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REVIEW

Depression in the workplace: a systematic review of evidence-based prevention strategies

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Abstract
Background Depression is one of the most common mental disorders, causing enormous personal and economic burden. In its early stages, however, it is the most manageable of mental disorders. The workplace, where a large proportion of the adult population can be reached, might be a good setting for prevention interventions that target depression directly.
Aims Identify evidence-based indicated/secondary prevention strategies for depression in the workplace.
Methods Systematic review of articles published until February 2010 using PubMed, EbscoHost and the Cochrane Library. Studies were selected based on different inclusion criteria, such as diagnosis of depression with validated screening instruments and presence of a control group.
Results A total of 9,173 articles were found. One evaluated intervention study in the workplace met all inclusion criteria (French APRAND programme). The intervention, which combined the provision of diagnosis and psychoeducation, had a positive effect on people with depression, with a significant trend towards chances of recovery or remission after 1 year. The remaining studies did not meet the predefined inclusion criteria of this systematic review.
Conclusion The findings are quite sobering given the high prevalence of depression and the individual and societal burden caused by it. More tailor-made interventions in the workplace targeting depression directly are needed.

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Introduction

Why action is needed

'Let us recognize that there can be no health without mental health'—the concluding remark of UN Secretary General Ban Ki-moon's message on World Mental Health Day in 2008, in which he pointed out that 'mental health is of paramount importance for personal well-being, family relationships and an individual's ability to contribute to society'. However, because 'the resources available are insufficient, inequitably distributed and inefficiently used […] a large majority of people with mental disorders receive no care at all'. As a consequence, 'more must be done to integrate mental health awareness into all aspects of health and social policy, health-system planning and primary and secondary general health care' (United Nations Organization 2008). In the same year, the participants of the European Union high-level conference 'Together for Mental Health and Well-Being' acknowledged the importance and relevance of mental health and well-being for the European Union and called for action in five priority areas, with one of these areas being mental health in workplace settings (European Commission 2008). Following this conference, a consensus paper was written for mental health in workplace settings (McDaid 2008), which calls for the implementation of mental health and well-being programmes and early intervention schemes in workplaces. These are two examples of the growing agreement that prevention and reduction of mental ill health deserve increasing attention in different areas of life,

particularly in the workplace, where a large proportion of the adult population can be reached.

A scan of the literature on prevention in psychiatry shows that 'effective prevention programmes may potentially contribute to the reduction of the enormous burden of mental disorders' (Cuijpers 2007). Interestingly, most of the prevention programmes are focused on depressive disorders (Cuijpers 2007) rather than on mental disorders in general. There are several explanations for this: (a) the need to decrease the depressive disorder's *high prevalence* as one of the most common mental disorders found in the general community and in the workplace (World Health Organization 2005), which will be the second leading cause of disability worldwide in 2020 according to the Burden of Illness study, (Murray and Lopez 1997), affecting more than 150 million people at any point in time world wide (World Health Organization 2003), and with 12-month prevalence rates in the workplace ranging from 4% (Gilmour and Patten 2007) to 6,4% (Kessler et al. 2006); (b) the need to reduce its *enormous economic burden* resulting, amongst others, from direct treatment costs and indirect costs such as absenteeism, presenteeism (reduced at-work productivity), early retirement costs, short- and long-term disability costs, and premature death (Myette 2008; Steffick et al. 2006; Bender and Farvolden 2008) and because (c) depression is one of the *most manageable of mental health conditions*, particularly in the early stages of its development (Martin et al. 2009a) and because the prevention and management of depression will have a positive general effect on people's mental health.

These figures underline the strong need to prevent and manage depressive disorders. As mentioned earlier, the European Commission's consensus paper (European Commission 2008) has pinpointed five priority areas for preventive interventions, amongst them the workplace. From the literature, it becomes apparent that whilst a large number of stress management programmes in the workplace are available (Martin et al. 2009a), the workplace as a site for preventive interventions that target depression directly has largely been neglected in the past. Furthermore, a meta-analytical review found that preventive interventions for depression have been developed for different target groups in different settings, e.g., school, prevention of postpartum depression, depression in general medical disorders, primary care patients and older adults (Cuijpers 2007; Muñoz et al. 2010); however, none of the interventions had been implemented in the workplace. That is why a systematic review was conducted to:

- identify currently available evidence-based indicated/secondary prevention strategies for depression in the workplace and to provide an overview of these strategies and
- propose recommendations for the future development of evidence-based prevention strategies.

The prevention concept behind the review

As a framework for this review served the concepts of (a) secondary prevention from Caplan's classic public health distinction between primary, secondary and tertiary prevention (Caplan 1964) to identify the point of time in the process of depression *when* the preventive intervention is implemented in combination with (b) indicated prevention from the model proposed by Mrazek and Haggerty (1994), to identify *who* the intervention is targeted at (Mrazek and Haggerty 1994). Secondary prevention seeks to lower rates of new and old cases of depression (prevalence) (Caplan 1964), i.e. it is implemented when early symptoms of depression are already there and is focussed on early detection and intervention (Couser 2008). Indicated preventive interventions are targeted to high-risk individuals who are identified as having minimal but detectable signs or symptoms foreshadowing depression (Mrazek and Haggerty 1994).

Methods

Search strategy

Two reviewers independently conducted electronic literature searches of articles published until February 2010 using Pubmed, EbscoHost and the Cochrane library to identify studies that evaluate indicated/secondary depression prevention interventions in the workplace. The following terms and combinations of terms were used in the initial literature search: *depress** in combination with the following identifiers; *work** OR *occupat** OR *employ** AND *program** OR *preven** OR *interven** OR *promot** *OR educat**. Studies were restricted to publication in English language. In addition to the electronic search, the reference lists from relevant review articles, meta-analyses and all included studies were scanned. The search returned a total of 9,173 articles.

Inclusion and exclusion criteria

The criteria for including or excluding the studies found after scanning the literature are based on the data collection checklist provided by the collaborative review group of the Cochrane Collaboration, EPOC (Cochrance Effective Practice and Organisation of Care Review Group). Only studies that met the following criteria for eligibility were selected. The *study design* had to be one of the following:

randomised controlled trial (RCT), controlled clinical trial (CCT), controlled before-and-after studies (CBA), interrupted time-series study (ITS). *Methodological inclusion criteria* were the assessment of depressive disorder with validated screening instruments for depression (e.g. Beck Depression Inventory (BDI), Hamilton Depression Rating Scale (HDRS), or Hospital Anxiety and Depression (HAD) Scale) and the presentation of relevant and interpretable data. The *primary outcome measure* in the studies to be included in the review had to be depressive disorder and/or depressive symptomatology, measured with a validated screening instrument. *Participants* in the study were individuals targeted and/or recruited in the workplace, with the *intervention setting* being the workplace and the *type of prevention* being of indicated or secondary nature.

Studies were not included if they referred to the following *types of interventions*: stress management and stress reduction programmes, yoga and meditation, wellness, sports and weight-training, emotional health interventions, programmes to increase mental health literacy and/or to reduce stigmatisation, programmes referring to the concept of burnout. These studies have been considered elsewhere (e.g. Martin et al. 2009a). Furthermore, studies were excluded that provided direct treatment of depression (psychotherapy and/or pharmacotherapy), examined the efficacy of pharmacotherapy or psychotherapy or a combination of both, or which compared the efficacy of these treatments. These studies have been considered elsewhere (e.g. Nieuwenhuijsen et al. 2008).

Study selection procedure

First, all $N = 9{,}173$ articles were screened on the basis of title and abstract to determine whether the studies found met the pre-defined inclusion criteria of the review. Second, full texts of the remaining relevant publications were retrieved and inspected more closely, again applying the pre-defined inclusion and exclusion criteria. In this step, those studies were unselected, which had passed the first process of filtering, because only the full text would reveal whether the studies met all inclusion criteria.

Any disagreement between the reviewers with regard to the eligibility of the studies found was resolved in a consensus-building discussion. The study selection procedure is outlined in Fig. 1.

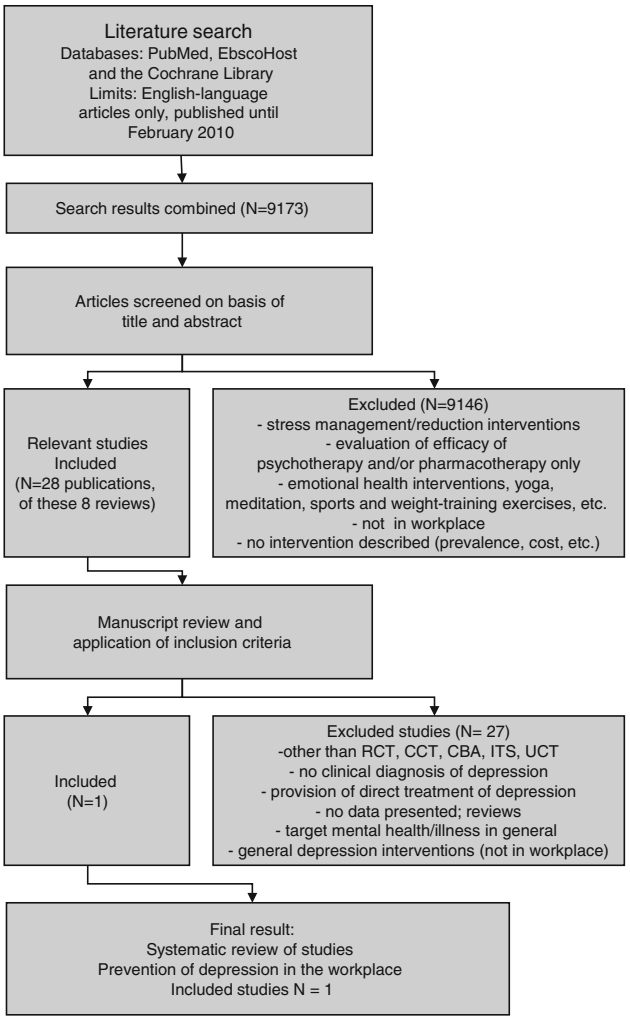

Fig. 1 Flow chart of study selection procedure for systematic review of depression prevention interventions in the workplace (based on Liberati et al. 2009)

Results

The literature search returned $N = 9{,}173$ articles. Of these, $N = 9{,}146$ articles were excluded because they did not meet the pre-defined inclusion criteria. Full texts of the remaining 28 relevant publications were retrieved and examined based on the pre-defined inclusion criteria. A further 27 studies were discarded because there was no diagnosis of depression with a validated screening instrument, the study design was not RCT, CCT, CBA, ITS, because a direct treatment (psychotherapy or pharmacotherapy) was provided or their efficacy was assessed and compared, all reviews were excluded as well as general depression interventions, which had not been implemented in the workplace and interventions that target mental health/illness in general.

Study characteristics of the included study

The literature search resulted in $N = 1$ study eligible for inclusion in this systematic review of prevention intervention strategies in the workplace targeting depression directly. See Table 1 for concise information about this study.

Table 1 Prevention strategies depression in the workplace—included study

Authors	Type of intervention	Study design	Sample size (*N*) and population	Outcome measures	Instruments	Effects
Godard et al. (2006)	Prevent relapses of anxiety and depressive disorders Individual health promotion intervention: screening for depression and organised provision of information (2001–2003; organised information and strong advice to consult a treating or occupational physician) Cluster-based evaluation study	Nonrandomised Controlled Clinical Trial (CCT), cluster-based evaluation study	9,743 employees on sick leave, 2001–2003, 'EDF' and 'Gaz de France', (140,000 employees) $n = 667$ with at least one depressive disorder	Anxiety and depressive disorder (according to ICD-10)	M.I.N.I (International Neuropsychiatric Interview) HAD (Hospital Anxiety and Depression Scale)	Positive effect on the 6-week and 6-month HAD scores; combination of detection with organised provision of information including printed material improves patients' outcome and physicians' diagnostic abilities

Table 2 Prevention strategies depression in the workplace—unselected studies

Authors	Type of intervention	Study design	Outcome measures	Effects/Findings	Criteria for exclusion from this review
Bender and Farvolden (2008)	Contents: prevalence of depression in the workplace, workplace depression's economic impact, associated concepts (burnout, stress), stigma and discrimination, treatment, presenteeism, absenteeism, workplace policies and programmes (outline of APRAND programme by Godard et al. 2006)				Progress report, no intervention
Billings et al. (2008)	Web-based multimedia health promotion programme in the workplace to help reduce stress and prevent depression, anxiety, and substance abuse	RCT, $n = 309$ working adults, one intervention group with web-based programme, one group wait-list control group	Depression (Center for Epidemiologic Studies Depression Scale-Revised/CESD-R) knowledge, attitude and self-efficacy, stress and mood, healthy drinking, work productivity,	No significant effects for depression; effects for stress reduction, increased knowledge of depression and anxiety, more positive attitudes towards treatment	Stress and mood management programme, depression not targeted directly
Caruso and Myette (2008)	Editorial				No intervention
Charbonneau et al. (2005)	First phase of a multiphase workplace depression initiative	Survey of depression knowledge and attitudes amongst a general employee population, using a 22-item, self-administered survey, $n = 6,399$	Knowledge and attitudes concerning depression, treatment preferences, knowledge of mental health benefits and company resources for depression, self-reported depression history	Employees had knowledge about depression, less awareness of EAPs for depression care	No diagnosis of depression, no intervention, reports findings of the survey
Colombi (2005)	Depression management programme, primary care intervention to train nurses and primary care physicians to identify and manage depressed patients	Not outlined	Awareness, early recognition, treatment, follow-up, monitoring adherence, functioning and productivity in the workplace	Disease management programme that combines a multifaceted, collaborative approach for the treatment of depression may improve care and decrease costs to employers	No diagnosis of depression, no control group
Davies (2008)	Qualitative interviews with managerial staff employed in the private sector in South Australia				No intervention

Table 2 continued

Authors	Type of intervention	Study design	Outcome measures	Effects/Findings	Criteria for exclusion from this review
Dunnagan et al. (2001)	Traditional worksite health promotion programme	Survey, assessment of impact of worksite health promotion programme on anger, depression, work stress, and financial worry	Personal and demographic variables, health promotion programme questions, job satisfaction, vocational stress and strain, work-related depression, financial worry and anger	Worksite health promotion programmes play a limited role in improving work-related mental health outcomes, management must play a greater role in addressing workplace stress, anger and depression	No diagnosis of depression, no control group
Hauck and Chard (2009)	Interviews with employees and managers, focus groups				No intervention
Kitchener and Jorm (2004)	Mental health first aid course to improve mental health literacy and reduce stigmatising attitudes	RCT, $n = 301$, one intervention group, one wait-listed for 5 months before undertaking the training, pre-test assessment, 5 months follow-up, self-completed questionnaires	Mental health literacy and helping skills, benefits to participants' health	Improvements in participants' mental health literacy and improvement in the mental health of participants	No diagnosis of depression, mental health in general, reports findings of the survey
Langlieb and Kahn (2005)	Literature search on prevalence of depressive disorders in the workplace, their economic and social costs, effect on productivity and functioning at work				No intervention
Martin et al. (2009b)	Mental health promotion intervention to develop managers' psychological capital and improve their work stress coping	RCT, self-administered intervention group, telephone-facilitated intervention group, control group (psychoeducation only); employees will also be surveyed	Mental health (depression and anxiety/K-10 screening instrument), work outcomes (job satisfaction, job tension, lost productivity from absenteeism and presenteeism), direct effect of intervention (managers only), psychosocial work environment (employees only), control variables, intervention satisfaction, psychoeducation effectiveness	No results yet	No results yet
Millear et al. (2008)	Mental health promotion programme, strengths-based resilience-building programme integrating interpersonal and cognitive-behavioural therapy perspectives	Nonpharmalogical trial, $n = 20$ participants, control group	Depression (DASS-21), anxiety, stress, life satisfaction, psychological well-being, work satisfaction, work-life fit, work-life balance, coping, social skills	Improvements in coping, self-efficacy, lower levels of stress and depression, greater work-life fit	Stress management, not targeting depression directly
Nakao et al. (2007)	EAP (counselling with psychologists through e-mail or phone, referral to a psychiatric clinic, seminars concerning job-related mental health)	Cohort study, $n = 283$, impact of EAP on depression and suicide-related behaviours	Depression (Hamilton Depression Rating Scale/HAM-D), job-related variables	Significant but marginal reduction in HAM-D scores	No randomised design, no control group

Table 2 continued

Authors	Type of intervention	Study design	Outcome measures	Effects/Findings	Criteria for exclusion from this review
Nakayama and Amagasa (2004)	Mental health support programme (survey)	Initial questionnaire survey, $n = 216$	Working styles and daily habits, subjective general well-being, knowledge about/ attitude towards depression and suicide	Programme that provides appropriate information related to mental health is needed	No diagnosis of depression, no intervention, reports findings of the survey
Putnam et al. (2003)	Two-level, non-traditional EAP intervention	$N = 45$ first level: education and awareness about signs and symptoms of depression and resources for help; second level: prevalence of depression, outreach to employees with positive scores for depression, pre- and post-BDI-II scores, estimate cost savings	Depression (Beck Depression Inventory—II/BDI-II)	Measurable increase in awareness of depression, reduction of depressive symptomatology, significant cost savings to the organisation	No control group, experimental design
Renaud et al. (2008)	Three-year worksite health promotion programme, six educational modules over a 3-year period	Changes in health profiles between first and last module ($n = 270$), survey after the programme ($n = 169$), organisational data on absenteeism and turnover, qualitative interviews with managers ($n = 9$)	Self-assessed health status (Global Health Score), satisfaction and perceived impact questionnaire, organisational data on absenteeism and turnover	Significantly increased Global Health Scores, decline in absenteeism and turnover	No diagnosis of depression, no control group
Wang et al. (2007)	Telephonic outreach and care management programme; assessing needs for treatment, facilitating entry into in-person treatment (psychotherapy and/or antidepressant medication), monitoring and supporting treatment adherence, provision of structured psychotherapy intervention by telephone	RCT, $n = 604$, $n = 304$ intervention, $n = 300$ usual care	Depression severity (Quick Inventory of Depressive Symptomatology/QIDS-SR), work performance (World Health Organization Health and Productivity Questionnaire/HPQ)	Significantly lower QIDS self-report scores, significantly higher job retention; systematic programme to identify depression and promote effective treatment significantly improves clinical outcomes and workplace outcomes	Treatment with CBT (for participants declining in-person treatment, a structured 8-session cognitive behavioural psychotherapy intervention was provided)
Zivin et al. (2009)	Depression disease management programme, centralised telephone-based collaborative care programme, primary care and speciality mental health depression patients	$N = 1{,}635$, enrolled in the programme from 2003 to 2006	Depressive symptomatology (Patient Health Questionnaire-8/PHQ-8) work functioning, other demographic and clinical characteristics (e.g. antidepressant medication, level of adherence to medications, etc.)	Significant decreases in depressive and functional impairment over time	Not in the workplace, no control group

The study published in 2006 by Godard et al. (2006) evaluated an organised health promotion intervention (APRAND—*Action de Prevention des Rechutes des Troubles Anxieux et Depressifs*) during medical consultations amongst 9,743 employees on sick leave in 2001. The programme, a secondary prevention programme, was implemented from 2001 to 2003 at 'EDF' and 'Gaz de France' (producer and distributor of electricity and gas) in France and had three components: screening with the Mini International Neuropsychiatry Interview (MINI), a health promotion intervention and a cluster-based evaluation study. 667 (6.85%) of the employees on sick leave were diagnosed with at least one depressive disorder (1st depressive episodes, recurrent depressive episode, dysthymia). The health promotion intervention consisted of the delivery of screening test results, psychoeducation (provision of leaflets explaining the diagnosed disorder), and the strong recommendation to consult the treating doctor (GP, psychiatrist) or occupational physician. No direct treatment of depression was provided. Looking more closely at the results, 'the intervention proved advantageous for almost all patients with depressive disorders' (Godard et al. 2006). Whilst 35.7% were still depressed after the intervention in the intervention centres, the figure for the control centres was 49.3%. There was a significant trend towards increased chances of recovery or remission 1 year after the implementation of the intervention. However, the intervention was not beneficial for participants with higher rates of spontaneous remission, such as person aged 40 and below. Also, the general outcome was better in male participants. A limitation of this study is the lack of randomisation of the medical centres and thus the allocation to the intervention group, which can introduce substantial bias that might limit the usefulness of the study. However, Godard et al. conclude that a combination of recognition of depression based on ICD-10 criteria and psychoeducation (organised information to increase awareness of the disorder with printed material) improves diagnosis and outcome.

Study characteristics of unselected study

Tables 2 and 3 summarise the 27 studies found in the literature search, which did not meet inclusion criteria after more careful inspection. These studies did not include a diagnosis of depression with a validated screening instrument (Bender and Farvolden 2008; Billings et al. 2008; Caruso and Myette 2008; Charbonneau et al. 2005; Colombi 2005; Davies 2008; Dunnagan et al. 2001; Hauck and Chard 2009; Kitchener and Jorm 2004; Langlieb and Kahn 2005; (Millear et al. 2008; Nakayama and Amagasa 2004; Renaud et al. 2008; Zivin et al. 2009). Amongst the 27 unselected studies, one used a control group; however, the study presented a programme in progress with no published results yet (Martin et al. 2009b). In one study, a direct treatment (psychotherapy) was provided (Wang et al. 2007). All reviews have been excluded (Badamgarav et al. 2003; Couser 2008; Krupa 2007; Martin et al. 2009a; Neumeyer-Gromen et al. 2004; Nieuwenhuijsen et al. 2008; Seymor and Grove 2005; Steffick et al. 2006; Vézina et al. 2004). See Tables 2 and 3 for more information and results of the individual studies. From the findings of these studies, we can learn that prevention programmes should be (a) multifaceted or multimodal in nature, i.e. combining different techniques or methods (e.g. providing information, better identification of depression, promotion of effective treatment) and (b) using individual rather than organisational approaches to manage depression (Tables 2 and 3).

Discussion

Given the high prevalence of depression and the enormous individual and societal burden resulting from the disorder, the findings of this systematic review are quite sobering. It appears as if workplace prevention strategies that target depression directly still seem to be in an early stage of development or have largely been neglected so far. The systematic literature search and review returned only one prevention intervention where the target is depression in the workplace (French Aprand programme, Godard et al. 2006) and which used a quasi-experimental study design, a control group and reported outcome on a validated screening instrument for depression. The evaluation of the programme showed that providing the diagnosis of depression along with psychoeducation significantly improves symptom severity and remission rates.

However, younger persons (age group below 40), particularly women, do not seem to benefit as much as their older (male) counterparts from the programme. Given the fact that unipolar depression is twice as common in women (World Health Organization 2010) with prevalence peaks in the 18–24 age group (see for instance The Black Dog Institute) and the fact that depression is overall more prevalent amongst people in the 35–44 age group (The Black Dog Institute), not only more evidence-based depression prevention programmes in the workplace need to be developed, they also have to be tailor-made to target specific vulnerable and higher-risk groups and take into consideration gender-specific prevention approaches.

Most of the initially found $N = 9{,}173$ articles included interventions that were targeted at stress management and/or reduction and used stress-related outcome measures. Stress management has been established in the literature 'as a ubiquitous strategy for mental health promotion in the workplace' (Martin et al. 2009a), and it is also frequently practiced in the workplace. The aim of this review,

Table 3 Prevention strategies depression in the workplace—unselected studies—reviews

Authors	Contents/types of interventions	Findings
Badamgarav et al. (2003)	Patient/provider education programmes provider feedback multidisciplinary teams of providers provider reminders financial incentives for providers	Primary care interventions none of the interventions was in the workplace
Couser (2008)	Reducing risk of onset for depression increasing protective factors for depression improving mental health literacy early detection of depressive symptoms early intervention for depressive symptoms	Prevention strategy for depression in the workplace can include: developing individual resilience screening high-risk individuals and reducing that risk improving organisational literacy integrating workplace and health care systems to allow access to proactive quality interventions
Krupa (2007)	Early identification, diagnosis and treatment assessment and planning self-awareness counselling coping skills training work hardening reasonable job accommodation social network development prevention and screening strategies education and awareness training structures to facilitate workplace health and productivity	There is a broad range of individual, workplace, and work organisation interventions, however, there is a lack of high-level evidence for most of these interventions mainly stress interventions, no specific depression programmes
Martin et al. (2009a)	Stress management aerobic and weight-training developing and implementing problem-solving strategies motivational interviewing based health coaching combined ergonomic and job-stress intervention CBT programme organised health promotion during medical consultation increasing mental health literacy and reducing stigmatising attitudes emotion refocusing technique increasing active commuting behaviour transcendental meditation	A broad range of health promotion interventions appear to be effective to reduce depression in employee populations; however, the effect is small [SMD 0.28, 95% confidence interval (95% CI) 0.12–0.44]
Neumeyer-Gromen et al. (2004)	Evidence-based guidelines patient/provider education collaborative care reminder systems monitoring	Primary care interventions none of the interventions was in the workplace
Nieuwenhuijsen et al. (2008)	Worker-directed interventions, aimed to reduce work disability in employees with depressive disorders: adjuvant occupational therapy evaluation of anti-depressant medication psychodynamic therapy enhanced primary care psychological treatment	Primary outcome: sickness absence pharmacological interventions and/or psychotherapeutic interventions

Table 3 continued

Authors	Contents/types of interventions	Findings
Seymor and Grove (2005)	Stress management and reduction problem-solving and coping strategies EAP counselling cognitive analytic therapy CBT exploratory therapy relationship-oriented therapy counselling increasing employees' participation and control psychoeducational programmes early referral to occupational health online support group to cope with stress and burnout	*Employees without manifested common mental health problems* a range of stress management interventions can have a beneficial and practical impact amongst the extent to which any of these interventions prevent common mental health problems remains unclear four studies showed that multimodal approaches (using more than one technique or method) are more effective than single method approaches changing the work environment can be effective in reducing common mental health problems (three papers) *Employees at risk* strong evidence (eight studies) that individual approaches to managing mental health problems most likely to be effective most effective programmes focussed on personal support, individual social skills and coping skills training most long lasting effects from multimodal programmes *Rehabilitation* strong evidence (four studies) that most effective approach is brief individual therapy (especially CBT) both face-to-face or via computer-aided software interventions seem effective stronger effect with employees in high-control jobs
Steffick et al. (2006)	Depression awareness, stress reduction and wellness programmes EAPs disability claim management for depression	Only few worksite disease management programmes for depression only one used RCT (in a primary care setting)
Vézina et al. (2004)	Psychosocial risk factor intervention strategies major trends in intervention research (psychosocial risk intervention strategies)	Focus on stress ('job-demand-control-support' model) and 'effort/reward imbalance' model

however, was to identify diagnosis-specific, indicated/secondary prevention strategies—i.e. interventions that are targeted to individuals who are identified as having minimal but detectable signs or symptoms of depression—rather than strategies that are focussed on causes or risk factors of depression. The decision to exclude stress management interventions was based on different considerations:

(a) Stress can be, but does not have to be a cause of depression. In certain situations, stress can also have a positive impact. This is in line with the concept of eustress or 'good stress', the optimal level of stress which is healthy and a result of positive perception of stressors (Le Fevre et al. 2003). In addition, contexts and personal characteristics (e.g. vulnerability, protective factors, personality traits, etc.) also have an effect on the occurrence and interpretation of stressors (Hammen 2005; Le Fevre et al. 2003). In this context, Ingram and Luxton (2005) point out that 'models with primary emphasis on stress as a key cause of a disorder have difficulty dealing with data showing that even extreme stress is not linked to psychopathology in all individuals' (Ingram and Luxton 2005).

(b) Depending on the aetiological models used, causes of depression can be complex and manifold, including a main distinction of psychosocial and biological causes. As a consequence, a multitude of potential intervention targets opens up for prevention interventions. A focus on stress prevention interventions might thus be too one-sided.

(c) Finally, whilst stress is an unspecific phenomenon, which is, for instance, not mentioned in the German National Disease Management Guidelines for

unipolar depression (DGPPN, BÄK, KBV, AWMF, AkdÄ, BPtK, BApK, DAGSHG, DEGAM, DGPM, DGPs, DGRW (Hrsg) 2009), depression can clearly be diagnosed with defined symptoms (according to ICD-10, DSM-IV), allowing for a more focused intervention.

Limitations

The findings have to be considered in the light of limitations. First, the search was restricted to English-language publications, thus programmes that have not yet found their way into scientific English-language literature are not included in this review. Second, the pre-defined inclusion criteria with regard to study design, methodological criteria, participants, intervention settings, types of intervention and type of prevention have limited the number of studies to be included in this review. This is particularly true for the enormous body of stress management programmes and programmes that target mental health/illness in general. Third, the only study included was a nonrandomized controlled trial, which might limit the usefulness of this study. Fourth, the aetiology of depression is complex and different modifiable, non-modifiable, work-related and non-work related risk, and protective factors are discussed in the literature. This review does not include any prevention studies that are focussed on changing the psychosocial work environment to prevent depression that might be caused or the result of these workplace factors and which might have an impact on work functioning, presenteeism and absenteeism, etc. This could be the topic of a separate review.

Conclusion

Based on the findings of this review and keeping in mind that the European Union high-level conference 'Together for Mental Health and Well-Being' calls for the implementation of mental health programmes and early intervention schemes in workplaces to promote mental health and prevent mental disorders (European Commission 2008)—it seems imperative to:

First, develop further effective and evidence-based programmes and schemes for the workplace, which also target one of the most common mental disorders, namely depression. Second, focus these programmes and schemes to target particular groups of higher-risk people, such as young women (e.g. take into consideration gender differences in depression, gender-specific approaches, etc.) and people aged 40 and below. Finally, to increase awareness of and knowledge about depression amongst the different players in the workplace (manager, works and staff council, occupational physician, etc.), to distribute tools for effective depression prevention interventions and contribute to the de-stigmatisation of depression so that the programmes and tools developed can be implemented in the workplace without any barriers.

Conflict of interest The authors declare that they have no conflict of interest.

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