**, 43–50.

Cuijpers P, Berking M, Andersson G, Quigley L, Kleiboer A and Dobson KS (2013) A meta-analysis of cognitive-behavioural therapy for adult depression, alone and in comparison with other treatments. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie* **58**, 376–385.

Cuijpers P, Sijbrandij M, Koole S, Huibers M, Berking M and Andersson G (2014) Psychological treatment of generalized anxiety disorder: a meta-analysis. *Clinical Psychology Review* **34**, 130–140.

Cusack K, Jonas DE, Forneris CA, Wines C, Sonis J, Middleton JC *et al.* (2016) Psychological treatments for adults with posttraumatic stress disorder: a systematic review and meta-analysis. *Clinical Psychology Review* **43**, 128–141.

De Vente W, Kamphuis JH, Emmelkamp PM and Blonk RW (2008) Individual and group cognitive-behavioral treatment for work-related stress complaints and sickness absence: a randomized controlled trial. *Journal of Occupational Health Psychology* **13**, 214–231.

Doki S, Sasahara S and Matsuzaki I (2015) Psychological approach of occupational health service to sick leave due to mental problems: a systematic review and meta-analysis. *International Archives of Occupational and Environmental Health* **88**, 659–667.

Duval S and Tweedie R (2000) Trim and fill: a simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics* **56**, 455–463.

Ebert DD, Heber E, Berking M, Riper H and Cuijpers P (2016) Self-guided internet-based and mobile-based stress management for employees: results of a randomised controlled trial. *Occupational and Environmental Medicine* **73**, 315–323.

Ebert DD, Lehr D, Boss L, Riper H, Cuijpers P, Andersson G *et al.* (2014) Efficacy of an internet-based problem-solving training for teachers: results of a randomized controlled trial. *Scandinavian Journal of Work, Environment and Health* **40**, 582–596.

Egger M, Davey Smith G, Schneider M and Minder C (1997) Bias in meta-analysis detected by a simple, graphical test. *BMJ* **315**, 629–634.

Ejeby K, Savitskij R, Ost L-G, Ekbom A, Brandt L, Ramnero J *et al.* (2014) Symptom reduction due to psychosocial interventions is not accompanied by a reduction in sick leave: results from a randomized controlled trial in primary care. *Scandinavian Journal of Primary Health Care* **32**, 67–72.

Eriksson UB, Starrin B and Janson S (2008) Long-term sickness absence due to burnout: absentees' experiences. *Qualitative Health Research* **18**, 620–632.

Fernandez A, Mendive JM, Salvador-Carulla L, Rubio-Valera M, Luciano JV, Pinto-Meza A *et al.* (2012) Adjustment disorders in primary care: prevalence, recognition and use of services. *British Journal of Psychiatry* **201**, 137–142.

Hägglund P, Johansson P and Laun L (2014) *ISF Report: The Effects of the Swedish Rehabilitation Guarantee on Health and Sickness Absence.* Stockholm: Swedish Social Insurance Inspectorate.

Henderson M, Glozier N and Holland Elliott K (2005) Long term sickness absence. *BMJ* **9**, 802–803.

Henderson M, Harvey SB, Overland S, Mykletun A and Hotopf M (2011) Work and common psychiatric disorders. *Journal of the Royal Society of Medicine* **104**, 198–207.

Higgins JP, Altman DG, Gotzsche PC, Juni P, Moher D, Oxman AD *et al.* (2011) The cochrane collaboration's tool for assessing risk of bias in randomised trials. *BMJ* **343**, d5928.

Jadad AR, Moore RA, Carroll D, Jenkinson C, Reynolds DJ, Gavaghan DJ *et al.* (1996) Assessing the quality of reports of randomized clinical trials: is blinding necessary? *Controlled Clinical Trials* **17**, 1–12.

Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR and Walters EE (2005) Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry* **62**, 593–602.

Koopmans PC, Bultmann U, Roelen CA, Hoedeman R, Van Der Klink JJ and Groothoff JW (2011) Recurrence of sickness absence due to common mental disorders. *International Archives of Occupational and Environmental Health* **84**, 193–201.

Mayo-Wilson E, Dias S, Mavranezouli I, Kew K, Clark DM, Ades AE *et al.* (2014) Psychological and pharmacological interventions for social anxiety disorder in adults: a systematic review and network meta-analysis. *Lancet Psychiatry* **1**, 368–376.

National Institute for Health and Clinical Excellence [NICE] (2011*a*) *Common Mental Health Disorders: Identification and Pathways to Care – Clinical Guideline* [Online]. Leicester, UK: National Institute for Health and Clinical Excellence. Available at https://www.nice.org.uk/guidance/cg123 (Accessed 27 June 2017).

NICE (2011*b*) *Generalised Anxiety Disorder and Panic Disorder in Adults: Management – Clinical Guideline* [Online]. Available at www.nice.org.uk/guidance/cg113 (Accessed 27 June 2017).

Nielsen MB, Bultmann U, Madsen IE, Martin M, Christensen U, Diderichsen F *et al.* (2012). Health, work, and personal-related predictors of time to return to work among employees with mental health problems. *Disability and Rehabilitation* **34**, 1311–1316.

Nieuwenhuijsen K, Faber B, Verbeek JH, Neumeyer-Gromen A, Hees HL, Verhoeven AC *et al.* (2014) Interventions to improve return to work in depressed people. *Cochrane Database of Systematic Reviews* **3**, Art. No.: CD006237.

Nigatu YT, Liu Y, Uppal M, Mckinney S, Rao S, Gillis K *et al.* (2016) Interventions for enhancing return to work in individuals with a common mental illness: systematic review and meta-analysis of randomized controlled trials. *Psychological Medicine* **46**, 3263–3274.

OECD (2012) *Sick on the Job?* Paris: OECD Publishing.

Ohayon MM (2002) Epidemiology of insomnia: what we know and what we still need to learn. *Sleep Medicine Reviews* **6**, 97–111.

Öst LG (2008) Efficacy of the third wave of behavioral therapies: a systematic review and meta-analysis. *Behaviour Research and Therapy* **46**, 296–321.

Öst LG (2014) The efficacy of acceptance and commitment therapy: an updated systematic review and meta-analysis. *Behaviour Research and Therapy* **61**, 105–121.

Öst L-G (2016) *Att Utvärdera Psykoterapi och Kritiskt Granska Psykoterapistudier [In English: To Evaluate Psychotherapy and Critically Review Psychotherapy Studies]*. Stockholm: Natur & Kultur.

Öst LG, Havnen A, Hansen B and Kvale G (2015) Cognitive behavioral treatments of obsessive-compulsive disorder. A systematic review and meta-analysis of studies published 1993–2014. *Clinical Psychology Review* **40**, 156–169.

Öst LG and Ollendick TH (2017) Brief, intensive and concentrated cognitive behavioral treatments for anxiety disorders in children: a systematic review and meta-analysis. *Behaviour Research and Therapy* **97**, 134–145.

Öst LG, Riise EN, Wergeland GJ, Hansen B and Kvale G (2016) Cognitive behavioral and pharmacological treatments of OCD in children: a systematic review and meta-analysis. *Journal of Anxiety Disorders* **43**, 58–69.

Rost K, Smith JL and Dickinson M (2004) The effect of improving primary care depression management on employee absenteeism and productivity. A randomized trial. *Medical Care* **42**, 1202–1210.

Sanchez-Meca J, Rosa-Alcazar AI, Marin-Martinez F and Gomez-Conesa A (2010) Psychological treatment of panic disorder with or without agoraphobia: a meta-analysis. *Clinical Psychology Review* **30**, 37–50.

Schoenbaum M, Unutzer J, Sherbourne C, Duan N, Rubenstein LV, Miranda J *et al.* (2001) Cost-effectiveness of practice-initiated quality improvement for depression: results of a randomized controlled trial. *JAMA* **286**, 1325–1330.

Simon GE, Katon W, Rutter C, Vonkorff M, Lin E, Robinson P *et al.* (1998) Impact of improved depression treatment in primary care on daily functioning and disability. *Psychological Medicine* **28**, 693–701.

Taimela S, Aronen P, Malmivaara A, Sintonen H, Tiekso J and Aro T (2010) Effectiveness of a targeted occupational health intervention in workers with high risk of sickness absence: baseline characteristics and adherence as effect modifying factors in a randomized controlled trial. *Journal of Occupational Rehabilitation* **20**, 14–20.

The Swedish Social Insurance Agency (2014) *Social Insurance Report 2014:4*. Stockholm: DanagårdLiTHO.

Van Der Klink JJ, Blonk RW, Schene AH and Van Dijk FJ (2003) Reducing long term sickness absence by an activating intervention in adjustment disorders: a cluster randomised controlled design. *Occupational and Environmental Medicine* **60**, 429–437.

Van Oostrom SH, Van Mechelen W, Terluin B, De Vet HC, Knol DL and Anema JR (2010) A workplace intervention for sick-listed employees with distress: results of a randomised controlled trial. *Occupational and Environmental Medicine* **67**, 596–602.

Van Vilsteren M, Van Oostrom SH, De Vet HC, Franche RL, Boot CR and Anema JR (2015) Workplace interventions to prevent work disability in workers on sick leave. *Cochrane Database of Systematic Reviews* (10), Cd006955.

Wang PS, Simon GE, Avorn J, Azocar F, Ludman EJ, Mcculloch J *et al.* (2007) Telephone screening, outreach, and care management for depressed workers and impact on clinical and work productivity outcomes: a randomized controlled trial. *JAMA* **298**, 1401–1411.

Wells KB, Stewart A, Hays RD, Burnam MA, Rogers W, Daniels M *et al.* (1989) The functioning and well-being of depressed patients. Results from the Medical Outcomes study. *JAMA* **262**, 914–919.

Willert MV, Thulstrup AM and Bonde JP (2011) Effects of a stress management intervention on absenteeism and return to work – results from a randomized wait-list controlled trial. *Scandinavian Journal of Work, Environment and Health* **37**, 186–195.

Vlasveld MC, Van Der Feltz-Cornelis CM, Ader HJ, Anema JR, Hoedeman R, Van Mechelen W *et al.* (2013) 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. *Occupational and Environmental Medicine* **70**, 223–230.

Volker D, Zijlstra-Vlasveld MC, Anema JR, Beekman AT, Brouwers EP, Emons WH *et al.* (2015) Effectiveness of a blended web-based intervention on return to work for sick-listed employees with common mental disorders: results of a cluster randomized controlled trial. *Journal of Medical Internet Research* **17**, e116.

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