


BMJ Open Effectiveness of clinical healthcare interventions for enhancing the work participation of patients with various health conditions: a synthesis of systematic reviews

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ABSTRACT

Objectives This objectives of this study were to determine the effectiveness of clinical healthcare interventions designed for improving the work participation of patients with various health conditions and identify promising elements within these interventions.

Design A systematic literature search was conducted, and a synthesis of systematic reviews (SRs) was performed.

Data sources MEDLINE, Embase, Cochrane Library and CINAHL were searched for articles published from January 2012 to December 2023.

Eligibility criteria SRs of randomised controlled trials evaluating the effectiveness of interventions that aimed at improving work participation initiated within clinical healthcare in patients being treated for various health conditions were included.

Data extraction and synthesis Two authors independently used standardised methods to search and select SRs, and extract data. Our primary outcome was work participation, which could include return-to-work rate or sick leave duration. We were interested in both short-, medium-, as well as long-term outcomes. Risk of bias was assessed using the AMSTAR-2 tool. We used Grading of Recommendations Assessment, Development, and Evaluation (GRADE) to evaluate the certainty of the evidence and findings were summarised in GRADE evidence profiles. We used a deductive synthesis to identify promising intervention elements.

Results The health conditions included in the selected SRs were cancer, chronic low back and musculoskeletal pain, coronary heart disease, inflammatory arthritis, complaints of the lumbopelvic region during pregnancy, stroke and traumatic brain injury. Across health conditions, many interventions trended towards small, favourable effects. Moderately certain evidence showed that multidisciplinary and physical interventions enhance work participation at 12 months for people with cancer (risk ratio (RR) 1.23, 95% CI 1.09 to 1.33 and RR 1.23, 95% CI 1.08 to 1.39, respectively), and that multidisciplinary interventions

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This synthesis of systematic reviews (SRs) provides a comprehensive summary of clinical healthcare interventions designed to enhance work participation in people being treated for various health conditions and the effectiveness of these initiatives.
- ⇒ To guide the final selection of SRs, we conducted a risk-of-bias assessment using AMSTAR-2.
- ⇒ Grading of Recommendations Assessment, Development, and Evaluation was used to evaluate the certainty of evidence.
- ⇒ A deductive synthesis allowed us to identify promising elements of work participation interventions across health conditions.
- ⇒ SRs that lacked detailed information (such as the setting of individual randomised controlled trials) were excluded, which may have resulted in the omission of relevant interventions.

reduce the days of return to work compared with usual care for people with coronary heart disease (40.77 days lower than control, 95% CI –67.19 to –14.35). Low-certainty evidence suggested that multidisciplinary interventions may enhance work participation at 12 months for people with coronary heart disease (RR 1.56, 95% CI 1.23 to 1.98) and reduce the number of sick leave days at 12 months for people with chronic low back pain (82, IQR 51 to 164 vs 175, IQR 91 to 365; $p=0.003$). Promising elements included (psycho)education, cognitive-behavioural therapy, psychosocial support, group and vocational counselling and physical training.

Conclusions There is considerable overlap in clinical healthcare interventions that aim to enhance work participation for patients across health conditions. Although their effects on work participation vary, some conditions show favourable response to multidisciplinary interventions. More evidence is needed on developing tailored interventions and evaluating their cost-effectiveness.

PROSPERO registration number CRD42022346552.

INTRODUCTION

Employment is important for many patients dealing with (chronic) health conditions because it provides economic independence, social contact and the possibility to contribute to society.¹ Often, chronically ill individuals desire support and guidance to deal with work challenges as an integral part of routine clinical healthcare.^{2–6} For them, successful treatment ensures the preservation of their ability for social participation, especially in sustaining work participation and income.^{7–9}

Clinical healthcare is defined as healthcare that takes place in or originates from a hospital setting (also referred to as secondary or tertiary care). Providing attention to work challenges during routine clinical healthcare encounters from the onset of diagnosis promotes better outcomes.^{10–12} Patients are more empowered in decision-making and more self-reliant when they are provided with support and guidance for their work participation challenges.^{13 14} In addition, specialists who give attention to patient needs related to work participation experience better patient relationships.¹⁵ As such, patients could benefit from work participation being integrated as a treatment goal.^{16–18} However, it is unknown what interventions medical professionals providing clinical care in a hospital setting could use to enhance work participation.

There is thus a great need for systematic reviews (SRs) that focus on the effectiveness of work participation interventions that can be integrated into clinical care. The number of SRs investigating interventions that aim to improve work participation for patients is increasing.^{19–21} However, these reviews do not specifically focus on clinical healthcare interventions to maintain or return to work (RTW). Furthermore, interventions aimed at enhancing work participation often include various elements, which can be broadly categorised under the categories of psycho-educational, vocational, physical and medical. Although previous research has identified common elements within interventions,^{22 23} these reviews did not identify which aspects of the interventions showed greatest promise. We define promising elements as those that are frequently included in effective interventions. Detecting these promising elements across health conditions could aid in decision-making when it comes to incorporating work participation support into treatment clinical healthcare.

This review aims to provide an overview of SRs that assess the effectiveness of interventions aimed at improving work participation for patients treated in clinical healthcare settings. Evidence from this review can inform and support the development of future clinical guidelines by providing recommendations to improve work participation.

Our research aims are as follows:

1. To evaluate the effectiveness of interventions that aimed at improving work participation initiated within clinical healthcare, compared with usual care, in people being treated for various health conditions.

2. To identify promising elements within the most effective interventions across health conditions.

METHODS

Protocol registration

We registered our review protocol with PROSPERO (reference number: CRD42022346552). The review is reported in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.^{24 25}

Patient and public involvement

This review was conducted to support the development of a generic module for work participation in medical specialist guidelines in the Netherlands.²⁶ The module was created at the request of patient organisations to structurally embed the topic of work into clinical care. The guideline panel developing this module (consisting of representatives from various scientific associations of medical specialists as well as patient representatives) provided feedback on our review protocol. The results of the first research aim were used by the guideline panel. Later, our research group added a second research objective to the review.

Eligibility criteria

Population, Intervention, Comparator, Outcome, and Setting (PICOS) were specified to identify eligible SRs of randomised controlled trials (RCTs) or cluster RCTs on the effectiveness of interventions aiming at enhancing work participation (table 1). We restricted our review to RCTs because this research design is more likely to provide unbiased information about the effectiveness of interventions than non-randomised studies of interventions.²⁷ Work participation was defined as paid employment, which includes full- or part-time work and excludes voluntary work and unpaid domestic labour. For inclusion, the aim of the intervention had to be for patients to maintain or RTW. The intervention could be aimed at an individual patient or a group of patients and could be undertaken by any qualified (para)medical professional (eg, medical specialist or specialised nurse) embedded within a clinical secondary or tertiary healthcare setting. We were interested in both short-term (ie, less than 6 months), medium-term (ie, between 6 months and 1 year), as well as long-term outcomes (ie, more than 1 year). We excluded SRs that lacked an explicit review objective, search strategy, inclusion criteria, quality assessment methods and data synthesis plan. We only included SRs that were published in English or Dutch.

Information sources and search strategy

An exhaustive search was conducted by an information specialist (FSJ) in four databases: MEDLINE (Ovid), Embase (Ovid), Cochrane Database of Systematic Reviews (Wiley) and CINAHL (EBSCOhost), covering the period from January 2012 to December 2023. The search strategy was designed with three main components: 'work participation', 'setting' and a 'systematic review filter'. It

Table 1 Population, Intervention, Comparator, Outcome, and Setting eligibility criteria

Inclusion criteria	Exclusion criteria
Population <ul style="list-style-type: none"> ▶ Patients with any non-psychiatric or mental condition ▶ Patients involved in work participation ▶ Patients receiving treatment within secondary or tertiary clinical healthcare ▶ Adults (18 years or older) 	Population <ul style="list-style-type: none"> ▶ Patients with primary psychiatric or mental conditions (eg, burn-out)
Intervention <p>Intervention aiming to maintain or return to work, regarding the following types:</p> <ul style="list-style-type: none"> ▶ Psycho-educational interventions (ie, training coping skills, education or counselling) ▶ Vocational interventions (ie, programmes aiming to encourage RTW, vocational rehabilitation or occupational rehabilitation) ▶ Physical interventions (ie, physical training, physical exercises or training of bodily functions) ▶ Medical interventions (ie, interventions in which work participation is used as the main factor in the choice of medical treatment, such as during shared decision-making) ▶ Multidisciplinary interventions (ie, interventions that use a combination of one or more of the abovementioned interventions) 	Intervention <ul style="list-style-type: none"> ▶ Workplace interventions in which the setting was outside secondary or tertiary healthcare
Comparators <ul style="list-style-type: none"> ▶ Care as usual ▶ Other interventions that focused on work participation 	
Outcomes <ul style="list-style-type: none"> ▶ Work participations' outcomes (eg, rates such as RTW rate or job loss rate, and continuous outcomes such as duration to RTW, number of days with sickness absence or sick leave duration) 	
Setting <ul style="list-style-type: none"> ▶ Interventions delivered within, or guided form, secondary or tertiary healthcare in a hospital or specialised clinic 	Setting <ul style="list-style-type: none"> ▶ Interventions delivered within an occupational healthcare or primary healthcare setting
RTW, return to work.	

was limited to SRs published in the last decade, though included RCTs could extend further back in time. The reason for this limitation is that the focus on work participation in clinical practice was considerably more limited before that period. As such, it does justice to how contemporary care is organised. Studies about geriatrics, paediatrics and animals were also excluded. Ongoing or recently completed (unpublished) SRs were not included in the search. The detailed search queries for all four databases are presented in online supplemental appendix A.

Screening and selecting

Two reviewers (LK and AdW/AB) independently screened the titles and abstracts using a machine learning algorithm with the open-source software ASreview.²⁸ This algorithm presented the most relevant articles first and continuously calculated which articles were most relevant based on the decisions the reviewers made as the process went on. This made it unnecessary to screen all titles and abstracts. Each reviewer stopped after screening 200 irrelevant articles in a row, but we ensured that each reviewer screened at least 20% of all titles. Afterwards, the data sets of the two reviewers were compared, and any disagreements were resolved until consensus was reached. We used the standard settings of the software, which have been proven to provide the best results²⁸ (online supplemental appendix

B). Full-text screening was done by a pair of two reviewers (LK and AdW/AB) independently using the online SR tool Rayyan Systems Inc (rayyan.ai). Disagreements were resolved through discussion, with the review team consulted as necessary. All SRs were checked for recent updates. When multiple SRs addressed the same health condition (eg, two or more SRs considering cancer), we selected the highest-quality SR based on the AMSTAR-2 risk-of-bias (RoB) assessment²⁹ (see below) or—in case of equal quality—the most recent SR to avoid double inclusion of primary studies.

Evaluation of methodological quality of included SRs

One reviewer (LK) assessed the methodological quality of the included SRs using the AMSTAR-2 tool,²⁹ which was then cross-checked by another reviewer (AdW). Disagreements were resolved through discussion. We determined the overall confidence in each of the SRs' quality relative to our review question by critically evaluating all items of the AMSTAR-2 tool. We selected six critical items for this assessment: Q1 (Were PICO components included?), Q4 (Was there a comprehensive literature search?), Q8 (Were included studies described in adequate detail?), Q9 (Was a satisfactory technique for assessing the RoB used?), Q11 (Were appropriate methods for statistical combination of results of RCTs used?) and Q12 (Was the potential impact

of RoB in individual studies assessed on the results?). These items were chosen to ensure our confidence in the SRs' quality, given that we did not intend to search for or select primary studies, extract data, reanalyse data or reassess the RoB ourselves. The confidence levels were determined as follows: no critical flaws and zero or one non-critical flaw resulted in high confidence, no critical flaws and more than one non-critical flaw resulted in moderate confidence, one critical flaw with or without non-critical flaws resulted in low confidence and more than one critical flaw with or without non-critical flaws resulted in critically low confidence.

Data extraction

Data were extracted by LK and cross-checked by AdW. Disagreements between the reviewers were resolved through discussion, and, if necessary, a third reviewer was involved. We used a data extraction form designed and piloted by the review team to extract data on SR methodology and characteristics, characteristics of the primary studies and SR findings. Since the scope of the included SRs had the potential to be broader than our research aim, we also reviewed the eligibility of individual RCTs within each SR and only extracted data from individual RCTs that met our eligibility criteria. When individual RCTs that did not meet our eligibility criteria were included in a meta-analysis within the SR, we made a note of this and discussed with the review team as to whether this would influence the certainty of the evidence (see below).

Reporting and synthesis of findings

We reported findings from the SRs descriptively, detailing the characteristics of all included SRs. This included the range of SR topics (ie, types of populations, types of interventions and their contexts and setting), the range of outcomes reported and the quality of the SRs. We synthesised information on common issues related to reporting quality, methodological quality and quality of evidence. We did not reanalyse data from the primary studies; however, we did determine the risk ratio (RR) when the assumed risk of comparator and intervention was provided and the SR authors had not reported the RR themselves.

To facilitate the interpretation of the results regarding the effectiveness of interventions to enhance work participation, we first organised all outcomes by type of health condition (eg, cancer, coronary heart disease) and then by type of intervention (ie, psycho-educational, vocational, physical, medical or multidisciplinary). For each outcome, we rated the certainty of evidence using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach.³⁰ We used the certainty of the evidence ratings provided in the included SRs when available; otherwise, we assessed it ourselves using the GRADE criteria. We adopted the SR authors' assessment of the RoB in the primary studies. Details

of the GRADE are available in online supplemental appendix C.

To analyse the promising elements of effective interventions across different health conditions, we used a deductive synthesis. We developed a framework based on the elements of the four types of interventions described in our protocol. If an element did not fit in the framework, this element was added to the framework. The elements of individual RCTs as reported in the SRs were scored and then added up to determine the frequency for each type of intervention by health condition. Finally, we identified the intervention types most likely to be effective for a given health condition, as determined by our GRADE-based assessment to understand which elements could be considered promising. We considered an element promising if it appeared more than once across two or more of the effective intervention types for various health conditions.

RESULTS

Results of the search

The search strategies identified 4615 titles, which were reduced to 3934 titles after deduplication and uploaded to ASreview. Following this, 97 articles were retrieved and screened for full text, resulting in 13 SRs being selected for methodological quality assessment (figure 1). Reasons for exclusion of SRs based on full-text screening can be found in online supplemental appendix D. The methodological quality assessment allowed us to filter out lower-quality SRs on the same interventions and patient populations, ensuring that only higher-quality SRs were retained.

Of the 13 selected SRs (table 2, online supplemental table S1, online supplemental appendix E), we excluded 5 lower-quality SRs that reported on similar patient populations (ie, three regarding people with cancer,^{31–33} one regarding people with coronary heart disease,³⁴ one regarding people with chronic low back pain³⁵ and one with a more recent update by a different author group available regarding patients with inflammatory arthritis).³⁶ Of the seven remaining SRs, the overall confidence in the quality was high in two SRs,^{37 38} moderate in two SRs^{39 40} and low to critically low in the remaining SRs.^{41–43} Common problems that downgraded quality confidence included limitations in the description of the search strategy, lack of complete description of one or more PICO components and lack of assessment of potential RoB in individual studies on the results of the meta-analyses.

Description of included SRs

A summary of the characteristics of the seven included SRs is presented in table 3. These SRs covered diverse populations, including people with cancer,³⁷ people with chronic low back pain and chronic musculoskeletal pain,⁴⁰ people with coronary heart disease,³⁸ people with inflammatory arthritis,⁴³ pregnant women with complaints of the

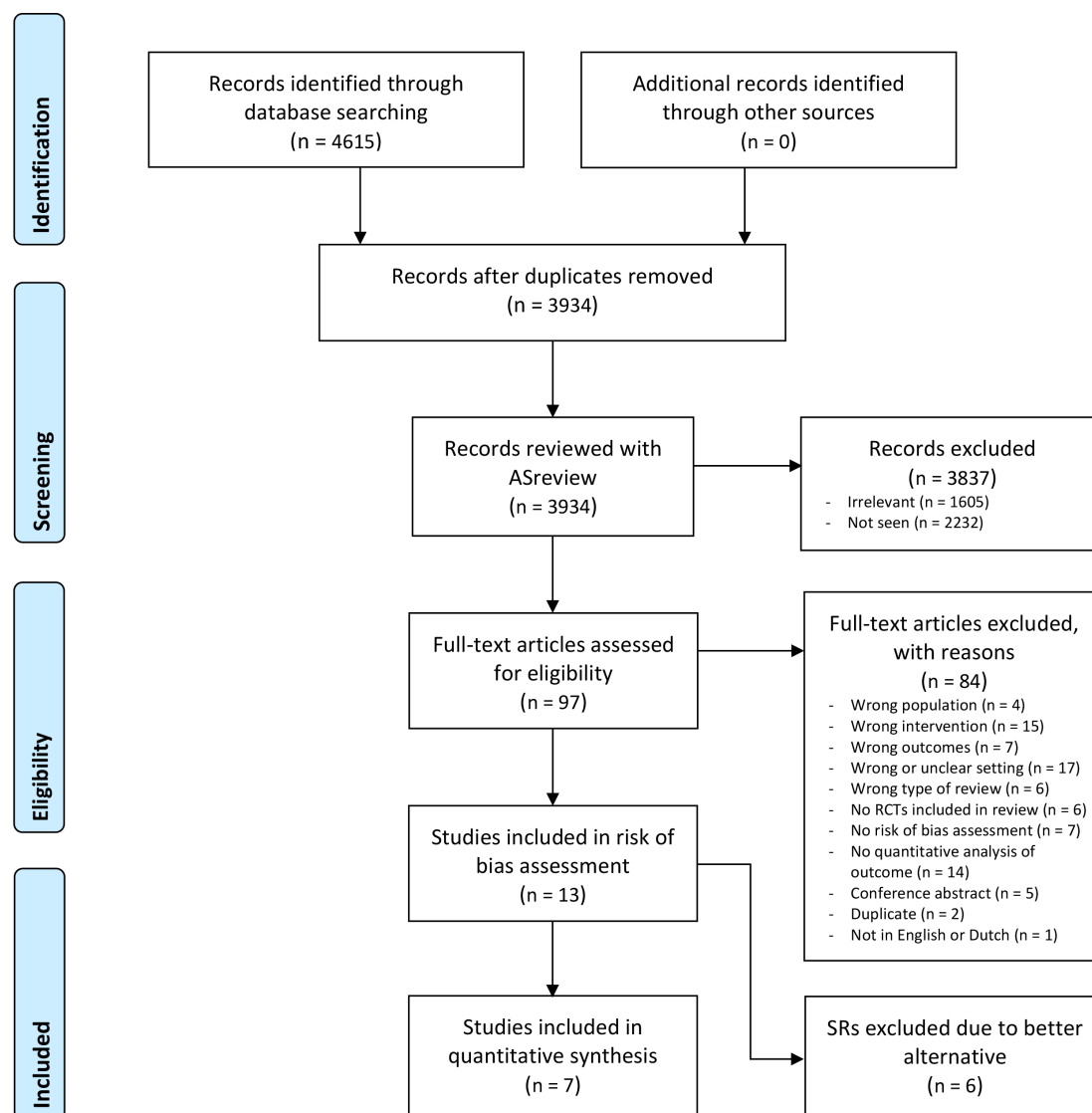


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram. RCTs, randomised controlled trials; SRs, systematic reviews.

lumbopelvic region,⁴¹ poststroke individuals⁴² and people with traumatic brain injuries.³⁹ Three SRs were Cochrane reviews.^{37–39} The number of RCTs that were included in the SRs ranged from 5 to 50, with a median of 13. Many individual RCTs within these SRs lacked adequate descriptions of the setting or clarity on the work participation outcomes used, leading to their exclusion from our review. The majority of the SRs focused on interventions to enhance work participation, including psycho-educational, vocational, physical or multidisciplinary approaches, but none addressed medical interventions. The most reported work participation outcome was the proportion of participants returning to work within 12 months. Several SRs did not perform meta-analyses due to heterogeneity of interventions and/or outcomes, or low numbers of RCTs.

Effectiveness of interventions for specific health conditions

A summary of the main findings is presented in online supplemental table S2. Although the interventions varied

slightly in name and were applied across different health conditions, many of these interventions targeting work participation showed a trend towards small, favourable effects. Statistically significant results were observed only in some of the more frequently studied health conditions.

Cancer

In total, data from 14 RCTs included in the SR of work interventions for people with cancer³⁷ were eligible for our review, analysing the results from a total of 1477 patients. Most studies evaluated breast cancer, but other types of cancer (eg, prostate cancer, cancer of head and neck, cervical cancer or colorectal cancer) were also present in the study sample. Four studies investigated psycho-educational interventions that aimed to ameliorate the psychological consequences of the diagnosis and treatment of cancer on ability to work. These interventions often started when active treatment was still being provided, had a duration of anywhere between 4 weeks and 6 months, and were provided by multidisciplinary

Table 2 Risk of bias of the included systematic reviews using AMSTAR-2 (critical items only)

Included review	Q1	Q4	Q8	Q9-RCT	Q11-RCT	Q12	Overall confidence	Remark
<i>Cancer</i>								
Algeo 2021 ³¹	++	-	-	++	++	-	Critically low	Excluded*
de Boer 2024 ³⁷	++	++	++	++	++	++	High	
Lamore 2019 ³³	-	-	++	+	n/a	n/a	Critically low	Excluded†
Wilson 2022 ³²	++	++	+	++	++	-	Low	Excluded‡
<i>Chronic musculoskeletal pain and chronic low back pain</i>								
Ishimaru 2021 ³⁵	-	-	++	++	n/a	n/a	Critically low	Excluded§
Wegrzynek 2020 ⁴⁰	++	+	++	++	n/a	n/a	Moderate	
<i>Coronary heart disease</i>								
Hegewald 2019 ³⁸	++	++	++	++	++	++	High	
O'Brien 2018 ³⁴	-	-	-	++	-	-	Critically low	Excluded¶
<i>Inflammatory arthritis</i>								
Hoving 2014 ³⁶	-	++	++	++	n/a	n/a	Low	Excluded**
Madsen 2021 ⁴³	++	-	++	++	n/a	n/a	Low	
<i>Pregnant women</i>								
Pedersen 2018 ⁴¹	++	-	++	+	n/a	n/a	Low	
<i>Stroke</i>								
Proffitt 2022 ⁴²	-	-	+	++	n/a	n/a	Critically low	
<i>Traumatic brain injury</i>								
Kumar 2017 ³⁹	++	+	++	++	++	++	Moderate	

-, not met; +, partially met; ++, fully met.

Q1 Did the research questions and inclusion criteria for the review include the components of PICOS?

Q4 Did the review authors use a comprehensive literature search strategy?

Q8 Did the review authors describe the included studies in adequate detail?

Q9-RCT Did the review authors use a satisfactory technique for assessing the risk of bias in individual studies that were included in the review (for RCT)?

Q11-RCT If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results (for RCT)?

Q12 If meta-analysis was performed, did the review authors assess the potential impact of risk of bias in individual studies on the results of the meta-analysis or other evidence synthesis?

*Based on critically low overall confidence and overlap of 6/9 studies with de Boer 2024 (of which two were excluded by de Boer 2024); of the three remaining studies, one was in the wrong setting.

†Based on critically low overall confidence and overlap of 3/3 studies with de Boer 2024 (of which one was excluded by de Boer 2024).

‡Based on low overall confidence and overlap of 6/8 studies with de Boer 2024 (of which one was excluded by de Boer 2024).

§Based on critically low overall confidence and overlap of 1/9 studies with Wegrzynek 2020; of the eight remaining studies, only three were within a clinical setting, but from these two were workplace interventions.

¶Based on critically low overall confidence and overlap of only 12/18 studies with Hegewald 2019.

**Based on the availability of a more recent study with the same overall confidence including the same primary studies.

n/a, not applicable; PICOS, Population, Intervention, Comparator, Outcome, and Setting; RCT, randomised controlled trial.

Table 3 Characteristics and PICOS elements of included reviews

De Boer 2024 ³⁷			
Review aim			
To evaluate the effectiveness of interventions aimed at enhancing RTW in patients with cancer compared with alternative programmes including usual care or no intervention			
Date of last search	August 2021	Number of included RCTs (included in our review)	15 (14)
Cochrane review	Yes	Used RoB tool	Cochrane's RoB 1 tool
PICOS elements			
Population	Adults (≥ 18 years old) who had been diagnosed with any type of cancer and were in paid employment (employee or self-employed) at the time of diagnosis		
Interventions	Interventions aiming to enhance RTW (ie, psycho-educational, vocational, physical and multidisciplinary interventions)		
Comparisons	Usual care or no intervention		
Main outcomes*	RTW (including return to either full- or partial-time employment to the same or a reduced role, and to either the previous job or any new employment)		
Setting	Clinical setting or in the community		
Hegewald 2019 ³⁸			
Review aim			
To assess the effects of person- and work-directed interventions aimed at enhancing return to work in patients with CHD compared with usual care or no intervention			
Date of last search	October 2018	Number of included RCTs (included in our review)	39 (34)
Cochrane review	Yes	Used RoB tool	Cochrane RoB tool
PICOS elements			
Population	Adults (≥ 18 years old) with CHD (including myocardial infarction, angina pectoris or angiographically defined CHD), and in paid employment or self-employment at diagnosis and on sick leave or not working at the time of the study due to CHD		
Interventions	Interventions to support work participation (ie, work-directed, psychological, physical conditioning or combined interventions)		
Comparisons	No intervention (usual care as described in the study report)		
Main outcomes*	RTW (including full- or part-time employment; to previous job; to the same role or with changes in work status, such as changes in function)		
Setting	Not defined		
Kumar 2017 ³⁹			
Review aim			
To evaluate the effects of cognitive rehabilitation on RTW, independence in daily activities, community integration (occupational outcomes) and quality of life in people with traumatic brain injury, and to determine which cognitive rehabilitation strategy better achieves these outcomes			
Date of last search	30 March 2017	Number of included RCTs (included in our review)	9 (4)
Cochrane review	Yes	Used RoB tool	Cochrane RoB tool

Continued

Table 3 Continued

PICOS elements	Population	Adults (≥ 16 years old) who had sustained a traumatic brain injury of any clinical severity		
	Interventions	Any type of non-pharmacological rehabilitation intervention aimed at improving cognitive functions		
	Comparisons	Non-intervention controls or alternative interventions		
	Main outcomes*	RTW		
	Setting	Hospital rehabilitation and home-based rehabilitation		
Madsen 2021 ⁴³				
Review aim	To get an overview of the evidence to date of the effect of job loss prevention interventions that aim to improve work ability or decrease absenteeism and job loss in persons with inflammatory arthritis			
Date of last search	February 2021	Number of included RCTs (included in our review)	6 (3)	
Cochrane review	No	Used RoB tool	Cochrane RoB tool	
PICOS elements	Population	Adults (18–65 years) with inflammatory arthritis, encompassing rheumatoid arthritis, psoriatic arthritis and axial spondyloarthritis (including Morbus Bechterew and ankylosing spondylitis)		
	Interventions	Job loss prevention interventions that contained at least two criteria (ie, (1) targeting work challenges including trying out different strategies and adaptations to improve specific work situations; (2) directed at the individual person, including job coaching and training, vocational counselling, empowerment for work or self-management; or (3) directed at the work environment, including work adaptations, ergonomic measures, job accommodations or interventions targeted directly at the participants, supervisors or coworkers)		
	Comparisons	Usual care (including medical treatment and outpatient consultations with a doctor and/or nurse) or receiving general oral or written information about living with a rheumatological disease		
	Main outcomes*	Work participation (eg, work functioning and work ability), sickness absenteeism and job loss		
	Setting	Not specified; remark, only Western countries were included (meaning all European countries, Australia/New Zealand, Canada, the USA)		
Pedersen 2018 ⁴¹				
Review aim	To evaluate the effectiveness of interventions in healthcare settings and workplaces targeting sickness absence among pregnant women			
Date of last search	April 2017	Number of included RCTs (included in our review)	5 (2)	
Cochrane review	No	Used RoB tool	Joanna Briggs Institute critical appraisal instruments	

Continued

Table 3 Continued

PICOS elements	Population	Pregnant women at any gestational age and employed in private or public workplaces in all types of work
	Interventions	Any intervention targeted at pregnant women defined as any initiative to retain pregnant women in work participation
	Comparisons	Care as usual, no treatment, second intervention
	Main outcomes*	Sickness absence or absenteeism during pregnancy measured as number of sickness absence episodes and/or length of absence in days/weeks
	Setting	Workplace settings (workplace or vocational rehabilitation initiatives) or healthcare settings (antenatal care, maternal care services or consultations by general practitioners or midwives)
Proffitt 2022 ⁴²		
Review aim		To determine the current evidence for the effectiveness of interventions within the scope of occupational therapy practice to improve social participation, work and leisure among adults post stroke
Date of last search		December 2019
	Number of included RCTs (included in our review)	50 (1)
Cochrane review	Used RoB tool	Cochrane RoB tool and National Heart, Lung and Blood Institute guidelines
		No
PICOS elements	Population	Adults poststroke (≥ 18 years old) (or caregivers)
	Interventions	Interventions within the scope of occupational therapy practice to improve social participation, work and leisure
	Comparisons	Not defined
	Main outcomes*	Social participation (including social participation, social functioning, social relations/relationships), work or leisure
	Setting	Occupational therapy practice
Wegrzynek 2020 ⁴⁰		
Review aim		To analyse which tertiary RTW interventions may be useful in promoting RTW for people with chronic pain
Date of last search		October 2018
	Number of included RCTs (included in our review)	13 (10)
Cochrane review	Used RoB tool	Cochrane RoB tool

Continued

Table 3 Continued	
PICOS elements	Population
	Workers (≥ 18 years old; employed on any type of contract or self-employed) and signed off work for ≥4 weeks due to chronic pain (defined as pain which persists for ≥3 months or beyond the expected healing time)
	Interventions
	Individual, tertiary RTW interventions (ie, reactive intervention, addressing problems experienced by employees and following a period of sickness absence)
	Comparisons
	Usual care or treatment as usual
	Main outcomes*
	RTW, operationalised using any easily measurable ‘administrative’ criteria, such as work status, number of hours worked, time until RTW
	Setting
	Not specified
*Main outcomes of the systematic review relevant to this synthesis of systematic reviews. CHD, coronary heart disease; PICOS, Population, Intervention, Comparator, Outcome, and Setting; RCTs, randomised controlled trials; RoB, risk of bias; RTW, return to work.	

teams. Four studies examined physical interventions designed to improve the physical consequences of the diagnosis and treatment of cancer on the ability to work. The duration of these interventions ranged from 12 weeks to 6 months, and timing was either synchronised with chemotherapy treatment or took place several weeks after surgery. The involved professionals were physiotherapists, exercise instructors, health educators and nurses. Finally, six studies investigated multidisciplinary interventions that aimed to amend the psychological, vocational and/or physical consequences of the diagnosis and treatment of cancer on the ability to work. Most interventions started after active treatment, lasted from 4 weeks to 14 months and involved multidisciplinary teams.

Overall, the RoB was low for eight RCTs and high for six RCTs (according to the SRs’ authors).

- *Physical interventions* likely increase RTW at 12 months compared with usual care (RR 1.23, 95% CI 1.08 to 1.39; moderate certainty evidence) in people with cancer.
- *Multidisciplinary interventions* likely increase RTW at 12 months compared with usual care (RR 1.23, 95% CI 1.09 to 1.33; moderate certainty evidence) in people with cancer.
- *Psycho-educational interventions* likely result in little to no difference in RTW at 12 months compared with usual care (RR 1.09, 95% CI 0.96 to 1.24; moderate certainty evidence) in people with cancer.

Chronic low back pain and chronic musculoskeletal pain

From the SR considering people with chronic low back pain and chronic musculoskeletal pain,⁴⁰ data from five RCTs focusing on low back pain and from five RCTs focusing on musculoskeletal pain were eligible for our review. The sample consisted of 1548 people with chronic low back pain and 1825 with chronic musculoskeletal pain. Chronic pain was defined as pain which persisted for more than 3 months by the SR authors. Three RCTs investigated psycho-educational interventions, one RCT reported on a vocational intervention, three RCTs evaluated physical training and six RCTs investigated multidisciplinary interventions. The aims and characteristics were similar for all interventions. All interventions aimed to improve the employees’ psychological and/or physical capacity, enabling them to successfully RTW. The interventions took place during the chronic phase of the condition and lasted from 3 days to 3 months led by a physiotherapist or a multidisciplinary team.

According to the SR authors, the RoB was low for two RCTs, unclear for two RCTs and high for six RCTs. The SR authors did not perform any meta-analysis due to heterogeneity of the outcome measures.

- *Multidisciplinary interventions* may reduce the number of sick leave days at 12 months compared with usual care (82, IQR 51 to 164 vs 175, IQR 91 to 365; p=0.003; low certainty evidence) in people with low back pain.
- *Psycho-educational interventions* may result in little to no difference in RTW at 23 months compared with

usual care (RR 1.42, 95% CI 0.87 to 2.33; low certainty evidence) in people with chronic musculoskeletal pain.

- The evidence is very uncertain about the effects of *psycho-educational, vocational, physical and multidisciplinary interventions* on work participation at any point in time other than in the points mentioned above compared with usual care or *other interventions* (very low certainty evidence) in people with chronic low back pain and chronic musculoskeletal pain alike.

Coronary heart disease

In total, data from 34 RCTs from the SR that focused on interventions to support work participation for people with coronary heart disease³⁸ were selected for our analysis, covering a total of 4438 patients. Most studies included patients who had experienced (acute) myocardial infarction. 11 studies evaluated psycho-educational interventions that aimed to facilitate RTW by changing peoples' perceptions of their illness such that they could consider themselves to be capable workers again and not merely recovering patients. These interventions often started immediately after the coronary heart event occurred and lasted anywhere from the duration of the patient's hospital stay to 5.5 months. They were provided by nurses, psychologists and cardiologists and/or attending physicians. Four studies investigated vocational interventions that aimed to facilitate RTW by reducing perceived or actual barriers through measures such as implementing workplace design changes, scheduling pauses and similar adjustments. These interventions started immediately after the coronary heart event occurred and lasted between a single session and 3 weeks, and they were provided by the same professionals as psycho-educational interventions. Nine studies evaluated physical interventions that aimed to facilitate RTW by equipping patients with the level of functional capacity necessary to perform work tasks safely and successfully. These interventions started anywhere from 1 to 3 days to 8 weeks after discharge from the hospital (with one exceptional case starting after 7 months), had a duration that ranged from 2 to 12 months and were conducted by physical therapists. Finally, 13 studies investigated multidisciplinary interventions that combined components of the abovementioned intervention types. These interventions started either during hospital admission (immediately after the coronary heart event) or between 3 weeks and 6 months after discharge from the hospital. They lasted between 2 months and 5 years and were carried out by multidisciplinary teams.

As evaluated by the original review authors, the RoB was high in 12 RCTs, low in 6 RCTs and unclear in 16 RCTs.

- *Multidisciplinary interventions* are likely to reduce the days of RTW compared with usual care (40.77 days lower than control, 95% CI -67.19 to -14.35; moderate certainty evidence), and they may increase RTW at 6 months compared with usual care (RR 1.56, 95% CI 1.23 to 1.98; low certainty evidence) in patients with

coronary heart disease, but they may result in little to no difference compared with usual care in RTW at 6–12 months (RR 1.06, 95% CI 1.00 to 1.13; low certainty evidence) in patients with coronary heart disease.

- *Physical intervention* may increase RTW at more than 5 years compared with usual care (RR 1.83, 95% CI 1.26 to 2.66; low certainty evidence) in patients with coronary heart disease, but they may result in little to no difference in RTW at 6–12 months (RR 1.09, 95% CI 0.99 to 1.20; low certainty evidence), 1–5 years (RR 1.04, 95% CI 0.82 to 1.30; low certainty evidence) and may not reduce or increase days until RTW (7.86 days lower than control, 95% CI -29.46 to 13.74; low certainty evidence) compared with usual care in patients with coronary heart disease.
- *Vocational interventions* may result in little to no difference compared with usual care in RTW at 6 months (RR 1.06, 95% CI 0.87 to 1.28; low certainty evidence), 6–12 months (from two RCTs, respectively, RR 1.07, 95% CI 0.97 to 1.17, and RR 0.91, 95% CI 0.83 to 1.0; low certainty evidence), 1–5 years (RR 1.00, 95% CI 0.89 to 1.12; low certainty evidence) and may not reduce or increase days until RTW (7.52 days lower than control, 95% CI -20.07 to 5.03; low certainty evidence) compared with usual care in patients with coronary heart disease.
- *Psycho-educational interventions* may result in little to no difference in RTW at 1–5 years (RR 1.09, 95% CI 0.88 to 1.34; low certainty evidence) compared with usual care.
- The evidence is very uncertain about the effect of *psycho-educational, physical and multidisciplinary interventions* on work participation at any point in time other than in the points mentioned above compared with usual care (very low certainty evidence) in patients with coronary heart disease.

Inflammatory arthritis

In total, data from three RCTs that were included in the SR that focused on job loss prevention interventions for people with inflammatory arthritis (including rheumatoid arthritis, psoriatic arthritis and axial spondyloarthritis)⁴³ met our eligibility criteria, analysing a total of 224 patients. The job loss prevention interventions aimed to improve work ability or decrease absenteeism and job loss. The interventions contained educational and vocational elements and occurred during the chronic phase of the disease, lasting between 1 and 6 months and involving a multidisciplinary team or a single occupational therapist.

The RoB was low for all three RCTs according to the SR authors. The SR authors did not perform any meta-analysis due to heterogeneity of the outcome measures.

- *Job loss prevention interventions* may result in little to no difference in job loss at 6 months (RR 0.97, 95% CI 0.90 to 1.03; low certainty) and 9 months (RR 0.93, 95% CI 0.84 to 1.023; low certainty) compared with usual care in patients with inflammatory arthritis.

- The evidence is very uncertain about the effect of *job loss prevention interventions* on absenteeism at any point in time compared with usual care (very low certainty) in patients with inflammatory arthritis.

Pregnant women with complaints of the lumbopelvic region

From the SR describing pregnant women with complaints of the lumbopelvic region⁴¹ we included two RCTs with a total sample of 1156 women. The interventions aimed to reduce sick leave due to lumbopelvic pain during pregnancy. Both RCTs described a 12-week physical training (with both aerobic and strength training components) which started between gestation weeks 20–24 and was led by a physiotherapist.

The RoB of these RCTs was low according to the SR authors. The SR authors did not perform a meta-analysis.

- The evidence is very uncertain about the effect of *physical training* on reducing sick leave due to lumbopelvic pain compared with usual care (for each RCT, respectively, RR 0.84, 95% CI 0.56 to 1.28; and RR 0.73, 95% CI 0.58 to 0.94; very low certainty) in pregnant women at 32–36 weeks of gestation.

Stroke

Findings from one RCT with a moderate RoB from the SR describing poststroke individuals⁴² were extracted from this SR. The sample of this study consisted of 80 patients who were post-stroke and investigated a tailored workplace rehabilitation intervention aiming to improve RTW rates for these adults.

- The evidence is very uncertain about the effect of *tailored workplace rehabilitation* on RTW at 6 months compared with usual care (very low certainty) in poststroke patients.

Traumatic brain injury

The SR concerning people with traumatic brain injury³⁹ focused specifically on cognitive rehabilitation interventions that aimed to improve the overall performance of people with traumatic brain injuries by enhancing specific cognitive aspects such as memory, visuospatial abilities, apraxia and aphasia. In total, data from four RCTs included in this SR were eligible for our analysis. These RCTs analysed 604 people with mild-to-severe traumatic brain injuries. All but one of the RCTs reported on war veterans. The interventions started during medical recovery from the brain injury and lasted between 20 days and 16 weeks, involving an interdisciplinary team, a psychiatric nurse or an employment specialist.

The RoB was assessed as low in three RCTs and high in one by the SR authors. The SR authors could not perform a meta-analysis due to the heterogeneity of the outcome measures.

- *Cognitive rehabilitation* likely results in little to no difference in RTW at 12 months compared with *another cognitive strategy* (RR 1.10, 95% CI 0.83 to 1.46;

moderate certainty); *hospital-based cognitive rehabilitation* likely results in little to no difference in RTW at 2 years compared with a *home programme* (RR 0.95, 95% CI 0.85 to 1.05; moderate certainty) in people with traumatic brain injury.

- *Cognitive rehabilitation* may result in little to no difference in RTW at 6 months compared with usual care (RR 0.95, 95% CI 0.85 to 1.05; low certainty); the evidence is very uncertain about the effect of *cognitive rehabilitation* on RTW at 14 weeks compared with no treatment (RR 1.43, 95% CI 0.87 to 2.33; very low certainty) in people with traumatic brain injury.

Promising elements of the interventions

Figure 2 provides an overview of the elements that were included in the interventions. Multidisciplinary interventions for people with cancer, coronary heart disease and low back pain^{37 38 40} and physical interventions for people with cancer³⁷ were likely or possibly effective. Therefore, elements were considered promising primarily when they were used in multidisciplinary interventions. Physical elements were also deemed promising in physical interventions for people with cancer. Combinations of elements within focused psycho-educational, vocational or physical interventions did not lead to effective outcomes. Overall, a few interventions included tailored programmes that offered elements based on patients' specific needs. However, there is no distinction whether these tailored approaches were applied in effective interventions or in those with a low certainty of evidence.

Among the implemented psycho-educational elements, promising elements included psychoeducation about coping skills related to stress, fatigue or fear; education about disease and treatment or prevention and lifestyle; cognitive-behavioural therapy, psychosocial support; and group counselling or therapy. Within the vocational interventions, vocational counselling was found to be promising. Finally, within the psychological interventions, strength training, aerobics training and low-intensity exercises or exercise therapy were all promising elements.

DISCUSSION

To the best of our knowledge, this is the first overview of SRs that examines the effectiveness of interventions to enhance work participation for patients in a clinical healthcare setting and identify promising elements within these effective interventions across various health conditions. We identified SRs that considered people with cancer,³⁷ people with chronic low back pain and chronic musculoskeletal pain,⁴⁰ people with coronary heart disease,³⁸ people with inflammatory arthritis,⁴³ pregnant women with complaints of the lumbopelvic region,⁴¹ poststroke individuals⁴² and people with traumatic brain injuries.³⁹ For people with cancer, we found moderately certain evidence that multidisciplinary and physical interventions are likely to increase the RTW rate at 1 year. For people with coronary heart disease, we found moderate

Health condition	Number of interventions	Intervention element																Other characteristics		Intervention duration			
		Psychoeducation and coping skills (i.e., related to stress, fatigue, fear)	Education about disease and treatment or prevention and lifestyle	Cognitive rehabilitation	Cognitive-behavioral therapy	Motivational interviewing	Psychosocial support (incl involvement of family members and significant others)	Group counseling or therapy	Vocational counseling	Vocational rehabilitation	Occupational rehabilitation (incl training or education of specific job skills)	Workplace modifications	Supported employment	Written information and self-help guide	Strength training	Aerobics training	Low-intensity exercises or exercise therapy	Relaxation (incl yoga)	Medical treatment adjustments	Individual ¹	Group	Tailored or step-wise program ²	
Psycho-educational interventions																							
Cancer	4	3	2	-	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	3	1	1	1-6 months
Chronic low back pain	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2-3 months
Chronic musculoskeletal pain	2	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1-3 months
Coronary heart disease	11	5	9	-	-	2	5	3	-	-	-	-	-	-	-	-	1	2	7	5	1		Days during hospital stay - 5.5 months
Traumatic brain injury	2	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2	2		3 weeks – 4 months
Vocational interventions																							
Chronic musculoskeletal pain	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	3-4 weeks
Coronary heart disease	4	-	-	-	-	-	3	-	4	-	-	-	-	-	-	-	-	-	-	4	-	-	1 session – 3 weeks
Stroke	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	unknown
Physical interventions																							
Cancer	4	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	1	1	-	3	1	-	3-6 months
Chronic low back pain	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	2-3 months
Chronic musculoskeletal pain	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	1	-	1	1	-	1-3 months
Coronary heart disease	9	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8	2	1	-	9	-	-	2-12 months
Pregnant women	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	-	-	2	2	-	3 months
Multidisciplinary interventions																							
Cancer	6	3	2	-	-	-	4	-	2	1	1	-	-	1	1	1	2	1	-	6	-	2	1-14 months
Chronic low back pain	3	1	1	-	2	-	-	2	-	-	2	1	-	-	-	-	2	-	-	2	2	-	1-4 weeks
Chronic musculoskeletal pain	3	1	1	-	3	-	-	-	-	-	3	-	-	-	1	1	2	2	-	2	1	-	1 week - 3 months
Coronary heart disease	13	2	11	-	2	1	7	6	2	-	1	1	-	-	3	13	3	8	-	7	7	-	2 months - 5 years
Inflammatory arthritis	3	1	1	-	-	-	2	-	2	1	1	2	-	2	-	-	2	-	1	3	-	3	1-6 months
Traumatic brain injury	2	-	-	2	-	-	-	1	-	-	-	-	1	-	-	1	-	-	-	2	1	-	2-3 months
Can the element be considered promising? ³		yes	yes	no	yes	no	yes	yes	yes	no	no	no	no	no	yes	yes	yes	no	yes				

In bold are the likely effective interventions according to the GRADE assessment

¹ Unless clearly stated it was a group intervention or combined group and individual elements, we assumed interventions were individually delivered

² Based on providing customized programs through the offering of various intervention elements tailored to the needs of the patient; this does not include tailoring the intensity of training or exercises to the physical capacity of the patients

³ An element could be promising when the frequency of the element was more than one in two or more of the likely effective intervention types for individual health condition.

Figure 2 Elements of the interventions aiming to enhance work participation.

certainty evidence that multidisciplinary interventions are likely to reduce the days of RTW compared with usual care, and low-certainty evidence that multidisciplinary interventions may increase RTW at 6 months and probably also reduce the time away from work. Finally, for people with chronic low back pain, we found low-certainty evidence that multidisciplinary interventions may reduce the number of sick leave days during the first 12 months. (Psycho)education, cognitive-behavioural therapy, psychosocial support, group counselling or therapy, vocational counselling, strength training, aerobics training and low-intensity exercises or exercise therapy could be promising elements across health conditions for interventions aiming to enhance work participation.

Overall, multidisciplinary interventions seemed to be the most favourable for improving work participation (compared with usual care). We are uncertain about the effectiveness of many other interventions due to limitations such as small sample sizes, single studies reporting on a particular outcome and limitations in the quality of reporting of the SRs or individual studies themselves. However, when reviewing the interventions with low or very low GRADE scores in detail, many outcomes indicated a positive trend in favour of those interventions aimed at improving work participation. This trend is also found in other reviews examining vocational interventions.^{19 44-46} Although overall the effects are uncertain because we did not combine the data due to heterogeneity in the interventions, the outcome measures and

the patient populations, this does not negate the potential effectiveness of these less investigated interventions. Therefore, despite the low certainty of the evidence, it is possible that additional interventions or elements of interventions could be shown to positively impact work participation.^{23 47 48}

Considerable variation in dose and other intervention characteristics was noted. This heterogeneity could be another reason for the limited effects reported and often led to the original review authors refraining from performing a meta-analysis.^{39-41 43} For example, it is reasonable to expect different results among physical interventions when participants receive supervised training from a physical therapist twice a week compared with participants performing exercises at home unsupervised.⁴⁹ This heterogeneity makes it difficult to compare the different interventions.

Multidisciplinary interventions were shown to be favourable across health conditions compared with psycho-educational, vocational or physical interventions alone. This might be a result of the synergy of multiple elements or the fact that individuals are exposed to a mix of the right elements within multidisciplinary interventions.^{40 44 50} Yet, providing the same elements and doses in multidisciplinary interventions to all patients could also result in providing unnecessary care, since individual patients have different needs. Tailored interventions may be suggested as a more targeted alternative. Tailored interventions could provide substantial effects for enhancing

work participation and might be more cost-efficient than non-tailored interventions.^{46 51–54}

To make informed decisions about which elements to provide in a tailored intervention, it is important to understand the working mechanisms of the various promising elements that were detected in this overview of SRs. Promising elements were defined as those elements that were frequently included in effective interventions. The elements that were identified as promising could be integrated into a tailored intervention aiming to enhance work participation in hospital-based clinical care setting. Psychoeducation including coping with fatigue, stress or fear by developing relaxation and self-acceptance skills⁵⁵ and education about disease pathology and lifestyle both address people's perceptions of their illnesses and their own roles in their rehabilitation process. Addressing people's perceptions of illness and responsibility in rehabilitation can indirectly influence work ability.^{37 38 56 57} Cognitive-behavioural therapy can likewise enhance this; it is an effective aid for people in returning to work in that it focuses on improving cognition and underlying thought processes that may cause people to take sick leave.^{58 59} Psychosocial support often includes involving family members or significant others, especially for people with coronary heart disease.³⁸ Involving spouses may further enhance people's likelihood to adhere to lifestyle rules or training programmes and be a motivating factor for RTW.^{21 60} The social support resulting from involving others in treatment was also incorporated in some group-based interventions.^{38 39 41} Providing RTW advice during vocational counselling could potentially influence an individual's own prediction about RTW, which has a significant impact on actual RTW outcomes.^{61–63} Finally, physical training, regardless of its exact form, can be a promising element for ensuring an individual has the necessary functional capacity to perform work.^{37 38 64 65} By understanding these different mechanisms and knowing the specific needs of a certain patient population, an informed decision can be made to design an effective tailored intervention that is more likely also cost-effective.

Methodological considerations

This overview of SRs provides a comprehensive summary of interventions and their effectiveness to enhance work participation within clinical healthcare. Rather than repeating study eligibility, assessing RoB or performing a meta-analysis of the included studies, we integrated the available evidence from seven SRs that focused on specific health conditions to present a comprehensive picture.⁶⁶ This picture was created with a deductive synthesis and allowed us to detect promising elements across a variety of interventions aimed at improving work participation for different health conditions, which are often described by other authors as heterogeneous.^{20 23 44 46 55} Furthermore, GRADE was used to evaluate the certainty of evidence.³⁰

To ensure that we presented the highest available quality of evidence and avoided redundancy, we conducted a comprehensive RoB assessment of the available SRs by

employing AMSTAR-2²⁹ which we used to make our final selection of SRs. A downside of our strict eligibility criteria is that we excluded SRs that lacked detailed information (such as the setting of the individual RCTs). Several SRs that we excluded based on missing information about the setting covered vocational interventions.^{44 67 68} This probably caused the notable lack of vocational intervention elements in the subgroup of vocational interventions compared with multidisciplinary interventions (figure 2), whereas these elements might be delivered within clinical healthcare.

Implications for practice and research

To further inform guideline developers and policy-makers about work participation as a treatment goal, future research should focus on generating meta-analyses for those patient populations we did not detect with this overview of SRs. When a lack of evidence is found, new RCTs can be designed and implemented. Furthermore, more harmonised usage of work participation outcomes is recommended because most of the SRs we included were unable to perform a meta-analysis due to the heterogeneity of the outcome measures. A solution to reduce future heterogeneity could be for experts to agree on a core set of minimum outcomes which should be measured in all trials in a specific health area.⁶⁹ Applying a recently proposed framework to select work participation outcomes⁷⁰ could aid in including the most appropriate work participation outcomes for that specific health area.

CONCLUSION

There is considerable overlap in interventions that aim to enhance work participation for patients treated within a clinical healthcare setting across health conditions. Although their effects on work participation vary, some diseases like cancer show favourable results from multidisciplinary interventions. Across interventions and diseases included in this overview, promising elements were (psycho)education, cognitive-behavioural therapy, psychosocial support, group counselling or therapy, vocational counselling, strength training, aerobics training and low-intensity exercises or exercise therapy. However, in our comprehensive search, SRs were found for only seven health conditions. To support evidence-based policy and practice, there is a need for more research on the health conditions that could not be included in this review. For the evidence we did find, further research is recommended to develop tailored interventions and evaluate their cost-effectiveness.

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