



UvA-DARE (Digital Academic Repository)

Health-related Work Limitations Among Older Workers—the Role of Flexible Work Arrangements and Organizational Climate

Vanajan, A.; Bültmann, U.; Henkens, K.

DOI

[10.1093/geront/gnz073](https://doi.org/10.1093/geront/gnz073)

Publication date

2020

Document Version

Final published version

Published in

The Gerontologist

License

CC BY-NC

[Link to publication](#)

Citation for published version (APA):

Vanajan, A., Bültmann, U., & Henkens, K. (2020). Health-related Work Limitations Among Older Workers—the Role of Flexible Work Arrangements and Organizational Climate. *The Gerontologist*, 60(3), 450-459. <https://doi.org/10.1093/geront/gnz073>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)

Research Article

Health-related Work Limitations Among Older Workers— the Role of Flexible Work Arrangements and Organizational Climate

Anushiya Vanajan, MSc,^{1,2,*} Ute Bültmann, PhD,² and Kène Henkens, PhD^{1,2,3}

¹Netherlands Interdisciplinary Demographic Institute, The Hague, The Netherlands. ²Department of Health Sciences, Community & Occupational Medicine, University Medical Center Groningen, University of Groningen, The Netherlands. ³Faculty of Social and Behavioural Sciences, University of Amsterdam, The Netherlands.

*Address correspondence to: Anushiya Vanajan, MSc, Netherlands Interdisciplinary Demographic Institute, Lange Houtstraat 19, 2511 CV The Hague, The Netherlands. E-mail: vanajan@nidi.nl

Received: December 12, 2018; Editorial Decision Date: April 23, 2019

Decision Editor: Nicholas G. Castle, PhD

Abstract

Background and Objectives: Given their increasing prevalence with age, chronic health conditions (CHCs) are substantially affecting older workers and organizations. An important question is whether and how flexible work arrangements and organizational climates may help to reduce the work limitations experienced by older workers. Grounded on the Job Demand–Resource model, we hypothesize that access to flexible work arrangements (working-time flexibility, workplace flexibility, phased retirement) and supportive organizational climates (healthy ageing climate, psychological safety climate) are vital job resources that are associated with fewer health-related work limitations among older workers experiencing CHCs.

Research Design and Methods: Multilevel data were collected among 5,419 older workers (60–65 years) in 624 organizations in the Netherlands. Perceived health-related work limitations of older workers diagnosed with arthritis ($N = 2,330$), cardiovascular disease ($N = 720$), and sleep disorders ($N = 816$) were analyzed.

Results: Multilevel ordered logistic regression analyses revealed that perceived access to flexible working hours and a psychologically safe organizational climate was associated with fewer health-related work limitations among older workers with CHCs.

Discussion and Implications: Facilitating longer working lives is a key policy challenge within organizations, in particular if older workers are constrained by CHCs. This study shows that offering flexible working hours and ensuring a psychologically safe climate, where older workers with health issues are inclined to share their work needs and preferences, are likely to contribute to healthy ageing in the workplace.

Keywords: Successful ageing, Chronic illness, Environment, Work, Organizational policies and practices

With the increase in retirement age throughout the Western world, more attention is being focused on how older workers' fitness to work can be maintained. Ageing is associated with a general decline in physical health and mental capabilities, and an increased susceptibility to injury, communicable disease, and chronic health conditions (CHCs)

(McMahan & Sturz, 2006). Compared with injury and communicable disease, CHCs contribute far more to mortality, ill-health, and the total burden of disease in old age in Europe (Harbers & Achterberg, 2012).

As the prevalence of CHCs increases with age (Stattin, 2005) and the current labor market context requires

individuals to work into old age (Henkens et al., 2017a), the prevalence of CHCs in the workplace is increasing and substantially impacting older workers and organizations (Boot et al., 2014). Existing research shows that CHCs in older workers increase the likelihood of an early exit from work and reduce their work productivity, work ability, and work functioning, due to experienced work limitations (Leijten et al., 2014). Despite these negative effects, our understanding of how flexible work arrangements (FWAs) and organizational climates may help reduce or prevent health-related work limitations among older workers with CHCs is limited.

Existing studies that do examine the influence of work conditions on the effect of CHCs on work ability or work limitations of older workers focus solely on work sector, years of paid work, shift work/non-shift work, working hours, decision latitude, psychological and physical job demands, and job strain (Al Dhanhani, Gignac, Beaton, Su, & Fortin, 2014; Koolhaas, van der Klink, de Boer, Groothoff, & Brouwer, 2014). By overlooking the influence of FWAs and organizational climate within the study of work conditions, these studies offer a limited perspective on the work conditions of older workers. This is remarkable given that the development of age-based FWAs and positive organizational climates are deemed crucial to facilitate longer working careers (van Dalen, Henkens, & Wang, 2015). The current study aims to address this gap in knowledge by questioning the extent to which older workers' perceived access to FWAs and the organizations' climate are associated with perceived health-related work limitations among older workers suffering from three highly prevalent CHCs, namely arthritis, cardiovascular diseases, and sleep disorders.

Our study contributes to the literature in three ways. First, we bring together the literature from health and organizational sciences, by highlighting the health-related work limitations experienced by older workers suffering from three CHCs in pre-retirement years (60–65 years). We focus on arthritis, cardiovascular disease, and sleep disorders, because these are among the most prevalent and burdensome conditions among older workers (Dregan & Armstrong, 2011; OECD, 2016; WHO, 2018). These CHCs have also been found to severely restrict the work functioning of older workers (Chong, Fryer, & Gu, 2013). Moreover, the nature of our dependent variable, health-related work limitations, provides a measure of work limitations that are a direct result of the CHC. Thereby, our study will provide a clearer understanding of the direct impact of arthritis, cardiovascular disease, and sleep disorders on health-related work limitations of older workers.

Second, this study is the first to analyze the impact of the older workers' perceived access to FWAs and organizational climate on health-related work limitations on older workers. FWAs are "any policies and practices, formal or informal, which permit people to vary when and where work is carried out" (Maxwell, Rankine, Bell,

& MacVicar, 2007). Organizational climate consists of "a set of attributes that can be perceived about a particular organization, that may be induced from the way the organization deals with its members and environment" (Schneider, 1973). The current study operationalizes organizational climate as an organizational-level variable, thereby providing a full picture of the general atmosphere within each organization. The study of organizational climate, together with perceived access to FWAs, may allow for a more encompassing understanding of the macro- and microlevel impacts of organizational practices and workplace environments on health-related work limitations of older worker with CHCs.

The third contribution of this study is that it uses an innovative dataset with a multilevel data structure. Due to a lack of appropriate multilevel data, previous studies have not examined the effect of organizational climate, an organizational-level concept, on health-related work limitations on older workers with CHCs. This study addresses this gap. We collected multilevel data from 5,419 older workers (aged 60–65 years) working in 624 organizations. These unique multilevel data are necessary to accurately study the role of organizational climate on health-related work limitations. Additionally, it offers a rare opportunity to distinguish between individual- and organizational-level effects on health-related work limitations.

In the Netherlands, the retirement age for people born after 1950 will increase from 65 years to 67 years by 2021. Early exit routes into retirement have been blocked since 2006. These circumstances require older workers to work longer than they previously expected, despite being substantially limited by CHCs (Harbers & Achterberg, 2012). Since the current study may increase our understanding of the practices through which we could successfully extend working lives in regions with shifting labor market policies, it might potentially benefit older workers, organizations, and even the economy at large.

Theory and Hypotheses

The Job Demand–Resource (JD-R) model states that a balance between job demands and job resources is associated with high level of employee well-being (Schaufeli & Bakker, 2004). Where job demands are defined as "physical, social or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs," job resources are operationalized as "physical, social or organizational aspects of the job, which may: (a) be functional in achieving work goals; (b) reduce job demands and the associated physiological and psychological costs; and (c) stimulate personal growth and development" (Schaufeli & Bakker, 2004, p. 296). Hockey (1997) argues that, for older workers, job resources are important to accommodate their health-related difficulties. The current study is based on the notion that the circumstances experienced by

older workers at their workplaces—their perceived access to FWAs and organizational climate—are likely to shape their health-related work limitations. We elaborate on these factors below.

Perceived Access to FWAs

Because older workers with CHCs are a heterogeneous group, varying in their needs, CHC diagnoses, and personal circumstances, FWAs can accommodate their specific needs and circumstances (Atkinson & Sandiford, 2016). Following Loretto, Vickerstaff, and White's (2007) recommendation to disentangle different aspects of FWAs, we study the impact of three FWAs, namely working-time flexibility, workplace flexibility, and phased retirement, on perceived health-related work limitations. While working-time flexibility allows older workers to choose the times at which they work, workplace flexibility allows them to choose the location. Along the same lines, phased retirement provides older workers with the ability to reduce working hours in a stepwise manner prior to their full retirement.

The need for and use of FWAs increase with age (Kooij, Jansen, Dijkers, & De Lange, 2010). Earlier studies have shown that FWAs prolong employment (Damman & Henkens, 2018), enhance work functioning (Amick et al., 2017), and delay retirement among older workers (Moen, Kojola, & Schaefer, 2016). Older workers experiencing a CHC may feel helpless and out of control due to the symptoms of their disease and the need to work under strict organizational rules (Gignac, Cott, & Badley, 2000). Recently, Dropkin, Moline, Kim, and Gold (2016) argued that FWAs offered more comfort (e.g., working from home), autonomy (e.g., less face-to-face managerial supervision), and control (e.g., control over work hours), thereby reducing stress, increasing job satisfaction, enhancing work-life balance, and managing CHCs. In line with the JD-R model, perceived access to FWAs is assumed an important job resource for older workers with CHCs. Our *work flexibility hypothesis* presumes that perceived access to working-time flexibility (a), workplace flexibility (b), and phased retirement (c) is associated with fewer health-related work limitations experienced by older workers with CHCs.

Organizational Climate

Organizations differ in their perspectives on the employability of older workers and their actions toward them (van Dalen et al., 2015). Organizations that have a supportive organizational climate creates a positive workplace, employee satisfaction, and organizational productivity, while mitigating social, psychological, and work-related problems (Qureshi, Rasli, & Zaman, 2014). We will study the impact of two distinct constructs of organizational climate—healthy ageing climate and psychological

safety climate—on health-related work limitations of older workers with CHCs.

Per the World Health Organization (WHO, 2015) definition, a healthy ageing climate is one that supports the development and maintenance of the functional ability of older workers, while enhancing well-being in older age. A healthy ageing climate is a relatively novel yet increasingly popular concept. Bousquet and coworkers (2015) proposed that a healthy ageing climate is assumed to prevent health decline, while developing health and improving quality of life of older workers. Similarly, Zacher and Yang (2016) suggested that a healthy ageing climate may increase older workers' job satisfaction, organizational commitment, and motivation to continue working past retirement age. A healthy ageing climate can be viewed as a resource that enriches the work conditions experienced by older workers. In our *healthy ageing climate hypothesis*, we posit that working in organizations characterized by a climate that supports healthy ageing of their employees is associated with fewer health-related work limitations experienced by older workers with CHCs.

Psychological safety refers to workers' perceptions of the consequences of taking interpersonal risks in their workplaces (Edmondson & Lei, 2014). Studies on psychologically safe workplace climates suggest that they encourage employees to share information and knowledge (Siemsen, Roth, Balasubramanian, & Anand, 2009), and express their ideas (Liang, Farh, & Farh, 2012). Along the same lines, we assume that psychologically safe climates also embolden older workers to express their needs and difficulties, especially those related to CHCs. For example, Gignac and Cao (2009) found workers with arthritis to be more likely to self-disclose their health difficulties in a supportive work environment. A work climate that enhances disclosure—a psychologically safe climate—is a job resource, because it allows open communication, thereby increasing the likelihood of receiving work accommodations, which may lower health-related work limitations. Hence, we propose the *psychological safety climate hypothesis*, which postulates that psychologically safe organizational climates are associated with fewer health-related work limitations experienced by older workers with CHCs.

Methods

Study Design and Sample

This study used data from the first wave of the NIDI Pension Panel Survey conducted in 2015 (Henkens, Van Solinge, Damman, & Dingemans, 2017b). This is a prospective cohort study. The survey is carried out among employed older workers (60–65 years at baseline) enrolled in three of the bigger pension funds in the Netherlands (ABP, PfZW, and BpBouw). A stratified design was used. First, a sample of organizations was drawn from the files of the pension funds. Next, within the selected set of organizations, older workers were randomly sampled in each organization, who worked

at least 12 hr per week. The selected older workers received a questionnaire and accompanying letters sent by post from their pension fund to their home address. Respondents were given the choice to complete a paper or an online questionnaire. In total, 15,470 questionnaires were sent to older workers, of which 6,793 were returned after two reminders. This corresponds to a net response rate of 44%.

Following the guidelines of Van Mierlo, Vermunt, and Rutte (2009) on ensuring the reliability of group-level variables, we excluded 578 organizations (out of 1,202) with fewer than three respondents. Item non-response was low (<5%) and never exceeded 5% for any single item. These circumstances permit less vigorous missing data imputation methods than multiple imputation (Little, Jorgensen, Lang, & Moore, 2014). We therefore dealt with most missing data by single stochastic regression imputation (Enders, 2010, pp. 46–49) and mode imputation. However, few respondents did not provide information on their job, which resulted in 28 cases of missing values among work-related factors, specifically job type and job position. These respondents were excluded from further analysis through listwise deletion. Consequently, the final study population comprised 5,419 older workers employed by 624 organizations.

We conducted our analysis independently for each CHC. These subsamples are: older workers diagnosed with arthritis ($N = 2,330$ in 567 organizations, 43.0% of total sample), cardiovascular disease ($N = 720$ in 368 organizations, 13.3% of total sample), and sleep disorders ($N = 816$ in 396 organizations, 15.1% of total sample).

Measures

Dependent variable

Health-related work limitations were measured using the Limiting Long-Standing Illnesses (LLSI) measure (Bajekal, Harries, Breman, & Woodfield, 2004). The LLSI is a two-part harmonized single-item measure, which captures 1: perceived disabling effects of CHCs, and 2: perceived work limitations due directly to that CHC. The LLSI asks respondents “Do you have one or more of the following longstanding diseases (as diagnosed by a doctor)?,” then proceeds with the question “Do these longstanding diseases limit your performance at work?” which has three possible responses: 3 = severely limited, 2 = moderately limited, and 1 = not limited. The LLSI has been widely used in censuses and surveys (Bajekal et al., 2004). The LLSI has high validity and is a stable measure of health-related work limitations (Bajekal et al., 2004).

Independent variables

Perceived access to FWAs. As access to FWAs depend on individual characteristics of older workers, such as occupational status (Danziger & Boots, 2008), it has been operationalized on the individual level as older workers’ perceived access to FWAs. Information on perceived access

to FWAs was derived from the question “Are the following human resource practices available to you in your organization?” This question was followed by a list of HR practices. Working-time flexibility was measured by the item “Flexible working hours,” while workplace flexibility was measured by the item “Working from home,” and phased retirement was measured by the item “Reducing working hours prior to retirement.” All items were answered by choosing between 0 = Human resource practice is not available and 1 = Human resource practice is available.

Organizational climate. Healthy ageing climate and psychological safety climate were each measured on a Likert scale using two items each. Healthy ageing climate was measured via the items “In this organization a lot of attention is paid to health and safety at work” and “Health and wellbeing of employees are important in this organization.” Healthy ageing is increasingly viewed through the life course perspective, according to which healthy ageing is a lifelong development involving all stages of life (Kuh, Karunanathan, Bergman, & Cooper, 2014). Psychological safety climate was measured via the items “At my work many people are afraid to make mistakes” and “In this organization there is a culture of fear.” Participants responded to these items on a 5-point Likert scale, which ranged from 1 = completely agree to 5 = completely disagree. The responses from the two items related to healthy ageing climate were first reverse-coded and then averaged to obtain a mean individual-level score for healthy ageing climate ranging from 1 to 5. The resulting score for healthy ageing climate showed high reliability (Spearman–Brown prophecy reliability estimate = .81). The responses for the two items relating to psychological safety climate were averaged to obtain a mean individual-level score of psychological safety climate ranging from 1 to 5. The resulting score of psychological safety climate showed moderate reliability (Spearman–Brown prophecy reliability estimate = .61).

Next, organizational-level climate variables were developed by aggregating individual-level measures of organizational climate by organization, based on the direct-consensus composition model (a model that averages individual members’ responses to operationalize organizational-level scores [Cole, Bedeian, Hirschfeld, & Vogel, 2011]). These scale variables of organizational-level climate ranged from 1 to 5. They were used in multilevel regression analysis. Categorical variables of organizational climate were created for descriptive analysis. These variables comprised of three categories with scores higher than 3 indicating an organizational climate that supports healthy ageing and enhances psychological safety.

Control variables. We control for demographic characteristics, comorbidity with diabetes, psychological disorders, and other CHCs, and work-related factors. Within demographic characteristics, we adjust for age, sex, marital status, and wealth. We explicitly control for diabetes and psychological

disorders because they are highly prevalent and comorbid with other CHCs in old age (Barnett et al., 2012).

Work-related factors concern the size of organization, sector, job type (blue-collar vs white-collar jobs), job position (supervisory vs non-supervisory position), proportion of workers over 50 years, proportion of female workers, and proportion of part-time workers. We control for size of organization and sector because the demands and resources of a job may differ based on these factors. In reference to job type, research has found that, in comparison to white-collar jobs, blue-collar jobs are characterized by high physical demands, thus increasing the likelihood of job strain and health impairments (Schaufeli & Taris, 2014). Likewise, job position was controlled for because supervisors benefit from more job control, fewer physical job demands, and easier access to resources, despite the likelihood that their job will be more mentally demanding (Bakker, Demerouti, & Euwema, 2005). Additional information on all variables is provided in Supplementary Table 1.

Data Analysis

Descriptive analyses were conducted to examine distribution of the sample and to evaluate the extent of health-related work limitations among older workers experiencing CHCs. Multilevel ordered logistic regression analysis was performed to analyze the impact of perceived access to FWAs, organizational climate, and control variables on health-related work limitations experienced by older workers with CHCs. Additionally, cross-level interactions were analyzed to assess the robustness of our findings. The analysis was carried out for the three CHCs independently.

To support the aggregation of climate variables to organizational-level constructs and to reassure the necessity for multilevel modeling, we estimated one-way analyses of variance (ANOVAs), together with interrater reliability indices (via intraclass correlation coefficients (ICC)). Interrater reliability indices supported the aggregation of individual-level scores of healthy ageing climate (ICC1 = .18, ICC2 = .99) and psychologically safe climate (ICC1 = .08, ICC2 = .99) to the organizational level. In addition, ANOVA results revealed significant and pronounced differences in health-related work limitations ($F(623, 4804) = 1.13, p = .02$), healthy ageing climate ($F(623, 4824) = 2.92, p < .001$), and psychological safety climate ($F(623, 4824) = 1.76, p < .001$) between organizations. Taken together, this evidence justifies the aggregation of climate variables to organizational-level constructs and the use of multilevel analysis. All analyses were conducted using Stata/SE 14.0 (Stata, College Station, TX).

Results

Characteristics of Participants

Figure 1 demonstrates the extent to which arthritis, cardiovascular disease, and sleep disorders limit older workers' performance at work. While about half of the respondents

experienced moderate health-related work limitations, 14.0% of respondents with arthritis, 14.7% of respondents with cardiovascular disease, and 19.1% of respondents with sleep disorders experienced severe health-related work limitations. For all three CHCs, approximately a third of respondents reported no work limitations at all.

Regarding access to FWAs, approximately half of the respondents with CHCs reported that they had access to working-time flexibility and workplace flexibility. A larger proportion (71.1%) of respondents had access to phased retirement (Supplementary Table 2). Concerning organizational climate, more than half of the respondents worked in organizations that relatively supports healthy ageing and enhances psychological safety. Approximately 1 in 10 respondents worked in organizations with a climate that provides low levels of support for healthy ageing and psychological safety (Supplementary Table 2).

Influence of Perceived Access to FWAs and Organizational Climate on Health-Related Work Limitations

Table 1 presents the results of multilevel ordered logistic regression analyses examining the relationships between organizational factors and health-related work limitations. Older workers' perceived access to working-time flexibility was associated with fewer health-related work limitations (Table 1). This effect was statistically significant for arthritis ($B = -.42, p < .001$) and sleep disorders ($B = -.38, p < .05$), and was borderline significant for cardiovascular disease ($B = -.33, p = .059$). Hence, the *work flexibility hypothesis - A* was supported. Figure 2 illustrates the probability of older workers reporting severe health-related work limitations when they perceived to have access to working-time flexibility and when they perceived to have no access to working-time flexibility. The figure shows that 21.3% of older workers with sleep disorders who perceived they

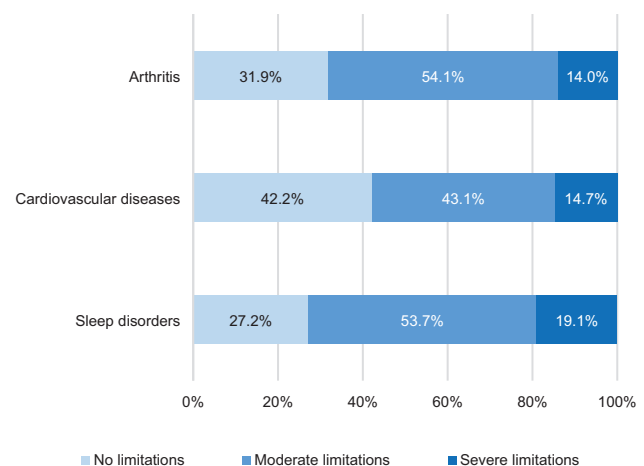


Figure 1. Perceived health-related work limitations of older workers with arthritis ($N = 2,330$), cardiovascular disease ($N = 720$), and sleep disorders ($N = 816$).

Table 1. Covariates of Perceived Health-Related Work Limitations Experienced by Older Workers With Arthritis ($N = 2,330$, Number of Groups = 567), Cardiovascular Disease ($N = 720$, Number of Groups = 368), and Sleep Disorders ($N = 816$, Number of Groups = 396)

Variables	Model 1: arthritis		Model 2: cardiovascular disease		Model 3: sleep disorders	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Perceived flexible work arrangements						
Working-time flexibility	-0.42**	0.10	-0.33*	0.18	-0.38*	0.17
Workplace flexibility	-0.16	0.11	0.02	0.19	-0.15	0.17
Phased retirement	-0.00	0.09	0.11	0.16	0.09	0.15
Organizational climate						
Healthy ageing climate	0.04	0.12	0.17	0.21	-0.45*	0.20
Psychological safety climate	-0.32*	0.13	-0.45*	0.21	-0.48*	0.20
Demographic controls						
Age	-0.06*	0.03	0.02	0.05	0.01	0.04
Sex (reference group – male)	0.08	0.11	0.01	0.20	0.18	0.18
Marital status (reference group – partner present)	-0.14	0.11	-0.04	0.21	0.42*	0.18
Wealth	-0.06*	0.03	-0.07	0.05	-0.07	0.05
Comorbidity						
Diabetes	0.25	0.16	0.49*	0.22	-0.02	0.24
Psychological disorders	1.39**	0.18	1.89**	0.28	1.33**	0.21
Other chronic health conditions	0.80**	0.09	0.82**	0.16	0.74**	0.14
Work-related factors						
Size of organization (reference group—<50 workers)						
50–250 employees	0.04	0.17	0.53	0.28	-0.27	0.27
Over 250 employees	0.02	0.18	0.50	0.29	-0.31	0.28
Sector (reference group—government and education)						
Construction	0.25	0.20	0.20	0.29	0.18	0.36
Health and welfare	-0.02	0.14	-0.68*	0.26	0.25	0.22
Job type (reference group—blue-collar workers)	0.72**	0.13	0.59*	0.22	-0.03	0.22
Job position (reference group—supervisory position)	0.02	0.11	0.14	0.18	0.10	0.18
Proportion of part-time workers	0.00	0.00	0.02	0.01	-0.01	0.01
Proportion of workers over 50 years of age	0.00	0.00	0.00	0.01	0.01	0.01
Proportion of female workers	0.00	0.01	-0.01	0.01	0.01	0.01

Note: Dependent variable is perceived health-related work limitations experienced by older workers. Arthritis: Model is significant, $p > \chi^2 = .00$, log likelihood = -2111.77. Cardiovascular disease: Model is significant, $p > \chi^2 = .00$, log likelihood = -662.92. Sleep disorders: Model is significant, $p > \chi^2 = .00$, log likelihood = -753.29.

* $p < .05$, ** $p < .001$, # $p = .07$.

had no access to working-time flexibility experienced severe health-related work limitations (compared to 16.2% for those who perceived to have access to work time flexibility). This difference was consistent across all CHCs. The *work flexibility hypotheses - B and C* were not supported for other aspects of flexible working—workplace flexibility and phased retirement.

All models revealed that organizations with psychologically safe climates were associated with fewer health-related work limitations among older workers. This effect was significant and consistent among older workers with arthritis ($B = -.32$, $p < .05$), cardiovascular disease ($B = -.45$, $p < .05$), and sleep disorders ($B = -.48$, $p < .05$), supporting our *psychological safety climate hypothesis*. Figure 3 visualizes the association between psychologically safe

organizational climate and health-related work limitations of older workers experiencing the three CHCs. The figure shows that, approximately 40% of older workers with sleep disorders who work in an organization with a psychologically unsafe climate experienced severe health-related work limitations, while only around 10% of older workers with sleep disorders who work in an organization with a psychologically safe climate experienced severe health-related work limitations. This result was consistent across the three CHCs. The *healthy ageing climate hypothesis* was supported for older workers with sleep disorders ($B = -.45$, $p < .05$). However, the expected association was not found for older workers with arthritis or cardiovascular disease.

Findings on the influence of control variables showed that comorbid psychological disorders or other CHCs were

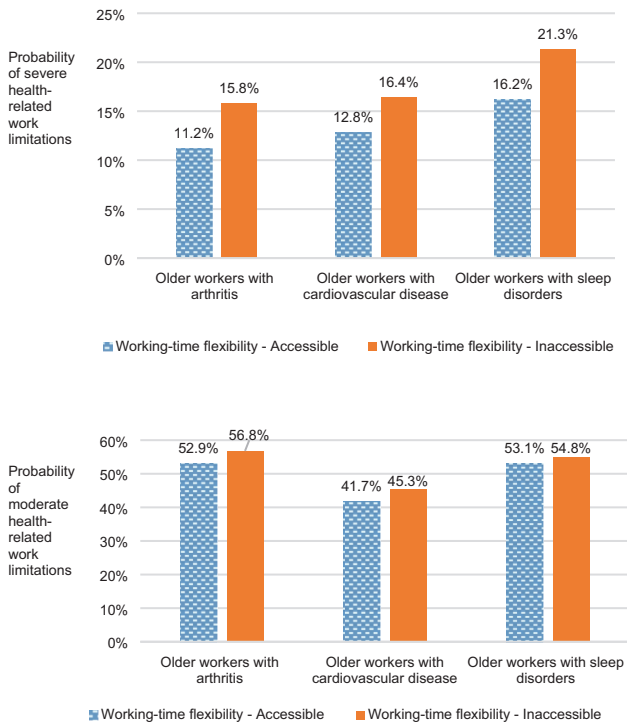


Figure 2. Illustration of the effects of perceived access to working-time flexibility on the probability of experiencing moderate and severe health-related work limitations among older workers with arthritis ($N = 2,330$), cardiovascular disease ($N = 720$), and sleep disorders ($N = 816$). Predicted values were calculated based on observable data with all variables at their mean value.

associated with more health-related work limitations. In addition, employment in a blue-collar job was associated with greater health-related work limitations for older workers with arthritis ($B = .72, p < .001$) and cardiovascular disease ($B = .59, p < .001$). This association was not statistically significant for older workers with sleep disorders.

Using cross-level interactions, we analyzed several interaction effects. First, we tested whether effects of FWAs differed by the climate within the organization. Second, we tested whether the effects of organizational climate differed based on job type. We also looked for interactions between job type, sex, and size of organization. These analyses revealed no significant effects. Third, we explored whether the effects of FWAs and organizational climate differed by older workers' experience of comorbidity. A significant interaction between comorbidity with other CHCs and healthy ageing climate was evident among older workers suffering from arthritis ($B = -.75, p = .03$). This means that a healthy aging climate is associated with fewer health-related work limitations among older workers who simultaneously experienced both arthritis and other CHCs.

Discussion

Many older workers experience CHCs that limit their work. To date, no studies have assessed whether and how FWAs and organizational climates may help to reduce the

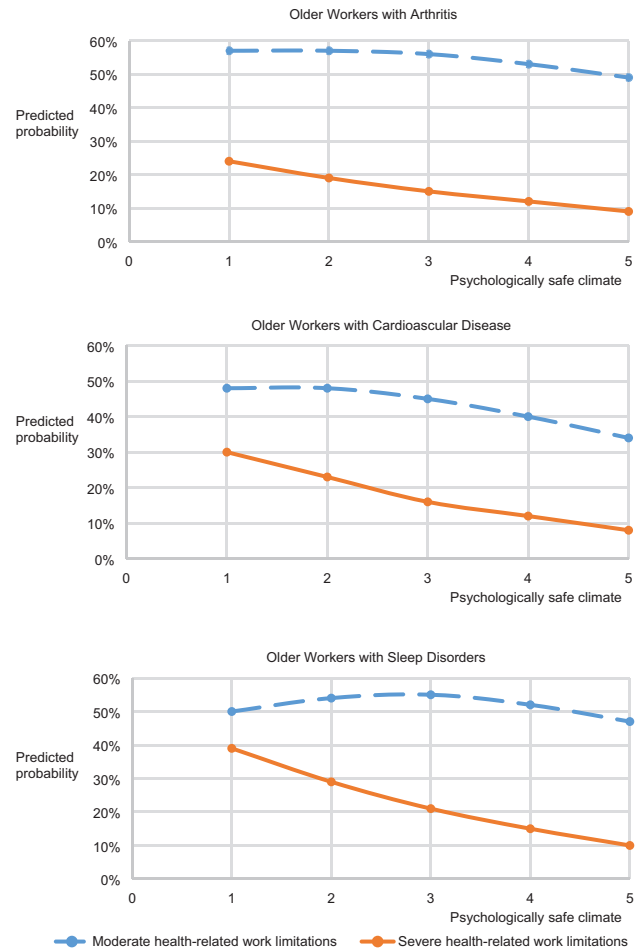


Figure 3. Illustration of the effects of a psychologically safe organizational climate on the probability of experiencing moderate and severe health-related work limitations among older workers with arthritis ($N = 2,330$), cardiovascular disease ($N = 720$), and sleep disorders ($N = 816$). Predicted values were calculated based on observable data with all variables at their mean value.

work limitations experienced by older workers with CHCs. This is surprising, since employers are deemed vital in the process of developing policies and practices that facilitate longer working lives of older workers, especially those who are restricted by CHCs such as arthritis, cardiovascular disease, and sleep disorders. Through this study, we find strong support for our hypotheses that providing older workers experiencing CHCs with access to flexible working hours and a psychologically safe organizational climate is an important avenue in enhancing their employability.

We found older workers' perception of whether they have access to working-time flexibility to be associated with fewer health-related work limitations. Flexible working hours allows older workers to decide *when* they would prefer to work during the working day—that is, flexibility in scheduling within their regular full/part-time job. Older workers with CHCs seem to prefer this time flexibility and the resulting autonomy to make decisions on how to structure their day around their work, disease symptoms, and

health-related limitations and demands (such as doctor's visits) (Atkinson & Sandiford, 2016; Dropkin et al., 2016). Interestingly, these effects were not found for workplace flexibility and phased retirement. Although workplace flexibility allows older workers to work at home or any other place of their choice, there is also an expectation to work during specific working hours. In addition, workplaces provide workers with social contact (Jahoda, 1981, 1993), which positively influences workers' health and well-being (Paul & Batinic, 2010; Vander Elst, Näswall, Bernhard-Oettel, De Witte, & Sverke, 2016). Phased retirement provides older workers with the flexibility to reduce their work hours gradually until they retire. However, the reduction of work hours will also lead to lowered earnings over the last years of work, thereby negatively impacting pension benefits, and in turn the desire to use phased retirement (Chen & Scott, 2003; Kantarci & Van Soest, 2008). Moreover, older workers experiencing poor health and CHCs may want to work longer in order to compensate for the financial costs of their health issues (Miah & Wilcox-Gök, 2007).

Next, this study found strong support for the hypothesis that the wider organizational environment has a large impact on how older workers with CHCs deal with their health-related work limitations. We found organizations with psychologically safe climates to be consistently associated with fewer health-related work limitations among older workers with CHCs. This result suggests that the ability to express oneself openly and disclose one's issues in an organization that has a climate in which one feels safe is associated with fewer health-related work limitations (Gignac & Cao, 2009; Liang et al., 2012; Siemsen et al., 2009). Our finding corroborates our theoretical framework, which suggests that psychologically safe organizational climates are a job resource that enhance open communication within organizations. Open communication and disclosure of one's limitations and needs within the organization would in turn increase the likelihood of receiving work accommodations, which may help manage health-related work limitations. This result emphasizes the need for interventions that target the organization as a whole. The occupational health principle "hierarchy of controls" (Halperin, 1996) proposes that interventions addressed at the organizational level or in the work environment produce more sustainable effects on the health of employees, than interventions that target employee characteristics at the individual level. Our study suggests that organizational-level interventions that improve psychological safety climates within organizations can be expected to lower health-related work limitations of older workers with CHCs and improve their well-being, by increasing their confidence in the organization and encouraging disclosure of difficulties and needs.

There are some noteworthy strengths to our study. The core concept of the study brings innovation to the literature by simultaneously determining the extent to which the

individual worker's perception of access to FWAs (on the individual level) and the organization's social climate (on the organizational-level) are associated with health-related work limitations in a true multilevel research design among older workers experiencing CHCs.

This study is, however, not without limitations. The cross-sectional nature of the data limits our ability to test causal effects. In specific cases, the experience of work limitations might even increase the CHC. For example, worries about work limitations may increase sleep disorders. In our design, we are also not able to capture the dynamic nature of CHCs and changes within organizations. This calls for longitudinal studies, which can investigate causal mechanisms and changes over time in the use of FWAs, aspects of organizational climate, and health-related work limitations experienced by older workers with CHCs. Furthermore, the results of this paper might point to a more general effect of "good employership." Employers with a supportive organizational climate, who offer FWAs, might also be employers who stand out positively in other important aspects, such as more social support from the management for older workers with CHCs. In this study, we measured the *perceptions* of work limitations of older workers with CHCs. Furthermore, we lack information on the severity of the CHCs experienced by older workers. Future research might also include objective measures of work limitations and severity of CHCs. Our dependent variable—health-related work limitations—measures work limitations that are direct results of CHCs. Thus, it restricts the study of older workers who do not experience any CHCs. In principle, FWAs and supportive organizational climates may positively influence the working lives of all older workers, not just those suffering from CHCs—this could be an important avenue for future research.

Retirement ages are increasing and are expected to increase further in the coming decades. As a result, organizations with ageing workforces are challenged to accommodate older workers who bring with them their CHCs and CHC-related needs and difficulties. Based on our results, we conclude that providing workers with access to flexible working hours and a psychologically safe organizational climate might act as an impetus to mitigate health-related work limitations and ensure the sustainable ageing of older workers who face the double burden of longer working lives and CHCs. Taken together, these results may ultimately benefit the healthy longevity of older workers, the growth of organizations, and the development of the economy at large.

Supplementary Material

Supplementary data are available at *The Gerontologist* online.

Funding

This work was supported by the Network for Studies on Pension, Aging, and Retirement (Netspar) and the Netherlands Organization for Scientific Research (grant number 453-14-001 to K. Henkens).

Acknowledgments

The authors thank Miriam Mutambudzi, Mo Wang, and colleagues at the Netherlands Interdisciplinary Demographic Institute for their constructive remarks on earlier versions of this article. A. Vanajan wrote the paper and performed the statistical analysis. K. Henkens collected the data and supervised the statistical analysis and writing process. U. Bültmann advised on statistical analysis and supervised the writing process.

Conflict of Interest

None reported.

References

- Al Dhanhani, A. M., Gignac, M. A., Beaton, D. E., Su, J., & Fortin, P. R. (2014). Work factors are associated with workplace activity limitations in systemic lupus erythematosus. *Rheumatology (Oxford, England)*, *53*, 2044–2052. doi:10.1093/rheumatology/keu242
- Amick, B. C. III, Lee, H., Hogg-Johnson, S., Katz, J. N., Brouwer, S., Franche, R. L., & Bültmann, U. (2017). How do organizational policies and practices affect return to work and work role functioning following a musculoskeletal injury? *Journal of Occupational Rehabilitation*, *27*, 393–404. doi:10.1007/s10926-016-9668-8
- Atkinson, C., & Sandiford, P. (2016). An exploration of older worker flexible working arrangements in smaller firms. *Human Resource Management Journal*, *26*, 12–28. doi:10.1111/1748-8583.12074
- Bajekal, M., Harries, T., Breman, R., & Woodfield, K. (2004). *Review of disability estimates and definitions: A study carried out on behalf of the department for work and pensions*. In-House Report 128. Retrieved from <http://www.eurohex.eu/bibliography/>
- Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, *10*, 170–180. doi:10.1037/1076-8998.10.2.170
- Barnett, K., Mercer, S. W., Norbury, M., Watt, G., Wyke, S., & Guthrie, B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: A cross-sectional study. *Lancet (London, England)*, *380*, 37–43. doi:10.1016/S0140-6736(12)60240-2
- Boot, C. R., Deeg, D. J., Abma, T., Rijs, K. J., van der Pas, S., van Tilburg, T. G., & van der Beek, A. J. (2014). Predictors of having paid work in older workers with and without chronic disease: A 3-year prospective cohort study. *Journal of Occupational Rehabilitation*, *24*, 563–572. doi:10.1007/s10926-013-9489-y
- Bousquet, J., Kuh, D., Bewick, M., Standberg, T., Farrell, J., Pengelly, R., ... Zins, M. (2015). Operational definition of active and healthy ageing (AHA): A conceptual framework. *The Journal of Nutrition, Health & Aging*, *19*, 955–960. doi:10.1007/s12603-015-0589-6
- Chen, Y.-P., & Scott, J. C. (2003). Gradual retirement: An additional option in work and retirement. *North American Actuarial Journal*, *7*, 62–74. doi:10.1080/10920277.2003.10596104
- Chong, Y., Fryer, C. D., & Gu, Q. (2013). Prescription sleep aid use among adults: United States, 2005–2010. *NCHS Data Brief*, *127*, 1–8. Retrieved from <https://www.cdc.gov/>
- Cole, M. S., Bedeian, A. G., Hirschfeld, R. R., & Vogel, B. (2011). Dispersion-composition models in multilevel research: A data-analytic framework. *Organizational Research Methods*, *14*, 718–734. doi:10.1177/1094428110389078
- Damman, M., & Henkens, K. (2018). Gender differences in perceived workplace flexibility among older workers in the Netherlands: A brief report. *Journal of Applied Gerontology*. doi:10.1177/0733464818800651
- Danziger, A., & Boots, S. W. (2008). Lower-wage workers and flexible work arrangements. *Memos and Fact Sheets*, *5*. Retrieved from <https://scholarship.law.georgetown.edu/legal/5>
- Dregan, A., & Armstrong, D. (2011). Cross-country variation in sleep disturbance among working and older age groups: An analysis based on the European Social Survey. *International Psychogeriatrics*, *23*, 1413–1420. doi:10.1017/S1041610211000664
- Dropkin, J., Moline, J., Kim, H., & Gold, J. E. (2016). Blended work as a bridge between traditional workplace employment and retirement: A conceptual review. *Work, Aging and Retirement*, *2*, 373–383. doi:10.1093/workar/waw017
- Edmondson, A. C., & Lei, Z. (2014). Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*, 23–43. doi:10.1146/annurev-orgpsych-031413-091305
- Enders, C. K. (2010). *Applied missing data analysis*. New York, NY: Guilford Press. Retrieved from <https://books.google.nl/>
- Gignac, M. A., & Cao, X. (2009). “Should I tell my employer and coworkers I have arthritis?” A longitudinal examination of self-disclosure in the work place. *Arthritis and Rheumatism*, *61*, 1753–1761. doi:10.1002/art.24889
- Gignac, M. A., Cott, C., & Badley, E. M. (2000). Adaptation to chronic illness and disability and its relationship to perceptions of independence and dependence. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, *55*, P362–P372. doi:10.1093/geronb/55.6.P362
- Halperin, W. E. (1996). The role of surveillance in the hierarchy of prevention. *American Journal of Industrial Medicine*, *29*, 321–323. doi:10.1002/(SICI)1097-0274(199604)29:4<321::AID-AJIM8>3.0.CO;2-R
- Harbers, M., & Achterberg, P. (2012). *Europeans of retirement age: Chronic diseases and economic activity*. Bilthoven, the Netherlands: RIVM. Retrieved from <https://ec.europa.eu/>
- Henkens, K., van Dalen, H. P., Ekerdt, D. J., Hershey, D. A., Hyde, M., Radl, J., ... Zacher, H. (2017a). What we need to know about retirement: Pressing issues for the coming decade. *The Gerontologist*, *58*, 805–812. doi:10.1093/geront/gnx095
- Henkens, K., Van Solinge, H., Damman, M., & Dingemans, E. (2017b). *Design and codebook of the NIDI Pension Panel Study (NPPS) first wave, 2015*. The Hague, the Netherlands: Netherlands Interdisciplinary Demographic Institute.
- Hockey, G. R. J. (1997). Compensatory control in the regulation of human performance under stress and high workload: A cognitive-energetical framework. *Biological Psychology*, *45*, 73–93. doi:10.1016/S0301-0511(96)05223-4
- Jahoda, M. (1981). Work, employment, and unemployment: Values, theories, and approaches in social research. *American Psychologist*, *36*, 184. doi:10.1037/0003-066X.36.2.184
- Jahoda, M. (1993). *Employment and unemployment*. Cambridge, Cambridgeshire: Cambridge Books.

- Kantarci, T., & Van Soest, A. (2008). Gradual retirement: Preferences and limitations. *De Economist*, *156*, 113–144. doi:10.1007/s10645-008-9086-1
- Kooij, D. T., Jansen, P. G., Dikkers, J. S., & De Lange, A. H. (2010). The influence of age on the associations between HR practices and both affective commitment and job satisfaction: A meta-analysis. *Journal of Organizational Behavior*, *31*, 1111–1136. doi:10.1002/job.666
- Koolhaas, W., van der Klink, J. J., de Boer, M. R., Groothoff, J. W., & Brouwer, S. (2014). Chronic health conditions and work ability in the ageing workforce: The impact of work conditions, psychosocial factors and perceived health. *International Archives of Occupational and Environmental Health*, *87*, 433–443. doi:10.1007/s00420-013-0882-9
- Kuh, D., Karunanathan, S., Bergman, H., & Cooper, R. (2014). A life-course approach to healthy ageing: Maintaining physical capability. *Proceedings of the Nutrition Society*, *73*, 237–248. doi:10.1017/S0029665113003923
- Leijten, F. R., van den Heuvel, S. G., Ybema, J. F., van der Beek, A. J., Robroek, S. J., & Burdorf, A. (2014). The influence of chronic health problems on work ability and productivity at work: A longitudinal study among older employees. *Scandinavian Journal of Work, Environment & Health*, *40*, 473–482. doi:10.5271/sjweh.3444
- Liang, J., Farh, C. I., & Farh, J.-L. (2012). Psychological antecedents of promotive and prohibitive voice: A two-wave examination. *Academy of Management Journal*, *55*, 71–92. doi:10.5465/amj.2010.0176
- Little, T. D., Jorgensen, T. D., Lang, K. M., & Moore, E. W. (2014). On the joys of missing data. *Journal of Pediatric Psychology*, *39*, 151–162. doi:10.1093/jpepsy/jst048
- Loretto, W., Vickerstaff, S., & White, P. (Eds.). (2007). Flexible work and older workers. In *The future for older workers: New perspectives* (pp. 139–160). Bristol, UK: Bristol University Press. Retrieved from <http://www.jstor.org/stable/j.ctt9qgkr1>
- Maxwell, G., Rankine, L., Bell, S., & MacVicar, A. (2007). The incidence and impact of flexible working arrangements in smaller businesses. *Employee Relations*, *29*, 138–161. doi:10.1108/01425450710719987
- McMahan, S., & Sturz, D. (2006). Implications for an aging workforce. *Journal of Education for Business*, *82*, 50–55. doi:10.3200/JOEB.82.1.50-55
- Moen, P., Kojola, E., & Schaefer, K. (2016). Organizational change around an older workforce. *The Gerontologist*, *57*, 847–856. doi:10.1093/geront/gnw048
- OECD. (2016). The labour market impacts of ill-health. In *Health at a glance: Europe 2016: State of health in the EU cycle*. Paris: OECD Publishing. doi:10.1787/9789264265592-en/
- Paul, K. I., & Batinic, B. (2010). The need for work: Jahoda's latent functions of employment in a representative sample of the German population. *Journal of Organizational Behavior*, *31*, 45–64. doi:10.1002/job.622
- Qureshi, M. I., Rasli, A. M., & Zaman, K. (2014). A new trilogy to understand the relationship among organizational climate, workplace bullying and employee health. *Arab Economic and Business Journal*, *9*, 133–146. doi:10.1016/j.aebj.2014.05.009
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *25*, 293–315. doi:10.1002/job.248
- Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for improving work and health. In *Bridging occupational, organizational and public health* (pp. 43–68). Dordrecht, South Holland: Springer.
- Schneider, B. (1973). The perception of organizational climate: The customer's view. *Journal of Applied Psychology*, *57*, 248. doi:10.1037/h0034724
- Siemsen, E., Roth, A. V., Balasubramanian, S., & Anand, G. (2009). The influence of psychological safety and confidence in knowledge on employee knowledge sharing. *Manufacturing & Service Operations Management*, *11*, 429–447. doi:10.1287/msom.1080.0233
- Stattin, M. (2005). Retirement on grounds of ill health. *Occupational and Environmental Medicine*, *62*, 135–140. doi:10.1136/oem.2004.015669
- van Dalen, H. P., Henkens, K., & Wang, M. (2015). Recharging or retiring older workers? Uncovering the age-based strategies of European employers. *The Gerontologist*, *55*, 814–824. doi:10.1093/geront/gnu048
- Vander Elst, T., Näswall, K., Bernhard-Oettel, C., De Witte, H., & Sverke, M. (2016). The effect of job insecurity on employee health complaints: A within-person analysis of the explanatory role of threats to the manifest and latent benefits of work. *Journal of Occupational Health Psychology*, *21*, 65–76. doi:10.1037/a0039140
- van Mierlo, H., Vermunt, J. K., & Rutte, C. G. (2009). Composing group-level constructs from individual-level survey data. *Organizational Research Methods*, *12*, 368–392. doi:10.1177/1094428107309322
- WHO (2015). *World report on ageing and health*. Geneva, Switzerland: World Health Organization.
- WHO (2018). *Global health estimates 2016: Disease burden by cause, age, sex, by country and by region, 2000–2016*. Geneva, Switzerland: World Health Organization.
- Miah, M. S., & Wilcox-Gök, V. (2007). Do the sick retire early? Chronic illness, asset accumulation and early retirement. *Applied Economics*, *39*, 1921–1936. doi:10.1080/00036840600690165
- Zacher, H., & Yang, J. (2016). Organizational climate for successful aging. *Frontiers in Psychology*, *7*, 1007. doi:10.3389/fpsyg.2016.01007