Journal of Occupational Rehabilitation (2021) 31:7–25
https://doi.org/10.1007/s10926-020-09902-1

LITERATURE REVIEW

Tools Appraisal of Organizational Factors Associated with Return-to-Work in Workers on Sick Leave Due to Musculoskeletal and Common Mental Disorders: A Systematic Search and Review

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Published online: 21 May 2020

Abstract

Purpose The objective of this study was to identify organizational factors that are predictive of return-to-work (RTW) among workers with musculoskeletal (MSD) and common mental disorders (CMD), and to subsequently catalogue and characterize the questionnaires (tools) used to measure them. *Methods* A systematic search on PubMed, Web of Science and PsycINFO library databases and grey literature was conducted. First, a list of organizational factors predictive of RTW for the two populations considered was built. Second, the questionnaires used to measure these factors were retrieved. Third, we looked in the scientific literature for studies on the psychometric properties and practical relevance of these questionnaires. *Results* Among the factors retained, perceived social support from supervisor and co-workers, work accommodations, and job strain were identified as common RTW factors. Other risk/protective factors, and associated tools, specifically targeting either people with MSD or CMD were also analysed. *Conclusions* Researchers and practitioners are often uncertain of which tools to use to measure organizational factors which can facilitate or hinder RTW. This study provides an evaluation of the tools measuring predictive organizational RTW factors in people with MSD and CMD. The identified tools can be used in everyday practice and/or research.

Keywords Return to work · Organizational factors · Measurement tools · Common mental disorders · Musculoskeletal disorders

Introduction

Musculoskeletal (MSD; e.g., low back pain) and common mental disorders (CMD; e.g., depression) represent prominent causes of sickness absence and work disability worldwide [1]. Alongside with the health of workers being compromised, MSD and CMD create a substantial burden on the public health and insurance systems, on the businesses economy, and more generally to society [2, 3]. Consequently, it is important to identify which factors may facilitate the return-to-work (RTW) of people suffering from MSD and/or CMD. There is solid recognition in the literature that successful RTW of people with MSD and CMD depends on individual and organizational factors—some of them acting as facilitators, and others as obstacles to RTW [4, 5]. Yet, among studies, mixed results are found on which factors contribute to RTW and how. Another challenge for researchers and practitioners is the way these factors can be measured, because different tools exist [6].

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This paper stems from a broader research project that aimed at identifying individual, organizational, and health-related factors predictive of RTW in people with MSD and CMD. The specific aims of this paper are (1) to report the results concerning RTW predictive organizational factors, and (2) to consider and evaluate the corresponding evaluation tools. Because we were specifically interested in identifying predictive RTW factors, we decided not to include in our review cross-sectional studies, and to only focus on prospective cohort studies.

Methods

Literature Review

Data Source

For the purpose of this paper, we conducted a search for full text, peer-reviewed, scientific publications on the topic of organizational determinants of RTW among people with MSD and CMD available in the PubMed, PsycINFO, and Web of Science databases. Contextually, we also performed a complementary search on non-indexed literature (Google Scholar). Additional articles were extracted from bibliographic references mentioned in the relevant articles. Searches were run in 2016 and then at the end of 2017. In our study we considered two primary indicators of success in returning to work: (1) the probability of being back at work at the time of study follow-up (i.e. single event); or (2) the time to return to the workplace, meaning the duration of work absence since the first work absence day due to MSD or CMD. Studies considering RTW as a single event and studies considering sustainable RTW were included in the review. Four groups of keywords served to identify articles for review: (1) disability condition (e.g., absence, sick-listed); (2) outcome of interest (e.g., return-to-work); (3) organizational factors (e.g., social support, job strain); (4) study type (e.g., longitudinal). A copy of the search strategy is available upon request. For the larger research project including individual, organizational, and health factors, the search strategy generated 2263 unique references, after deletion of duplicates (Fig. 1). The present paper focuses on the 55 final hits concerning organizational determinants of RTW in people with MSD and CMD. The articles were organized into a table to read and extract the data (Fig. 1; Table 1).

Article Selection (Eligibility)

Studies were included if (1) they were prospective cohort studies published in the last 20 years (January 1998–January 2018); (2) study subjects had a MSD or CMD or, for mixed population studies, at least two thirds (67%) of the study sample was composed of people suffering from MSD and/or CMD; (3) study subjects were workers on sick leave at the moment of data collection (i.e. baseline), or if that was not the case, the condition of those not on sick leave or not employed was controlled for in the analyses; (4) the studies analysed return-to-work as an outcome; (5) organizational factors were measured as predictors of the outcome in multivariate analyses controlling for at least age, sex/gender, and formal education; (6) studies were written in English or French. Literature reviews, case studies and cross-sectional investigations were excluded from our analysis. Studies conducted on sick-listed workers with unspecified work disability were also disqualified from our analysis.

Several steps eliminated articles that did not correspond to our criteria (Fig. 1). A first inspection of article titles discarded irrelevant articles. Then, a more accurate selection was performed by reading the abstracts. This was performed by three trained reviewers, PhD or Master students. Two additional independent reviewers (the two first authors) double checked approximately 30% of all the references. In case of discrepancy, agreement was reached through discussion based on the information available in the title and abstract. A second selection was performed by one researcher (the first author) reading the full version of papers. If the inclusion of an article was uncertain, another researcher (the second author) read the full article to reach a joint decision. When disagreement occurred after readings, a third researcher (last author) was consulted to reach full agreement.

Data Extraction

For each study selected, we gathered information about the organizational factors considered. We listed the population in which they were tested (i.e. MSD, CMD, or mixed), the univariate and multivariate effects tested, and the type of outcomes. From this information we classified the organizational factors as having a "limited", "moderate", "strong", "inconsistent", or "insufficient" level of evidence of their ability to predict RTW in the two populations considered separately. The level of evidence was attributed by counting the number of multivariate effects tested that were statistically significant ($p < 0.05$) with a positive relationship with the outcome, statistically significant with a negative relationship with the outcome, and not statistically significant. The detailed evidence-synthesis rules are documented in Fig. 2. More specifically, adapting the level of evidence reported in a paper of Gragnano and colleagues [4] the following categories of predictors were considered: (1) limited, when one effect (positive or negative) is found, or the ratio among significant and non-significant evidences is between 60 and 64.9%; (2) moderate, when two effects are found, or the ratio is between 65 and 79.9%; (3) strong, when three or more effects are found, or the ratio is between 80 and 100%; (4)

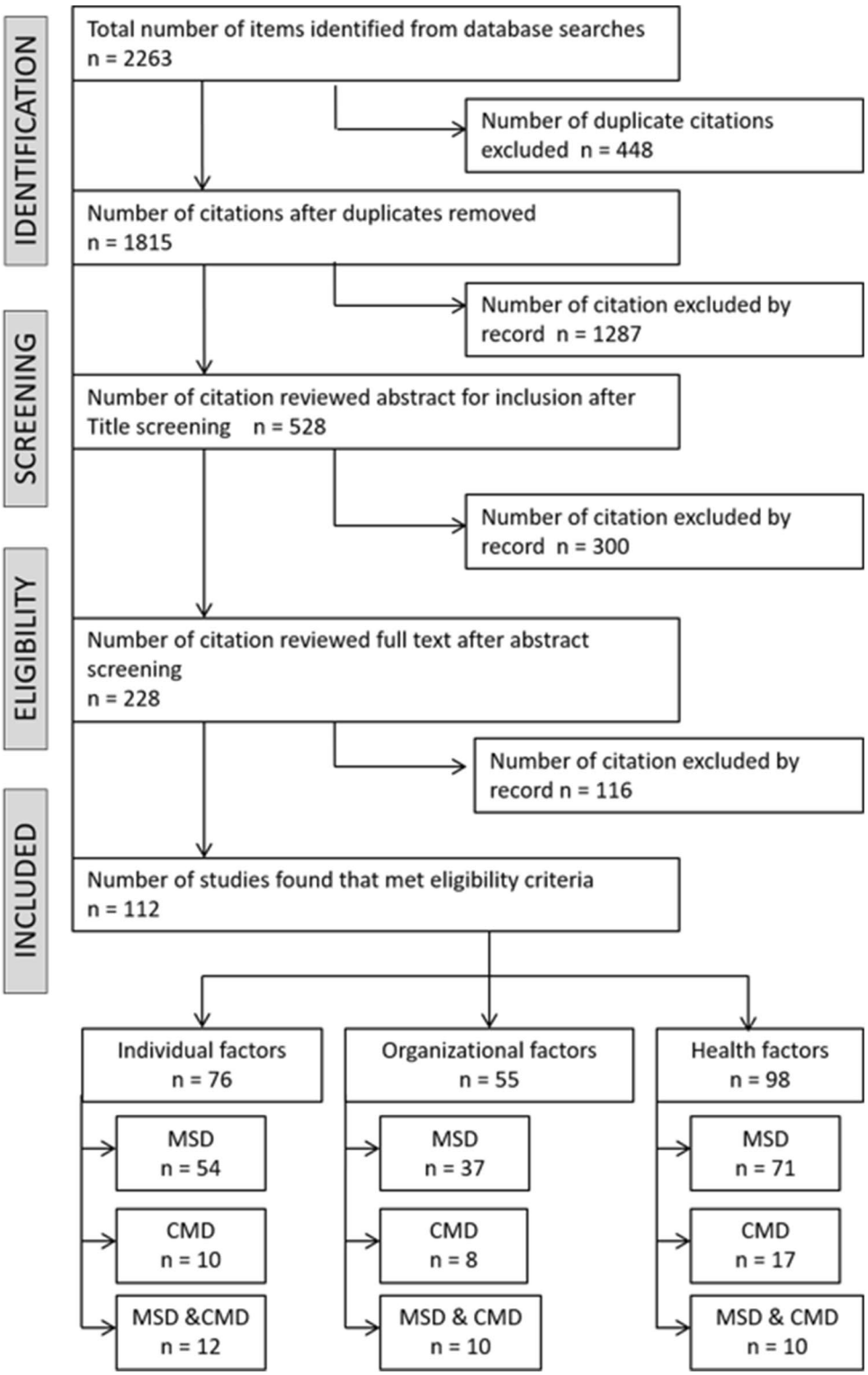

Fig. 1 Results of the systematic search strategy

inconsistent, when the studies do not meet the criteria for any level of evidence and there is no consistent agreement in reported outcomes; and (5) insufficient, when information is not inconsistent but does not meet the criteria for limited evidence (Fig. 2). To avoid misunderstandings, it is important to clarify that the effect size of the studies was not considered. The labels "limited", "moderate" and "strong" are to be considered merely as indications of the quantity of the effects on RTW (number of statistically significant and not statistically significant effects) and their direction

Table 1 Significant organizational predictors of RTW after MSDs and CMDs

Organizational factors	MSDs			CMDs			Level of evidence	
	Results in the same direction	Mixed results	References	Results in the same direction	Mixed results	References	MSDs	CMDs
Social support from co-workers and supervisor		8+	[9, 10, 12–15, 17, 18]		3+	[12, 16, 19]	Moderate	Limited 60%
		4 ns	[72–75]		2 ns	[72, 75]		
Work accommodations		3+	[23–25]	1+		[26]	Limited 60%	Limited
		2 ns	[76, 77]					
Job strain		4−	[11, 12, 18, 23]		2−	[11, 12]	Strong 80%	Moderate
		1 ns	[73]					
Organizational injustice	1−		[27]		1−	[26]	Limited	Inconsistant 50%
					1 ns	[27]		
Effort-reward imbalance at work	1−		[10]				Limited	N/A
Job demands		3−	[15, 27, 29]		1−	[27]	Limited 60%	Insufficient 33%
		2 ns	[75, 78]		2 ns	[75, 79]		
Leadership (supervisor)				1+		[80]	N/A	Limited
Job control		3+	[11, 12, 78]		5+	[11, 12, 16, 19, 32]	Insufficient	Limited 63%
		6 ns	[29, 74, 75, 81–83]		3 ns	[75, 80, 84]		

Results in the same direction = number of paper reporting results in the same direction (i.e. all positive or all negative); mixed results = number of paper reporting mixed results (i.e. some positive results, some negative results, non-significant results)

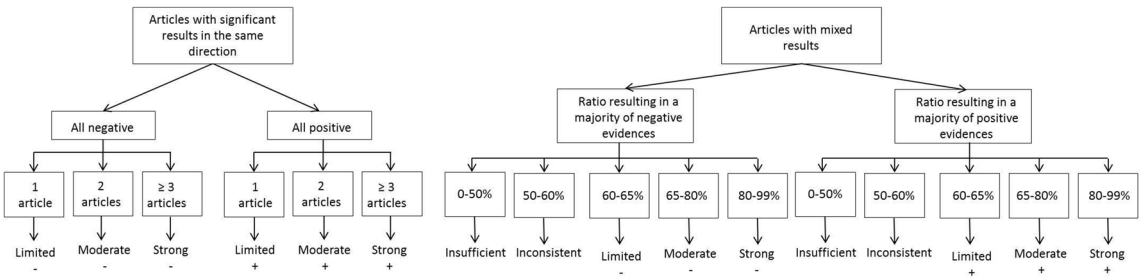

Fig. 2 Rules applied to synthesize the evidence within a review or an "additional papers" group. Adapted from [4]

(negative or positive) in the literature, rather than expressing the degree to which a given factor influences the RTW process.

Inventory of Tools

The inventory of tools was made for each organizational factor predictive of RTW with at least a limited level of evidence. We recorded the measurement tools used in all the studies that reported a statistically significant effect for the factor under consideration. We considered either questionnaires referenced in the bibliography or questionnaires devised specifically for the needs of the study. For each study retained contributing to the at least limited level of evidentiary, the measurement tool for evaluating the predictive factor was recorded. For each measurement tool, we searched for the first article that ever validated it by checking the reference list in the article or performing a search in the same databased used for the main literature review (i.e. PubMed, PsycINFO, and Web of Science).

Critical Analyses of the Questionnaires

To provide an objective evaluation of tools, we recorded the psychometric properties of the questionnaires retained and the qualities that a practitioner would look for in standard practice. Psychometric characteristics considered were as follows (for a similar procedure, see [7]): (1) predictive validity; (2) face validity; (3) construct validity; (4) internal consistency; (5) convergent validity; (6) test–retest reliability. More specifically, the predictive validity of the tools stemmed from the results of the first aim of the study, i.e. to identify predictive RTW organizational factors. A qualitative evaluation of the items used to measure a specific factor/concept was performed to estimate the face validity of the tool. Construct validity was evaluated positively if a factor analysis of the structure of the measure does exist. Internal consistency was evaluated positively with ratings for Cronbach's alpha between 0.70 and 0.95. Convergent validity was evaluated by significant and positive correlations with theoretically similar concepts. Test–retest reliability was rated positively when repeated testing of the same condition had yielded to comparable results (correlation coefficients higher than 0.60).

Other more practical criteria (practical relevance) were also considered in our study, such as (1) time to complete, (2) administrative burden, (3) the cost/need for training to administer it and interpret the scores, and (4) availability of an English or French version of the instrument. More specifically, timing for completion of the measure was rated as favourable for questionnaires having less than 8 items to complete or taking ≤ 5 min. Administrative burden was assessed as favourable/easy when the questionnaire final score was calculated simply by adding up the items and unfavourable/difficult when a more complex formula was needed, or when reversed items were present. The availability of free English or French version of tools not requiring specific training for administration was evaluated positively (for a similar procedure see, [6, 8]).

Three reviewers (first, third, and forth authors) independently evaluated each measure using the above criteria. Findings were then compared, and any discrepancies resolved through discussion. Finally, a global evaluation of tools was characterized as "excellent", "good" or "questionable" by crossing the psychometric score with the practical one as showed in Fig. 3.

Results

For the purpose of this study, only organizational predictive factors of RTW reaching the minimum level of evidence (i.e. limited) for at least one of the two populations considered, and related measurement tools, are reported and discussed. Table 1 presents the information obtained from the 55 included studies. In total, 8 organizational factors contributing to RTW among people with MSD and/or CMD were identified, namely: (1) social support from supervisor and co-workers; (2) workplace accommodations; (3) job strain; (4) organizational injustice; (5) effort-reward imbalance at work; (6) job demands; (7) quality of leadership; and (8) job control. Table 2 reports the psychometric and practical characteristics of the measurement tools used in each predictive study retained from the literature review. In total, 19 measures were critically evaluated.

Social Support from Supervisor and Co-workers

As shown in Table 1, moderate level of evidence was found for people with MSD and limited evidence for people with CMD for social support provided by the supervisor and co-workers. All evidences for both populations [9–19] are in the same direction, indicating that higher social support from supervisor and co-workers is a protective factor, i.e. it reduces the time needed to RTW after sick leave regardless of the type of work disability considered (mental or musculoskeletal). Social support from co-workers only and social support from supervisor only did not reach the sufficient level of evidence required by our criteria to be considered a predictive factor for both populations considered. From the predictive studies accounting for social support from supervisor and co-workers factor found in our literature review, four different tools emerged, namely: (1) the Job Content

Fig. 3 Evaluation of measurement tools strategy

		Psychometric criteria		
Practical criteria	Criteria met	5 and more on 6	3 or 4 on 6	2 or less on 6
	4 on 4	*Excellent*	*Excellent*	*Questionable*
	3 on 4	*Excellent*	*Good*	*Questionable*
	2 or less on 4	*Excellent*	*Good*	*Questionable*

Table 2 The retained tools

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
Social support in the workplace	Job Content Questionnaire (JCQ) [20]	MSD & CMD [9, 12–14, 17–19]	*Social support* subscale: 1. Co-worker is competent 2. Co-worker is interested in me 3. Friendly co-workers 4. Co-worker is helpful 5. Supervisor is concerned 6. Supervisor pays attention 7. Helpful supervisor 8. Supervisor is a good organiser	√	√	√	√	√	√	√	√	Excellent
	Modified work APGAR [21]	MSD [10]	*Social support at work*: 1. I am satisfied that I can turn to a fellow worker when something is troubling me 2. I am satisfied with the way my fellow workers talk over things and share problems with me 3. I am satisfied that my fellow workers accept and support my new ideas or thoughts 4. I am satisfied with the way my fellow workers respond to my emotions, such as anger, sorrow, or laughter 5. I am satisfied with the way my fellow workers and I share time together 6. I enjoy the tasks involved in my job 7. Please write the number that indicates how well you get along with your closest or immediate supervisor	N/A	√	N/A	√	√	√	√	√	Excellent
	Obstacles to Return-To-Work Questionnaire [15]	MSD [15]	*Social support at work* subscale: 1. My job supervisor has understanding for my pain problem 2. There are often conflicts at my workplace 3. My job supervisor tries to support me and make things easier for me at the workplace 4. My workplace has a tense atmosphere 5. I get along well with my work colleagues 6. It feels bad that my work colleagues don't understand my pain	√	√	√	√	√	√	–	√	Excellent

Table 2 (continued)

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
	Copenhagen psychosocial questionnaire (COPSOQ) [22]	CMD [16]	*Social support* scale: 1. How often do you get help and support from your colleagues? 2. How often are your colleagues willing to listen to your problems at work? 3. How often do your colleagues talk with you about how well you carry out your work? 4. How often is your nearest superior willing to listen to your problems at work? 5. How often do you get help and support from your nearest superior? 6. How often does your nearest superior talk with you about how well you carry out your work?	√	√	√	√	√	√	√	√	Excellent
Work accommodations	Work related interventions	MSD [23]	Work interventions defined as: Adaptation workplace, job redesign, working hours adaptation, therapeutic work resumption, job training, sheltered workshop (yes or no)	N/A	N/A	N/A	N/A	√	√	√	√	Questionable
	Work accommodation offer and Acceptance	MSD [24]	Two single questions: 1. Have you been offered work accommodation?" (yes or no) 2. Did you accept the work accommodation offer?" (yes or no)	N/A	N/A	N/A	N/A	√	√	√	√	Questionable
	Arrangement from workplace for return to work	MSD [25]	Single item: Respondents were asked whether their workplace had made any offers of special arrangements to help them return to work (yes or no)	N/A	N/A	N/A	N/A	√	√	√	√	Questionable
	Tool in Swedish language	CMD [26]	Better workplace climate, reduced workplace demands, change of tasks or workplace, reduced physical load and ergonomic tools	?	?	?	?	?	?	?	?	Unclassified

Table 2 (continued)

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
Job strain	Job Content Questionnaire (JCQ) [20]	MSD & CMD [11, 12, 18, 23]	*Decision Authority* subscale: "allows own decisions"; "little decision freedom"; "a lot of say" *Skill Discretion* subscale: "learn new things"; "repetitive work"; "requires creativity"; "high skill level"; "variety"; "develop own abilities" *Psychological Job Demands* subscale: "work fast"; "work hard"; "no excessive work"; "enough time"; "conflicting demands"; "intense concentration"; "tasks interrupted"; "hectic job"; "wait on others"	√	√	√	√	–	–	√	√	Excellent
Organizational injustice	Return-to-Work Obstacles and Self-Efficacy Scale (ROSES) [27]	MSD [27]	*Feeling of organizational injustice* dimension: 1. Fear of no longer qualifying for career moves after RTW 2. Fear of no longer being involved in tasks or projects 3. Fear of losing the job after RTW 4. Lack of recognition	√	√	N/A	√	√	√	√	√	Excellent
	Moorman Interactional Justice Instrument [85]	CMD [26]	Interactional justice subdimension: 1. Your supervisor considered your viewpoint 2. Your supervisor was able to suppress personal biases 3. Your supervisor provided you with timely feedback about the decision and its implications 4. Your supervisor treated you with kindness and consideration 5. Your supervisor showed concern for your rights as an employee 6. Your supervisor took steps to deal with you in a truthful manner	√	√	√	N/A	√	√	√	√	Excellent

Table 2 (continued)

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
Effort-reward imbalance	Effort Reward Imbalance questionnaire (ERI) [63]	MSD [10]	2 items, Effort-reward imbalance at work: *From the component job promotion*: My current occupational position adequately reflects my education and training *From the reward component esteem*: Considering all my efforts and achievements, I receive the respect and prestige I deserve at work	N/A	N/A	N/A	N/A	√	–	√	√	Questionable
Job demands	Obstacles to RTW questionnaire [15]	MSD [15]	*Physical Workload and Harmfulness* scale: 1. My work demands physical effort 2. I have too much to do at work 3. I won't be able to reduce my sick leave since my work demands so much physical effort 4. My work is the cause of my pain 5. The repetitive movements (for example with arms and hands) that my work contains aggravate my pain 6. My work is detrimental to my health 7. If I had had another kind of job, I would never have gotten any pain 8. One day at my job contains many heavy work tasks	√	√	√	√	√	–	√	√	Excellent
	Return-to-Work Obstacles and Self-Efficacy Scale [27]	MSD [27]	*Job demands* scale: 1. Responsibilities associated with your job 2. Pressure related to your job (e.g., productivity) 3. Once again having to deal with the demands of your job 4. Difficulties achieving your work goals by the established deadlines after returning to work 5. Being overloaded the first few days after returning to work 6. Fear of no longer having all the skills and abilities needed to perform at your job 7. Lack of accommodation measures (e.g., schedules, performance requirements) in your workplace	√	√	–	√	√	√	√	√	Excellent

Table 2 (continued)

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
	Questionnaire on the Experience and Evaluation of Work [30]	MSD [29]	*Pace and amount of work* subscale: 1. Do you have to work very fast? 2. Do you have too much work to do? 3. Do you have to work extra hard in order to complete a task? 4. Do you work under time constraints? 5. Do you have to hurry your work? 6. Can you do your work at your ease? 7. Do you find that you are behind in your activities? 8. Do you find that you do not have enough work? 9. Do you have problems with the pace of work? 10. Do you have problems with the pressure of work? 11. Would you prefer a calmer work pace?	√	√	–	–	–	√	√	√	Good
Quality of leadership (supervisor)	Copenhagen psychosocial questionnaire (COPSOQ) [22]	CMD [80]	*Quality of leadership* scale: 1. To what extent would you say that your immediate superior makes sure that the individual member of staff has good development opportunities? 2. To what extent would you say that your immediate superior gives high priority to job satisfaction? 3. To what extent would you say that your immediate superior is good at work planning? 4. To what extent would you say that your immediate superior is good at solving conflicts?	√	√	√	√	√	√	√	√	Excellent
Job control	Job Content Questionnaire [20]	CMD [11, 12, 19]	*Decision Authority* subscale: "allows own decisions"; "little decision freedom"; "a lot of say" *Skill Discretion* subscale: "learn new things"; "repetitive work"; "requires creativity"; "high skill level"; "variety"; "develop own abilities"	√	√	√	√	–	–	–	√	Excellent

Table 2 (continued)

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
	Copenhagen psychosocial questionnaire [22]	CMD [16]	*Influence at work* subscale: 1. Do you have a large degree of influence concerning your work? 2. Do you have a say in choosing who you work with? 3. Can you influence the amount of work assigned to you? 4. Do you have any influence on what you do at work? *Possibilities for development* subscale: 1. Is your work varied? 2. Does your work require you to take the initiative? 3. Do you have the possibility of learning new things through your work? 4. Can you use your skills or expertise in your work?	√	√	√	√	√	–	√	√	Excellent

Table 2 (continued)

Organizational factor	Tool	Psychometric criteria						Practical relevance				Classification
		Predictive validity	Face validity (items)	Construct validity	Reliability	Convergent validity	Test–retest validity	Time to complete	Admin. burden	Cost/training	English version	
	Questionnaire on the Experience and Evaluation of Work [30]	CMD [32]	*Variety in your work* subscale: 1. In your work, do you repeatedly have to do the same things? 2. Does your work require creativity? 3. Is your work varied? 4. Does your work require personal input? 5. Does your work make sufficient demands on all your skills and capacities? 6. Do you have enough variety in your work? *Independence in your work* subscale: 1. Do you have freedom in carrying out your work activities? 2. Can you influence the planning of your work activities? 3. Do you have an influence on the pace of work? 4. Can you decide on how your work is executed? 5. Can you interrupt your work if you find it necessary to do so? 6. Can you decide on the order of priorities for your work activities? 7. Can you participate in the decision on when a piece of work must be completed? 8. Can you decide how much time you need for a specific activity? 9. Do you solve work activities problems yourself? 10. Can you organize your work yourself? 11. Can you decide on the content of your work activities yourself? *Opportunities to learn* subscale: 1. Do you learn new things in your work? 2. Does your job offer you opportunities for personal growth and development? 3. Does your work give you the impression that you are achieving something? 4. Does your job offer you the possibility of independent thought and action?	√	√	–	–	–	√	√	√	Excellent

√ = criteria satisfied; – = criteria unsatisfied; ? = impossible to judge

Questionnaire—social support scale [20], used in seven studies that included both populations [9, 12–14, 17–19]; (2) the modified work APGAR—social support at work scale [21], used in one study for MSD population [10]; (3) the Obstacles to Return-to-Work Questionnaire [15], used in one study for MSD population [15]; and (4) the Copenhagen Psychosocial Questionnaire—social support scale [22], used in one study in a CMD sample [16]. Following the evaluation strategy described in Fig. 3, all the identified tools for social support in the workplace were classified as being excellent in reason of their psychometric and practical features considered together (Table 2). A separate analyses of psychometric criteria and practical relevance indicates the Job Content Questionnaire—social support scale [20] and the Copenhagen Psychosocial Questionnaire—social support scale [22] as two tools with excellent scores on both the criteria considered (i.e. psychometric and practical).

Workplace Accommodations

Work accommodations are modifications or adjustments to the workplace procedures that allow a worker with special needs to perform the task required. It emerged in our literature review as a factor positively related to a quicker return-to-work among people with MSD and CMD with a limited level of evidence [23–26]. Each predictive study used a different tool to measure work accommodations (Table 2). All tools presented excellent practical relevance criteria (i.e. all practical criteria met), yet none of them met sufficient psychometric criteria (i.e. only predictive validity and face validity criteria met). For this reason, all tools were evaluated as questionable. One tool [26] is currently available in Swedish language solely, and thus it was not possible to evaluate it in the present study.

Job Strain

Job strain, defined as the combination of high demands and low levels of job control, emerged as a predictive factor of longer RTW with a strong level of evidence for MSD [11, 12, 18, 23] and a moderate level of evidence for CMD [11, 12]. The tool of choice for all studies was the Job Content Questionnaire (i.e., subscales: decision authority, skill discretion, and psychological job demands) [20], which showed excellent proprieties on psychometric and practical characteristics (Table 2).

Organizational Injustice

One study [27] was identified in finding the feeling of organizational injustice as significant predictor of RTW for the MSD population. The evaluation tool used in the study is the Return-to-Work Obstacles and Self-Efficacy Scale—organizational injustice dimension [27], used for both MSD and CMD population, but showing predictive evidence for the MSD population only (limited evidence). The tools showed excellent psychometric and practical characteristics.

Effort-Reward Imbalance

Effort-reward imbalance emerged as a risk factor with limited level of evidence in one study conducted among people with MSD [10]. This study used two items retrieved from the Effort Reward Imbalance questionnaire conceptualized by Siegrist and colleagues in 2004 [28]. Because the tool was not administered in its full validated version (i.e. only two items were used), the measure method used in the predictive study was evaluated as being questionable, because no complete judgment could be done on psychometric proprieties (i.e. only face validity and predictive validity could be evaluated).

Job Demands

Job demands emerged as a risk factor for RTW in MSD population with a limited level of evidence [15, 27, 29]. Insufficient evidence was obtained for the CMD population. Three tools were used in the predictive studies, two of which with excellent psychometric and practical characteristics, i.e. the Obstacles to RTW Questionnaire—Physical Workload and Harmfulness scale [15] and the Return-to-Work Obstacles and Self-Efficacy Scale—Job demands subscale [27]. The Questionnaire on the Experience and Evaluation of Work—Pace and amount of work subscale [30] used in one study [29] was judged as having good qualities (i.e. four on six criteria met as for psychometric evaluation, and three on four criteria met for practical relevance).

Quality of Leadership

Using the quality of leadership dimension of the Copenhagen Psychosocial Questionnaire [22], one study [31] identified the quality of leadership as predictor of RTW among people with CMD (limited evidence, Table 1). The tool showed excellent characteristics both on psychometric criteria (i.e. six on six) and practical relevance (i.e. four on four) (Table 2).

Job Control

Job control is defined as the ability of a person to influence what happens in the work environment. It emerged as a risk factor associated to RTW in the CMD population with a limited level of evidence [11, 12, 16, 19, 32], while insufficient evidences were found for the MSD population. Three

different tools were used in the predictive studies, namely (1) the Job Content Questionnaire—Decision Authority and Skills Discretion subscales [20], evaluated with excellent qualities (i.e. six on six criteria met on psychometric characteristics), (2) the Copenhagen Psychosocial Questionnaire—Influence at work and Possibilities for development subscales [22], judged as having excellent psychometric (i.e. six on six criteria met on psychometric characteristics) and practical characteristics (i.e. three on four criteria met on practical relevance), and (3) the Questionnaire on the Experience and Evaluation of Work—Variety in your work and Independence in your work subscales [30], which was evaluated as excellent (i.e. four on six criteria met on psychometric characteristics and three on four criteria met on practical relevance).

Discussion

Summary of Main Results

In this systematic search and review, eight categories of organizational factors predicting RTW or long sickness absence in people with MSD and CMD were identified: social support from supervisor and co-workers, workplace accommodations, job strain, organizational injustice, effort-reward imbalance at work, job demands, quality of leadership of the supervisor and job control. For each of these factors, the measurement tools used to demonstrate the predictive validity were catalogued. Nineteen measurement tools were identified, ten of which showing good predictive validity for RTW in MSD populations, seven in CMD ones, and two in both populations. Among all identified tools, sixteen had been already validated and used in other studies, whereas three had no reference in the literature and were specifically designed for the purpose of the study in which they were used (i.e., self-constructed measurements). A wide range of psychometric and practical characteristics of the different measures was identified in this study concluding with most of the tools showing both excellent psychometric and practical characteristics.

Social support from supervisor and co-workers was found to be a significant predictor of RTW among people with MSD. Supervisors are usually directly involved in daily management of work disability in organizations, because of their role that makes them close and aware of most of the social dynamics happening in the workplace [33]. Supervisors are also the stakeholders employees refer to in order to change their work situation or to negotiate work accommodations [34]. It thus appears to play a particularly important role in facilitating RTW [35–37]. Co-workers can play a central role in shaping the work experience, and can potentially influence the management of work disability within organizations by keeping interactions and contacts with an injured colleague [38–40]. The literature also stresses out that having good relationships with co-workers can lead to a higher motivation to RTW after an injury [41]. In the literature concerning specifically the CMD population, it is mentioned that workplace social support reduces the risk for depressive symptoms [42, 43]. Supportive behavior from supervisor and co-workers makes also the RTW process somehow easier [44–46]. Concerning the tools used to measure social support from supervisor and co-workers, the Copenhagen Psychological Questionnaire [22] and the Job Content Questionnaire [20], specifically in their respective social support scales, were found to be the most commonly used by authors in our review, and showed predictive validity in both populations. These tools are characterized by both good psychometric and practical features, and within the years they have been validated in different versions and adapted to a variety of cultural contexts and languages.

Results of our study are in line with the literature posing that people who has been in sick leave need some sort of work accommodation (such as time off for clinical appointments) to facilitate their return to work (e.g., [47, 48]). Providing work accommodation is a common and recommended practice to facilitate the RTW and stay at work of the disabled employee (e.g., [49, 50]). What seems less clear in the literature is how to account and measure for work accommodations. In our appraisal of measurement tools, none emerged as having both good or excellent psychometric and practical characteristics. This calls for the development of new tools with more satisfying features, or for new investigations using existing validated tools (e.g., WANSS [51]) in RTW studies. As highlighted in the results of a recent scoping review [34], measuring adequately requested and feasible work accommodations will be useful for all RTW stakeholders since they need to coordinate their efforts during the RTW process, and make the most relevant choice all together.

Unsurprisingly, results from our systematic search and review showed perceived stress at work as an important factor of delayed RTW in both MSD and CMD populations. In general, it is well established in the literature that employees in high-strain jobs have lower RTW rates compared to employees in low-strain jobs [52]. Job strain is a well-known concept that refers to high demands and low control at work, which is, usually, measured using a combination of dimensions delivered from the Job Content Questionnaire [20]. The questionnaire showed both excellent psychometric and practical characteristics in our review. Remaining out of work in the case of excessive demanding and stressful jobs can be considered as a coping strategy to avoid or reduce the source of stress generated by the working conditions [53].

Organizational injustice refers to the employee's belief that there has been an unfair treatment in the workplace,

in terms of outcomes, procedures or interpersonal relations [54]. Some studies have shown that organizational injustice is associated with decreased risk of sickness absence [55–59]. However, inconsistent results and large between-study differences persist in the literature [60]. In the present review focusing on the RTW process (not on the risk of sickness absence), only one study investigated organizational injustice as predictor of RTW. In the study of Corbière and colleagues [27], the feeling of organizational injustice was found to delay RTW among the population with MSD, but not with CMD. Regarding the latter, it seems important to mention how the relationship between mental health and perceptions of organizational injustice remains an open debate in the literature, with some authors suggesting that health difficulties may affect perceptions of the work environment [61]. The tool used in the predictive study identified in our review is the dimension "feeling of organizational injustice" of the Return-to-Work Obstacles and Self-Efficacy Scale [27], which had both excellent psychometric and practical characteristics.

One study investigating the imbalance between effort and reward found it to be linked to RTW in a sample of workers with MSD [10], while one study conducted among a CMD sample showed insignificant results with this respect [62]. The tool most commonly used to measure effort-reward imbalance is the ERI questionnaire [63] which has been vastly used in the literature.

Job demands, meaning work pressure and workload experienced at work, emerged as risk factor of delayed RTW for people with MSD. This result is in line with the work of White and collaborators [64] which synthesised 27 systematic reviews concluding with job demands identified as a risk factor for disability and work absence. Under certain circumstances, job demands can motivate people at work and can be associated with feelings of learning and personal growth at work [52]. However, in the context of a physical disorder such as MSD, and in the specific RTW situation, job demands can be perceived more as an additional physical burden to the physical impairment causing disability [e.g., 63]. Moreover, it has been suggested that high job demands may induce a fear of relapse or worsening the health condition, reducing indirectly the employee's wish to return to work quickly [65]. Other studies linked job demands to fear-avoidance behaviour in the MSD population, suggesting this as an explanation for the delay in RTW [66]. According to the quality appraisal, it appears that measurement tools of job demands do not need further developments.

Good leadership quality from the supervisor was shown to be linked to well-being and to decreased sickness absence in several studies [67, 68]. It appears to be central in the RTW process as well, as it facilitates a structured environment, which is a crucial feature for people with mental health issues. A leader who structures the work environment helps vulnerable employees to remain at work [69]. It is worth mentioning the partial conceptual overlapping between leadership quality and supervisor support since a good leader has to perform some form of employees support. In the present literature review, quality of leadership was found to be a predictor of quick RTW in people with CMD, while no studies were found investigating this concept among MSD populations. The associated measurement tools, a dimension of the Copenhagen Psychosocial Questionnaire [22] dealing with the nearest leaders' ability to solve conflicts, plan work, prioritize well-being and ensure development opportunities, showed both excellent psychometric and practical characteristics.

Finally, job control emerged as a risk factor for delayed RTW in people with CMD. This finding further confirms results of other studies suggesting low job control influencing disability and absenteeism [64, 65, 70]. For people with CMD it seems important to count on a certain degree of control over their job. The worker could thus have a certain amount of flexibility and adjustment possibilities at work that might help in the regulation of their job tasks based on how they feel (i.e., their health conditions). This could indirectly increase the possibility of returning to work [71]. The measurement tools of job control that were identified and appraised here are excellent in terms of measurement properties, both on psychometric criteria and practical relevance.

Strengths and Limitations

This paper focused only on longitudinal associations between organizational factors and RTW outcomes. This is of relevance, as interventions on organizational factors can be planned to facilitate RTW. All independent variables of the studies selected were measured at baseline, with participants being sick-listed at that time. This paper also provides an evaluation of the tools used in the predictive studies, granting researchers and practitioners with information and suggestions on the use of a number of tools that showed predictive validity in people with MSD and CMD. Future researchers could eventually use the tools retained in this review to establish international comparisons.

The present study is subject to several limitations. Notably, a quality evaluation of studies (i.e., meta-analysis) included in the literature review was not conducted. The level of evidence is limited to the quantity of studies found with respect to our selection criteria, and to the arbitrary ratio coefficient chosen *a priori*. It is plausible that with an evaluation of the quality of studies, and with slightly different ratio coefficients, the level of evidence for some factors would have been different. However, one must remind that only prospective cohort studies were included, reinforcing our conclusions. The study was further limited

by the choice of English or French languages: we may have missed important and meaningful studies presented in other languages. In relation to the evaluation of measurements and tools, we decided to limit it to the first validation study conducted (i.e., the original article) in order to fairly balance each tool evaluation. Many tools reported in this paper have updated versions that researchers and practitioners should prefer to use in future researches and in their day-to-day practice. Another potential limit is the fact that all the identified organizational factors in this review are studied by self-administered questionnaires. Moreover, we limited our search in classical/conventional databases, while it would have been interesting to also perform a search in databases specialized in tools and measurement instruments (e.g., Health and Psychosocial Instruments database—EBSCO, Registry of Scales and Measures).

Conclusions

Promoting RTW after the onset of a physical or mental disability has become a priority in all industrialized countries. Despite the important role played in the RTW process, organizational factors are usually less studied compared to other psychosocial characteristics. Our study provided a review of the modifiable organizational factors and associated measurements tools that showed predictive validity among people with MSD and CMD. The protective and risk working conditions that contribute to a quick or delayed RTW, and on which interventions can be programmed on, as well as the tools having high psychometric and practical characteristics to measure them were identified, reported, and discussed in this study. Notwithstanding the advantage to use standardized tools in international studies, we believe that information provided in this paper will be useful and highly valuable not only for health professionals working on work disability, but also for policymakers who are involved in the development of RTW policies.

Acknowledgements We acknowledge the valuable contributions of Maryse Gagnon (IRSST), Jean-Philippe Lachance (IUSMM), Julie Chabot, Annabelle Beauvais-St-Pierre, Scarlett Olivares-Fontaine and Marie-Andrée Richard to this study.

Funding This study was supported by a grant from the Institut de recherche Robert-Sauvé en santé et sécurité du travail (Grant Number: 2014-0010).

Compliance with Ethical Standards

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

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