



# Insights into the Sustainable Return to Work of Aging Workers with a Work Disability: An Interpretative Description Study

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## Abstract

**Purpose** A sustainable return to work (S-RTW) following prolonged work disability poses particular challenges as workers age. This article provides a synthesis of the factors and issues involved in a S-RTW process for aging workers following such a disability. **Methods** Using interpretive description methods, a critical review was conducted of the literature specifying return-to-work factors and issues for aging workers with regard to four major causes of work disability (musculoskeletal disorders, common mental disorders, cancer or other chronic diseases). The initial review concerned the 2000–2016 literature, and was subsequently updated for November 2016–December 2018. To further explore and contextualise the results of this literature review, four focus groups were held with stakeholders, representing the workplace, insurance, and healthcare systems and workers. Qualitative thematic analysis was performed. **Results** Fifty-five articles were reviewed and 35 stakeholders participated in the focus groups. Returning to work and staying at work appear to be particularly challenging for aging workers, who face notable issues and stigma concerning their ability to meet work demands, as well as their mobilisation and engagement in these processes. Such findings echo in many ways the main assertions of the literature on aging at work, except those regarding the transformation of capacities with aging, which is not mentioned in relation to workers with a work disability. The influence of healthcare and compensation systems on the S-RTW of aging work-disabled workers has also received little attention to date. **Conclusions** The results underscore that aging workers with a disability are frequently vulnerable in terms of their health or their jobs. Intersectoral efforts are needed to remedy this situation to keep them at work.

**Keywords** Return to work · Aging worker · Work disability · Sick leave · Rehabilitation

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## Introduction

Every year, many workers take sick leave for work disability associated with musculoskeletal disorders (MSDs), common mental disorders (CMDs), cancer or other chronic diseases (OCDs) [1, 2]. Various sociodemographic trends in industrial societies also point to a general aging of the population and a low birth rate. Against this backdrop, the current and anticipated shortage of skilled labour, as well as the postponement of retirement to a later age, inevitably means a growing presence of so-called “aging” workers (aged 45 and over) in the future job market [3–7].

While accidents, injuries and occupational diseases do not appear to occur systematically with any greater frequency among aging workers, statistical data reveal the increased severity of their disabilities, reflected in longer sick leaves [8–14]. These findings, mainly drawn from statistical database analyses and epidemiological cohort studies, remain uninformative about factors that might explain longer sick leaves. Indeed, such research designs consider only a limited number of factors, and mainly individual ones, without examining possible influences of specific contexts (e.g. legislation, workplace, health services) [9, 11, 15–18]. A more in-depth investigation into factors affecting the return to work of aging workers with a work disability therefore appears necessary if we are to effectively reduce absenteeism among these workers.

More general literature on aging at work could provide a useful starting point for deepening our understanding of such factors and issues. Indeed, aging workers are often described as less productive and efficient, less flexible and versatile, less willing to adapt to changes and technology, and less inclined to take advantage of training, as well as more often absent and less interested and engaged in work than their younger co-workers [19–26]. Such observations could pose greater obstacles for aging workers returning to work after a long sick leave. However, several studies have shown that these social representations, shared by many societal actors, including those involved in the return-to-work process, are far from the reality [27–31]. In fact, the link between older age and performance is not corroborated when tested in real work situations rather than in experimental settings [32–40], thus suggesting an influence of the work context on aging workers’ capacity to accomplish their work.

This lack of a demonstrated association between older age and loss of capacity may also be explained by another portion of the aging-at-work literature, which sees aging as a factor that transforms rather than reduces capacities [32, 41, 42]. According to these studies, the effects of the decline of certain capacities on work performance may actually be offset through the use of selection and

optimisation strategies in real work contexts [7, 43–45]. This proposal seems particularly relevant with regard to the cognitive capacities of aging workers, in whom the documented losses of fluid intelligence (i.e. working memory, abstract reasoning) may be partially compensated for by the gains realised, over time, at the level of crystallised intelligence (i.e. knowledge acquired through education and experience) [33, 34, 43–47]. With cumulative experience in recognizing and managing their emotions, aging workers also tend to adopt more positive coping strategies than younger workers, suggesting that they might react more positively to stressors [48]. These capacity transformations and positive strategies possibly used by aging workers thus suggest some strengths or personal resources that could be capitalised on during the return-to-work process.

To facilitate the enactment of such individual adaptative capacities and strategies, and thus narrow the gap between capacities and work demands, the above-mentioned literature on aging at work recommends adopting an individualised approach providing aging workers with autonomy and flexibility, which could also help increase their work motivation and retention [31, 35, 36, 44, 48–50]. Such an individualised and flexible approach could also be applied to aging workers with work disabilities, strengthening their motivation to return to and stay at work despite the difficulties and efforts involved, while making it possible to capitalise on their personal capacities and strengths in the process.

Interesting as they are, these insights from the general literature on aging at work do not deal directly with specific issues that aging workers may encounter when struggling with a work disability. To better understand the situation of aging workers with a work disability, a synthesis of factors and issues specifically impacting their sustainable return-to-work (S-RTW) was prepared in this study. The main causes of absenteeism, namely, MSDs, CMDs, cancer and OCDs, were targeted. This synthesis was part of a broader study that also examined the characteristics of gender and ethno-cultural identity in workers.

## Methodology

The method used was grounded in an interpretive description approach [51–55]. This so-called “interventionist” approach seeks to develop practical knowledge for use in interventions and to provide contextualised, in-depth understanding of a human phenomenon, its components and how these components fit together and interact [51–55]. This study involves two main steps.

Step 1: First, we conducted a critical review of the literature [55, 56] that identified the knowledge needed to establish a preliminary theoretical framework (scaffolding) for

later methodological and analytical decisions [52, 55, 57]. This involved identifying the factors impacting the S-RTW of aging workers, for the four targeted causes of work disability (MSDs, CMDs, cancer and OCDs). The framework generated in this step guided the second step.

Step 2: Focus groups were then held with various types of stakeholders involved in S-RTW to contextualise and improve understanding of the impact of these factors on the return-to-work process of aging workers on sick leave [58]. The data collected were analysed inductively, comparatively and iteratively [51, 52]. This project had received prior approval from the Ethics Committee on Health Research involving Human Subjects of the Centre hospitalier universitaire de Sherbrooke (CHUS).

## Data Collection

### Literature Review

A critical review was conducted of the literature [56] published between January 2000 and November 2016, which we retrieved using various search engines and databases (CINAHL, ERIC, ProQuest, PsychInfo, Francis, SCOPUS and Sociological Index). The review targeted four causes of work disability in aging workers. For each work disability cause, keywords specifically related to the cause were combined with the keywords for other dimensions under study, i.e. work disability (e.g. disability, return to work) and aging workers (e.g. aging, senior) (“Online Appendix”). The 2000–2016 period was chosen because it corresponded to the years when the view of work disability as a strictly biomedical phenomenon [59] was replaced by a view of work disability as the product of an interaction among four social systems, namely, the personal, healthcare, workplace and compensation systems [60–64]. Three selection criteria were applied. The articles had to:

- 1 Examine work disability in relation to one of the four causes under study, i.e. MSDs, CMDs, cancer and OCDs;
- 2 Present specific results for aging workers, i.e. persons aged 45 and over. This age was retained given the lack of consensus on a specific age for defining an “aging” worker in the current literature [65], but also the emergence of several health problems starting around mid-career (age 45) [66, 67].
- 3 Identify factors that impact the S-RTW of aging workers.

A professional research assistant compiled all the articles identified in EndNote databases specific to each of the four targeted causes of disability, on the basis of the specific keywords combinations (i.e. for each disability cause) that

led to their identification. The same member of the research team then performed an initial selection of articles based on their titles, and a second selection based on their abstracts. These articles were classified in three categories: retained, excluded and uncertain. Another member of the team randomly validated the selection at each of these steps (MFC for titles; MJD for abstracts). Next, the articles in the “uncertain” category were discussed by three members of the research team (MJD, MFC, professional research assistant) until consensus was reached. All the articles retained in this step were then read in their entirety by another team member (MAP), resulting in the exclusion of several more articles. For each article retained, one team member (MAP) used a standardised template for extracting data on (1) the characteristics of the study population (criteria for defining an aging worker, cause of the work disability, geographic location where the study was carried out); (2) the study’s aim and objectives; (3) the methodological approaches (study design, data collection and analysis strategies) and theoretical approaches (conceptual or analytical frameworks) used, and (4) the results obtained and their main implications in terms of the actions to be implemented by clinics, workplaces, and insurers, and, more broadly, in terms of policy.

An updated review of the available literature was conducted for the November 2016 to December 2018 period, following all the same procedures as in the initial search.

### Focus Groups

As recommended by Carlsen and Glenton, four focus groups were held, specifically, one homogenous group and three heterogenous groups [58]. Their composition was defined by a project steering committee including researchers and social partners. Given health professionals’ central role in the S-RTW process, a first homogenous group composed solely of this type of stakeholder was held to allow the main findings emerging from this group to be integrated into the next phase of data collection. The participants in this group had to be health professionals directly involved in work rehabilitation (e.g. occupational therapist, physiotherapist or physician). The composition of the three other groups was representative of the different work contexts (company size, presence or not of a union) and various stakeholders involved in the S-RTW process. The three targeted work contexts were (1) large unionized enterprises (500 employees or more); (2) large non-unionized enterprises, and (3) small and medium-sized enterprises (10 to 499 employees).

Each of these three groups included representatives of employers, insurers (public and private), health professionals and workers’ rights groups (unions or associations defending their rights), with the exception of the group representing the non-unionized large-enterprise context. Participants were identified and recruited following a non-probabilistic

approach, either by snowball sampling, using a research volunteers' contact list or targeting key informants identified by the various stakeholders (insurers; professional associations; employers; unions; patient associations) within the broader research team [68]. The focus groups were moderated by the two principal investigators (MJD and MFC). The interview guide for this component of the study explored (1) the various factors related to the S-RTW of aging workers and identified in the critical review, and (2) the interactions between these factors and certain sociodemographic characteristics, including gender and ethnocultural identity or immigration status. The discussions were recorded and transcribed with the participants' consent. Each participant also completed a form compiling his or her personal sociodemographic data. Any identifying information in the data obtained from the focus groups was deleted to preserve the participants' anonymity.

## Analyses

The data obtained from the literature and focus groups were analysed sequentially using methods recommended by Miles et al. [69]. To this end, the articles were first analysed separately according to the specific disability cause with which they were previously associated. Next, for each work disability cause, they were grouped by design type (e.g. epidemiological, quantitative or qualitative study) in order to extract and analyse factors and issues impacting S-RTW. For each cause, a crosscutting analysis was performed across the different types of design to identify the converging, diverging and complementary points. This analytical process was repeated, this time comparing the articles by study concept (disability, RTW, sustainability, retirement, absenteeism). A comparative analysis was then conducted of factors and issues impacting the S-RTW of aging workers across disability causes. Analysis of the focus group verbatims was then based on the factors and issues that emerged from the critical review. Data reduction was performed through coding by two coders (MFC, MAP) and supported through the development of matrices [69]. The results of the focus groups underwent individual analysis and then crosscutting analysis.

Next, the results of these analyses were compared to those found in the literature review to highlight the common, complementary and diverging points. The data were thus synthesised, conceptualised and recontextualised [51, 52, 54, 70]. This part of the analytical process highlighted two main themes around which factors and issues revolved: (1) the capacities of aging workers to meet job demands, and (2) their mobilisation toward S-RTW. In order to provide a comprehensive and meaningful professional narrative applicable to the practice of stakeholders involved in the S-RTW process of aging workers, results from the literature review

and the focus groups concerning the impact of older age on S-RTW are thus presented here as an integrated whole, structured according to these two main themes.

## Results

### Characteristics of the Studies and Participants

#### Characteristics of the Studies Documented

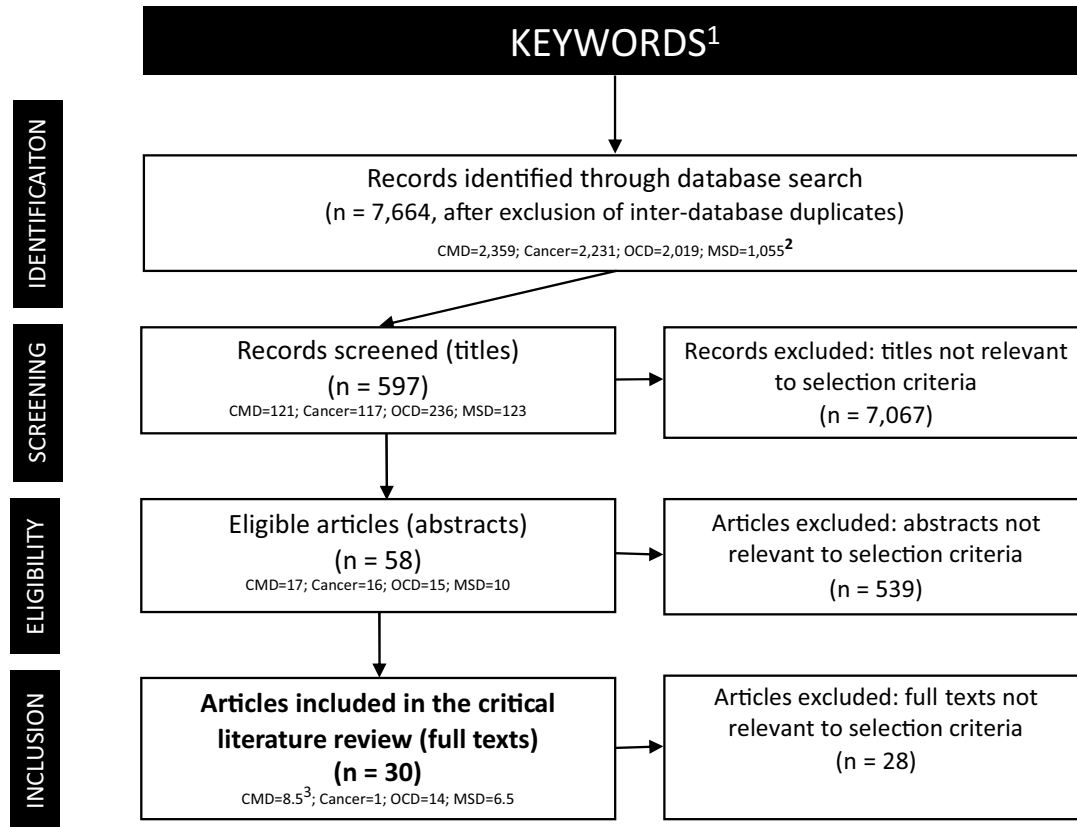
A total of 7664 titles were identified, of which nearly a third ( $n=2359$ ) concerned CMDs (Fig. 1). The first selection, based on the titles, substantially reduced the number of abstracts to be read ( $n=597$ ). A reading of the abstracts further reduced the number of articles to evaluate to 58. Ultimately, 30 articles were included, nearly half of which (14) concerned OCDs.

As reported in Table 1, the articles identified during the initial search—the vast majority of which came from western Europe and North America—examined the aging worker phenomenon from two perspectives: half regarded older age as one of several factors influencing S-RTW, while the other half focussed on populations of aging workers (aged 45 or over) to identify the impacting factors. Only one article explicitly compared aging workers to workers in other age groups [71]. This virtual absence of comparative data between age groups limited the possibility of identifying factors and issues specific to aging workers. In addition, the literature focussed mainly on workers and their work environment with regard to S-RTW. The impacts of other systems, such as the healthcare and compensation systems, have received little attention to date, with only one study investigating the impact of the healthcare system on the S-RTW of aging workers [72].

Apart from three literature reviews [73–75] and one mixed method study [76], the designs were mostly epidemiological ( $n=26$ ), and were only rarely grounded in a conceptual or analytical framework. When such models were present, they essentially treated the role of age as one of a set of factors impacting S-RTW, and did not seek a specific understanding of the particular effect of aging on S-RTW [77, 78]. They therefore proved to be of little help for organising and integrating all factors and issues identified in our study. As such, these are not referred to in subsequent steps of the research.

The search conducted to update the literature initially provided 3097 references (OCD = 1323; CMD = 1063; MSD = 408; cancer = 303). Screening the titles and suppressing duplicates then reduced this number to 217 (OCD = 79; CMD = 83; MSD = 34; cancer = 21). Reading the abstracts for these articles ultimately yielded 25 new articles to read and analyse (OCD = 10; CMD = 9; MSD = 5; cancer = 1).

CINAHL, ERIC, ProQuest, PsycInfo, Francis, SCOPUS, Sociological Index  
January 2000–November 2016



**Fig. 1** Flowchart of the literature review. (1) See Appendix for the detailed combinations of the keywords used. (2) *CMD* common mental disorder, *OCD* other chronic disease, *MSD* musculoskeletal disorder.

(3) Articles that dealt with two work absence causes counted as .5 of an article for each of the targeted causes.

Of this number, 20 were epidemiological studies and two were qualitative studies [79, 80]. The remaining three were literature reviews.

Four studies explicitly compared aging workers to workers in other age groups [79, 81–83].

Lastly, four studies referred to conceptual or analytical frameworks [79, 83–85]. As was the case for the above-mentioned studies, one of these frameworks was not designed for the purpose of understanding the particular effect of aging on S-RTW, and therefore, was not explicitly used in our study [83]. Among the three other frameworks, the “socio-ecological risk and resilience model for workforce transition” hypothesizes that the resilience of these workers modulates in different ways the potentially negative impact of certain event-related factors (e.g. discriminatory events), contextual factors (e.g. financial precariousness) and individual factors (e.g. state of health, limitations, education) on aging workers’ work

participation [84]. The second framework, proposed by Gignac et al., deepens our understanding of the impacts of accommodations (required, available and used) on different work outcomes (limitations, interruptions, losses of productivity, absenteeism) [85]. Lastly, Jetha et al. propose using Edler’s life course theory to try to understand how some changes in three interrelated areas of life (i.e. health status, career progression, and roles and responsibilities outside work) may be differently experienced by individual workers as they age, and therefore affect their work participation [79]. Interesting as they are, these last three frameworks do not provide an overarching view of the S-RTW of aging workers with a work disability that could properly structure data analysis. Consequently, the factors and issues raised were integrated into the two themes that emerged from the data: aging workers’ capacities to meet job demands and factors affecting their mobilisation.



**Table 1** Characteristics of the articles included in the literature review

Characteristics of the studies		Initial search N=30 (%)	Update N=25 (%)
<i>Characteristics of the study population</i>			
Definition of aging worker	Aging process: independent variable “age”	14 (47%)	13 (52%)
	Study population = workers over age 45	15 (50%)	8 (32%)
	Comparison with other age groups	1 (3%)	4 (16%)
Cause of the work disability	OCDs	14 (47%)	10.5 <sup>a</sup> (42%)
	CMDs	8.5 <sup>a</sup> (28%)	9 (36%)
	MSDs	6.5 <sup>a</sup> (22%)	4.5 <sup>a</sup> (18%)
	Cancer	1 (3%)	1 (4%)
Geographic location of the study	North America	9 (30%)	8 (32%)
	South America	0 (0%)	1 (4%)
	Western Europe	13 (43%)	12 (48%)
	Asia	2 (7%)	1 (4%)
	Oceania (Australia)	3 (10%)	1 (4%)
	Unspecified / multiple places	3 (10%)	2 (8%)
<i>Methodological and theoretical approaches</i>			
Methodological approach	Epidemiological study	26 (87%)	20 (80%)
	Qualitative study	0 (0%)	2 (8%)
	Mixed method design	1 (3%)	0 (0%)
	Literature review	3 (10%)	3 (12%)
Theoretical approach	A framework present	2 (7%)	4 (16%)
	No framework	28 (93%)	21 (84%)

<sup>a</sup>Articles that dealt with two work absence causes counted as .5 of an article for each of the targeted causes

**Characteristics of the Participants in the Focus Groups**

The four focus groups brought together 35 participants, including 11 health professionals (n = 8 in the homogenous group; n = 3 in the heterogeneous groups), 10 employer representatives, 8 insurer representatives and 6 union representatives. The groups lasted an average of 134 min, ranging between 108 and 151 min. The first group (3 men; 5 women)

of health professionals included occupational therapists (n = 4), physiotherapists (n = 2), an ergonomist (n = 1) and a physician (n = 1), each with between 6 and 40 years of professional experience. Table 2 details the characteristics of participants in the three other, heterogeneous groups.

The results obtained from the focus groups revealed closely converging discourse from one group to the other, regardless of the work context they represented. Consistent

**Table 2** Description of the participants in the three heterogeneous focus groups

Focus group (work context)	Stakeholder/system	Gender	Mean age	Average tenure in current job	National Occupational Classification (NOC) categories represented
Large (500+) unionized enterprises (LE-U)	Health professionals = 1 Employers = 4 Insurers = 2 Union representatives = 3	W = 7 M = 3	49 years	8 years	Education, law and social, community and government services Art, culture, recreation and sport Sales and service National resources, agriculture and related production
Large (500+) non-unionized enterprises (LE-NU)	Health professionals = 1 Employers = 4 Insurers = 3 Union representatives = 0	W = 6 M = 2	45 years	10 years	Business, finance and administration Sales and service Trades, transport and equipment operators
Small and medium-sized (<250) enterprises (SMEs)	Health professionals = 1 Employers = 2 Insurers = 3 Union representatives = 3	W = 7 M = 2	44 years	7 years	Education, law and social, community and government services Manufacturing and utilities

with the gaps identified previously in the literature, the groups confirmed or clarified certain impacts concerning workers or their workplaces, notably by identifying aging worker-specific factors and issues in detail. Focus groups were also the main source of data for identifying and detailing factors and issues related to the healthcare and compensation systems, as these matters were virtually absent from the literature.

### Impact of Older Age (Aged 45 or Over) on S-RTW

As mentioned earlier in “**Methodology**” section, this complementarity between the results of the literature review and those of the focus groups led us to present them simultaneously to provide the most comprehensive synthesis possible. Given that neither the comparative analysis of the literature nor the thematic analysis of the focus groups participants’ statements about aging workers in particular allowed us to identify specific factors or issues in terms of disability causes, the results are also integrated for all the causes examined. The results are presented here under two main themes: *the capacities of aging workers to meet job demands* and *factors affecting their mobilisation*.

#### The Capacities of Aging Workers to Meet Job Demands

This theme is articulated around eight factors and their issues. Table 3 summarizes the findings.

First, aging (age 45 and over) is known to have a direct impact on workers’ *capacities*. In fact, it is generally acknowledged that this tends to translate into a deterioration in their health, often characterised by several comorbidities, occurring even prior to an injury or occupational disease [15, 18, 71, 73–75, 80, 85–91]. This finding of a

deterioration in capacities with advancing age was also reported in the focus groups:

On average, at age 55, one Quebecer in four has a chronic disease. At age 60, (. . .) two in four, half [of them] have two chronic diseases. (HP 107 :119)

Moreover, participants in all focus group reported observing diminished psychological capacities (e.g. tolerance of stress) and physical capacities in several aging workers, resulting in a poorer recovery, adaptation and performance capacity than observed in younger workers:

So I see more and more people over 50 who are less able to resist stress (. . .). And it’s no secret that it’s not just capacities that diminish, but that recovery is also longer and slower. (HP 107 :137)

I have the impression that for injured workers between the ages of 55 and 60, the functional gain you can try to obtain is often limited. (LE-NU 140 :148)

According to some participants, certain biological interactions specific to women (e.g. effects of menopause on sleep, energy and recovery) appear to further reduce these capacities in aging female workers:

So even menopause affects sleep. It’s not a good mix with musculoskeletal problems when women don’t get restorative sleep (. . .), these women have a really hard time managing their energy. (HP 159)

Even though timely access to the health services required by a worker’s condition can potentially improve his or her capacities, our data indicate that certain attitudes on the part of workers or health professionals, as well as certain compensation rules, may well hinder it. Two studies in fact point out that some aging workers tend

**Table 3** The capacities of aging workers to meet job demands: main associated factors and issues

Factors affecting S-RTW	Issues for aging workers
Level of work capacities	Perception of “natural” deterioration of work capacities with aging, getting worse among aging workers with a work disability
Access to and quality of health services	Lack of sensitivity, knowledge and familiarity (including negative prejudices) of health professionals regarding disability in aging workers reducing access to appropriate/needed health services
Compensation rules	Generic rule of third-party payer systems, impeding adaptations in compensation rules that would allow aging workers to access necessary health services for regaining their capacities
Level of job demands	High psychological and physical demands, increasing with work intensification, thus increasing the gap between job demands and “naturally” declining capacities of aging workers
Adapted job demands and working conditions (accommodations)	Greater gap between capacities and job demands for aging workers suggests greater accommodation needs, and thus more substantial efforts required from the workplace
Job alternatives	Obtaining the required accommodations could be particularly challenging for aging workers with limited skills and mainly physical jobs
Workplace readiness to support the worker	Extent of efforts required for accommodating aging workers and low recognition of their value or contribution (perceived reduced capacities) could inhibit such support
Cumulative workload	Caregiving to aging parents replaces (or adds to) childcare; this increases the workload and thus, the gap between cumulative demands and capacity for some aging workers

to consult health professionals either rarely or late, which can have negative impacts on their S-RTW [71, 91]. For example, some aging workers with a CMD who confuse depressive symptoms with a “normal” response to the grieving associated with a reduction in their capacities, may be late in seeking a medical opinion. Certain perceptions that health professionals have of aging workers also hinder the workers’ access to the health services that their condition nonetheless requires. Indeed, both the lack of knowledge and unfamiliarity of many professionals regarding the medical and psychosocial aspects of disability in aging workers could be associated with less sensitivity to certain symptoms when managing such workers [91]. An Australian study underscores the fact that some professionals have negative prejudices about aging workers’ real capacities and possibilities for S-RTW, which would partly explain the higher rates of “unfit for work” certification (vs. alternative/modified duties) among these workers [72]. Moreover, the intergenerational distance between caregiving staff (usually younger) and aging workers may pose challenges in terms of establishing the therapeutic relationship, according to some focus group participants:

The same thing goes for an older person. I belong to a health cooperative at work. It’s also responsible for the occupational health of these workers. So there was a nurse clinician who’d just arrived. Everyone was super happy. She was 23 years old, this nurse. The average age of people in our workplace is 61 to 62. Well, for a toothless old man or someone who has health problems, or for the lady who sees this young 23-year-old nurse, it just doesn’t work. (HP 629)

By applying certain rules regarding reimbursement for services and rehabilitation programs, the compensation system (insurer) can also play a role in limiting access to health services. During the focus groups, health professionals raised the point that a context in which the third-party payer provides the rehabilitation care is often associated with strict, generic regulations. The application of these rules, by not allowing aging workers with disabilities to benefit from services adapted to their needs, could hinder their attainment of the rehabilitation objectives:

If you look at the rehabilitation program and the functional capacities, when you have the possibility of developing a person’s capacities, (. . .), you realize that often, for aging workers, they [the programs] will last a little longer than for most people. And then the programs, most of the time, whether they’re offered through public or private insurance, are not adapted to their needs. Everybody’s supposed to fit into the mould of so many weeks or so many days,

when in reality the needs are different for this aging worker clientele. (SME 98 :102)

Aging workers in disability situations thus seem to face several challenges when it comes to regaining a capacity level that would allow them to meet their job demands. According to several authors, the high psychological demands (job strain) and/or physical demands associated with certain jobs may pose additional challenges for aging workers with reduced capacities, and hence hinder their S-RTW [75, 76, 86, 92–95]. In fact, according to some focus group participants, the current context of work intensification is characterised by organisational and technological changes requiring employees to have additional performance and adaptation capacities:

It’s probably like that in all workplaces, especially the private sector, (. . .) You’re always asked to do more with less, increasingly so (. . .) So for sure, for an aging worker, who is injured on top of it, that can be problematic. (LE-U 35 :39)

By raising the level of job demands, such an intensification context therefore seems likely to increase the gap between job demands and aging workers’ “naturally” declining capacities. This gap could prove to be particularly large in sectors employing predominantly women (e.g. education, health, and daycare), where performance and adaptation demands are perceived as being increasingly higher [95]:

Take jobs in the teaching sector (...) they’re becoming more and more demanding, and aging workers are having a harder and harder time keeping up. (LE-U 089 :091)

This gap could be narrowed by adapting the job demands and working conditions. From this perspective, several studies indicate that it would be well worthwhile for workplaces to allow aging workers to adapt their own work pace and working methods as needed, notably by offering them a sufficient degree of autonomy and control to do so [76, 79–81, 85, 87, 93, 94, 96, 97]. Despite the lack of empirical consensus regarding the efficacy of these interventions in promoting S-RTW, accommodation efforts by the employer are also part of the preferred means for reducing the gap between aging workers’ reduced capacities and high workplace demands [75, 85, 86, 91, 92, 98–100]. However, such accommodations may be more difficult to provide in some activity sectors [85]. Jobs involving mainly “physical” work are a good example, according to the focus group participants:

Well, that’s for more sedentary jobs, but for jobs that are physical, what we also realize is that there are few possibilities for modifying the tasks as we age. You have a job that is very physical [by nature]: over time,



the employee will lose some physical capacities, that's clear. But there's no replacement option. (SME 66 :72)

Again according to the participants, the possibilities of accommodations tend to be more limited for workers with few skills or a narrow range of skills, thus limiting their capacity to meet the demands of other types of jobs. These employability issues appear to be further exacerbated for some aging workers from ethnocultural communities, who, for example, do not master either official language:

An example comes to mind of a little lady [from an ethnocultural community]. She didn't want to stop working. She was injured, she had a hernia, but she didn't report it. It took four months, and then she was no longer able to work (. . .), there wasn't much that could be done in the workplace. And outside [the workplace] it was even harder because of her age, given that she spoke little English and no French [no language that's commonly spoken in Quebec], and that on top of that, she had a pretty severe musculoskeletal condition (. . .) All of that made it really really hard. (SME 801 :804)

Access to accommodations in the workplace also depends on the support offered by supervisors and co-workers, support that aging workers recognize as a facilitating condition for their S-RTW [76, 80, 91, 93, 94, 98]. Yet it may prove especially difficult for aging workers to obtain such support [89], particularly when the extent of their limitations and the accommodations needed to address them require a major transfer of the workload to co-workers:

We have to really scramble to try to see what we can deconstruct, I mean, the work, without affecting our operations too much in terms of breaks, performance criteria (. . .) And sometimes, the operators [supervisors] just don't want to take them (. . .) because they're not able to keep up with the pace. (LE-U 177 :181)

Moreover, support from supervisors and co-workers generally appears to be contingent on recognition of the value and contribution of aging workers in the workplace. According to our participants, gender can affect this recognition, particularly for women:

So apart from a person who doesn't want to return [to work] because she sees her retirement ahead and all that, I also wonder up to what point the know-how and strategies developed by aging workers are valued in a company that allows individuals, for example, to create their own niches in the company. (HP 75 :77)  
Some employers have a terrible attitude. Beyond age 50, a woman has fewer chances, far fewer chances than a man at age 50 (...) of an easy reintegration. (HP 229 :235)

Even when accommodations involving adjustment of the work demands and conditions to the aging workers' capacities are present, the cumulative workload of some aging workers continues to exceed their "naturally" reduced capacities. More specifically, the accumulation of domestic and family (caring) responsibilities increases a person's total responsibility burden. The impact of aging on the evolution of these responsibilities, which traditionally befall women, is therefore expected to translate into particular issues for aging workers. For example, one study suggests that aging, which generally goes hand-in-hand with the departure of children from the family home, would help reduce these responsibilities and have a favourable impact on the S-RTW of aging workers [88]. However, some participants, who see the growing phenomenon of being caregivers to aging parents as maintaining or even increasing the burden if the workers assume the roles of both parent and caregiver, nuanced this assertion:

For us, this is a new phenomenon, but we see it increasing every year: family responsibilities. At first glance, it may seem paradoxical: aging people should have fewer family responsibilities, but as their own parents are now aging and living longer, at some point they also have to take care of them (. . .) And that means it takes longer for these workers to return to work because people are no longer able, they don't want to abandon their family (. . .) We see this more in women, but we also see it a bit in men. (LE-U 201 :209)

### Factors Affecting the Mobilisation of Aging Workers

Several factors affect aging workers' mobilisation toward S-RTW either positively or negatively. This section will present five factors and related issues, as presented in Table 4.

In fact, the results of a study by Jason et al. indicate that the great resilience capacity (i.e. "the ability to navigate adversity and maintain emotional stability," p. 270) of some aging workers helps mitigate the potentially negative impacts of various causes of disability on their engagement in work [84]. The intrinsic value of work also appears closely related to this engagement, and thereby to the S-RTW outcomes in aging workers with a work-related disability. In fact, aging workers who regard remunerated work as a source of personal accomplishment tend to be mobilised more easily in the S-RTW process than workers who sees work as a burden and the main cause of their health problem [71, 80]. This notion of the value placed on work also came up in the focus groups.

(...) if the person loves his work and finds fulfilment in it, for sure it's easier. (LE-U 756 :780)

**Table 4** Mobilisation of aging workers toward S-RTW: main associated factors and issues

Factors affecting S-RTW	Issues for aging workers
Worker's resilience and values	(Nothing specific to aging workers) High level of resilience and a sense of accomplishment at work promotes commitment to work. Conversely, the perception of work as a burden and the main cause of their health problem negatively influences mobilisation
Employee retention benefit	Aging workers' financial interest in preserving the accumulated social benefits positively influences mobilisation
Compensation rules	Particular arrangement allowing aging workers to benefit from financial compensation until their retirement could constitute a potentially major demobilising factor
Preservation of the link with the current employer	Maintaining the link with the employer because perception of low employability due to advancing age and reduced work capacities positively influences mobilisation
Other sources of income than work	Access to advantageous retirement pensions and/or insurance indemnities targeting aging workers negatively influences mobilisation

(...) a big proportion of the people I've had sitting in front of me attribute their sick leave situation to aspects of their work. And so, they quickly say to themselves, "I'm returning to the environment that put me in this situation in the first place." (HP 125 :137)

The participants also reported that sometimes the employee benefits associated with certain jobs play a role in the value attributed to the work and the person's determination to return to work following a disability. To continue benefitting from advantageous employment conditions, some work-disabled aging workers return to work despite the persistence of circumstances or health conditions that are not conducive to S-RTW (e.g. persistent symptoms, presence of working conditions that precipitated the health problem). The return to work may therefore be motivated by reasons other than recovery. Often related to the desire to retain employee benefits and to the insurer-imposed limitations regarding the maximum duration of benefits, such reasons could actually increase the risks of relapse. These considerations concern aging workers in particular, who, given their long employment history, are more likely to have accumulated substantial employee benefits:

One of the specific challenges is people who are afraid of losing all their seniority, their working conditions related to their seniority (...) They go back [to work] too fast for the wrong reasons. Often you see relapses in these cases (...) First-rate working conditions, I mean, we see them a little more often for aging workers than for young workers. (SME 88 :94)  
(...) people who've been at the same place for years, who are very, very, very well paid, go on sick leave, and then after a while, there are some employers who say, 'After two years, I'll cut your contract if you don't come back to work.' So what do people do? They're

afraid, so they go back to work, but they're not really fit to go back. (SME 190 :216)

Apart from losing job-related employee benefits, for many work-disabled aging workers the prospect of losing the initial employment relationship may mean being deprived of income in the medium and long terms. In fact, the perception of reduced capacities with aging, which is held not only by employers, but sometimes by workers themselves, fuels a perception of low employability on the job market [79, 83, 98, 101, 102]. Yet, according to some participants, this perception of low employability might make aging workers more determined than ever to return to and stay at work as they might be convinced that the job they held when their disability occurred is the only one they will be able to obtain:

But once they reach age 55 or 58 (...), you can't say to patients, 'It might be a good idea for you to change jobs.' Because that's just not done: [you can't tell them that] no one else is going to hire them. So patients go back to work and say 'I'll go put my time in until my retirement.' (HP 141 :143)

The potentially mobilising effect of perceived low employability may, however, be attenuated in aging workers who are able to count on other possible sources of income. As some participants noted, access to advantageous retirement pensions sometimes demotivates work-disabled aging workers, who thus tend to deprioritise work (i.e. attribute less intrinsic value to it) as retirement approaches [75, 103]. In this sense, the late entry of many women into the labour force, by pushing back the time when they will have access to retirement benefits, could result in greater mobilisation of aging female workers in their RTW than of their male counterparts [71].

Some aging workers could also interpret certain indemnities offered by insurers, which (partially) compensate for the loss of income associated with the non-RTW, as an incentive

to leave the job market. For example, several focus group participants raised the potentially undesirable effects of one insurance clause aimed specifically at workers nearing retirement age and considered unable to return to their pre-injury job due to an injury or occupational disease. According to these participants, this particular arrangement, initially proposed to support and better protect these workers by allowing them not to use the planned rehabilitation services but to benefit from financial compensation until their retirement, could constitute a potentially major demobilising factor for aging workers for whom work is no longer a priority or a motivational factor:

Someone [One worker] said, ‘No, no, I don’t want to stay at home. On the contrary, I want to be able to go back [to work]. You know, I’d like to get trained in something else.’ For sure, you know, we’re going to explore this [possibility], but if the person isn’t interested or doesn’t want to, then this [insurance clause] becomes a way out [of the job market]. (LE-U 109 :131)

## Discussion

The aim of this article was to present a synthesis of the factors and issues affecting the S-RTW of aging workers with a work disability, for the main causes of absenteeism. Our results suggest that an aging worker (over age 45) with a work disability is generally perceived as having poor work capacities and low recovery potential, as well as being more fragile [15, 18, 71, 73–75, 80, 85–91]. They thus converge with those from the aging-at-work literature, suggesting that aging workers’ capacities are generally seen to be declining, despite the lack of scientific evidence to support this. In such circumstances, the presence of a disability at work is primarily regarded as an additional burden accentuating the presumed decline in capacities.

Shared by different actors (health professionals, entrepreneur, insurance) involved in the S-RTW process, such representations of aging workers’ capacities could influence how these actors address their specific needs and situations in the return-to-work process. As such, our results show that employers’ general perception of aging workers as having diminished capacities could interfere with their readiness to support these workers, and, consequently, to provide them with work demands and working conditions adapted to their capacities [89]. However, our results also show that such accommodations may be particularly important in narrowing the gap between the declining capacities of aging workers with a work disability and the heavy work demands associated with the work intensification context [75, 85, 86, 91, 92,

98–100] and that make these workers particularly vulnerable in terms of their health or their jobs [104].

Such a perception of declining capacities, and its influence on employers’ attitudes and behaviour, may have been exacerbated by the absence of explicit recognition, according to our results, of capacity transformation and greater adaptability with advancing age, as identified in the aging worker literature [19–26, 48]. This lack of explicit recognition could be partially explained by the fact that no specific questions were asked in the focus groups about the strengths of aging workers with a disability. However, a useful strategy might be to consider the transformation of capacity with aging in order to determine new compatibility between capacity and work demands for disabled workers. In fact, taking stock of workers’ personal resources, acquired through specific occupational and personal trajectories and experiences, would facilitate reflection on the possible options that could be implemented in the workplace to facilitate the S-RTW of aging workers with work disabilities.

This proposal thus aligns well with the previously mentioned recommendations of using an individualised approach in order to increase work motivation and retention among aging worker [44, 50]. It is also fully convergent with the findings of an earlier study by Durand et al., which showed that the presence of a sufficient margin of manoeuvre at work—that is, the possibility or freedom a worker has to continually adapt his or her work activities to demands and capacities that vary over time—would facilitate a S-RTW following a long-term absence [105]. An approach such as this, which takes into account aging workers’ characteristics and their motivation to stay at work, may offer an avenue for developing promising interventions. In addition, it could mobilise various worker empowerment strategies [44, 106].

As summarized here, our results revolve primarily around the workers (capacities, mobilisation) and their work environment, thereby confirming the previously presumed influence of the work context on the performance capacities of aging workers. However, some results, mainly from the focus groups, also reveal that factors from the health and compensation systems could influence S-RTW of aging workers. The contribution of those systems is just beginning to emerge and needs to be explored in depth. For example, the influence of health professionals’ representations of disabled workers undergoing treatment could be documented. Also, the effects of compensation system rules need to be described longitudinally in order to better understand how they affect health care and service delivery, S-RTW and workers’ health. Our results thereby highlight that involvement from different sectors influences the sustainable return to work (S-RTW) of aging workers with a work disability. Possible solutions could come from harmonizing the efforts of all sectors to reduce long-term absences, as recommended in work rehabilitation. Indeed, many authors point out that

a key component of S-RTW, when a work disability is present, is coordination between the sectors (health, enterprise, insurance) for the shared goal of returning workers to work [107, 108].

In the current context of labour scarcity, studies on the costs and benefits of the support and adaptation measures offered to aging workers are thus essential in order to allow all the actors involved in the S-RTW process to base their decisions on more objective knowledge of these workers' capacities and potential contributions in the workplace. In addition to advancing age, we must also consider the influence of other characteristics (gender, ethnocultural diversity) which can pose additional challenges and constraints [109].

## Limitations

That said, this study has some limitations. First, the search strategies targeted only articles in the field of tertiary prevention. This choice eliminated articles in the fields of primary or secondary prevention that might have been enlightening for aging workers. Second, by encouraging the participants to talk initially about the challenges and issues encountered with aging workers, they may have been less inclined to reveal situations that are usually less problematic. Recruitment strategies may also have introduced some participant selection bias, resulting in voluntary participation. The composition of the focus groups, particularly the absence of aging workers who could testify directly from their experience, may also have influenced the results. Likewise, the choice of a critical review of the literature, while logical in terms of the study objectives, has its own limitations. Generally speaking, this approach has minimal structure and imposes no formal quality-related criteria for study inclusion [56]. Hence, some poorer quality studies may have been included. That said, this limitation was partly curtailed by the interpretive description approach, which further substantiated the problem under study through focus groups.

## Conclusion

The aim of this article was to provide a synthesis of the factors and issues specifically impacting the S-RTW of aging workers on sick leave for the four main causes of absenteeism, namely, musculoskeletal disorders, common mental disorders, cancer and chronic diseases. Returning to work and staying at work indeed appear to pose particular issues for aging workers, notably with regard to their ability to meet work demands, as well as their mobilisation and engagement in these processes. This study points to the need for a more personalised approach to supporting sustainable work.

Such efforts need to be made by the various stakeholders, and studies should be conducted to help better define the approaches that will enable aging workers to stay at work on a sustainable basis.

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## Compliance with Ethical Standards

**Conflict of interest** None of the authors have any conflicts of interest to declare.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

## References

1. Dewa CS, Chau N, Dermer S. Examining the comparative incidence and costs of physical and mental health-related disabilities in an employed population. *J Occup Environ Med.* 2010;52:758–762.
2. Koopmans PC, Bültmann U, Roelen CAM, Hoedeman R, van der Klink JLL, Groothoff JW. Recurrence of sickness absence due to common mental disorders. *Int Arch Occup Environ Health.* 2011;84:193–201.
3. Demers G, Boudreau Y, Fernet M, Jeannot L, Tremblay M, Godbout C, et al. Le vieillissement de la main-d'œuvre et l'avenir de la retraite : Des enjeux pour tous. Un effort de chacun. Rapport de la commission nationale sur la participation au marché du travail des travailleuses et travailleurs expérimentés de 55 ans et plus (*The aging workforce and the future of retirement: stakes for all. Everyone's effort. Report from the national commission on labor market participation of experienced workers aged 55 and over*). Québec, QC: Commission nationale sur la participation au marché du travail des travailleuses et travailleurs expérimentés de 55 ans et plus (*National commission on labor market participation of experienced workers aged 55 and over*); 2011.
4. Corsi M, Lodovici MS, European Commission Expert group in gender equality, social inclusion, health and long-term care. Active ageing and gender equality policies: the employment and social inclusion of women and men of late working and early retirement age. Publications Office of the European Union; 2012.
5. Stanford Center on Longevity - Financial Security Division, editor. Adapting to an aging workforce. Proceedings of the 2nd "Adapting to an Aging Workforce" conference; 2014 Jan 30–31; New York. Stanford: Stanford Center on Longevity; 2014.



6. Kelly K. The aging workforce: four steps to maximize older workers in your organization. Chapel Hill: University of North Carolina, Kenan-Flagler Business School; 2015.
7. Hasselhorn HM, Wenke A. Understanding employment participation of older workers: creating a knowledge base for future labour market challenges. Berlin (DE): Federal Ministry of Labour and Social Affairs (BMAS) and Federal Institute for Occupational Safety and Health; 2015.
8. Silverstein M. Meeting the challenges of an aging workforce. *Am J Ind Med.* 2008;51:269–280.
9. Eurostat. Health and safety at work in Europe (1999–2007). A statistical portrait. Luxembourg: Publications Office of the European Union; 2010.
10. Bureau of Labor Statistics. News Release. Nonfatal occupational injuries and illnesses requiring days away from work [Internet]. Washington (DC): U.S. Department of Labor; 2013 [cited 2018 Jul 16]. [https://www.bls.gov/news.release/archives/osh2\\_11262013.pdf](https://www.bls.gov/news.release/archives/osh2_11262013.pdf)
11. Rogers E, Wiatrowski WJ. Injuries, illnesses, and fatalities among older workers. *Monthly Labor Rev.* 2005;128:24–30.
12. Wiatrowski WJ. Older workers less likely to have severe work injuries, but they miss more work days to recover. TED: The Economics Daily [Internet]. 2013 [cited 2018 Jul 19]. [https://www.bls.gov/opub/ted/2013/ted\\_20131230.htm#bls-print](https://www.bls.gov/opub/ted/2013/ted_20131230.htm#bls-print)
13. Commission de la santé et de la sécurité du travail du Québec (*Quebec Workers Compensation Board*). Statistiques sur les lésions attribuables aux TMS en milieu de travail : 2010–2013 (*Statistics on MSD injuries in the workplace: 2010–2013*). Québec: Commission de la santé et de la sécurité du travail du Québec; 2014.
14. Commission de la santé et de la sécurité du travail du Québec (*Quebec Workers Compensation Board*). Portrait des lésions professionnelles chez les travailleurs de 55 ans et plus : 2002–2011 (*Portrait of occupational injuries among 55+ workers: 2002–2011*). Québec: Commission de la santé et de la sécurité du travail du Québec; 2014.
15. Jetha A, Besen E, Smith PM. Comparing the relationship between age and length of disability across common chronic conditions. *J Occup Environ Med.* 2016;58:485–491.
16. Roelen CAM, Norder G, Koopmans PC, van Rhenen W, van der Klink JLL, Bültmann U. Employees sick-listed with mental disorders: who returns to work and when? *J Occup Rehabil.* 2012;22:409–417.
17. Smith PM, Black O, Keegel T, Collie A. Are the predictors of work absence following a work-related injury similar for musculoskeletal and mental health claims? *J Occup Rehabil.* 2014;24:79–88.
18. Virtanen M, Vahtera J, Head J, Dray-Spira R, Okuloff A, Tabak AG, et al. Work disability among employees with diabetes: latent class analysis of risk factors in three prospective cohort studies. *PLoS ONE.* 2015. <https://doi.org/10.1371/journal.pone.0143184>.
19. Dalen HPV, Henkens K, Schippers J. Productivity of older workers: perceptions of employers and employees. *Popul Dev Rev.* 2010;36:309–330.
20. Faurie I, Fraccaroli F, Blanc AL. Âge et travail: des études sur le vieillissement au travail à une approche psychosociale de la fin de la carrière professionnelle (*Age and work: from studies of aging at work to a psychosocial approach of the end of a professional career*). *Travail Humain (Human Work).* 2008;71:137–172.
21. DeArmond S, Tye M, Chen PY, Krauss A, Rogers DA, Sintek E. Age and gender stereotypes: new challenges in a changing workplace and workforce. *J Appl Soc Psychol.* 2006;36:2184–2214.
22. McCann RM, Giles H. Communication with people of different ages in the workplace: Thai and American data. *Hum Commun Res.* 2006;32:74–108.
23. Brooke L, Taylor P. Older workers and employment: managing age relations. *Ageing Soc.* 2005;25:415–429.
24. Redman T, Snape E. Ageism in teaching: stereotypical beliefs and discriminatory attitudes towards the over-50s. *Work Employ Soc.* 2002;16:355–371.
25. Chiu W, Chan AW, Snape E, Redman T. Age stereotypes and discriminatory attitudes towards older workers: an east-west comparison. *Hum Relat.* 2001;54:629–661.
26. McGoldrick AE, Arrowsmith J. Discrimination by age: the organizational response. In: Glover I, Branine M, editors. *Ageism in work and employment*. London: Routledge; 2017. p. 93–114.
27. Ng TWH, Feldman DC. The relationships of age with job attitudes: a meta-analysis. *Pers Psychol.* 2010;63:677–718.
28. Segrave K. Age discrimination by employers. Jefferson: McFarland; 2001.
29. Warr P, Fay D. Age and personal initiative at work. *Eur J Work Org Psychol.* 2001;10:343–353.
30. Wilkening R. The age 60 rule: age discrimination in commercial aviation. *Aviat Space Environ Med.* 2002;73:194–202.
31. Waldman D, Avolio BJ. A meta-analysis of age differences in job performance. *J Appl Psychol.* 1986;71:33–38.
32. Raposo S, Carstensen LL. Developing a research agenda to combat ageism. *Generations.* 2015;39:79–85.
33. Jeske D, Roßnagel CS. Learning capability and performance in later working life: towards a contextual view. *Education + Training.* 2015;57:378–391.
34. McDaniel MA, Pesta BJ, Banks GC. Job performance and the aging worker. In: Hedge JW, Borman WC, editors. *The Oxford handbook of work and aging*. New York: Oxford University Press; 2012. p. 280–297.
35. Christian J, Turner R, Holt N, Larkin M, Cotler JH. Does inter-generational contact reduce ageism: when and how contact interventions actually work? *J Arts Human.* 2014;3:1–15.
36. Harris K, Krygsman S, Waschenko J, Laliberte RD. Ageism and the older worker: a scoping review. *Gerontologist.* 2018. <https://doi.org/10.1093/geront/gnw194>.
37. Finkelstein LM. Older workers, stereotypes, and discrimination in the context of the employment relationship. In: Bal PM, Kooij D, Rousseau D, editors. *Aging workers and the employee-employer relationship*. Cham: Springer; 2015. p. 13–32.
38. Posthuma RA, Wagstaff MF, Campion MA. Age stereotypes and workplace age discrimination. In: Hedge JW, Borman WC, editors. *The Oxford handbook of work and aging*. New York: Oxford University Press; 2012. p. 298–309.
39. Rizzuto TE, Cherry KE, LeDoux JA. The aging process and cognitive capabilities. In: Hedge JW, Borman WC, editors. *The Oxford handbook of work and aging*. New York: Oxford University Press; 2012. p. 236–252.
40. Vasconcelos AF. Older workers: some critical societal and organizational challenges. *Journal of Management Development.* 2015;34:352–372.
41. Bal PM, Jansen PGW. Idiosyncratic deals for older workers: increased heterogeneity among older workers enhance the need for i-deals. In: Bal PM, Kooij D, Rousseau D, editors. *Aging workers and the employee-employer relationship*. Springer: Cham; 2015. p. 129–144.
42. Dannefer D. Cumulative advantage/disadvantage and the life course: cross-fertilizing age and social science theory. *J Gerontol B Psychol Sci Soc Sci.* 2003;58:S327–S337.
43. Kanfer R, Ackerman PL. Aging, adult development, and work motivation. *Acad Manage Rev.* 2004;29:440–458.
44. Kooij DTAM, van de Voorde K. Strategic HRM for older workers. In: Bal PM, Kooij D, Rousseau D, editors. *Aging workers and the employee-employer relationship*. Springer: Cham; 2015. p. 57–72.



45. Truxillo D, Cadiz D, Hammer L. Supporting the aging workforce: a research review and recommendations for workplace intervention research. *Ann Rev Org Psychol Org Behav.* 2015;2:351–381.
46. Fisher GG, Chaffee DS, Tetrick LE, Davalos DB, Potter GG. Cognitive functioning, aging, and work: a review and recommendations for research and practice. *J Occup Health Psychol.* 2017;22:314–336.
47. Maertens JA, Putter SE, Chen PY, Diehl M, Huang Y-H. Physical capabilities and occupational health of older workers. In: Hedge JW, Borman WC, editors. *The Oxford handbook of work and aging.* New York: Oxford University Press; 2012. p. 215–2280.
48. Hertel G, Thielgen M, Rauschenbach C, Grube A, Stamov-Roßnagel C, Krumm S. Age differences in motivation and stress at work. In: Schlick CM, Frieling E, Wegge J, editors. *Age-differentiated work systems.* Berlin: Springer; 2013. p. 119–147.
49. James JB, Swanberg JE, McKechnie SP. Responsive workplaces for older workers: job quality, flexibility and employee engagement. Chestnut Hill, MA: Sloan Center on Aging & Work at Boston College; 2007. 10 p. Issue Brief 11.
50. Stamov-Roßnagel C, Hertel G. Older workers' motivation: against the myth of general decline. *Manag Decis.* 2010;48:894–906.
51. Hunt MR. Strengths and challenges in the use of interpretive description: reflections arising from a study of the moral experience of health professionals in humanitarian work. *Qual Health Res.* 2009;19:1284–1292.
52. Thorne S, Kirkham SR, O'Flynn-Magee K. The analytic challenge in interpretive description. *Int J Qual Methods.* 2004;3:1–11.
53. Gallagher F, Corbière M, Larivière N. La recherche descriptive interprétative: description des besoins psychosociaux de femmes à la suite d'un résultat anormal à la mammographie de dépistage du cancer du sein (*Interpretative descriptive research: a description of the psychosocial needs of women resulting from an abnormal breast cancer screening mammography*). Méthodes qualitatives, quantitatives et mixtes dans la recherche en sciences humaines, sociales et de la santé (*Qualitative, quantitative, and mixed methods in human, social, and health sciences*). Quebec: Presses de l'Université du Québec; 2014. pp. 5–28.
54. Kahlke RM. Generic qualitative approaches: pitfalls and benefits of methodological mixology. *Int J Qual Methods.* 2014;13:37–52.
55. Thorne S. Interpretive description: qualitative research for applied practice. 2nd ed. New York: Routledge; 2016.
56. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Inf Libr J.* 2009;26:91–108.
57. Thorne S, Kirkham SR, MacDonald-Emes J. Interpretive description: a noncategorical qualitative alternative for developing nursing knowledge. *Res Nurs Health.* 1997;20:169–177.
58. Carlsen B, Glenton C. What about N? A methodological study of sample-size reporting in focus group studies. *BMC Med Res Methodol.* 2011;11:26.
59. Nachevson A. Back pain: delimiting the problem in the next millennium. *Int J Law Psychiatry.* 1999;22:473–490.
60. Loisel P, Côté P. The work disability paradigm and its public health implications. In: Loisel P, Anema JR, editors. *Handbook of work disability.* New York: Springer; 2013. p. 59–67.
61. Loisel P, Durand M, Berthelette D, Vézina N, Baril R, Gagnon D, et al. Disability prevention: new paradigm for the management of occupational back pain. *Dis Manag Health Outcomes.* 2001;9:351–360.
62. Durand M-J, Nastasia I, Coutu M-F, Bernier M. Practices of return-to-work coordinators working in large organizations. *J Occup Rehabil.* 2017;27:137–147.
63. Loisel P, Buchbinder R, Hazard R, Keller R, Scheel I, van Tulder M, et al. Prevention of work disability due to musculoskeletal disorders: the challenge of implementing evidence. *J Occup Rehabil.* 2005;15:507–524.
64. Loisel P. Work disability: it is not just the "lesion". In: Feuerstein M, editor. *Work and cancer survivors.* New York: Springer; 2009. p. 93–103.
65. McCarthy J, Heraty N, Cross C, Cleveland JN. Who is considered an "older worker"? Extending our conceptualisation of "older" from an organisational decision maker perspective. *Hum Resource Manag J.* 2014;24:374–393.
66. Ilmarinen JE. Aging workers. *Occup Environ Med.* 2001;58:546–546.
67. Soer R, Brouwer S, Geertzen JH, van der Schans CP, Groothoff JW, Reneman MF. Decline of functional capacity in healthy aging workers. *Arch Phys Med Rehabil.* 2012;93:2326–332.
68. Liehr PR, Taft Marcus M, Cameron C. Qualitative approaches to research. In: LoBiondo-Wood G, Haber J, Cameron C, Singh M, editors. *Nursing research in Canada. Methods, critical appraisal, and utilization.* Toronto: Elsevier; 2018. p. 54–62.
69. Miles MB, Huberman AM, Saldana J. *Qualitative data analysis.* 3rd ed. Thousand Oaks: Sage; 2014.
70. Neergaard MA, Olesen F, Andersen RS, Sondergaard J. Qualitative description: the poor cousin of health research? *BMC Med Res Methodol.* 2009;9:52.
71. Saint-Arnaud L, Saint-Jean M. Le vieillissement des travailleurs et le processus de réinsertion professionnelle (*Workers' aging and the professional reintegration process*). *Gerontologie et Société (Gerontology and Society).* 2002;25(102):127–135.
72. Ruseckaite R, Collie A, Scheepers M, Brijnath B, Kosny A, Mazza D. Factors associated with sickness certification of injured workers by general practitioners in Victoria Australia. *BMC Public Health.* 2016;16:298.
73. Balducci L, Fossa SD. Rehabilitation of older cancer patients. *Acta Oncol.* 2013;52:233–238.
74. Delloiacono N. Musculoskeletal safety for older adults in the workplace: review of current best practice evidence. *Workplace Health Saf.* 2015;63:48–53.
75. Palmer KT, Goodson N. Ageing, musculoskeletal health and work. *Best Pract Res Clin Rheumatol.* 2015;29:391–404.
76. Boot CRL, de Kruif ATCM, Shaw WS, van der Beek AJ, Deeg DJ, Abma T. Factors important for work participation among older workers with depression, cardiovascular disease, and osteoarthritis: a mixed method study. *J Occup Rehabil.* 2016;26:160–172.
77. Lammerts L, Schaafsma FG, Eikelenboom M, Vermeulen SJ, van Mechelen W, Anema JR, et al. Longitudinal associations between biopsychosocial factors and sustainable return to work of sick-listed workers with a depressive or anxiety disorder. *J Occup Rehabil.* 2016;26:70–79.
78. Roessler RT, Rumrill PD Jr, Li J, Leslie MJ. Predictors of differential employment statuses of adults with multiple sclerosis. *J Vocat Rehabil.* 2015;42:141–152.
79. Jetha A, Bowring J, Tucker S, Connelly CE, Martin Ginis KA, Proulx L, et al. Transitions that matter: life course differences in the employment of adults with arthritis. *Disabil Rehabil.* 2018;40:3127–135.
80. Sanders MJ. Older manufacturing workers and adaptation to age-related changes. *Am J Occup Ther.* 2018;72:1–11.
81. Ervasti J, Mattila-Holappa P, Joensuu M, Pentti J, Virtanen M, Lallukka T, et al. Predictors of depression and musculoskeletal disorder related work disability among young, middle-aged, and aging employees. *J Occup Environ Med.* 2017;59:114–119.
82. Mattila-Holappa P, Ervasti J, Joensuu M, Ahola K, Pentti J, Oksanen T, et al. Do predictors of return to work and recurrence of work disability due to mental disorders vary by age? A cohort study. *Scand J Public Health.* 2017;45:178–184.

83. Ullrich A, Rath H, Otto U, Kerschgens C, Raida M, Hagen-Aukamp C, et al. Outcomes across the return-to-work process in PC survivors attending a rehabilitation measure—results from a prospective study. *Support Care Cancer*. 2017;25:3007–3155.
84. Jason KJ, Carr DC, Washington TR, Hilliard TS, Mingo CA. Multiple chronic conditions, resilience, and workforce transitions in later life: a socio-ecological model. *Gerontologist*. 2017;57:269–281.
85. Gignac MAM, Kristman V, Smith PM, Beaton DE, Badley EM, Ibrahim S, et al. Are there differences in workplace accommodation needs, use and unmet needs among older workers with arthritis, diabetes and no chronic conditions? Examining the role of health and work context. *Work Aging Retire*. 2018;4:381–398.
86. Koolhaas W, van der Klink JLL, Vervoort JPM, de Boer MR, Brouwer S, Groothoff JW. In-depth study of the workers' perspectives to enhance sustainable working life: comparison between workers with and without a chronic health condition. *J Occup Rehabil*. 2013;23:170–179.
87. Leijten FRM, van den Heuvel SG, van der Beek AJ, Ybema JF, Robroek SJW, Burdorf A. Associations of work-related factors and work engagement with mental and physical health: a 1-year follow-up study among older workers. *J Occup Rehabil*. 2015;25:86–95.
88. Smith P, Bielecky A, Ibrahim S, Mustard C, Saunders R, Beaton D, et al. Impact of pre-existing chronic conditions on age differences in sickness absence after a musculoskeletal work injury: a path analysis approach. *Scand J Work Environ Health*. 2014;40:167–175.
89. Saunders C, Brown JJ, Carter DJ, Lapkin S. Chronic disease management support in Australian workplaces—low base, rising need. *Health Promot J Austr*. 2018;29:257–264.
90. Kadijk EA, van den Heuvel S, Ybema JF, Leijten FRM. The influence of multi-morbidity on the work ability of ageing employees and the role of coping style. *J Occup Rehabil*. 2019;29:503–513.
91. Cichy KE, Leslie M, Rumrill PD, Koch LC. Population aging and disability: implications for vocational rehabilitation practice. *J Vocat Rehabil*. 2017;47:185–196.
92. Welch L, Haile E, Boden LI, Hunting KL. Musculoskeletal disorders among construction roofers—physical function and disability. *Scand J Work Environ Health*. 2009;35:56–63.
93. Boot CRL, Deeg DJH, Abma T, Rijs KJ, Pas S, Tilburg TG, et al. Predictors of having paid work in older workers with and without chronic disease: a 3-year prospective cohort study. *J Occup Rehabil*. 2014;3:563–572.
94. Leijten FR, van den Heuvel SG, Ybema JF, Robroek SJW, Burdorf A. Do work factors modify the association between chronic health problems and sickness absence among older employees? *Scand J Work Environ Health*. 2013;39:477–485.
95. de Wind A, Scharn M, Geuskens GA, van der Beek AJ, Boot CRL, Boot CRL. Predictors of working beyond retirement in older workers with and without a chronic disease: results from data linkage of Dutch questionnaire and registry data. *BMC Public Health*. 2018;18:1.
96. Leijten FRM, de Wind A, van den Heuvel SG, Ybema JF, van der Beek AJ, Robroek SJW, et al. The influence of chronic health problems and work-related factors on loss of paid employment among older workers. *J Epidemiol Community Health*. 2015;69:1058–1065.
97. Sewdas R, Van Der Beek AJ, De Wind A, Van Der Zwaan LGL, Boot CRL. Determinants of working until retirement compared to a transition to early retirement among older workers with and without chronic diseases: results from a Dutch prospective cohort study. *Scand J Public Health*. 2018;46:400–408.
98. Erickson AS. A survey of supports used by women with arthritis over age 50 to maintain employment. Lexington: University of Kentucky; 2009.
99. Smith P, Chen C, Mustard C, Hogg-Johnson S, Tompa E. The relationship between worker, occupational and workplace characteristics and whether an injury requires time off work: a matched case-control analysis in Ontario, Canada. *Am J Ind Med*. 2015;58:402–410.
100. Yelin E, Sonneborn D, Trupin L. The prevalence and impact of accommodations on the employment of persons 51–61 years of age with musculoskeletal conditions. *Arthritis Care Res*. 2000;13:168–176.
101. Arvilommi P, Suominen K, Mantere O, Valtonen H, Lepämäki S, Isometsä E. Predictors of long-term work disability among patients with type I and II bipolar disorder: a prospective 18-month follow-up study. *Bipolar Disord*. 2015;17:821–835.
102. van de Vijfeijke H, Leijten FRM, Ybema JF, van den Heuvel SG, Robroek SJW, van der Beek AJ, et al. Differential effects of mental and physical health and coping style on work ability: a 1-year follow-up study among aging workers. *J Occup Environ Med*. 2013;55:1238–1243.
103. Olesen SC, Butterworth P, Rodgers B. Is poor mental health a risk factor for retirement? Findings from a longitudinal population survey. *Soc Psychiatry Psychiatr Epidemiol*. 2012;47:735–744.
104. La EB. vulnérabilité en question? (Vulnerability in question?). *Ethics Med Public Health*. 2017;3:365–373.
105. Durand M-J, Vézina N, Baril R, Loisel P, Richard M-C, Ngomo S. Relationship between the margin of manoeuvre and the return to work after a long-term absence due to a musculoskeletal disorder: an exploratory study. *Disabil Rehabil*. 2011;33:1245–1252.
106. Appannah A, Biggs S. Age-friendly organisations: the role of organisational culture and the participation of older workers. *J Soc Work Pract*. 2015;29:37–51.
107. Costa-Black KM, Feuerstein M, Loisel P. Work disability models: past and present. In: Loisel P, Anema JR, editors. *Handbook of work disability*. New York: Springer; 2013. p. 71–93.
108. Lederer V, Loisel P, Rivard M, Champagne F. Exploring the diversity of conceptualizations of work (dis) ability: a scoping review of published definitions. *J Occup Rehabil*. 2014;24:242–267.
109. Marcus J, Fritzsche BA. One size doesn't fit all: toward a theory on the intersectional salience of ageism at work. *Org Psychol Rev*. 2015;5:168–188.

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