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1 Interventions to promote work-focused care by healthcare providers for individuals
2 with musculoskeletal conditions a scoping review

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1 **Abstract**

2 *Purpose* Building on an emerging body of evidence, this scoping review aimed to provide an
3 overview of current interventions to promote work-focused care by healthcare providers for
4 individuals with musculoskeletal conditions and to identify current knowledge gaps for future
5 research.

6 *Methods* Literature searches were performed in Pubmed, CINAHL, EMBASE, and PsycInfo using
7 Medical Subject Heading terms and text words relating to musculoskeletal conditions,
8 interventions to promote work-focused care and work-related outcomes. Articles involving any
9 interventions with elements of work-focused care delivered by healthcare providers to manage
10 musculoskeletal conditions were reviewed for suitability and inclusion.

11 *Results* A total of 22 articles (18 intervention trials) were identified. Most studies were
12 multidisciplinary interventions incorporating one or more elements of work-focused care including:
13 work-related assessment to identify barriers to working, vocational advice/coaching or education
14 to address barriers to working, involvement of the workplace stakeholders, restoration of fitness
15 for work and regular communication with multidisciplinary team members. Most studies (61%)
16 concluded that their interventions achieved the desired work-related outcomes although firm
17 conclusions could not be made regarding the effectiveness of a particular component, content or
18 strategy of work-focused care itself because of the variability in the type and number of elements
19 and outcomes used.

20 *Conclusions* There is good evidence demonstrating the potential for healthcare providers to
21 improve work outcomes for those with musculoskeletal conditions. Additional training is required

1 to increase confidence in this area of practice. Accepting that work-focused care is important,
2 however, does not diminish the challenge it presents.

3 **Keywords:** musculoskeletal, work, healthcare provider, review

4

1 **Introduction**

2 Between 20%–33% of people across the globe live with a painful musculoskeletal condition which
3 account for the greatest proportion of non-cancer persistent pain conditions [1]. These conditions
4 were the leading cause of disability in four of the six WHO regions in 2017 and the highest
5 contributor to global disability accounting for 16% of all years lived with a disability [2].
6 Additionally, it has been estimated that musculoskeletal conditions are the greatest contributor of
7 lost productivity life years in the workplace [3]. In 2018/2019, around 6.9 million working days
8 were lost because of musculoskeletal conditions in Great Britain [4].

9 Work is important for both physical and mental health and wellbeing [5, 6]. Being
10 unemployed increases the risk of poor physical and mental health, while return to work can
11 positively influence recovery for people with common health problems [5, 6]. Musculoskeletal
12 conditions (MSCs) which are associated with pain, functional limitations and mental disorders [7]
13 reduce a person’s ability to work, creating a temporary or permanent disability for work [8, 9]. Yet
14 there is good evidence to show that much work disability is avoidable with timely support [5, 10].
15 A previous evidence synthesis concluded that a lack of work-focused care could be an obstacle to
16 work participation for those with MSCs [11]. This was more firmly supported in a recent
17 systematic review [12] highlighting that facilitating continuation or resumption of work is a
18 consistent recommendation from high-quality clinical practice guidelines for care of MSCs
19 including neck pain, osteoarthritis, rotator cuff syndrome and low back pain. Keeping individuals
20 with MSCs at work not only improves pain and overall well-being outcomes, but also reduces the
21 social and financial impact [5, 13]. Therefore, it is important to identify effective interventions for
22 promoting work-focused care for individuals experiencing MSCs to ameliorate the unsustainable
23 burdens placed on healthcare and society as the working population ages.

1 Treatments of MSCs are usually delivered by healthcare providers such as general
2 practitioners, physiotherapists, osteopaths and chiropractors. As such, healthcare providers have a
3 crucial role to play in preventing unnecessary work loss. Although there is no consensual definition
4 of work-focused care, Bartys et al [11] propose it is: “*Where the healthcare professional takes an*
5 *interest in, and accepts responsibility for, addressing obstacles to work participation in the clinical*
6 *encounter*”. Most healthcare providers agree that work is generally good for health and wellbeing
7 and is important to address in healthcare [14-16]. However, evidence suggests that addressing
8 work and work-focused conversations are not sufficiently incorporated within the clinical
9 encounter and that healthcare providers experience many barriers to adopting a work-focused
10 approach [14, 15, 17-19]. One of these barriers is a lack of specific knowledge of the workplace
11 and how to address work-related factors in individuals with MSCs [14, 15, 17, 18].

12 In facilitating work-focused care and developing work-focused interventions, having
13 insight into currently existing interventions that promote work-focused care and their effectiveness
14 is important to better support healthcare providers. Previous reviews on this topic have not
15 examined this issue specifically – their focus has largely been on understanding and how best to
16 overcome the systemic obstacles to work-focused care [11, 16, 19]. To expand the existing
17 evidence base and examine content alignment to the current definition of work-focused care, a
18 scoping review has been undertaken. The aim of this scoping review is twofold: 1) to summarize
19 the interventions and findings that have been described in the literature to promote work-focused
20 care by healthcare providers for individuals with MSCs; and 2) to determine the knowledge gaps
21 for future research to improve work-related outcomes.

22

23 **Methods**

1 To obtain a broad overview of any existing evidence in the field, a scoping review was conducted,
2 using the methodological framework developed by Arksey and O'Malley [20] and further
3 recommendations made by Levac et al [21] and Peters et al [22]. The reporting of this scoping
4 review has been prepared according to the PRISMA-ScR guidelines [23].

5 **Eligible criteria**

6 Eligible criteria were established based on population, concept and context. To be included, the
7 study population must be adults (≥ 18 years old) in paid employment with MSCs which could be
8 musculoskeletal symptoms or injuries in any body region and at any stage (e.g. acute, subacute
9 and chronic symptoms). The concept relevant to this review was any intervention to promote work-
10 focused care aligning to the previous definition by Bartys et al [11] including but not limited to
11 using a structured approach to identifying barriers to work, educating patients regarding the
12 benefits of remaining in or returning to work, providing active recovery strategies and pain-
13 relieving strategies aiming to facilitate remain at or return to work (RTW), working with both the
14 employee and employer to set goals for duties and RTW (e.g. a RTW plan), providing advice on
15 work-rest schedules and pacing, and encouraging / empowering patients to discuss problems with
16 supervisors regarding RTW or their remaining at work. Any type of intervention or combination
17 of interventions were eligible, including cohort studies, randomized controlled trials (RCT), pre-
18 post trials and non-randomized trials. Comparators of the intervention could be no intervention,
19 any other interventions or usual care. Studies must report work-related outcomes, for example,
20 RTW rate, status or time to RTW, sickness absence, presenteeism or duration of claim (if
21 compensable injury). The relevant context was that the intervention must be delivered by one or
22 more healthcare provider in a clinical encounter which was defined as a clinical or health setting.
23 As such, interventions that occurred solely at the workplace were excluded. Considering that a

1 person's interaction with the health system may vary in different countries, for the purpose of this
2 scoping review, healthcare providers were defined as care clinicians who commonly manage
3 MSCs, e.g. general practitioners, family physicians, occupational physicians, physiotherapists,
4 chiropractors, osteopaths, occupational therapists, and exercise therapists. To capture the latest
5 evidence, only studies published in the past 15 years (since 2005) were included. There was no
6 limitation in the country in which the study was conducted. Only publications in English were
7 included due to limited resources for translation. Articles without full-text reports available, letters,
8 editorials, case reports, reviews, or meta-analysis and study protocols were excluded.

9 **Information source and search**

10 The scientific literature was searched to source original, peer-reviewed studies. Pubmed, CINAHL,
11 EMBASE, and PsycInfo were searched on 13 February 2020. The reference lists of included
12 studies were also searched for relevant articles which may have been missed by the database search.
13 The search strategy was developed by combining Medical Subject Heading terms and text words
14 pertaining to MSCs, interventions to promote work-focused care and work-related outcomes. In
15 our pilot search of Pubmed, it was found that terms related to healthcare providers and clinical
16 encounters produced many irrelevant articles such as articles about prevalence and risk factors of
17 musculoskeletal complaints in health professionals. Therefore, these terms were not included in
18 the search strategy to strike a balance between sensitivity and precision of searches. An example
19 of key search terms and Boolean operators used to combine the search terms is presented in **Table**
20 **1.**

21 **Study selection**

1 All articles identified using the literature search strategies were uploaded to Covidence which was
2 used to facilitate the screening process. Three authors (YX, NH, and VJ) independently applied
3 the selection criteria to screen titles and abstracts, and then to review full texts to identify eligible
4 articles, in a way that ensured every single title/abstract and full text was screened and reviewed
5 by two authors independently. Any disagreements on title/abstract and full-text screening were
6 resolved in consensus meetings between YX and VJ. If insufficient information was provided to
7 determine the eligibility of the article, emails were sent to the authors of the respective articles to
8 request further information. Articles were excluded if no reply was received after three request
9 emails within a month.

10 **Data extracting and charting process, and synthesis of results**

11 Data extraction was performed by an author (YX) using a data extraction table agreed by all
12 authors. The accuracy of the extracted data was checked by another author (VJ). As the aim of this
13 scoping review was to map existing evidence, a critical appraisal of individual source of evidence
14 was not conducted [20]. Extracted data items included study details (author, publication year,
15 study design and country of origin), the setting the intervention was conducted, study population,
16 participants' characteristics, intervention details (components, frequency and duration of the
17 intervention if available), healthcare providers who delivered or were involved in the interventions,
18 comparators, work-related outcomes and main findings. Results were summarized, synthesized,
19 and presented using tables in a logical format that aligns to the objective and scope of the review.

20 **Results**

21 After removing duplicates, 1999 titles and abstracts were screened, and 99 full texts were reviewed.
22 Seventy-six articles were excluded after full-text screening, leaving 22 articles (18 intervention

1 trials) being eligible for this review (**Figure 1**). Several papers reported data from the same
2 intervention trial and were referenced as a single trial as follows: Brendbekken et al [24, 25], Kool
3 et al [26, 27], Lambeek et al [28, 29], and van Vilsteren et al [30, 31].

4 **Study characteristics**

5 Of 18 trials, 14 were individual RCTs, 2 were cluster RCTs, 1 was a feasibility RCT, and 1 was a
6 control, non-randomized prospective design (**Table 2**). Most of the studies were conducted in
7 European countries, including the Netherlands (n=4, 22%), Germany (n=3, 17%), Denmark (n=3,
8 17%), United Kingdom (n=2, 11%), Norway (n=1, 6%), Switzerland (n=1, 6%), and Sweden (n=1,
9 6%). The remaining were conducted in Hong Kong (n=2, 11%) and Australia (n=1, 6%). The
10 clinical setting for interventions included hospital (n=6, 33%), rehabilitation centre/department
11 (n=6, 33%), rheumatology clinics/department (n=4, 22%), physiotherapy practice (n=3, 17%),
12 general practitioner practice (n=2, 11%), and occupational practice (n=1, 6%), (**Table 2**). The
13 study population included adults with low back pain (n=6, 33%), general musculoskeletal
14 pain/injuries/disorders (n=5, 28%), rheumatic diseases (n=3, 17%), spinal and/or shoulder pain
15 (n=3, 17%), and work-related soft-tissue injuries (n=1, 6%).

16 **Synthesis of findings**

17 Most of studies (n=11, 61%) were multidisciplinary interventions [24, 27, 28, 31-38] that
18 incorporated some components of work-focused care as part of the intervention. Other studies were
19 either vocational rehabilitation [39-41] or coaching/counselling interventions [42-45] delivered by
20 one or two health professionals. Over half of the studies used usual or standard care as the
21 comparator intervention. Other comparators used included physiotherapy, a brief intervention that
22 aimed to reduce fear and concern to help the patient stay active despite pain, a single hospital

1 consultation, pain focused rehabilitation, advice on job placement, and best current work-focused
2 care for musculoskeletal pain (**Table 3**). Across the studies, 11 (61%) had a follow-up length of
3 ≥ 12 months and follow-up length ranged from immediately after the intervention to 24 months
4 (**Table 3**).

5 *Elements of work-focused care*

6 The elements of work-focused care were grouped into five categories to summarise the main and
7 most important elements. These five categories listed in order of frequency, were vocational
8 advice/coaching or education to address RTW barriers (n=14, 78%), work-related assessment to
9 identify barriers to remaining in work or RTW (n=11, 61%), involvement of the workplace
10 stakeholders in decision making about workplace adjustment/improvement to facilitate RTW
11 (n=10, 56%), regular communication with multidisciplinary team members to discuss the progress
12 of RTW and made necessary adjustments of treatment plans (n=9, 50%) and restoration of fitness
13 for work (n=7, 39%). For each element, there was large variability in content between studies.
14 Component details of each category are presented in **Table 4**. The elements that did not fit any of
15 these categories were group training on preparation for re-employment such as job searching, job
16 matching and interview skills [37], as these strategies were targeted to workers with long-term (>6
17 months) sick leave who had difficulties in returning to their previous job and were outside the
18 remit of healthcare providers. Most of the studies (n=15, 83%) included 2 or more elements of the
19 work-focused care in the intervention, while 2 studies only included one element [37, 42] and one
20 study included all five main element categories [36].

21 *Healthcare providers delivering and contributing to the intervention*

1 Many healthcare providers were utilized in the delivery of the intervention with physiotherapy as
2 the most commonly (n=11) included discipline. Other healthcare providers who delivered the
3 intervention included occupational physicians, rheumatologists and general practitioners,
4 psychologists, social workers, occupational therapists, rehabilitation counsellors and nurses. Only
5 6 studies [30, 32, 39, 41, 44, 45] provided additional training for the healthcare providers on
6 delivering work-focused care elements in the intervention, with a reported training duration
7 ranging from 2 hours to 4 days. Several studies [28, 30, 32, 34-36, 40, 43, 45] also involved other
8 healthcare providers in the intervention, such as the patients' own general practitioners,
9 occupational physicians, radiologists, rheumatologists, physiotherapists, and medical specialists,
10 most of whom acted in a general advisory role.

11 *Summary of evidence to promote work-focused care*

12 Various work-related outcome measures were used, with sick leave duration [28, 32, 36, 38-40,
13 43, 45] and RTW/work status [24, 33, 35, 39, 44] being the most commonly recorded. However,
14 definitions of sick leave duration and RTW/work status varied across studies. A few studies also
15 measured the impact of the intervention on occurrence of job loss [27, 34], time to job loss [39],
16 the number of patients receiving a permanent disability allowance [27], presenteeism [31, 39, 45],
17 cost of claims [36], as well as self-reported work-related outcome questionnaires including work
18 ability [38, 42], work-related psychological wellbeing [42], work-related recovery expectations
19 [41], readiness to work [37], work instability [31], work performance [45] and self-efficacy to
20 RTW [45]. Over half of the studies (n=11, 61%) [27, 28, 32, 33, 36, 37, 41-45] concluded that
21 their interventions achieved the desired work-related outcomes (**Table 3**). Six studies [31, 33-35,
22 38, 40] concluded that their interventions were not effective and one study [39] was a feasibility
23 study where inferential testing was not conducted.

1 **Discussion**

2 This review is the first attempt to summarize findings from a disparate body of literature on
3 interventions to promote work-focused care delivered by healthcare providers for individuals with
4 MSCs. Most of the studies identified were multidisciplinary interventions consisting of elements
5 of work-focused care as part of the intervention tested. The work-focused care elements could be
6 summarized into five categories, but the content of each element varied between studies. Thus,
7 there appears to be no one universal or ‘ideal’ approach for delivering work-focused care. Around
8 61% of studies concluded that their intervention achieved the desired work-related outcomes.
9 However, firm conclusions cannot be made regarding the effectiveness of a particular component,
10 content or strategy of work-focused care itself because of the variability in the type and number of
11 elements and outcomes used and the contexts/systems of the countries in which the studies were
12 conducted. A consistent, agreed description of what work-focused care should comprise has not
13 been articulated nor implemented.

14
15 These findings mirror those found in previous evidence reviews on the topic, further
16 highlighting the complexity of delivering work-focused care. The healthcare system is an
17 interdependent stakeholder among other equally important systems (employment, insurance and
18 welfare) that also have an influence on health and work interactions [11]. Thus, it would be difficult
19 to isolate the healthcare system in respect of targeted [16] interventions without making the
20 necessary changes to the other inter-linking systems. This would require substantial coordination
21 within and across systems, as well as significant policy change, resources, and legislation. Faced
22 with a plethora of obstacles and uncertainty resulting from a lack of ‘whole-systems’ action, the
23 routine delivery of work-focused care by healthcare providers will continue to be inhibited. This

1 points to a revision of the definition presented earlier, which seemingly places an unfair burden of
2 responsibility on healthcare to provide work-focused care. An alternative definition could be
3 *‘Where the healthcare professional acknowledges the importance of work by identifying and*
4 *addressing obstacles to work participation in the clinical encounter and collaborate with other*
5 *stakeholders’.*

6
7 However, it is acknowledged that current policy and clinical guidelines will continue to
8 expect healthcare providers to be increasingly work-focused to tackle the global burden of work
9 disability due to MSCs. The findings of this study usefully expand the existing evidence base to
10 provide clearer indications of how healthcare providers can be supported to deliver work-focused
11 care. Among the 11 studies with positive outcomes, the most common element was vocational
12 advice/coaching and education, indicating this is important. In the trial by Becker et al [42],
13 vocational coaching with a focus on enabling better strategies for coping with work stressors plus
14 physiotherapy was compared to physiotherapy alone, making it possible to attribute the
15 improvement of work-related outcomes to the vocational coaching. The trial by Bethge et al [33]
16 also included a similar vocational coaching element aiming to improve work-related stress coping
17 behavior and found improvement of RTW at 6 months in the intervention group. However, Bethge
18 et al [33] included vocational coaching plus other components such as exercise, functional capacity
19 training and relaxation in their intervention, but each component was not specifically tested against
20 a control, so it was not possible to attribute outcomes directly to vocational coaching. Existing
21 evidence suggests healthcare providers will benefit by having access to a workplace link or
22 involving employers [16], but this study highlights further investigations are needed to help

1 understand which specific work-focused care component and/or a combination of components, is
2 essential and effective in improving work-related outcomes.

3 The evidence within this scoping review suggests that the number of work-focused
4 components does not seem to influence the effectiveness of the interventions. For example, Anema
5 et al [32] concluded that while involvement of the workplace (inclusive of a workplace assessment,
6 work modifications and case management involving all stakeholders) was effective for RTW, a
7 combination of involvement of **the** workplace and restoration of fitness for work was not effective.
8 Furthermore, conflicting results were seen in three studies (e.g. Hansen et al [40]; Wynne-Jones et
9 al [45]; Moll et al [35]) examining interventions consisting of the same four work-focused care
10 elements with only one demonstrating a positive effect [45]. The elements consistent across these
11 studies were work-related assessment, vocational advice/coaching & education, involvement of
12 workplace stakeholders and regular communication between multidisciplinary team members. The
13 conflicting results may be due to the fact that the content within the same work-focused element
14 was divergent between studies. For example, within the element of vocational advice/coaching &
15 education, the advice provided in Hansen et al [40] mainly focused on how to manage social
16 problems such as worker's compensation or job insecurity, while Wynne-Jones et al [45] covered
17 how to address psychological or behavioral obstacles to working and the beliefs about impact of
18 work on health. Another key point of differentiation is that four days of training was delivered to
19 healthcare providers in the study by Wynne-Jones et al while the amount of additional training was
20 unknown (if any) in the other studies.

21 The importance of training was echoed in a previous review [16], suggesting that work-
22 focused care must form part of generic competencies in the undergraduate curriculum. It was
23 proposed that a key aspect of training should focus on addressing healthcare provider beliefs and

1 attitudes about the importance of work to health, and their confidence in addressing work issues,
2 including signposting to relevant evidence-informed material [46]. Embedding this training across
3 the undergraduate and postgraduate curriculum as standard, rather than a specialist topic, is also
4 called for. To be effective, though, necessitates the development of curricula inclusive of an
5 evidence-informed approach that is acceptable, consistent, and integrated across the various health
6 disciplines as work-focused care will likely vary across disciplines. However, the existing
7 evidence indicates that simple, inexpensive approaches, comprising a few questions about the
8 patient's work can be helpful [44] which could be supported with patient-facing educational
9 material and/or shared-decision making tools. Such approaches align readily to usual clinical
10 practice: the provision of advice and/or patient education material as part of treatment or recovery.

11 Healthcare providers can play an essential role in supporting and facilitating individuals with
12 MSCs to remain in or return to work. This review identified that most studies involved a number
13 of healthcare providers in delivering the intervention due to the fact that their interventions were
14 multidisciplinary. However, only one third of studies provided additional training to the healthcare
15 provider to deliver the intervention elements of work-focused care. Interestingly, of the six studies
16 [31, 32, 39, 41, 44, 45] that included additional training for the healthcare providers, four achieved
17 positive outcomes and one was feasibility study that inferential testing was not conducted. It has
18 been reported that many healthcare providers such as general practitioners receive limited relevant
19 training [47] and feel they lack the knowledge and skills to deliver work-focused care [48, 49].
20 While the efficacy of the intervention was not tested in the reviewed studies, it is likely that
21 healthcare providers need additional training to deliver effective work-focused care and is
22 important to achieve positive work outcomes.

23 **Future research directions**

1 There is emerging literature regarding the outcomes of interventions that promote work-focused
2 care in healthcare contexts for individuals with MSCs. Results of this scoping review point out
3 some opportunities to extend this literature. For example, considering the heterogeneity of work-
4 focused care included in the reviewed studies, further research or consensus is needed regarding
5 the essential content, elements, and strategies necessary for work-focused care. Although it is
6 likely that multiple components delivered by a multidisciplinary team of healthcare providers are
7 needed to achieve optimal work-related outcomes, it is important to identify the effective key
8 work-focused care components to avoid inefficient care and unnecessary costs. Recently,
9 researchers called for action to redesign the clinical pathways and care plans for managing low
10 back pain to integrate work-focused care but only after the comparative effectiveness and cost-
11 effectiveness are established [50]. This review found that only four studies [27, 29, 36, 45]
12 performed an economic evaluation of their interventions. Cost-effectiveness of work-focused care
13 interventions deserve further investigation to advance understanding on their value for both the
14 individual with musculoskeletal complaints and society. It will also be important to incorporate
15 the evidence which shows that while clinical guidelines are necessary, they are not sufficient to
16 implement work-focused care in routine healthcare practice [19, 51].

17

18 None of the reviewed studies mentioned communication with third-party payers such as
19 **insurers** who are acknowledged as important stakeholders in the return to work process [52]. This
20 is understandable in jurisdictions that do not have workers' compensation legislation. However,
21 current evidence indicates that a lack of communication between the healthcare system and other
22 relevant stakeholders such as social insurance office is a barrier to work participation [11] and that
23 specific actions by insurers can negatively impact a workers recovery. Thus, it would be useful to

1 investigate whether communication with the third-party payers is a key component of work-
2 focused care to improve work-related outcomes among individuals with MSCs.

3 **Study limitations**

4 Several limitations are worth noting. First, a critical appraisal of risk of bias is not required for
5 scoping review methods, and therefore the quality of evidence identified is uncertain and likely
6 varied. Second, the literature search was limited to studies published in the past 15 years in an
7 attempt to capture the latest evidence, but this inevitably might have excluded relevant studies that
8 may have provided additional insights. Similarly, language bias might exist as the search was
9 restricted to English.

10 **Conclusions**

11 This scoping review found that most of the interventions that promote work-focused care were
12 multidisciplinary interventions incorporating one or some of the following work-focused care
13 components: work-related assessment to identify barriers to RTW, vocational advice/coaching or
14 education to address barriers to RTW, involvement of the workplace stakeholders, restoration of
15 fitness for work and regular communication with multidisciplinary team members. Although there
16 was a large variability in the content of each work-focused care element, most of the reviewed
17 studies showed that interventions to promote work-focused care show promising results in
18 improving work-related outcomes in individuals with MSCs. The key elements are likely to vary
19 with each jurisdiction with the healthcare professional delivering the intervention likely to benefit
20 from additional training. Further studies are needed to determine the optimal work-focused care
21 components with a revised definition proposed.

22 **Compliance with Ethical Standards:**

1 Funding: No funding was received for the completion of this work.

2

3 **Conflict of Interest:** Author YX, Author NH, Author SB and Author VJ declare that they have
4 no conflict of interest.

5

6 **Ethical approval:** This article does not contain any studies with human participants or animals
7 performed by any of the authors.

8

9

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1 **Table 1** An example of the search strategy used in Pubmed to identify potential articles for
 2 screening. Specific search terms, and combinations of terms are presented. There were no limits
 3 of language and publication dates. Similar search strategies were conducted in the other databases.

Terms related to musculoskeletal complaints	1. Musculoskeletal Pain [MeSH Term] 2. Cumulative Trauma Disorders [MeSH Term] 3. Musculoskeletal [Text Word] 4. MSK [Text Word] 5. 1 OR 2 OR 3 OR 4 6. Intervention* [Text Word] 7. Trial* [Text Word] 8. Psychosocial coaching [Text Word] 9. Rehabilitation, Vocational [MeSH] 10. Vocational rehabilitation [Text Word] 11. Vocational advice [Text Word] 12. Occupational advice [Text Word] 13. Convergence dialogue meeting [Text Word] 14. Motivational Interviewing [MeSH Term] 15. Motivational interviewing [Text Word] 16. Workplace dialogue [Text Word] 17. Problem Solving [MeSH Term] 18. Problem solving [Text Word] 19. Work-focused care [Text Word] 20. Work focused care [Text Word] 21. Work-focused healthcare [Text Word] 22. Work focused healthcare [Text Word] 23. Counseling [MeSH Term] 24. Counseling [Text Word] 25. Counselling [Text Word] 26. 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 27. Return to work [MeSH Terms] 28. Return to work [Text Word] 29. RTW [Text Word] 30. Return-to-work [Text Word] 31. Reemployment [Text Word] 32. Job re-entry [Text Word] 33. Workplace accommodations [Text Word] 34. Workability [Text Word] 35. Work ability [Text Word] 36. Work disability [Text Word] 37. Work participation [Text Word] 38. Workers compensation [Text Word] 39. Absenteeism [MeSH Word]
Terms related to work-focused care interventions	
Terms related to work-related outcomes	

- 40. Absenteeism [Text Word]
 - 41. Sick leave [MeSH Terms]
 - 42. Sick leave* [Text Word]
 - 43. Presenteeism [MeSH Terms]
 - 44. Presenteeism [Text Word]
 - 45. Sickness presence [Text Word]
 - 46. Sickness absence* [Text Word]
 - 47. Sickness leave* [Text Word]
 - 48. Work productivity [Text Word]
 - 49. Continuation of work [Text Word]
 - 50. Work involvement [Text Word]
 - 51. Stay at work [Text Word]
 - 52. Remain at work [Text Word]
 - 53. 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35
OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR
44 OR 45 OR 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52
OR 53
 - 54. Publication Date: from 1 January 2005
 - 55. Publication language: English
 - 56. 5 AND 26 AND 53 AND 54 AND 56
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Table 2 Characteristics of reviewed studies.

Author (year)	Study design	Country	Setting	Study population	Participants' demographics*
Anema et al (2007)	RCT	Netherlands	Occupational Health Services and physiotherapy centers	General workers with nonspecific low back pain lasting 2 - 6 weeks with full or partial sick leave	Workers on sick leave >2 weeks Workplace IG: n = 96, Age = 44.0 ± 8.6, F = 46.9%; CG: n=100, Age = 41.2 ± 10.7, F = 67%. Workers on sick leave >8 weeks Graded activity IG: n = 55, Age = 41.3 ± 9.2, F = 65%; CG: n=57, Age = 43.4 ± 8.3, F = 54.4%.
Becker et al (2017)	RCT	Germany	Physiotherapy delivered in physiotherapy practice, but no description about the setting for psychological coaching	Registered nurses with MSK complaints in the shoulder, neck or back at the time of study	IG: n = 34, Age = 44.4 ± 9.9, F = 85.3%. CG: n = 34, Age = 43.1 ± 10.8, F = 88.2%.
Bethge et al (2011)	Cluster RCT	Germany	Rehabilitation centre	Patients with MSK disorders resulting in severe restriction of work ability	IG: n = 118, Age = 48.5 ± 9.0, F = 78.0%; CG: n = 118, Age = 49.2 ± 8.4, F = 71.2%.
Brendbekken et al (2017; 2018)	RCT	Norway	Outpatient clinics at a rehabilitation department	Patients with MSK pain resulting 50% - 100% degree of sick-listed for <12 months	IG: n = 141, Age = 40.9 ± 9.8, F = 54.6%; CG: n = 143, Age = 41.6 ± 9.5, F = 53.1%
de Buck et al (2005)	RCT	Netherland	Department of rheumatology of a university medical center	Patients with chronic rheumatic diseases with self-perceived, disease-related problem at work that threatened their ability to work.	IG: n = 74, Age = 43 [21, 57], F = 55.4% CG: n = 66, Age = 44 [24, 58], F = 57.6%
Hammond et al (2017)	Feasibility RCT	United Kingdom	Rheumatology occupational therapy services	Patients with rheumatoid, psoriatic or inflammatory arthritis	IG: n = 29, Age = 47.7 ± 10.4, F = 75.9%; CG: n = 26, Age = 50.5 ± 6.4, F = 76.9%.

Hansen et al (2019)	RCT	Denmark	Hospital	Participants in physically demanding job with a current episode of 2 - 4 weeks of low back pain	IG: n = 153, Age = 45.3 ± 10.1, F = 32.0%. CG: n = 152, Age = 45.7 ± 10.5, F = 32.9%
Jensen et al (2012)	RCT	Denmark	Rheumatological outpatient clinics	Patients with low back pain with concerns about ability to maintain current job	IG: n = 110, Age = 46.2 ± 9.5, F = 50.9% CG: n = 114, Age = 44.6 ± 10.3, F = 58.8%
Knapp et al (2015)	RCT	Germany	Multiple rehabilitation centers	Patients with MSK disorders with ≥3 months of sick leave or on sick leave at the beginning of the study or with poor subjective return to work prognosis	IG: n = 157, Age = 46.9 ± 10.1, F = 56.7%. CG: n = 150, Age = 46.9 ± 10.1, F = 52.7%
Kool et al (2005; 2007)	RCT	Switzerland	Rehabilitation centre	Patients with nonspecific non-acute low back pain resulting sick leave	IG: n = 87, Age = 41.6 ± 8.4, F = 20.7%; CG: n = 87, Age = 42.5 ± 8.4, F = 21.8%
Lambeek et al (2010a, 2010b)	RCT	Netherland	Physiotherapy practices, occupational health service, occupational therapy practice and hospitals	Patients with low back pain resulting in sick listed for ≥12 weeks	IG: n = 66, Age = 45.5 ± 8.9, F = 43.9%. CG: n = 68, Age = 46.8 ± 9.2, F = 39.7%.
Lee et al (2013)	RCT	Hong Kong	Hospital	Adults who had been injured on duty or on sick leave due to low back pain	IG: n = 24, Age = 38.3 ± 11.2, F = 54.2%. CG: n = 23, Age = 36.2 ± 10.5, F = 43.5%.
Li et al (2006)	RCT	Hong Kong	Hospitals and a community vocational rehabilitation service centre	MSK injured workers with long-term sick leave who had difficulties resuming their work role	IG: n = 34, Age = 43.2 ± 9.1, F = 41.3%. CG: n = 30, Age = 44.8 ± 7.5, F = 33.3%
Moll et al (2018)	RCT	Denmark	Hospital	Adults with sickness absence for 4-16 weeks due to pain in the	IG: n = 85, Age = 40.0 ± 9.2, F = 69.4%. CG: n = 83, Age = 42.2 ± 10.4, F = 67.5%.

neck, shoulder or upper thoracic regions.

Nicholas et al (2020)	Controlled, non-randomised prospective design	Australia	Hospital	Hospital workers with work-related soft tissue injury	IG: n = 54, Age = Not reported, F = Not reported CG: n = 59, Not reported, F = Not reported Full sample: n = 113, Age = 45 [23, 75], F = 50%
Sennehed et al (2018)	RCT	Sweden	Primary care rehabilitation units	Adult patients with acute/subacute neck and back pain, not currently on sick leave or <60 days of sick leave and considered at-risk of sick leave	IG: n = 146, Age = 34.2% of 18-39 years, 30.8% of 40-49 years and 34.2% of 50 – 67 years, F = 63.0% CG: n = 206, Age = 35.4% of 18-39 years, 27.2% of 40-49 years and 36.9% of 50 – 67 years, F = 67.0%
van Vilsteren et al (2017a, 2017b)	RCT	Netherlands	A specialized rheumatology treatment centers and workplace	Workers with rheumatoid arthritis with at least minor difficulties in work functioning	IG: n = 75, Age = 49.8 ± 8.6, F = 84.0% CG: n = 75, Age = 49.6 (8.7), F = 84.0%
Wynne-Jones et al (2018)	Cluster RCT	United Kingdom	General practitioner practices	Adults with MSK pain and were struggling at work or absent from work <6months	IG: n = 158, Age = 49.5 ± 9.6, F = 56.0% CG: n = 180, Age = 47.9 ± 10.7, F = 59.0%

*Age is presented with mean ± SD or mean [range]

CG Control Group, F, Female, IG Intervention Group, MSK Musculoskeletal, n Number of participants, RCT Randomized Control Trial,

Table 3 Interventions and results of reviewed studies.

Author (year)	Components, frequency and duration of intervention	Healthcare provider/s delivering the intervention and duration of additional training if included	Other healthcare providers involved in the study	Comparison group	Work-related outcome(s)	Follow-up	Outcomes of intervention
Anema et al (2007)	(1) Usual care (for all participants); (2) Workplace intervention (for participants sick-listed 2 to 6 weeks, 2 sessions with a maximum of 6 hours): workplace assessment, work modifications and implementation of solution clearing obstacles for return to work ranked highest; (3) Graded activity (for participants still sick-listed at 8 weeks, 2x1 hour/week for 13 weeks maximally): individually, submaximal, gradually increasing exercise program, with an operant-conditioning behavioral approach, based on e.g. demands from the patients' work, and the patient's expectation on time to return to work.	Workplace intervention: ergonomist, receiving 1 session x4 hours + 2 sessions x 2 hours training and OP receiving 2-hours training; Graded activity: PT, receiving 1 session x4 hours + 2 sessions x 2 hours training.	The worker's GP	Usual care according to the Dutch occupational guideline on low back pain	Sick leave duration defined as from the 1 st day of sick leave to full return to work for ≥ 4 weeks without drop out	12-months	Workplace intervention was effective in reducing sick leave duration ($P = 0.02$); Grade activity intervention was not effective and resulted in longer sick leave durations ($P = 0.030$); No effect of a combination of workplace and graded activity interventions.
Becker et al (2017)	(1) Physiotherapy (45 min/week, 10 weeks) (2) Psychosocial coaching (1 introduction session x 90 min + 5 coaching session x 90 min + 1 group session x 90 min): focusing on the consultation of skilled personnel and management with reference to questions of individual development at work and coping with personal relevant work stressor.	Physiotherapy: PT*; Psychological coaching: a certified supervisor coach, management consultant, PT and teacher*	No	Physiotherapy	Self-reported work ability and work-related psychological wellbeing	12 and 22 weeks	Effective in improving work ability with regard to the physical demands and work-related psychological wellbeing including reduction of emotional and general irritation, and emotional exhaustion.
Bethge et al (2011)	(1) Work and health (2x90min): providing motivation to RTW and counselling on social law issues; (2) Occupational competence (6x90min): to change work-related cognition and improve stress coping behavior; (3) Exercise (10x30min); (4) Aquatic exercise (12x30min); (5) Functional capacity training (5x60min + 1x30min); (6) Relaxation (5x45min)	Work and health: physician and social worker*; Occupational competence: psychologist*; Exercise and aquatic exercise: trainer*; Functional capacity training: PT*; Relaxation: psychologist*.	No	Conventional MSK rehabilitation without mental or physical work-related modules	Work status at 6 months defined as positive if the patient was working and had ≤ 6 weeks of sick leave, and that at 12 months defined as positive if the patient was working and had ≤ 12 weeks of sick leave	6 and 12 months	Effective in significantly improving chance (2.4 times higher) of having a positive work status at 6 months but not at 12 months
Brendbekken et al	(1) Assessment of work (3.5 hours): barriers to work-participation, family situation, lifestyle, coping strategies and health problems;	Social worker, physician and PT*	No	A brief intervention aimed to reduce fear and concern and	Partial and full RTW defined as $\geq 50\%$ of the	12 and 24 months	Not effective.

(2017; 2018)	(2) Action plans related to handling of pain, fear avoidance, lifestyle, family or work matters			help the patient to stay active despite the pain	working days in a given calendar month on partly or no sick leave		
de Buck et al (2005)	(1) Systematic assessment; (2) Education: e.g. information about the social security system regarding sick leave and work disability; (3) Vocational counseling and guidance: e.g. the identification of resources for adapting the work environment or work hours, promotion of work self-efficacy; (4) Treatment: e.g. adaptation of the medical treatment in consultation with the referring rheumatologist, exercise therapy, occupational therapy, functional training of relevant activities, or mental restoration The total duration of intervention lasted 4 to 12 weeks	Rheumatologist, social worker, PT, OT, psychologist*	OP	Usual care	Occurrence of job loss	24 months	Not effective
Hammond et al (2017)	Work self-help information + usual rheumatology care + job retention vocational rehabilitation (up to 4.5 hours of 1:1 meeting with up to 1.5 hours possible extra contact): (1) Structure work interview and job discussion; (2) Assessment of work barriers; (3) Therapist and patient mutually agreeing priority work problems, action planning and a tailored, individualized programme including self-management at work, job accommodations, employment rights information and other strategies as relevant; (4) An optional work site visit.	OT with 3 days additional training	No	Work self-help information + usual rheumatology care	(1) Employment status; (2) Presenteeism; (3) Work self-efficacy; (4). Time to temporary or permanent job loss; (5) Absenteeism: number of sickness days	9 months	May be effective in reducing risk of job loss and improving productivity and work self-efficacy (no inferential testing was conducted because it was a feasibility trial)
Hansen et al (2019)	A single hospital consultation + occupational intervention (3 months) including: (1) A work-related evaluation and consultation on addressing biopsychosocial obstacles and fear-avoidance behavior towards work (1 hour); (2) Workplace intervention and a workplace visit, if required; (3) A consultation for self-administered physical activity program; (4) A weekly telephone interview the first month and every second week the following 2 months with focus on adherence to the intervention plan;	OP and PT*	Radiologist	A single hospital consultation including: (1) clinical examination; (2) An MRI scan to give an explanation of the pain; (3) Recommendations to stay active and continue working	Accumulated sick leave in full days due to low back pain	6 months	Not effective

(5) Midway interview with focus on return to/retention at work;
 (6) A session after 3 months evaluating the workplace intervention, the physical activity and concluding with further guidance.

Jensen et al (2012)	(1) An initial counselling (45 min – 1 hours): addressing both workplace barriers and barriers to obtained 45x3 min of moderate-intensity physical activity a week; (2) A workplace visit if required (1–1.5 hours); (3) A 6-week status interview (45 min) with focus on compliance and adherence to the goals made at the first counselling; (4) A second counselling session (45 – 60 min) after 3 months with a final conclusion concerning vocational future and level of physical activity.	OP*	Rheumatologists and PT	Usual care: a brief instruction in exercises, or readmission to a GP for further contact with a PT or chiropractic treatment.	(1) The proportion of patients accumulating 8 weeks of sick leave; (2) Duration of sick leave among those having sick leave	3 months	Effective in reducing the risk of sick leave and sick leave duration.
Knapp et al (2015)	24 sessions x 90 min within 3 months: (1) Work-related functional capacity training (5-12 group sessions x 60 min); (2) Work-related psychosocial group sessions (2 group sessions x 60 min); (3) Social counseling exploring the status of progression of RTW and qualification measures (1 one-to-one session x ≥15 min); (4) Relaxation training (6-12 group sessions x 30 min)	PT and a rehabilitation team (unclear about who else was in the team)*	No	Usual aftercare program consisting of only group exercise therapy	(1). Work ability; (2). The cumulated number of weeks of sick leave in the last 3 months	6 months	Not effective
Kool et al (2005; 2007)	4 hours x 6 days x 3 weeks: (1) Detailed work assessment; (2) Explanation that no abnormal changes in the lumbar spine constituted a contraindication for work-related training; (3) Work stimulation, strength, and endurance training, cardiovascular training; (4) Advice to try to increase function even if pain increases.	Rheumatologist, PT, PT, sports therapist, social worker and nurse, psychologist (if required)*	No	Pain-centered inpatient rehabilitation used a mini back school, individually selected passive and active mobilization, stretching, and low-intensity strength training	(1) The number of days at work; (2) Unemployment rate; (3) The number of patients receiving a permanent disability allowance	3 and 12 months	Effective in increasing the number of days at work, but no effect on unemployment rates and the number of patients receiving a permanent disability allowance
Lambeek et al (2010a, 2010b)	A maximum of 12 weeks: (1) Workplace intervention based on participatory ergonomics to facilitate return to work; (2) Graded activity aimed to restore patient's occupational function and supervise RTW	OP, OT and PT*	Medical specialist	Usual care	Self-reported sick leave duration due to low back pain	12 months	Effective in reducing sick leave days.
Lee et al (2013)	A maximum of 12 weeks: taught patients with individualized graded activity; pacing	PT: received training on the	No	Conventional physiotherapy	Work-related recovery	No	Effective in improving work recovery expectation (P = 0.002)

	techniques, working conditioning, return-to-work goal setting, self-management strategies, job analysis, and ergonomic advice for work modification	cognitive behavioral approach		without applying a cognitive behavioral approach	expectations measured by questionnaire		
Li et al (2006)	3 Weeks: (1) Individualized vocational counseling sessions (3x1hour) to address personal needs, psychological problems and concerns regarding RTW; (2) Group therapy (2-3 hours/day, 3 weeks) using cognitive behavioral approach, including pain and stress management, job acquisition and preparation, and pre-employment training.	Vocational rehabilitation counselor, OT and social workers*	No	Advice on job placement	Readiness to work measured by self-reported questionnaire	No	Effective in improving readiness to work
Moll et al (2018)	12 weeks: (1) Clinical examination and advice; (2) Follow-up at physiotherapist to ensure adherence to exercises and make adjustment if needed; (3) A meeting with OT for a standardized interview on work history, private life, pain and disability, and made a rehabilitation plan aimed to full or partial RTW; (4) Regular multidisciplinary meetings to encompass relevant biopsychosocial considerations regarding the RTW process; (5) Information on MRI findings; (6) A 2 nd follow-up at the physio therapist.	Social worker, a specialist of clinical social medicine and OT, and psychologist if needed*	Rheumatologist and PT	Brief intervention: similar with multidisciplinary intervention except no meeting with OT and no multidisciplinary meetings	Return to work for four consecutive weeks	12 months	Not effective
Nicholas et al (2020)	Within the first 1–3 weeks after injury: (1) Psychological sessions (a maximum of 6 weeks): assessment and a comprehensive protocol to address the identified obstacles for return to work, including workplace interventions, psychological treatments, (2) Independent medical consultancy for an early specialist review and reassure patients being able to RTW without risk (3) Activity-based physiotherapy treatments (8 sessions) aimed at facilitating early RTW.	Psychologist, occupational or rehabilitation physician, physiotherapists*	GP	Standard care	(1) Lost work days; (2) Total costs of claims	24 months	Effective in reducing mean lost work days and lowering total claim costs (30% lower)
Sennehed et al (2018)	Structured physiotherapy care + early workplace dialogue including: (1) Conversation with patients and employers focused on the neck/back pain in relation to work and on possible or already conducted workplace adjustments to support RTW or stayed at work;	PT with 2 half-day training of Convergence Dialogue Meeting	No	Structured physiotherapy care	Work ability defined as working at least 4 consecutive weeks at follow-up	12 months	Effective in increasing the odds of having work ability

	(2) A meeting with patients and employers aimed at a plan of action with suggestion on workplace changes/improvement and changes to patient's daily life with the aim of strengthening work ability and/or supporting return to work. Intervention duration was based on each patient's condition.						
van Vilsteren et al (2017a, 2017b)	(1) Usual rheumatologist-led care; (2) Integrated care: history taking and physical examination to identify functional limitations at work and factors that could influence functioning at work (1 consultation and 2 follow-ups). (3) Participatory workplace intervention (1 session)	The patient's own rheumatologist, trained clinical OP, trained OT and (training length was not reported)	GP	Usual rheumatologist-led care	(1) At-work productivity loss; (2) Self-reported work instability;	6 and 12 months	Not effective
Wynne-Jones et al (2018)	Best current work-focused primary care for MSK pain (1-hour education session) + A vocational advice focusing on: (1) psychological or behavioural obstacles to working; (2) Work perceptions; (3) Context factors, e.g., objective working conditions and characteristics and financial impact of working status. (4) A plan developed together with patients to manage health and work issues and to support the patient in addressing identified obstacles, with regular review. Intervention maintained until patients achieved a sustained return to work and felt able to manage their MSK pain in the context of their work, or until they had been absent from the workplace for a total of 6 months and qualified for Employment and Support Allowance	Nurse and PT with 4-day training course and half day updated before the start of the Vocational service*	GP	Best current work-focused primary care for MSK pain (1-hour education session) with emphasis on 4 key messages: (1) work is usually good for people with MSK pain; (2) long periods of absence are general harmful; (3) MSK pain can generally be accommodated at work; (4) Planning and supporting RTW are important aspects of clinical management	(1). Self-certified and GP-certified number of days off work, over 4 months; (2) Self-reported efficacy to RTW; (3) Work presenteeism; (4) Self-rated work performance	4 and 12 months	Effective in reducing GP-certified days off work, and improving efficacy to RTW and work performance

*No training or training requirements were not specified for all the healthcare providers in the study.

GP General practitioner, *OP* Occupational Physician, *OT* Occupational Therapist, *PT* Physiotherapist, *RTW* Return to Work, *MSK* musculoskeletal

Table 4 Elements of work-focused care.

Elements	Contents	Studies
Vocational advice/coaching or education	<ul style="list-style-type: none"> - Consultation/coaching focused on enabling better strategies for coping with work stressors/problems - Providing motivation to RTW - Counselling/advice/education on social law issues or social problems such as job insecurity or social security system regarding sick leave and work disability - Social counselling to explore the status of progression of return to work and qualification measures - Guidance to address biopsychosocial obstacles and fear-avoidance behavior towards work - Recommendations on job rotations, the need for ergonomic initiatives, modifying the work, such as temporary or permanent exemption from special tasks and personal assistance - Counselling and guidance on identification of resources for adapting the work environment or work hours - Vocational advices and coaching self-management on priority areas of work problems (e.g. workstation modification and work positioning, moving to/around the workplace) - Encouraged patients to liaise with employers to request and obtain job accommodations - Promotion of work self-efficacy: encourage to increase function even if pain increase - Return-to-work goal setting - Pacing techniques - Individual vocational counselling to address personal needs and concerns regarding return to work - Reassure the worker that the soft-tissue injury would resolve fairly quickly, and they should be able to return to work without risk 	<p>Number of studies = 14: Becker et al (2017); Bethge et al (2011); de Buck et al (2005); Hammond et al (2017); Hansen et al (2019); Jensen et al (2012); Knapp et al (2015); Kool et al (2005; 2007); Lee et al (2013); Li et al (2006); Moll et al (2018); Nicholas et al (2020); Sennehed et al (2018); Wynne-Jones et al (2018)</p>

<p>Work-related assessment (Assessment of barriers to remaining at, or returning to work)</p>	<p>Through an interview, discussion, visual tool, counselling session, or “psychosocial flags framework”, one or several of the following component were assessed by a study:</p> <ul style="list-style-type: none"> - Worksite assessment (optional for some studies) - Work-related stress / psychological obstacles - Satisfaction with job-tasks - Workload / work physical demands - Collegial relationship - Leadership - Degree of challenges or functional limitations at work and occupational participation / factors that could influence functioning at work - Problems encountered in the current working situation - Job, roles, responsibilities, work tasks, working postures or situation related to musculoskeletal conditions, disease severity and activity limitation - Work function - Work tasks - Organisational problems - Beliefs about work 	<p>Number of studies = 11: Anema et al (2017); Brendbekken et al (2017; 2018); de Buck et al (2005); Hammond et al (2017); Hansen et al (2019); Jensen et al (2012); Kool et al (2005; 2007); Moll et al (2018); Nicholas et al (2020); van Vilsteren et al (2017a, 2017b); Wynne-Jones et al (2018)</p>
<p>Involvement of the workplace stakeholders</p>	<p>Involved the workplace stakeholders (e.g. supervisor and manager) in decision making about workplace adjustment/improvement to facilitate return to work:</p> <ul style="list-style-type: none"> - Work site visit (optional in some studies) - Obstacles on returning to work ranked independently by supervisor and patient - Discuss solutions for workplace barriers to remaining at or returning to work with workers and supervisors/manager - Meeting with workers and employers to set a plan of action on workplace changes/improvements, job accommodations and enabling referral to Access to Work for equipment / other support funding / job modifications and ergonomic changes 	<p>Number of studies = 10: Anema et al (2017) Hammond et al (2017) Hansen et al (2019) Lambeek et al (2010a, 2010b) Jensen et al (2012) Moll et al (2018) Nicholas et al (2020) Sennehed et al (2018) van Vilsteren et al (2017a, 2017b); Wynne-Jones et al (2018)</p>

Regular communication with multidisciplinary team members	<ul style="list-style-type: none"> - Regular communication with multidisciplinary team members to discuss the progress of the patient regarding return to work; - Monitor treatment plan and when necessary, adjust the plan 	<p>Number of studies = 9 Brendbekken et al (2017; 2018); Hammond et al (2017); Hansen et al (2019); Jensen et al (2012); Lambeek et al (2010a, 2010b); Moll et al (2018); Nicholas et al (2020); van Vilsteren et al (2017a, 2017b); Wynne-Jones et al (2018)</p>
Restoration of fitness for work	<p>Designed based on work demands or work-related assessment:</p> <ul style="list-style-type: none"> - Graded activity - Functional capacity training - Work stimulation, strength, endurance and cardiovascular training - Individualised graded exercise program 	<p>Number of studies = 7: Anema et al (2017); Bethge et al (2011); Knapp et al (2015); Kool et al (2005; 2007); Lambeek et al (2010a, 2010b); Lee et al (2013); Nicholas et al (2020)</p>
Training of work-related skills	<ul style="list-style-type: none"> - Pre-employment training: identification of values of work, preparation for re-employment, establish proper work attitudes and finally prepared for interviews and re-employment - Job acquisition and preparation: methods to seek for new job information; the proper way to inquire information by phone; the methods to prepare resume and fill in the application forms for employment; and interview skills 	<p>Number of studies = 1: Li et al (2006)</p>

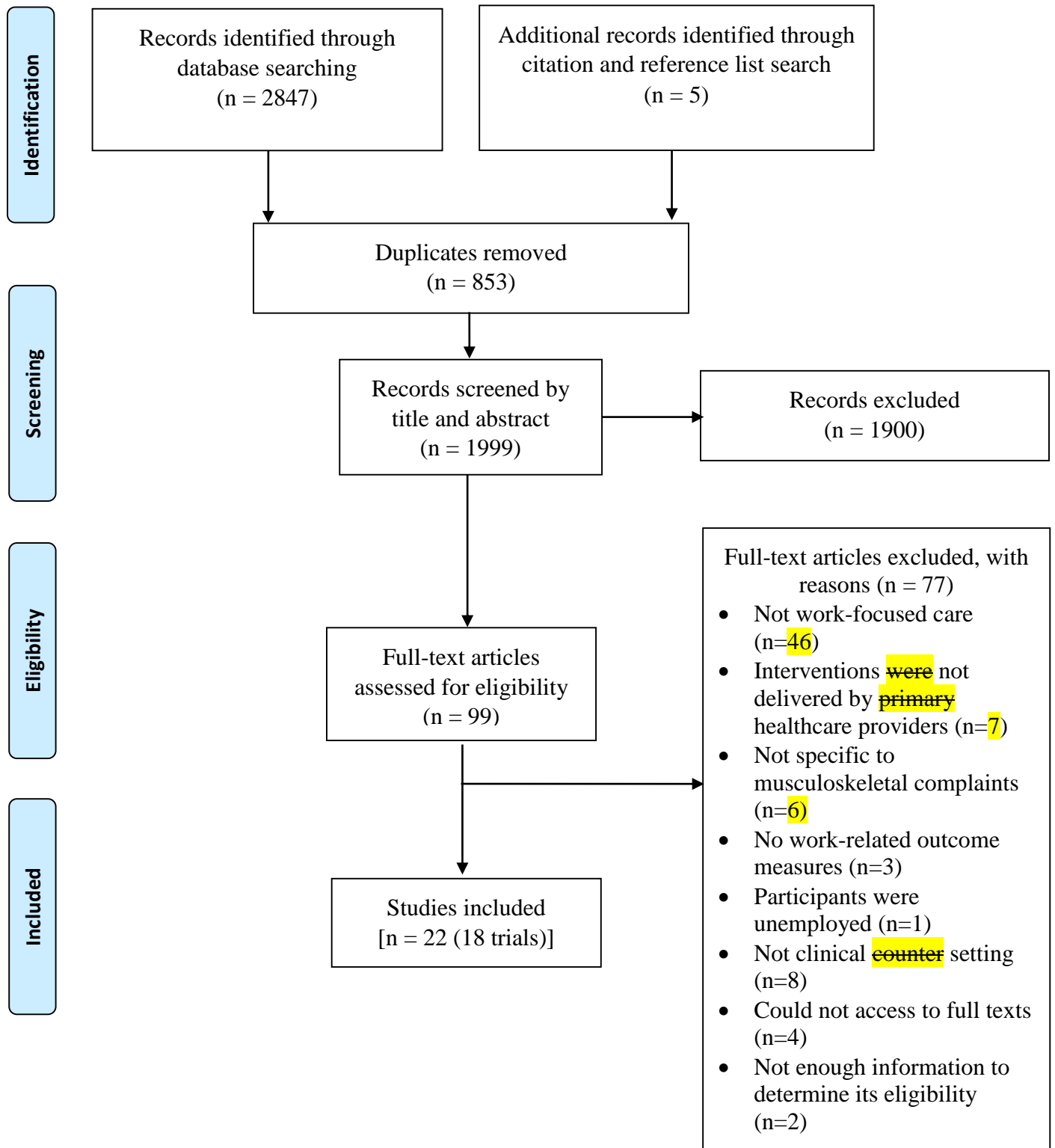


Fig. 1 A flowchart of study selection process.