

## Health and retirement: a complex relationship

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**Abstract** Health and retirement are bi-directionally linked. Health is central to the timing of retirement, and retirement may have varying effects on health. Three studies of the special section of this issue add to the evidence about factors determining early retirement from three different perspectives. Blekesaune and Skirbekk investigated how personality factors were associated with non-disability and disability pension in Norway; Gørtz studied working conditions, health and early retirement in the day-care sector in Denmark; and Clarke et al. modelled trajectories of expectations not to retire early but to work full time after age 62 in a sample of older Americans as well as implications for health when such expectations were unmet. All studies incorporated health measures in the analyses. Nevertheless, health can have several roles in the retirement process. The complexity of the relationship of health and retirement is discussed in this commentary, several methodological issues are addressed and implications for future studies are identified.

**Keywords** Health · Retirement · Disability pension · Working conditions

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### Staying longer in the labour force is a topical issue

Population ageing places a growing economic burden on those in employment because the number of beneficiaries per those in employment is rising significantly. In order to deal with social security solvency, policy makers worldwide have to find ways to halt the increase in the economic dependency ratio. Raising employment rates, especially among the older population, will be the key to meeting these challenges.

The three studies in the special section of this issue add to the evidence about factors determining early retirement from three different perspectives. Blekesaune and Skirbekk (2012, this issue) investigated how personality factors were associated with non-disability and disability pension in Norway; Gørtz (2012, this issue) studied working conditions, health and early retirement in the day-care sector in Denmark; and Clarke et al. (2012, this issue) modelled trajectories of expectations not to retire early but to work full time after age 62 in a sample of older Americans. All studies incorporated health measures in the analyses. Clarke et al. also examined the consequences of unmet expectations to life satisfaction, a correlate for health. Since health is central to retirement, the relationship between health and retirement merits further discussion.

### Health and retirement: a complex relationship

Basically, retirement can occur on time ('normal' retirement at official retirement age) or be premature ('early' retirement or 'early exit' from the labour force). Early retirement can take place through several routes: unemployment, disability or voluntary early retirement. Evidence points to the complexity of work and retirement

decisions and transitions, and to a range of factors that play a role.

*Pull* factors pull employees towards retirement by increasing workers' interest in early retirement. These include spouse's retirement, leisure expectations and financial incentives (social security and pension arrangements) that create opportunities to early exit (Blöndal and Scarpetta 1998; Stattin 2005; Börsch-Supan et al. 2009). Financial incentives embedded in pension systems and other welfare benefits may indeed play an important role in work-retirement decisions. Also, institutional differences in welfare systems may explain cross-national variation in disability pension rates, much more than demographics and health (Börsch-Supan et al. 2009).

*Push* factors, in turn, push, for example, the ageing and unhealthy employees out of the labour market. Push factors include working conditions, structural and technological changes, and labour market factors (Blöndal and Scarpetta 1998; Harkonmäki et al. 2006). The same factor may, however, act as a push or a pull factor depending on the context and type of retirement. Depending on the route, health can act as a pull factor or push factor.

#### Health and retirement behaviour

Health is strongly linked to working capacity, and it is clear that healthier employees retire later than those with reduced health and working capacity (Mein et al. 2000; Harkonmäki et al. 2006). *Retirement behaviour* has been viewed as a process comprising of the intentions to retire, and the opportunities and constraints to materialise such intentions. In terms of opportunities, in many countries, voluntary early retirement is made possible through a combination of different institutional arrangements and/or private pension arrangements. Financial insecurity, lack of alternative sources of income and termination of health insurance benefits may also keep employees longer in employment (Mein et al. 2000; OECD 2006; Sargent-Cox et al. 2012). These constraints may easily prompt some older workers to expect working longer. Moreover, failing to meet these expectations of working longer because of retiring involuntarily earlier than expected could be experienced as stressful and have health consequences.

Clarke et al. (2012, this issue) followed this rationale by investigating whether health was related to expectations to continue working beyond age 62, and whether the realisation of the expectations was associated with life satisfaction in the US Health and Retirement Study during 1998–2008. Their finding that self-reports of chronic health problems were associated with a lower reported probability of working full time after 62 is in line with evidence showing that poor health is a strong predictor of intentions to retire (Harkonmäki et al. 2006) and of a lower expected

retirement age (Sargent-Cox et al. 2012). Their main and a novel finding was that, after controlling for a set of covariates including health, men who had high expectations to work but who found themselves not working full time past 62 reported lower life satisfaction which was not the case for those whose expectations were met. No such association was found in women. Men who had higher expectations to remain in employment had lower incomes than men with neutral expectations. This result is consistent with previous evidence showing that financial insecurity plays a key role in the work and retirement decisions, and that health consequences of retirement are likely to vary by pre-retirement factors (Mein et al. 2000).

#### Health and disability pension

Indicators of poor health such as poor self-rated health, sickness absence and functional limitations have been found to increase the risk of disability pension (Pietiläinen et al. 2011; Kivimäki et al. 2004; Börsch-Supan et al. 2009). However, the complexity of the retirement process especially in relation to disability retirement suggest that health is not the only factor that pull or push out of labour market on grounds of ill-health. For example, the same disease may cause a different degree of disability depending on personal and occupation-related issues as well as domestic conditions. Moreover, low socioeconomic status may result in worse outcomes in these processes than higher socioeconomic status (Stattin 2005; Blöndal and Scarpetta 1998).

Blekesaune and Skirbekk (2012, this issue) studied whether personality factors (based on the Five Factor model) were associated with the timing of retirement. They hypothesised that extraversion, agreeableness, openness and conscientiousness could delay retirement, whereas neuroticism, an indicator of mental health problems, could speed up retirement. They employed data from the Norwegian Ageing and Generation Survey involving 1,272 individuals aged 50–69 at baseline. Although their sample was larger than in earlier studies on the topic, the response rate was only 52 %. If participation was related to personality, for example, if non-respondents were less agreeable and less open to experience than respondents (Marcus and Schütz 2005), this could have introduced non-response bias. They combined survey data collected in 2002–2003 to register data about retirement from 2002 through 2007. They found that in men, agreeableness and extraversion were associated with a lower risk and openness was related to a higher risk of disability pension. Neuroticism was associated with an increased risk of disability retirement in women. However, the authors concluded that the latter association was attributable to health because adjusting for self-rated mental and physical health attenuated the

association. This raises the question about the status of health in the models: is health a confounder or a mediator? Personality traits are developed at an early stage of life. Therefore, health explaining the association between neuroticism and disability retirement is likely to be due to the fact that health, rather than being a common cause of both personality and retirement, is in a causal pathway between neuroticism and disability retirement, that is health acts as a mediator in the association.

#### Working conditions, health and early retirement

Working conditions may be associated with intentions to retire early and the actual early retirement (Harkonmäki et al. 2006; Pietiläinen et al. 2011), and it is also possible that working conditions affect retirement through health. Herein, some methodological issues are noteworthy. Health and working conditions are usually assessed with self-reports which may be problematic since health may be an endogenous explanatory variable. According to the ‘justification hypothesis’, individuals justify their non-participation in work life by claiming that they are in ill-health (Dwyer and Mitchell 1999). A way to circumvent the endogeneity problem is to use objective health measures that may not suffer from the systematic error due to justification for retirement. Adding objective measures of health, such as registered information on medical conditions or physician visits, may also help to capture all domains of health that are relevant to retirement in a better way than using a single measure of health status. For example, in a Finnish cohort study of over 6,000 employees, over 50 % of the association between self-rated health and disability pension was attributable to ill-health, measured by seven different indicators (Pietiläinen et al. 2011). Ill-health explained almost 70 % of the association of self-rated health and subsequent disability pension due to mental disorders. Nonetheless, in that study working conditions explained around 20 % of the association of self-rated health and disability retirement.

Similarly, employees who have strong intentions to retire or suffer from disease symptoms may report poorer working conditions. Objective measures of working conditions could help to reduce such bias and improve the strength of evidence. In a cohort study of more than 30,000 Finnish employees, the possibility to adjust one’s work time was assessed both from self-report and from co-workers’ assessment in the same work unit. Importantly, high work time control was associated with lower disability pension due to musculoskeletal causes irrespective of the way of measurement. Moreover, the associations were not explained by any of the seven indicators of individual’s health status (Vahtera et al. 2010).

Gørtz (2012, this issue) conducted a register-based study to investigate how objectively assessed working conditions

and health were associated with early retirement among teachers in the day-care sector in Denmark. The study involved female teachers who were 60–64 years old and had been working in day nurseries or preschools at the age of 59. They were followed up until either the receipt of voluntary early retirement or the age of 65. Objective measures of working conditions were the child-to-teacher ratio at municipal level, the size of the institution, the proportion of children with social problems and the share of trained teachers at the institution level. Poor health, as defined by more than 10 visits to GPs and more than 5 visits to specialists, was associated with early retirement. The main finding of the study was that a high share of children with disadvantaged social background and a low share of trained co-teachers were associated with an increased risk of early retirement. These results are in accordance with a previous study carried out in Finland where a high percentage of children with special education needs at school was associated with the sickness absence among teachers, especially when the pupil-teacher ratio was high (Ervasti et al. 2012).

#### What happens to health after retirement?

Considering the ageing populations it is important to know what happens to health after transition to retirement. Although several studies have examined this issue, the results have been inconsistent. Many of them have, however, been cross-sectional, and those are unable to tease out whether pre-existing health problems prompted the worker to retire (and hence resulting in an apparent association between retirement and poor health), or whether the retirement transition increases the risk of poor health due to loss of social connections or reduction in income. The inconsistency may also be due to the fact that these studies have generally focussed on the comparison between the retired and the employed (who are not counterfactually exchangeable). The fundamental problem with causal inference is that we cannot observe the potential outcome when the exposure did not occur, that is the counterfactual outcome (Hernán 2004). Here that refers to the health status of those who retired if they did not actually retire. Moreover, retiring was not randomized and therefore the two groups are not comparable, that is they are not exchangeable with the unobservable counterfactuals.

Using within-subject comparisons on the basis of repeated measures before and after retirement is more informative in determining whether the retirement process is likely to cause change in health. Recently, such analyses using serial measurements of health over an extended time window have been carried out in France, Finland, and the US (Westerlund et al. 2009; Vahtera et al. 2009;

Westerlund et al. 2010; Oksanen et al. 2011; Moon et al. 2012). The findings from the occupational cohorts in France and Finland consistently suggest that transition to retirement is associated with improved health in terms of better self-rated health (Westerlund et al. 2009), reduced sleep problems (Vahtera et al. 2009), mental and physical fatigue and depressive symptoms (Westerlund et al. 2010) as well as antidepressant use (Oksanen et al. 2011). Retirement did not change the risk of major chronic diseases in France (Westerlund et al. 2010); however, the findings of the US study suggest that retirement is associated with an increased risk of cardiovascular diseases (Moon et al. 2012). The latter association was more pronounced immediately following the retirement transition, which suggests an endogenous relationship being observed; those who experienced cardiovascular symptoms were selected into retirement rather than retirement being the cause of their cardiovascular disease.

### Conclusions and future directions

Reliable information on the determinants and risk groups of early retirement is essential in planning effective strategies to reduce early exit from the labour force. The three studies of the special section of this issue provide new findings that will add to current knowledge of the retirement process and provide information for future policies to prevent the impending 'pensions crisis'. They emphasise the complexity of the retirement process and the need to understand the role of individual-related as well as work-related factors.

Furthermore, we have shed light on the complexity involved in the association between health and retirement. The most complete models take into account correlations between participation, health reporting and health outcomes. They also take into account different available health measures to test for robustness. Health and retirement are bi-directionally linked, however, several individual, work-related, financial and social security system factors may contribute to the associations. Altogether, the results indicate that redesign of work for older workers in order to make it healthier and more satisfying and health care interventions to improve working capacity may be necessary to retain older workers longer in employment. Hence, it will become increasingly important to ensure that older workers have flexible working conditions, such as access to part-time jobs and other work arrangements, and up-to-date skills. Intervention studies are needed to show that improvements in working conditions can actually prevent early retirement.

An important aspect of health and retirement that needs further attention is work after retirement. Previously,

retirement was seen as the end of work life participation and as the beginning of 'the third age'. However, more and more employees participate in working life after retirement. Statistics from the European Union show that employment rates of workers aged 65–74 years increased by 15 % over the past years. Some retirees work out of own desire, others because of an unbearable drop in income (Eurofound 2011). These skilled workers form an invaluable potential for the employers to tackle projected labour force shortages. However, little is known about which pensioners work; what kind of work they do; and how work after retirement could be best facilitated. Therefore, studies are needed to find out the determinants of work after retirement and, in particular, its effects on health.

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