Social Science & Medicine 170 (2016) 26–34

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Functional health decline before and after retirement: A longitudinal analysis of the Health and Retirement Study

Sander K.R. van Zon [a, *], Ute Bültmann [a], Sijmen A. Reijneveld [a], Carlos F. Mendes de Leon [b]

[a] Department of Health Sciences, Community & Occupational Medicine, University of Groningen, University Medical Center Groningen, Antonius Deusinglaan 1, 9700 AD, Groningen, The Netherlands
[b] Department of Epidemiology, University of Michigan School of Public Health, 1415 Washington Heights, Ann Arbor, MI 48109, USA

ARTICLE INFO

Article history:
Received 24 June 2016
Received in revised form
2 September 2016
Accepted 3 October 2016
Available online 4 October 2016

Keywords:
United States
Retirement
Transition
Functional health
Limitations
Mobility
Large muscles
Socioeconomic position

ABSTRACT

Objectives: The aims of this study are to examine the pattern of pre- and post-retirement changes in functional health and to examine the degree to which socioeconomic position (SEP) modifies pre- and post-retirement changes in functional health.
Method: This longitudinal study was conducted using data from the Health and Retirement Study from 1992 to 2012. Piecewise linear regression analyses with generalised estimating equations were used to calculate trajectories of limitations in mobility and large muscle functions before and after retirement spanning a time period of 16 years. Interaction terms of three indicators of SEP with time before and after retirement were examined to investigate the modifying effect of SEP on changes in functional health before and after retirement.
Results: Average levels of limitations in mobility and large muscle functions increased significantly in the years prior to retirement. This increase slowed down after retirement, most prominently for limitations in large muscle functions. Higher SEP was associated with a slower increase of functional limitations prior to retirement. After retirement, a less clear pattern was found as only wealth modified the increase of limitations in mobility functions.
Discussion: Prevention of functional decline in older working adults may be essential in achieving longer and healthier working lives. Such strategies may have to give special consideration to lower SEP adults, as they tend to experience functional health declines prior to retirement at a greater rate than higher SEP adults.

1. Introduction

The promotion of optimal functional health and the prevention of functional decline in later life remain critically important goals in aging societies (Myint and Welch, 2012). It is well established that limitations in functional health interfere with the ability to perform daily activities required to meet basic needs, fulfill valued social roles, engage in social relationships, and maintain health and well-being (Leidy, 1994; Wilson and Cleary, 1995). Functional health limitations are also known to be associated with higher healthcare costs and reduced survival (Hardy et al., 2011; Newman et al., 2006). Although the prevalence of functional health limitations is highest among older adults (Koster et al., 2005; Lantz et al., 2001; Stenholm et al., 2014), there is increasing evidence that these limitations may well develop earlier in life, and can be observed among middle-aged adults as well (Clark et al., 1998; Nilsson et al., 2011).

Functional health limitations in middle-aged and older adults are typically thought to be the result of chronic disease processes that affect people as they age (e.g. cardiovascular disease, diabetes, arthritis) (Lin et al., 2015; Verbrugge and Jette, 1994). According to the disablement process, disease or injury may cause dysfunction and structural abnormalities in specific body systems (e.g. musculoskeletal, cardiovascular), which in turn may cause restrictions in basic physical actions like reaching, crouching, walking, and climbing stairs. This process is shaped by external factors like psychosocial characteristics, lifestyle factors, medical care, and the built environment (Verbrugge and Jette, 1994).

Retirement constitutes a pivotal social experience in the life

* Corresponding author. Department of Health Sciences, Community & Occupational Medicine, University Medical Center Groningen, PO Box 196, FA 10, Antonius Deusinglaan 1, 9700 AD, Groningen, The Netherlands.
E-mail address: s.k.r.van.zon@umcg.nl (S.K.R. van Zon).

http://dx.doi.org/10.1016/j.socscimed.2016.10.002
0277-9536/

cycle, and is often conceived as the transition from middle age to older age. It represents the termination of participation in the labor force, usually after many decades of working, and typically means the end of important social roles related to the ability to earn income and to perform activities that provide meaning and fulfilment to one's life. Retirement also entails the termination of exposure to work conditions and experiences associated with the type of work and the type of work environment which may bring a sense of mental or physical relief. The absence of work may further provide opportunities to engage in meaningful activities other than work, through an increase in leisure time, like voluntary work and caregiving activities (Kahana et al., 2013; Morrow-Howell, 2010). Previous evidence suggests that the retirement transition may be associated with important changes in health. A recent systematic review concluded, based on best evidence synthesis, that there is reasonably strong evidence for a beneficial effect of retirement on mental health and well-being (van der Heide et al., 2013).

The degree to which retirement leads to changes in physical and functional health remains much less clear (van der Heide et al., 2013). Previous studies have produced a pattern of mostly inconsistent findings, with some showing a beneficial effect on either overall physical health, general health perceptions, physical fatigue or physical limitations (Gall et al., 1997; Jokela et al., 2010; Westerlund et al., 2010), while others find no impact on physical health functioning, physical limitations, and physical health based on medical history and physical examinations (Ekerdt et al., 1983; Gayman et al., 2013; Mein et al., 2003). Retirement may lead to functional health decline, possibly as an acceleration of a process that started prior to retirement, due to the loss of a pattern of daily physical activities associated with working (or going to work) and of work-related social contacts and other forms of social participation. In other words, retirement may lead to a less engaged and more sedentary lifestyle, which may increase functional health limitations (Chung et al., 2009; Nooyens et al., 2005; van der Heide et al., 2013; van Solinge, 2007). Alternatively, retirement may bring relief from physically or mentally demanding work experiences (van der Heide et al., 2013; van Solinge, 2007; Westerlund et al., 2009), and gains in leisure time may spur increased participation in physical activity and social engagement (Godfrey et al., 2014; Kampfen and Maurer, 2015; Moen, 1996), and produce beneficial effects on the rate of functional health decline.

The health effects of retirement may well depend on the context or employment histories prior to retirement (Mein et al., 2003; Oksanen et al., 2011; van der Heide et al., 2013; Westerlund et al., 2009). Markers of socioeconomic position (SEP) are a convenient albeit somewhat crude characterization of this context. SEP may shape the functional health effects of retirement for several reasons. SEP is strongly related to the nature of work experiences prior to retirement, which, in turn, may affect the reasons for and timing of retirement. In addition, SEP will determine the amount of economic resources available throughout adulthood, which may have be used for health investments prior to retirement, and for a continued if not increased engagement in health promoting activities after retirement (Allen and Vella, 2015; Chandola et al., 2007; Chung et al., 2009). Finally, retirement typically leads to a loss of a regular income, which may result in some degree of financial insecurity and associated psychological distress, especially among those with fewer economic resources at the time of retirement (Ferraro and Su, 1999; Krause et al., 1991).

There has been contradictory evidence regarding the potential influence of SEP on the retirement health effects. A study among French national gas and electricity company employees found that people retiring from low occupational grades showed the largest improvements in self-perceived health following retirement (Westerlund et al., 2009). In contrast, studies among Finnish public-sector employees and British civil servants found the largest mental health improvements after retirement among those with higher occupational grades (Mein et al., 2003; Oksanen et al., 2011). Another study, focusing solely on early retirement, suggests that in low-educated workers poor self-rated health may prompt early retirement but prevents further health deterioration after retirement, while early retirement had an adverse effect on self-rated health in higher educated workers (Schuring et al., 2015). Others have found no differences by employment grade or SEP in post-retirement changes in physical health (Jokela et al., 2010; Mein et al., 2003). To our knowledge, systematic studies of socioeconomic differences in the functional health effects of retirement in the general population are still mostly lacking.

The aims of this study are to examine 1) the pattern of pre- and post-retirement changes in functional health; and 2) to examine the degree to which SEP modifies pre- and post-retirement changes in functional health. Based on limited and sometimes contradictory evidence summarized above, we hypothesize that retirement is associated with a decrease in functional limitations relative to the usual pattern of aging-associated functional decline, and that this decrease will be more prominent in retirees with higher SEP.

2. Materials and methods

2.1. Study design and sample

The study was conducted using data from the Health and Retirement Study (HRS) (Sonnega et al., 2014). The HRS is a longitudinal cohort study conducted in the United States that includes more than 37,000 individuals aged 51 years and older from 23,000 households. The HRS was established in order to better understand aging and to examine national-level social and policy changes that may affect individuals. The HRS covers four major topics – income and wealth; health, cognition and use of healthcare services; work and retirement; and family connections. The initial HRS cohort was interviewed for the first time in 1992 and followed-up with two year intervals. Over the years, five other studies were merged with the initial HRS cohort; Asset and Health Dynamics among the Oldest Old (AHEAD), the Children of the Depression (CODA), the War Babies, Early Baby Boomers (EBB), and Mid Baby Boomers (MBB). By including these studies, the HRS has become a nationally representative cohort study. Baseline interviews were mostly conducted face-to-face while a mixed design was used for follow-up interviews. During follow-up, half of the sample was assigned a face-to-face interview while the other half was interviewed by telephone. More details on study design are described elsewhere (Sonnega et al., 2014). For this study, we used data from the RAND Contributed Files (v.N) which includes data from 1992 to 2012 (Health and Retirement Study, 2014). The HRS (Health and Retirement Study) is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. HRS was approved by the Institutional Review Board at the University of Michigan, and all participants have provided informed consent.

We restricted the analysis to those with at least one measurement wave prior to, and one after they reported retirement. As a result, we excluded participants who had already retired at the baseline interview, or retired during the first two measurement waves (functional limitations questions were not included in the first wave of the HRS). We also excluded participants who reported retirement at the last available measurement wave, and those who did not retire during follow-up. With this restriction, we excluded 29,177 of the 37,319 participants from the analysis. Data was thus available for 8142 participants. We further restricted our study population to those aged between 50 and 70 years old on the first