

When is quitting an escape? How different job demands affect physical and mental health outcomes of retirement

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Background: The demographic aging of societies and the need to adapt to this trend makes it important to gain insight into the way retirement affects different forms of health, and factors that influence this relationship. Pre-retirement job characteristics have only rarely been included in this type of research. **Methods:** The regressor variable method is applied to two waves (4 and 5) of data from the Survey of Health Ageing and Retirement in Europe, a multi-national prospective cohort study. The final sample consists of 9092 people aged 50–70 at wave 4, of whom 1257 retired voluntarily. Health is assessed through the presence of physical health problems, general self-rated health and the EURO-D scale for depressive symptoms. **Results:** The findings indicate that retirement from jobs with high physical demands leads to a relative improvement in general self-rated health compared with those who remain at work. Retirement from a psychologically demanding job is associated with less depressive symptoms. No effects are found for health measured as the presence of physical health problems. **Conclusion:** Different types of measures for health yield different results for outcomes of retirement; pre-retirement job demands play an important role in how retirement affects health; physical demands seem primarily related to physical health benefits, psychological demands seem primarily related to mental health benefits.

Introduction

Retirement is a life transition that brings about major changes in people's lives. Moreover, driven by the demographic aging of many Western countries, retirement as an institution is undergoing considerable change. Given that retirement is attached to the quality of life of a large demographic of society and thus public health, it is all the more important to understand how it affects people's health, and how this relationship is shaped by the surrounding circumstances.

In terms of physical health, it has been argued that retirement, especially early retirement, is associated with lower health and higher mortality.^{1–4} However, this is largely due to selection effects with people retiring (early) because of ill health.^{5–7} When this endogeneity is taken into account, the effects of retirement for physical health tend to range from indiscernible to moderately positive.^{8–14}

For psychological health outcomes of retirement such as depressive symptoms and satisfaction with life, results have been comparable. There is evidence for both the detrimental as well as the protective nature of retirement^{15,16} but in general the effects seem either small or non-existent.¹⁷ Overall, there seem to be two overarching perspectives.¹⁸ On the one hand, retirement is viewed as the loss of the job: an identity providing role that offers meaningful activities, a daily structure and social interaction.^{19,20} On the other hand, retirement is viewed as an *escape* from the job: a source of daily stress, obligations and responsibilities.^{21–24} So far, no clear picture in support of either perspective seems to arise from the body of empirical findings.

What is pivotal in both perspectives however, is the job, which seems to be viewed as either a burden or a blessing for health. Research on occupational health has shown that both experienced physical and psychological demands of work are associated with a broad variety of health problems, ranging from cardiovascular disorders to depression.^{25–28} Given these findings and the often

central but implicit role of the work environment in retirement research, it is surprising that demand aspects of the job have only rarely been included in research on health outcomes of retirement. The studies that do incorporate job demands in their model focus on the impact of retirement on general self-rated health.^{29,30} No studies have aligned specific types of demands with specific health outcomes of retirement, i.e. investigated to which extent physical demands are more related to physical outcomes and psychological demands more to mental health outcomes of retirement. A major contribution of this study is the connection between different types of job demands and specific dimensions of health, by investigating how retirement affects physical and mental health, and how this relationship is influenced by experienced physical and psychological job demands.

The handful of recent studies that have examined the job-related health consequences of retirement find either no significant influence of pre-retirement job circumstances¹⁴ or indeed show that health benefits of retirement are greatest for those in stressful jobs^{29,30} but these separate studies all offer one or more points for improvement. First, to establish the effect of retirement on health, it is preferable to have longitudinal data that allows the monitoring of changes in health and employment status over time. This study uses data from the Survey of Health Ageing and Retirement in Europe (SHARE), a cross-national panel survey to address the health-retirement nexus.

Second, the existing studies on the specific topic of this article have focused predominantly on general self-rated health as a dependent variable.^{29,30} Although this is a widely used and established measure for physical health, the downside is its general and subjective character. It could be argued that because of this, it is actually a blend of both physical and mental health. Using this measure, then, to establish which types of job demands are related to which types of specific health outcomes is not efficient. The dataset offers the possibility to assess both physical and mental health through high quality measures that have been widely used

in other research, namely physical disease prevalence and the EURO-D scale for depressive symptoms. However, for reasons of comparability, and to provide insight into how general self-rated health relates to the other health measures used in this study, an analysis with general self-rated health is included in this study.

Finally, studies on this topic have all analyzed data of samples drawn from small numbers of employers, which may lead to bias in outcomes and problems of representativeness.^{14,29,30} The SHARE survey is designed to be nationally representative (for the targeted age group) of all countries that are included.

Methods

Sample

The SHARE is a multi-national prospective cohort study of people aged 50 years and over. Based on probability samples, SHARE is designed to be representative of the older community-dwelling population in 20 European countries and Israel. Participants have been interviewed biennially since 2004/2005. For reasons of attrition, comparability across waves and the fact that wave 3 (SHARELIFE) was unusable for this study, only waves 4 (carried out in 2011) and 5 (carried out in 2013) will be used. A total of 38 212 people participated in both waves, of whom 25 286 were aged 50–70 at the time of data collection for wave 4. Of that group, 10 058 were in gainful employment at the time of wave 4. For a total of 738 people, it was either unclear what their situation was at the time of wave 5 or

they considered themselves unemployed (but not retired) at wave 5 or they had become sick or disabled. The number of people who indicated that they retired *because* of health problems totalled to 96. This group was not included in the sample for reasons of endogeneity because they might bias the results (i.e. an underestimation of the effect of retirement). Missing information on one or more of the variables used in this study led to the removal of 166 respondents (1.8%). The final sample consisted of 9092 people, of whom 1257 retired between waves 4 and 5.

Measurements

Physical health is measured through a number of questions that are designed to exhaustively measure the number of physical afflictions that a person suffers from, such as high blood pressure, ulcers, high cholesterol, hypertension, heart problems or other unspecified conditions (see table 1 for the full list of conditions). The information from these variables was used to create a dichotomous variable to indicate whether people suffered from one or more of these conditions (only 8% indicated having two or more of these conditions), an approach that has been used in earlier research.³¹

Mental health was assessed through the EURO-D scale for symptoms of depression, which consists of an aggregate of 13 symptoms such as having a pessimistic outlook on the future, the presence of suicidal feelings, irritability and lack of appetite (see table 1 for the full list of symptoms). This scale has been purposely designed to assess mental health³² and has been used in previous research.³³

Table 1 Descriptive statistics of (unstandardized) variables

| Variable | Employed ^a at wave 2 Mean (SD) | Retired ^b at wave 2 Mean (SD) | Description |
|--------------------------------------|-------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical health problems t_1 | 0.57 (0.50) | 0.63 (0.48) | Indicator for presence of one or more of following physical afflictions: heart problems; high blood pressure or hypertension; high blood cholesterol; stroke or cerebral vascular disease; diabetes or high blood sugar; lung problems; arthritis or rheumatism; cancer or malignant tumour; ulcers; Parkinson disease; cataracts; hip or femoral fracture; other conditions (0 = no; 1 = yes) |
| Physical health problems t_2 | 0.57 (0.49) | 0.64 (0.48) | See physical health problems t_1 |
| Depressive symptoms t_1 | 2.00 (1.90) | 1.94 (1.83) | EURO-D for depressive symptoms. Sum scale of 13 indicators of depression (sadness; hopelessness; suicidal thoughts; guilt; self-blame; insomnia; lack of interest; irritability; lack of appetite; fatigue; trouble concentrating; lack of enjoyment; tearfulness). Range: 0–13 (standardized) |
| Depressive symptoms t_2 | 1.88 (1.86) | 1.71 (1.77) | See depressive symptoms t_1 |
| General self-rated health t_1 | 2.34 (0.98) | 2.20 (0.99) | <i>Would you say your health is ... Excellent; Very good; Good; Fair; Poor</i> |
| General self-rated health t_2 | 2.31 (0.98) | 2.24 (1.00) | See general self-rated health t_1 |
| Retired | – | – | Respondent retired between waves (0 = no; 1 = yes)? Based on item <i>In general, how would you describe your current situation?</i> Answer categories: retired, employed of self-employed, unemployed, permanently sick or disabled, homemaker, other |
| Physical job demand | 2.38 (1.01) | 2.42 (1.01) | <i>My job is physically demanding. Would you say you strongly agree, agree, disagree or strong disagree?</i> Reversed and standardized for analyses |
| Psychological job demand | 2.43 (0.87) | 2.34 (0.89) | Agreement with: <i>I am under constant time pressure due to a heavy workload.</i> Reversed and standardized for analyses |
| Female | 0.52 (0.50) | 0.48 (0.50) | 0 = male; 1 = female |
| Partner t_1 | 0.73 (0.44) | 0.75 (0.44) | Partner status. 0 = no partner; 1 = partner |
| Educational level | 3.51 (1.27) | 3.38 (1.32) | International Standard Classification of Education (ISCED) classification of educational level, range 0–6 |
| Work hours t_1 | 38.00 (12.42) | 35.45 (13.69) | <i>How many hours a week do you usually work in this job, excluding meal breaks?</i> Standardized |
| Total household income t_1 | 10.26 (1.38) | 10.19 (1.29) | Net household income. Log linearized for analyses (0–14.08) |
| Age | 56.05 (3.90) | 61.74 (3.58) | Age at wave 1. Standardized for analyses |
| Involuntary retirement: organization | – | – | Forced into retirement by organization/employer (0 = no; 1 = yes) |
| Involuntary retirement: other | – | – | Forced into retirement for other reasons (0 = no; 1 = yes) |
| Country dummies | – | – | Dummy variables for the separate countries in the dataset. Reference: Germany |

a: $N = 7751$.

b: Voluntary retirement, $N = 1257$.

Source: Survey of Health Aging and Retirement in Europe.

General self-rated health was assessed via the commonly used single item that directly asks people to rate their general health. People were asked to indicate whether their health was poor, fair, good, very good or excellent.

Physical and psychological job demand were assessed by asking the respondent's agreement with the statements 'My job is physically demanding' and 'I am under constant time pressure due to a heavy workload', respectively. Descriptive statistics and coding properties of all variables, before standardization, can be found in table 1.

Method

To optimally exploit the panel nature of the data, a conditional change method is applied, with physical, mental or general self-rated health at wave 5 as the dependent variable and physical, mental or general self-rated health at wave 4, respectively, as independent variable. This way, the analyses include the baseline levels of health for each individual respondent, which is a control for initial levels of health differing between retirees and those who stayed in the workforce. For physical health, measured dichotomously, logistic regression is applied.

Results

The results of analyses focused on physical health in terms of having one or more physical health problems can be found in table 2, model

Table 2 Results of conditional change models explaining changes in physical health, (logit model 1; odds ratio's and confidence intervals), general self-rated health and depressive symptoms (models 2 and 3; ordinary least squares regression model; *b*-coefficients and SEs) with different measures for health as dependent variables

| | Model 1 Physical health problems | Model 2 General self-rated health | Model 3 Depressive symptoms |
|-------------------------------------------|-------------------------------------------|--------------------------------------------|-----------------------------------|
| Retired | 1.09 [0.64, 1.85] | 0.06* (0.03) | -0.10** (0.03) |
| Interaction terms | | | |
| Retired × physical demands | 0.89 [0.77, 1.03] | 0.06* (0.02) | 0.02 (0.03) |
| Retired × psychological demands | 1.04 [0.88, 1.22] | 0.00 (0.02) | -0.09** (0.03) |
| Retired × physical health problems t_1 | 1.17 [0.88, 1.57] | | |
| Retired × general self-rated health t_1 | | 0.04 (0.02) | |
| Retired × depressive symptoms t_1 | | | -0.02 (0.03) |
| Physical health problems t_1 | 8.92*** [8.03, 9.90] | | |
| General self-rated health t_1 | | 0.43*** (0.01) | |
| Depressive symptoms t_1 | | | 0.51*** (0.01) |
| Physical demands | 1.08** [1.02, 1.14] | -0.06*** (0.01) | 0.04*** (0.01) |
| Psychological demands | 1.01 [0.95, 1.08] | -0.01 (0.01) | 0.04*** (0.01) |
| Constant | 0.07*** [0.02, 0.19] | 0.09 (0.16) | 0.14 (0.18) |
| (Pseudo) R^2 | 0.201 | 0.398 | 0.248 |
| Likelihood ratio Chi ² | 2490*** | | |
| Observations | 9092 | 9092 | 9092 |

Standard errors in parentheses. Controls in all models: age; income t_1 (logged); educational level; female; partner; number of work hours t_1 ; involuntary retirement (redundancy); involuntary retirement (other); country.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Source: SHARE waves 4 and 5.

1. No overall association between retirement and physical health problems is found, and there is no evidence that the work environment which a person retires from matters for the way retirement affects physical health. The interaction coefficient for physical demands ($b = -0.12$) is in the expected direction but fails to achieve a level of statistical significance.

Model 2 applies a different but often used measure for physical health as a dependent variable, namely general self-rated health. Contrary to model 1, the results indicate that retirement generally leads to an improvement health-wise, and more so if from a physically demanding job. The table shows a significant positive coefficient for retirement ($b = 0.06$; $P < 0.05$), as well as a significant interaction with physical work demands ($b = 0.06$; $P < 0.05$). Note that the variables of interest in the models are standardized, which means that the coefficient for retirement holds for those with average levels of physical demands. In this model, retirement from a job characterized by the highest level of experienced physical demand (1.60 on the standardized variable) is associated with an improvement in general self-rated health of $0.06 + (1.60 \times 0.06) = 0.16$ SDs. No such interaction is found for psychological demands.

In model 3, the main coefficient for retirement is comparable to that of model 2: retirement is associated with less depressive symptoms ($b = -0.10$; $P < 0.01$), thus an improvement in mental health. With regard to the influence of physical and psychological job demands, however, the situation seems inverted. The association between retirement and mental health seems to be moderated by psychological job demands rather than physical job demands: the more psychologically demanding the job, the more mental health improves following retirement. For people who report the highest psychological demands (1.81 on the standardized variable), the coefficient for retirement is predicted as $-0.10 + (1.81 \times -0.09) = 0.26$, which can be interpreted as a standardized coefficient.

As the regressor variable method is applied, all models hold constant for the health situation (or the value of the dependent variable) at t_1 . Furthermore, all models include an interaction between the health situation at t_1 and retirement. This is to control for the possibility that effects of retirement primarily hold for those with lower levels of initial health, caused by factors other than job demands. In none of the models, these controls yield significant coefficients, which may reflect the relative importance of job demands for health outcomes of retirement.

Discussion

The main finding of this study is that specific health outcomes of retirement appear to be dependent on specific experienced pre-retirement job demands. Whereas physical demands proved to be important for general self-rated health, a measure often used for physical health, psychological demands proved to be important for mental health outcomes of retirement.

For future research, these findings provide several important factors to further explore or take into account. First, when looking into health effects of retirement, it is important to be aware of the different available measures for health and what they tap into. The way retirement is tied to different dimensions of health is not uniform. Second, retirement has the potential to be either a loss or a relief with respect to health, and an important component is the pre-retirement job situation. Especially when people experience their job as very demanding, retirement has the potential to act as a relief. Finally, the *type* of demands that characterize a persons' job seem to be important for how retirement affects health, and what aspect of health. Certain demands appear to be tied to certain dimensions of health outcomes. More insight is needed into the specific elements of the job that are related to pre- and post-retirement dimensions of health.

There are several noteworthy strengths of this study. The most obvious is our capability to distinguish the differential impact of retirement on health, for workers in physically demanding jobs and psychologically demanding jobs, based on a large European wide panel study among older workers. This is an important advancement in this literature, which tends to be concentrated on the main effect of retirement on general self-rated health, based in relatively small and specific samples in a number of organizations or jobs. The study, nevertheless, has also a number of limitations. First, our measures of physical and psychological job demands were based on single items. Single items have unknown reliability and future studies would benefit for using multi-item measures of job demands. Furthermore, these measures are self-reported. Future studies might want to use more objective indicators for physical and psychological work demands, for instance based on job exposure matrices.³⁴ Second, this study did not incorporate information about the job control and job satisfaction as moderators of the established relationships. People working in demanding jobs, who are highly satisfied with their job and who have a high level of perceived job control might intent to retire later and experience less favourable outcomes of retirement in terms of health.³⁵ Third, it is important to note that this research was conducted with data from various European countries. Countries differ substantially with regard to labour market structure and culture and public health policies, thus it is well-conceivable that these general findings cannot be straightforwardly transposed to single countries within and outside Europe. Finally, this study looks at the impact of retirement on health in a relatively short observation period of maximum 2 years. Future studies may want to look at the long-term differential impact of retirement on health.

With regard to public health, this study provides evidence that workers in highly demanding jobs benefit from retirement in terms of their physical and psychological health. Policies aimed, for instance, at raising the retirement age may take this into account, since such measures may also force people to keep working in overly demanding jobs, leading to adverse emotional responses such as anger and worry because of the relief that retirement may entail has to be postponed.³⁵ This can in turn lead to public health costs, while these policies are generally borne out of motives of austerity. For ageing societies, the challenge is to develop flexible retirement policies that help to align older workers' capabilities and needs with their work environment to facilitate optimum productivity and well-being.

Acknowledgements

The authors thank the editor and the anonymous reviewers for their valuable comments on earlier drafts of this article. They also thank Matthijs Kalmijn for valuable suggestions to improve this article.

Funding

This work was supported by the Netherlands Organization for Scientific Research NWO (VICI-grant 453-14-001 to K.H.).

Conflicts of interest: None declared.

Key points

- Retirement is generally associated with health improvement, although this is dependent on the type of measure for health.
- People with more physically demanding jobs experience more physical health improvement after retirement.
- People with more psychologically demanding jobs experience more mental health improvement after retirement.

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