Managing employees’ depression from the employees’, co-workers’ and employers’ perspectives. An integrative review

Cecilie N. Thisted, Merete Labriola, Claus Vinther Nielsen, Sanne T. Kristiansen, Janni Strøm & Merete B. Bjerrum

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ABSTRACT

Purpose: To synthesize evidence on factors promoting or hindering work participation (WP) of employees with depression from the employees’, co-workers’ and employers’ perspectives, as well as an additional focus on the influence of the employee’s occupation.

Methods: An integrative review was conducted. Pre-defined eligibility criteria guided study selection. Articles were critically appraised using tools developed by Joanna Briggs and Mixed Methods Appraisal Tool. Findings were analysed and synthesised using qualitative inductive content analysis.

Results: Seventeen studies were included: 12 quantitative studies, three qualitative studies and two mixed methods studies. From these, 144 findings were extracted and combined into six categories from which two syntheses were developed. One synthesis demonstrated that employees, co-workers and employers hold different perspectives on rehabilitation stakeholders’ responsibilities hindering WP. The other synthesis revealed that WP is influenced by interactions between individual and occupational factors.

Conclusions: Sufficient treatment from health professionals promotes WP. Employees’ fear of stigmatization hinders WP. Co-workers and employers find that open communication is important, however, employers are concerned about entering employees’ private sphere. When managing employees with depression, employers intervene at the individual level. There is a need for structural interventions to promote WP among employees with depression.

IMPLICATIONS FOR REHABILITATION

- The responsibilities of rehabilitation stakeholders should be clarified to promote collaboration.
- Structural workplace interventions should be initiated to supplement individual level interventions.
- Workplace interventions may focus on more open communication and awareness towards mental illness.
- Interactions between the occupational factors and individual factors should be carefully considered.

Introduction

Work participation (WP) among employees with depression is threatened, as depression is associated with long-term sick leave and one of the main causes of granting disability pension [1,2]. Work disability due to depression is costly for society, and is found to have significantly negative consequences for the individual, as having a job is central to identity and contributes to independence and meaning in life [3–7]. Furthermore, having a job is generally the most important way of obtaining adequate economic resources, which is essential for material well-being and full participation in today’s society [6]. Globally, major depression is a commonly occurring disorder with an estimated lifetime prevalence ranging from 1.0% (Czech Republic) to 16.9% (USA) [8].

People with depression have a variety of symptoms such as persistent sadness or low mood, loss of interest or pleasure, fatigue or low energy, disturbed sleep, poor concentration or indecisiveness, low self-confidence, suicidal thoughts, agitation, guilt and self-blame, which are all symptoms that challenge psychosocial functioning and may hinder WP [9]. Other obstacles to WP are stigma [2,10], severity and duration of depression [11] and low support from co-workers and employers [12,13]. Poor collegial relationships can result in distrust and insecurity [13,14], and fear of being discriminated by coworkers and employer is found to be a major barrier for help-seeking and disclosure of disability in the workplace [15]. In contrast, supportive relations at the workplace can provide emotional support and lower the risk of work disability [13,14,16]. Understanding and support at work e.g., regular
communication between employer and employee with respect to progress, is found to promote WP among employees with depression [17]; thus, it can be assumed that the attitudes of co-workers and employers play a key role in WP among employees with depression.

Work disability is a complex phenomenon, often involving a range of social actors with competing interests. Capturing the complexity of systems and social actors influencing employees with work disability, the case-management ecological model by Loisel et al. [18] draws attention to the personal system, the workplace system, the healthcare system and the compensation system. This multicomponent perspective is in accordance with the International Classification of Functioning, Disability and Health (ICF) [19], though ICF focuses on the individual functioning and the environmental and personal factors, as factors influencing health and disability. Concerning the personal system, studies report socioeconomic inequalities in work disability due to depression in terms of onset, recovery and recurrence [20–22]. Virtanen et al. [21] found that low socioeconomic position was associated with a lower likelihood of return to work (RTW) in employees with depression. Thus, a socioeconomic gradient in work disability due to depression can be found [20]; however, this gradient does not clarify the nature of the challenges encountered by employees with depression in terms of WP. As depressive symptoms affect cognitive skills [23], it can be assumed that the challenges employees with depression encounter in relation to WP changes with their occupational position based on the level of abstraction in the occupational position concerning job tasks and demands.

To grasp the complexity of WP among employees with depression, a comprehensive account is required. There is a need for synthesizing qualitative and quantitative evidence [24] to gain a better understanding of the factors influencing WP of employees with depression to supplement the existing research on preventing and reducing work disability of employees with mental disorders [25–30]. Furthermore, to inform employers on how to support employees with depression in their WP.

To the authors’ knowledge, there is no available systematic review on WP of employees with depression including the perspectives of employees with depression, co-workers and employers as well as an additional focus on the influence of the employee’s occupation. Given the recurring nature of depression and associated work absenteeism [20,31,32], this integrative review focuses on WP of employees with depression i.e., employees with depression at work, on sick leave or part of a RTW process. This review contributes with knowledge on how to manage opportunities and challenges in depression among employees from the employees’, co-workers’ and employers’ perspectives.

The aim was to synthesize evidence on factors promoting or hindering WP of employees with depression from the employees’, co-workers’ and employers’ perspectives, as well as an additional focus on the influence of the employee’s occupation.

Methods

A systematic integrative review was conducted [33]. This approach allows integration of evidence from quantitative, qualitative and mixed methods studies to combine the strengths of the results from diverse methods, and thereby provide a comprehensive account capturing the complexity of WP among employees with depression [24,34].

The integrative review was conducted in eight steps [24,35]: (1) Review questions; (2) inclusion and exclusion criteria; (3) search strategy; (4) study identification; (5) study selection; (6) quality appraisal, (7) data extraction and (8) synthesis using qualitative inductive content analysis [36–38].

The aim was operationalized in three review questions: (a) Which factors promote WP in employees with depression from the employees’, co-workers’ and employers’ perspectives? (b) Which factors hinder WP in employees with depression from the employees’, co-workers’ and employers’ perspectives? and (c) How does the occupation of employees with depression influence their WP? These questions were used in the data extraction to ensure that the findings provided knowledge to meet the overall aim of the review.

Inclusion criteria

Quantitative, qualitative and mixed methods peer-reviewed articles published in English, Swedish, Norwegian or Danish were included, if they met the following criteria:

- Population: (I) employees (18–65 years) with a clinical depression in accordance with DSM-IV-TR [39] and ICD-10 [23]: DSM: 296.20–296.29, 296.30–296.39, and ICD-10: F32.0–F33.9 or identified through a well-defined cut-off score for depressive symptoms using a validated instrument e.g., BDI [40], CES-D [41] or PHQ-9 [42,43], (II) co-workers; broadly defined as fellow workers, or (III) employers; defined as persons in managerial job positions.
- Topic: Depression and WP
- Outcomes: Employment status (sick listed or work disabled), days absent from work (absenteeism) or RTW.

Exclusion criteria

Articles were excluded if results on depression were entwined with results on other mental disorders; if they included employees with substance abuse; sick-listed due to other disorders; military and veteran populations; employees with a physical condition as the primary diagnosis or if work productivity outcomes merging absenteeism and presenteeism were used. Articles entwining the perspectives of employees, co-workers or employers in the analysis with perspectives of other stakeholders (e.g., occupational practitioners) in the analysis were excluded. Articles exclusively focusing on unemployed or participants in costumed employment settings e.g., temporary employment, and articles without information on occupation or occupational factors were excluded.

Search strategy

A three-step search strategy [44] was used. The strategy was developed in collaboration with a specialist research librarian from Aarhus University Library, Department of Psychiatric Research. The search was conducted by CNT. Databases were searched from their inception to February 13 2017; thus, there were no limits on publication dates.

Firstly, an initial search in PubMed, Scopus and Embase was undertaken to identify relevant search terms, followed by an analysis of the text words contained in titles, abstracts and index terms. Systematic reviews on WP and/or depression were consulted [11,26]. The key concepts of the aim were outlined as follows: (I) population: Employees, co-workers, employers; and (II) topic: Depression and WP. All relevant search terms were divided into clusters complying with the key concepts of the aim.

Secondly, a comprehensive search was undertaken in seven databases: Scopus, PubMed, The Cochrane Library, CINAHL,
PscyINFO, Embase and SveMed+. Databases were selected to cover the medical, psychological, social and public health perspectives contained in the aim. The final search strategy included search terms related to: (1) depression e.g., depressive disorder, (2) WP e.g., absenteeism and (3) population e.g., employee, co-worker and employer, as this strategy was found to have the ability to capture studies on WP of employees with depression from the employees’, co-workers’ and employers’ perspectives. The use of controlled vocabulary terms and/or free text search was database-specific. In Scopus, only free text search was required, and search terms regarding occupation were added to limit the search. The detailed search strategy in PubMed is presented in Supplementary Table S1.

Thirdly, the reference lists of key references were hand searched for additional relevant articles. If further data in relevant articles were needed, CNT contacted the first author by e-mail. Two first authors [17,45] were contacted and both responded.

### Quality assessment

The methodological quality of relevant mixed methods articles were assessed using the Mixed Methods Appraisal Tool (MMAT) [35,46]. Quantitative articles were assessed using the standardised appraisal tools developed by the Joanna Briggs Institute (JBI) [44], as these tools offer detailed checklists targeted at specific study designs. Qualitative articles were assessed using the standardised appraisal checklist from the JBI Qualitative Assessment and Review Instrument (QARI) [44].

The appraisal tools consist of 9–11 questions regarding dependability, credibility, confirmability and transferability with the answer possibilities “yes”, “no” and “unclear”. Two reviewers independently appraised the articles and compared and discussed the appraisals to reach consensus. The qualitative and mixed methods articles were appraised by CNT and STK. The quantitative articles were appraised by CNT and JS. If consensus was not reached, MB or CVN was consulted.

### Data extraction

Firstly, study characteristics regarding country, aim, design, participants, depression severity and classification scale, occupation or occupational factors, population, outcome and/or context and main findings were extracted.

Secondly, findings were extracted using the three review questions. A finding was defined as an author’s statement or a text that identified themes, sub-themes or text concerning themes as well as study results from the employees’, co-workers’ and employers’ perspectives, as findings were to be integrated qualitatively at the level of extracted data [24]. To manage the complexity of the review questions, extracted findings were kept separate during data extraction depending on whether the finding illustrated the employees’, co-workers’ or employers’ perspective. CNT performed the data extraction through repeated and in-depth reading of each result section, and the extractions were discussed with CVN, ML and MB.

### Categorising and synthesising

The extracted findings were analysed using qualitative inductive content analysis [36–38], an open and systematic approach allowing identification of findings, categorisation of the extracted findings and generation of explanatory syntheses across the categorised findings.

Firstly, findings were analysed according to similarity in meaning to develop categories. Secondly, two or more categories were combined to syntheses through repeated reading of the categorised findings, ensuring similarity in meaning. CNT performed the categorisation and synthesisation of the extracted findings. CVN, ML and MB took part in the analytical process, ensuring validity and reliability of findings, categories and syntheses.

### Results

The PRISMA flow diagram [47] illustrates the study selection process (Figure 1).

A total of 5664 articles were identified through the systematic search. The hand search resulted in five additional articles. Further 55 duplicates were removed, and a total of 5614 articles were screened by reading title and abstract; 51 were read in full-text, of which 33 were excluded, mainly because they did not respond to the diagnostic criteria or because articles focused on work functioning. In total, 18 articles matched the eligibility criteria and were critically appraised.

### Methodological quality of articles

All articles except one [48] were considered to have a moderate to high methodological quality, as they met a minimum of five of the assessment criteria. However, one article [48] was considered to have a low methodological quality, as only three of the assessment criteria were met. Consensus to exclude this article was reached between CNT, JS and CVN. In total, 17 articles were considered to be of acceptable methodological quality and were thus included in the synthesis. The quality assessment is presented in Supplementary Tables S2–S5.

### Description of articles

The main characteristics of the included studies are presented in Table 1.

Seven studies were conducted in the Netherlands [17,45,49–53], four in Canada [12,13,54,55], four in the USA [56–59], one in Japan [60] and one in Korea [61].

Twelve studies used a quantitative method of which five were cross-sectional studies [54,56–58,60], three were cohort studies [49,61,62] and five were randomised controlled trials (RCTs) [50–53,59]; however, three of the RCTs were based on the same intervention and study population [50–52]. Two studies used a mixed methods design applying a concept mapping approach [17,45]. Three studies used a qualitative method of which two applied a descriptive interpretive research design; one used focus groups [12] and one used individual interviews [13]; both used interpretive description in the data analysis. The third qualitative study was a case study using individual interviews and data were analysed using a phenomenological approach [55].

In total, the studies contained findings from 4713 individuals; 3769 employees with depression, 26 co-workers and 47 employers (additionally; 687 healthy employees/controls, 59 with dysthymia and 85 with dysthymia and major depression, 40 occupational physicians in whom which findings were not extracted). Three of the RCTs [50,51,63] comprised the same 117 participants; these were only accounted for once in the total summary.

In the 12 quantitative studies, depression and WP were reported from the employees’ perspective, while in the two mixed methods studies [17,45] depression and WP were reported from the employees’ and employers’ perspectives. The three qualitative
studies focused on depression from the employees’ perspective [13], from the perspective of co-workers with union experience [12] and from both co-workers’ and employers’ perspectives [55]. Occupation or occupational factors were broadly operationalised in the studies e.g., job sector, occupational status classification and job characteristics.

In the quantitative studies, six included employees on sick leave due to depression [49–54], five studies included employees at work [56–59,61], and one study included both employees on sick leave and at work [60]. Four of the RCTs [50–53] (of which three [50–52] were based on the same intervention and study population) exclusively included employees on sick leave to test the effectiveness of a RTW intervention, while one RCT [59] included employees at work to test the effectiveness of a primary care intervention on absenteeism. The two mixed methods studies included employees who had successfully returned to work. Of the qualitative studies, two [12,55] focused on employers’ and/or co-workers’ perspectives on employees with depression and depression in the workplace, while one focused on the employees with depression and their experiences with WP prior to sick leave [13].

**Categories**

From the 17 articles, 144 findings were extracted and six categories were generated: (1) **Sufficient treatment from health professionals promotes WP**, (2) **Open-mindedness and support at work promote WP**, (3) **Inadequate collaboration between rehabilitation stakeholders hinders WP**, (4) **Depression severity and reactions to symptoms influence WP**, (5) **To stay at work, go on sick leave or RTW is influenced by personal characteristics** and (6) **Occupational factors including job tasks and demands influence WP**. An example of the process of analysis is presented in Table 2.

**Sufficient treatment from health professionals promotes WP**

Sufficient medical treatment with anti-depressants, psychotherapy and support from health professionals promote WP.

From an employee perspective, a mixed methods study [17] found that referral to appropriate treatment by occupational physicians, and support from professionals (psychologist and general physician) during work resumption promote WP [17]. Qualitative and quantitative study findings suggested that appropriate treatment could be medical emphasizing that appropriate use of anti-depressants or pharmacotherapy facilitates WP and long-term RTW [12,57,59]. Medical treatment was also considered important for WP from co-workers’ perspective, assuming that sick-listed employees who receive appropriate medical treatment have a better chance of maintaining employment following RTW [12].

From the employers’ perspective, treatment from health professionals was considered important for WP, as a mixed methods study [45] found that insufficient treatment or treatment failing to meet the employee needs hinders WP.

**Open-mindedness and support at work promote WP**

Social support from co-workers and employers, an open-minded organisational culture and awareness towards mental illness at work promote WP among employees with depression. Lack of knowledge on depression and prejudices regarding mental disorders at work hinder WP.

From the employees’ perspective, quantitative findings showed that social support from employer and co-workers resulted in less
<p>| Study and article reference | Country | Aim | Design | Study participants | Population | Depression severity and classification scale (if employee perspective) | Occupation or occupational factors | Outcome and/or topic | Main findings |
|-----------------------------|---------|-----|--------|---------------------|------------|-------------------------------------------------|---------------------------------|---------------------|----------------|----------------|
| Corbiere et al. [12]        | Canada  | To develop a better understanding, according to a union perspective, of the factors surrounding RTW of employees absent from work due to depression | A descriptive interpretive research design using focus groups | $N = 23$ Union representatives; i.e. peer employees and employees elected by their colleagues, in charge of topics related to collective agreements and labour relations | Co-workers with union experience | Depression | Most of the sample worked in large public organizations in various sectors (education and day care; municipal, provincial and federal; health and social services; service companies and others). A few in large private organizations (service companies) | RTW | Four main themes: (1) Organisational culture, (2) Support and follow up, (3) Lack of resources to assist the employee in RTW and (4) Stakeholders' prejudices and discomfort regarding depression |
| Corbiere et al. [13]        | Canada  | To describe the factors related to the onset of depression at work prior to the employee's sick leave | A descriptive interpretive research design using individual interviews | $N = 22$ (15 women, 7 men) Employees with depression | Employee Depression Diagnosed by a general physician or psychiatrist | 12 employees worked in the public sector, 7 worked in the private sector and 3 worked in nonprofit organizations | Depression and WP – before the absence from work | Three main themes: 1) Work-related psychosocial risk factors, 2) The individual's experience in employment and 3) The period preceding the sick leave |
| de Vries et al. [17]        | Netherlands | To investigate the most important factors facilitating RTW after sick leave due to depression from the perspectives of patients, supervisors and occupational physicians | Concept mapping approach (mixed methods) | $N = 73$ Formulating statements ($n = 32$): 19 employees with depression, a paid job, successful RTW, 7 occupational physicians who had experience with an employee who restarted work after sick leave 6 supervisors, who had directly supervised employees who did not RTW after sick leave Prioritising and clustering ($n = 41$): 13 employees 9 occupational physicians 19 supervisors | Employee Employer (supervisor; directly responsible for the employee) | Major depression Diagnosed by a psychiatrist | Employees with white collar jobs (call centre employee, business process manager, administrator, postman account manager, information security officer, supervisor, organisation advisor, administrator, account manager, absence professional, conservation employee, lawyer) | RTW | Work-related factors: (1) Adaption of work, (2) understanding and support in the workplace and (3) positive work experiences Person-related factors: (1) Positive and valid self-perception, (2) competence in self-management, (3) positive level of energy and (4) balanced home/work environment Healthcare-related factor: (1) Supportive health care Stakeholder groups differ in opinion on what they find most important for RTW |
| de Vries et al. [45]        | Netherlands | To explore various stakeholder perspectives regarding factors that impede RTW after long-term sickness absence related to MDD | Concept mapping approach (mixed methods) | $N = 70$ Formulating statements ($n = 32$): 13 employees with depression, a paid job, on 100% sick leave for at least one year, 8 supervisors and 11 occupational physicians who had directly | Employee Employer (supervisor; directly responsible for the employee) | MDD (DSM-VI) Diagnosed by a psychiatrist | Employees and supervisors were working in healthcare (24%), finance (20%), education (16%), industry (12%) or other jobs (28%) | RTW | Factors impeding RTW: (1) Person (personality/coping problems, symptoms of depression and comorbid (health) problems, employee feels misunderstood and resuming work too soon), (2) organisation (organisational culture, support), (3) process (contact management, return to work process) and (4) others (absence policy, IT systems) |</p>
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<th>Study and article reference</th>
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<td>Supervised employees who did not RTW after sick leave Prioritising and clustering (n = 38): 14 employees, 11 supervisors, 13 occupational physicians</td>
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<td>Factors associated with RTW were: gender (women were more likely to RTW), depression severity, age (the youngest and oldest were more likely to quit, retire or terminate their employment)</td>
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<td>(2) Work (troublesome work situation, too little support and guidance at work, (3) Healthcare (insufficient healthcare mental healthcare and insufficient care from occupational physicians)</td>
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<td><strong>Dewa et al. [54]</strong> Canada</td>
<td>To report the prevalence of short-term disability due to depression, and to describe the characteristics of employees who were on short-term disability due to depression and the effects and outcomes of their short-term disability episodes</td>
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<td>Cross-sectional study</td>
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<td><strong>Hauck et al. [55]</strong> Canada</td>
<td>To explore how employees and managers perceive depression and its impact on work performance</td>
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<td>Case study using in-depth interviews</td>
<td>N = 63 managers and 3 co-workers Five had been employed with the company 14–16 years and one for four years</td>
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<td>Three main themes: (1) Knowledge and understanding of depression, (2) Roles and responsibilities and (3) Perceptions of work role boundaries</td>
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<td><strong>Hees et al. [51]</strong> Netherlands</td>
<td>(1) To identify what variables, across different domains (sociodemographic, diagnostic, personal, and work-related) predicted long-term RTW in sick-listed patients with MDD (2) To compare these variables with predictors for long-term symptom remission, in order to examine the similarities and/or differences between predictor variables and treatment as usual, in sick-listed</td>
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<td>RCT Adjuvant occupational therapy (treatment as usual + occupational therapy) compared to treatment as usual</td>
<td>N = 117 Employees with depression of which 78 received occupational therapy and 39 received treatment as usual</td>
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<td>RTW (long-term full RTW was defined as working the full number of contract hours in subjects’ own job or another job for at least four weeks before the 18-month follow-up)</td>
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<td>Chances of long-term RTW increased with lower depression severity, absence of a comorbid anxiety disorder, higher work motivation, and higher conscientiousness</td>
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<td><strong>Hees H et al. [50]</strong> Netherlands</td>
<td>To evaluate the effectiveness of a new adjuvant occupational therapy when compared with treatment as usual, in sick-listed</td>
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<td>The groups did not significantly differ in their overall WP. However, those who received OT showed greater improvement in</td>
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<td>Hees et al. [52]</td>
<td>Netherlands</td>
<td>To examine both the temporal and directional relationship between depressive symptoms and various work outcomes (absenteeism, work productivity and work limitations) in patients with long-term sickness absence related to MDD</td>
<td>RCT Adjuvant occupational therapy (treatment as usual + occupational therapy) compared to treatment as usual</td>
<td>N = 117 Employees with MDD and long-term sickness absence</td>
<td>Employee</td>
<td>MDD (DSM-IV) Severity of depression was evaluated using the HAM-D</td>
<td>Absenteeism (the average number of contract hours and hours of sickness absence)</td>
<td>Depression symptoms, an increased probability of long-term symptom remission, and increased probability of long-term RTW</td>
</tr>
<tr>
<td>Jain et al. [58]</td>
<td>USA</td>
<td>To assess the association between work productivity and the level of depressive symptoms among US employed persons in various job settings</td>
<td>Cross-sectional study</td>
<td>N = 1051 Full-time employees of whom 423 had no depressive symptoms, while 628 had mild, moderate or severe depression</td>
<td>Employee</td>
<td>Depression (clinically diagnosed) Severity of depression was evaluated using the PHQ-9</td>
<td>Absenteeism (hours and partial or full days missed from work in the previous four weeks)</td>
<td>Severity of depressive symptoms were significantly associated with improvements in all work outcomes</td>
</tr>
<tr>
<td>Lerner et al. [56]</td>
<td>USA</td>
<td>(1) To describe the impact of depression and specific depression symptoms on multiple dimensions of employee productivity (2) To determine whether depressed employee's vulnerability to productivity loss increased by the type of work he or she performed</td>
<td>Cross-sectional study</td>
<td>N = 229 85 with major depression (59 with dysthymia and 85 with dysthymia and major depression) 173 healthy controls</td>
<td>Employee</td>
<td>Major depression Severity of depression was evaluated using the PHQ-9</td>
<td>Absenteeism (the mean number of workdays missed in the past two weeks)</td>
<td>Productivity was most influenced by depression severity. The productivity loss increased when employees had occupations requiring proficiency in decision-making and communication and/or frequent customer contact</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Study and article reference</th>
<th>Country</th>
<th>Aim</th>
<th>Design</th>
<th>Study participants</th>
<th>Population</th>
<th>Depression severity and classification scale (if employee perspective)</th>
<th>Occupation or occupational factors</th>
<th>Outcome and/or topic</th>
<th>Main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ogawa et al. [60]</td>
<td>Japan</td>
<td>To examine the relationship between RTW and personality traits in employees with MDD</td>
<td>Cross-sectional study</td>
<td>N = 88 (37 employees with MDD at full-time work and 51 on sick leave)</td>
<td>Employee</td>
<td>MDD (DSM-IV) Severity of depression was evaluated using the HAM-D</td>
<td>Occupational status classification (managerial; professional/technical; office/clerk; sales/service; production/transportation; others)</td>
<td>RTW (full-time work status) Sick leave (no shorter than consecutive two weeks in the past five years)</td>
<td>Factors associated with RTW status were: shorter sick leave duration in the past 5 years, longer treatment duration of the recent major depressive episode, depression in remission, and low interpersonal sensitivity. For participants in remission, factors associated with RTW status were: low interpersonal sensitivity, no comorbid current anxiety disorder, and shorter sick leave duration in the past five years.</td>
</tr>
<tr>
<td>Rost et al. [59]</td>
<td>USA</td>
<td>To test whether an intervention to improve primary care depression management significantly improved productivity at work and absenteeism over 2 years</td>
<td>RCT 12 community care practices were randomized to receive enhanced or usual care</td>
<td>N = 479 (326 were in full-time or part-time employment. Of the employed, 158 received enhanced care, while 168 received usual care)</td>
<td>Employee</td>
<td>Depression (DSM-IV) Severity of depression was evaluated using the CES-D</td>
<td>Occupational characteristics: professional/administrators, managers/salespeople, clerical/services</td>
<td>Absenteeism (total number of work hours lost due to illness or doctors visit over the past four weeks)</td>
<td>Employed patients in the enhanced care condition reported 22.8% less absenteeism over two years.</td>
</tr>
<tr>
<td>Souetre et al. [57]</td>
<td>USA</td>
<td>To evaluate the relationship between drug treatment of depression and ability to work and to determine the major predicting factors of absenteeism</td>
<td>Cross-sectional study</td>
<td>N = 613 (268 employees in treatment-group, 345 in the non-treatment group)</td>
<td>Employee</td>
<td>MDD (DSM-III-R) Severity of depression was evaluated using the HAM-D</td>
<td>Socio-economic status (health care insurance, job status, profession, employer, level of responsibility, income)</td>
<td>Absenteeism (days missed from work at time of observation)</td>
<td>The risk of absenteeism for patients treated with tricyclics was 2.45 times higher than for patients treated with fluoxetine. The strongest predictors of absenteeism from work were symptoms followed by a past history of depression and past history of absenteeism.</td>
</tr>
<tr>
<td>Vener et al. [49]</td>
<td>Netherlands</td>
<td>To assess the added value of health-related quality of life and severity of depression alongside other factors to predict the time to RTW for employees</td>
<td>Prospective longitudinal study</td>
<td>N = 122 (Employees on minimum four weeks of sick leave due to depression. Of these 59 received usual care, 63 received collaborative care)</td>
<td>Employee</td>
<td>MDD (DSM-IV) Severity of depression was evaluated using the PHQ-9</td>
<td>Job-related variables (holds a management function, work week ≥36 hours, amount of decision latitude, amount of social support)</td>
<td>RTW (full RTW was defined as the first full RTW with earnings, lasting for</td>
<td>Females, older patients, patients with a full-time job, and patients with more decision latitude had a longer time to RTW. Patients in a management</td>
</tr>
<tr>
<td>Study and article reference</td>
<td>Country</td>
<td>Aim</td>
<td>Design</td>
<td>Study participants</td>
<td>Population</td>
<td>Occupation or occupational factors</td>
<td>Outcome and/or topic</td>
<td>Main findings</td>
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<tr>
<td>Vlasveld et al. [53]</td>
<td>Netherlands</td>
<td>To evaluate the effectiveness of collaborative care with a focus on RTW in its effect on depressive symptoms and the duration until RTW in sick-listed employees with MDD</td>
<td>RCT Collaborative care compared to treatment as usual.</td>
<td>N = 126 Sick listed employees with MDD. 61 employees received treatment as usual, and 65 employees received collaborative care</td>
<td>Employee MDD (DSM-IV) Severity of depression was evaluated using the PHQ-9</td>
<td>Job characteristics (decision latitude, job demands, job insecurity, social support)</td>
<td>RTW (duration until lasting full RTW was defined as the duration of sickness absence due to MDD in calendar days, from the day of randomization until full RTW for at least four weeks)</td>
<td>Collaborative care did not lead to more treatment response among sick-listed employees with MDD than usual care. Collaborative care was not found to be superior to usual care in reducing the duration until lasting full RTW.</td>
<td></td>
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<tr>
<td>Woo et al. [61]</td>
<td>Korea</td>
<td>To estimate the loss of work productivity among employees with MDD</td>
<td>Cohort study</td>
<td>N = 193 102 employees with MDD, and 91 healthy controls</td>
<td>Employee MDD (DSM-IV) Severity of depression was evaluated using the HAM-D</td>
<td>Rank (staff, assistant manager, manager, general manager)</td>
<td>Absenteeism (absent work days)</td>
<td>Absenteeism and presenteeism was significantly higher among employees with MDD. This loss was reduced by short-term antidepressant treatment with supportive psychotherapy</td>
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</table>
time to RTW [49]. A qualitative study found that employer support had special importance for WP, while conflicting co-worker relations, complaints at work, not dealing with work problems and hiding depressive symptoms because of fear of stigmatization hindered WP [13].

From the co-workers’ perspective, qualitative findings suggested that open-mindedness at work i.e., organisational instances’ ability and willingness to promote employees’ mental health and WP, to adjust practices to employees’ needs and to take into account the employees’ experiences, promoted WP [12]. Co-workers expressed a need for awareness campaigns targeting co-workers and employers to overcome stigma and to facilitate a better understanding of depression providing workplaces with the ability to respond to employees with mental symptoms [12,55].

From a co-worker and an employer perspective, a qualitative study [55] found that using open communication was important when addressing depression at work. Employers perceived that both management and co-workers are responsible for open communication at work [55]. Additionally, some employers were concerned about entering employees’ private sphere and further challenged by dealing with curious co-workers [55].

**Inadequate collaboration between rehabilitation stakeholders hinders WP**

Inadequate collaboration between healthcare professionals, co-workers, employers and employees hinders WP.

From an employee perspective, adequate coordination between clinicians, occupational physicians, employers and employees promotes WP [17]. This is supported by co-workers’ perspective, as qualitative findings showed that continuous contact with employees on sick leave was considered pivotal [12]. Some co-workers found it important that rehabilitation stakeholders collaborate in the interest of the employee [12], and some had specific expectations to the employers’ responsibility. When the employer e.g., needed advice on how to manage employees with depression, co-workers found that it was the employer’s responsibility to consult other rehabilitation stakeholders. This included that the employer communicated the reasoning behind the changes in an employee’s work performance to the co-workers [55].

From an employer perspective, mutual trust and regular communication between employer and employee were considered important, and the employers did not think they were responsible for educating employees about depression [55].

**Depression severity and reactions to symptoms influence WP**

Symptom severity, co-morbidities (e.g., anxiety), reactions to symptoms (e.g., being in denial), refusing depressive symptoms or confusing psychological symptoms with physical symptoms influence WP among employees with depression.

From the employees’ perspectives, seven quantitative studies [51,52,54,57,58,60] reported that WP was challenged by depression severity e.g., an increase in depression severity corresponded to an increase in absenteeism [52]. The nature of depressive symptoms e.g., tiredness and sleep problems, hindered WP [45,56]. Additionally, one qualitative study [13] found that the employee’s reaction to symptoms affected WP. Some employees denied their symptoms and insisted on going to work [13], seemingly due to pride or prejudices against mental illness.

From co-workers’ perspective, denying symptoms, shame and fear among employees with depression hindered WP, as the employees feared being judged, having their absences questioned and being viewed as incompatible to do their job [12]. This was supported by employers’ perspectives [45]. Moreover, employers perceived that resuming work too early hindered WP [45].

To stay at work, go on sick leave or RTW is influenced by personal characteristics

Personal characteristics including gender, age, self-confidence, personality, personal problems and work motivation affect help seeking behaviour and WP.

From the employees’ perspectives, gender [13,49,54] and age [49,54] were found to influence help seeking behaviour and WP. One qualitative study [13] stated that men seemed to start their sick leave after their first consultation with a doctor, while women had often previously consulted a doctor about their symptoms, when they were sent on sick leave. Two quantitative studies [49,54] found that age influenced WP, as older age predicted longer sick leave.

Qualitative and quantitative findings showed that from an employee perspective, WP was challenged by over-commitment to work [13], perfectionist tendencies [13], low self-confidence [13] and a depression-prone personality (including interpersonal awareness, separation anxiety, need for approval, timidity and a fragile inner-self) [60], while motivation to work promoted WP [17,51]. Additionally, private life influenced work life and vice versa, as difficulties encountered in employment were often paired with personal problems [13]. This was supported by co-workers’ perspectives, as a qualitative study [12] found that untreated personal aspects and the impact of illness on family life influenced RTW. Also the employers’ perspectives supported the existence of dynamic interactions between employees’ private life and work life, assuming that a lack of understanding and support from home (loneliness, relationship problems) hindered WP among employees with depression [45].

Table 2. The process of analysis.

<table>
<thead>
<tr>
<th>Review question</th>
<th>Findings</th>
<th>Category</th>
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<tr>
<td>a) Which factors promote WP of employees with depression from the employees’, co-workers’ and employers’ perspectives?</td>
<td>The effect of baseline work motivation on the odds of full RTW differed for the 2 treatment groups. For patients receiving treatment as usual, higher baseline work motivation increased the odds of full RTW [51, p.1052] (employee perspective)</td>
<td>To stay at work, go on sick leave or RTW is influenced by personal characteristics</td>
</tr>
<tr>
<td>b) Which factors hinder WP of employees with depression from the employees’, co-workers’ and employers’ perspectives?</td>
<td>“Employee enjoys his work” [17, p.1022] (employee perspective)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Employee does not accept his functioning is (has become) limited” [45, p.7] (employer perspective)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Difficulties encountered in employment are often paired with personal problems.” [13, p.5] (employee perspective)</td>
<td></td>
</tr>
</tbody>
</table>
**Occupational factors including job tasks and demands influence WP**

Occupational factors including job position, job tasks and occupational demands influence WP.

From the employees’ perspective, occupational demands were found to influence WP e.g., having a job requiring high levels of external contact hindered WP [56]. Additionally, aspects related to job tasks e.g., heavy workload [13], high level of decision latitude [49], exposure to others suffering, being in-demand, and major changes in work tasks, could be difficult to manage and thus hindering WP [13].

There is inconsistent evidence on the influence of job position, as two quantitative studies reported that job position influenced WP [49,57] e.g., being in a management position predicted shorter time to RTW [49], while one quantitative study found no differences between employees in management and non-management positions in relation to WP [54].

From the employer perspective, a mixed methods study [17] stated that eliminating stressful tasks, adjusting the workload and clarity regarding tasks and expectations at work promoted WP among employees with depression.

**Discussion**

This integrative review aimed to synthesise evidence on factors promoting or hindering WP of employees with depression from the employees’, co-workers’ and employers’ perspectives, and moreover, to focus on the influence of the employee’s occupation. Six categories were synthesised into two explanatory syntheses: (1) Employees, co-workers and employers hold different perspectives on rehabilitation stakeholders’ responsibilities which hinder WP and (2) Interactions between individual and occupational factors influence WP. The first synthesis underlines that employees, co-workers and employers hold different expectations to and presumptions of rehabilitation stakeholders’ responsibilities related to employees’ depressive symptoms and WP. This complicates mutual coordination and collaboration hindering WP of employees with depression. The second synthesis emphasizes that WP of employees with depression is influenced by interactions between individual factors (e.g., employees’ reactions to symptoms or personal problems) and occupational factors (e.g., job tasks and demands), stressing the need for careful consideration of these interactions to promote WP.

To enhance the transparency of the integrative review method, an overview of the phases from aim to synthesis is illustrated in Supplementary Table S7.

**Synthesis 1: Employees, co-workers and employers hold different perspectives on rehabilitation stakeholders’ responsibilities which hinder WP**

The synthesis was generated from three categories: “Sufficient treatment from health professionals promotes WP”, “Open-mindedness and support at work promote WP” and “Inadequate collaboration between rehabilitation stakeholders hinders WP”. This synthesis demonstrates that employees, co-workers and employers hold different expectations to and presumptions of rehabilitation stakeholders’ responsibilities when managing employees’ depression and WP, which hinders WP.

In line with the case-management ecological model [18], this synthesis draws attention to the stakeholders involved in vocational rehabilitation. The findings show agreement between the employees’, co-workers’ and employers’ perspectives regarding the importance of sufficient treatment of employees with depression from health professionals. Yet, there appears to be a lack of coordination between rehabilitation stakeholders, which hinders WP of employees with depression. In agreement, a meta-synthesis [64] found that RTW of employees with psychiatric disabilities was challenged by the multiple practitioners involved in rehabilitation, as they tended to have varying areas of focus and goals in the vocational rehabilitation process. Additionally, Pomaki et al. [65] stated that confidentiality and disclosure issues may challenge the coordinating activities and communication between rehabilitation stakeholders. This is evident, since the need for confidentiality can limit the quality and extent of information to be shared in the rehabilitation process [65].

While there is a great organisational variation in the healthcare systems and the compensation systems across countries, this integrative review focuses on hindering and promoting factors attached to the personal system and the workplace system; these factors may be transferable across countries.

Regarding the workplace actors, the findings revealed a need for mutual understanding and clarification of the division of responsibilities, when managing employees’ depression to promote their WP; yet, this might be hampered by the actors’ individual interest. One study found that employers’ response to sick-listed employees is primarily guided by economic considerations and business needs [66]. Other studies have found that employers have a negative attitude towards employees with mental illness [67,68]. The present synthesis did not reveal a negative attitude towards depression from the employers’ perspective; yet, findings showed that employers’ fear of stigmatisation was an obstacle to their WP. Thus, there is a need for more open communication and awareness campaigns regarding mental illness targeted at workplaces, which is in agreement with Pomaki et al. [65].

There is limited evidence on how co-workers perceive and deal with employees’ depression and WP. However, a study [69] found that co-workers can contribute positively during each phase of the RTW process. Thus, co-workers may affect employees’ WP, when the employee is at work, on sick leave or in a RTW process. Therefore, co-workers may be an overlooked resource, when the goal is to promote WP among employees with depression.

**Synthesis 2: Interactions between individual and occupational factors influence WP**

This synthesis was generated from three categories: “Depression severity and reactions to symptoms influence WP”, “To stay at work, go on sick leave or RTW is influenced by personal characteristics” and “Occupational factors including job tasks and demands influence WP”. This synthesis reveals that WP of employees with depression is influenced by interactions between individual and occupational factors demonstrating a need for careful consideration of these interactions to grasp the complexity attached to WP among employees with depression. In the case-management ecological model [18], these contextual factors are comprised in the workplace system and the personal system, and further specified in the expanded ICF scheme [70]. The expanded ICF can be used as a framework for clarifying the interactions between the contextual factors and the individual functioning and work disability. Thus, whether or not a person works seems to be the result of a complex set of factors including work-related external factors, other external factors and personal factors [70]. Findings show inconsistent evidence on the influence of job position on WP, while occupational factors e.g., high level of external contact,
influence WP. Additionally, Huijs et al. [71] found that low decision authority, high psychological demands, low supervisor support and low RTW self-efficacy were related to more depressive symptoms, and that time to RTW was longer for employees with depressive symptoms.

Although the influence of the contextual factors on WP among employees with depression is widely acknowledged, a limited number of studies with knowledge on personal and work-related factors that hinder or promote WP was found. Several of the identified studies focused on disorder-related factors; seven of the included articles reported that WP is challenged by depression severity [51,52,54,57,58,60]. Similarly, a systematic review on factors associated with WP in employees with depression found that studies are often concerned with disorder-related factors, whereas personal and work-related factors are addressed less frequently [11].

The findings of this review demonstrated that depression severity and the nature of depressive symptoms hinder WP, which is supported by Wang et al. [48]. Interestingly, this study also revealed that the most frequently reported signs and behaviours of depression in the workplace were withdrawing from co-workers and crying at work [48]. Thus, awareness campaigns regarding mental illness targeted at workplaces may inform about such signs and behaviours and how to react on them to detect early symptoms and provide early support, as this may prevent symptom deterioration and long-term sick leave.

In the expanded ICF, the work-related factors also include task contents. This synthesis revealed that employers find that eliminating stressful tasks, adjusting the workload and clarity regarding tasks and expectations at work promote WP among employees with depression. Thus, employers acknowledged the influence of occupational factors on WP. However, to promote WP, employers tend to focus on and intervene at the individual level. A sole focus on the individual is thus not sufficient to prevent work disability [72,73]; yet, there is a need for structural interventions targeted at workplaces to promote WP and prevent work disability [15,74,75].

Methodological considerations

This integrative review offers the first synthesising of different types of evidence on factors promoting or hindering WP of employees with depression from the employees’, co-workers’ and employers’ perspectives with an additional focus on the influence of the employee’s occupation. The perspective of employees with depression contributed with knowledge on having a depression and managing WP. The perspective of co-workers contributed with knowledge on how co-workers manage depression at work e.g., working together with an employee with depression. The perspective of employers contributed with knowledge on having an employee with depression e.g., the employers’ opportunities and challenges to support employees with depression to stay at work or RTW.

The qualitative content analysis was useful to synthesise the different types of evidence, as this method facilitated management of the complexity of the findings.

Strengthening the internal validity of the review, depression was either clinical or assessed using a validated instrument in the included studies. Yet, due to this inclusion criterion, some studies that could have contributed with knowledge on mental health challenges in a non-medical manner may have been excluded. Furthermore, due to the inclusion criterion specifying outcomes, some studies that could have provided useful findings from the co-workers’ and employers’ perspectives on depression and WP may have been excluded.

Prior to inclusion, articles were critically appraised using tools targeted at the specific study designs, strengthening the evidence base of the syntheses.

Most of the included studies were quantitative and contributed with evidence on employees on sick leave using different tools to assess depression severity and a variety of definitions of WP outcomes (e.g., RTW and absenteeism). Thus, the extracted findings were not homogenous in this aspect. One of the included RCTs [53] did not find any difference between employees in the intervention (collaborative care) compared to usual care group in relation to WP, probably due to under powering. Thus, this study [53] did not report findings answering the review questions. Qualitative and mixed methods studies that matched the eligibility criteria were scarce, but those included contributed with knowledge including lived experiences from the employees’, co-workers’ and employers’ perspectives. These studies contained more meaning units that answered our review questions than the quantitative studies.

Strengthening the external validity of the review, the included studies were conducted in five different countries (USA, Canada, the Netherlands, Korea and Japan) in a variety of private and public-sector organizations (e.g., education, healthcare, social services, service companies, finance and industry).

Implications for research

Further investigations are warranted to explore the needs of workplaces and to ensure that the employers have the sufficient resources to support employees with depression.

There is a need for knowledge on how to provide effective and meaningful structural interventions promoting WP among employees with depression e.g., how to establish an open-minded organizational culture and awareness towards mental illness at the workplace.

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