Maturitas 78 (2014) 86–90

Contents lists available at ScienceDirect

Maturitas

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

Review

Occupational stress, bullying and resilience in old age

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ARTICLE INFO

Article history:
Received 2 April 2014
Accepted 5 April 2014

Keywords:
Ageing
Work
Stress
Bullying

ABSTRACT

Our working years increasingly extend into the late 60s and may soon include the 70s for some people. Thus the question whether work stress has a cumulative effect in older age, and whether older employees are more vulnerable to certain sources of work stress, such as bullying in the work place, is becoming increasingly relevant. We review some of the mechanisms, which translate cumulative stress at work into ill health, particularly in older age, and summarise what is known about the effect of age-specific stress, taking age-related bullying as an example.

Contents

1. Introduction

Cardiovascular disease, depression, sleep and memory problems are common in older age. While work can have benefits for mental health and cognition, physical and mental illness in older age can have a negative impact on the ability to work [1,2] and can lead to early retirement [3,4]. Given that in addition to age, occupational stress is also a risk-factor for such diseases, older employees may be particularly vulnerable to workplace stressors, and have an increased risk of developing age-related illness and take early retirement [5,6]. Furthermore, as members of a minority group, older workers are vulnerable targets for bullying and discrimination, which are extreme stressors. The knowledge and experience older employees bring to the workplace and can share with their younger colleagues is now widely recognised and appreciated [7,8]. With retirement ages now extending well into the 60s (64.6 for mean and 62.3 for women in the UK), only ill health may make early retirement possible for many [9]. Maintaining the ability to work into older age is therefore an important goal worldwide [10,11].

Abbreviations: ADAMS, Aging Demographics and Memory Study; ADEA, Age Discrimination Employment Act; CHARLS, China Health and Retirement Longitudinal Study; DC, demand-control (also called 'job-strain') model; ELSA, English Longitudinal Study of Ageing; ERI, effort-reward imbalance model; HRS, Health and Retirement Study; SD, standard deviation; U.S.C., Unites States Congress.

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http://dx.doi.org/10.1016/j.maturitas.2014.04.006
0378-5122/

2. Stress at work

2.1. Health consequences and theoretical models

The workplace can be a source of various stressors that affect health and wellbeing. Occupational stress is a risk factor for cardiovascular mortality [12], coronary heart disease [13–15], myocardial infarction [16], ischaemic heart disease [17], increased heart rate reactivity, and increased systolic blood pressure [18], for obesity [19], type 2 diabetes [20], and musculoskeletal problems [21]. It is also associated with mental disorders [22], including depression [1,23–25], anxiety [26], sleep problems [27] and problem drinking [28]. Furthermore, long-term occupational stress has been associated with regional reductions in grey matter volume in the brain [29] and functional disconnection of limbic networks [30].

Most occupational stress research is based either on the 'demand-control' (DC, also called 'job-strain') [31–33] or the 'effort-reward imbalance' (ERI) models [34,35]. The DC model assumes that people in highly *demanding* jobs over which they have little or no *control* suffer from physical and psychological job-strain, which in the long-term can elicit stress related illness. For instance, high demand with low control predict common mental disorders [6], and high levels of heart disease are often found in the lower hierarchies of organisations, such as the British Civil Service [36]. While senior positions are undoubtedly associated with stressors, individuals in these levels have greater job control and the capacity to delegate. The ERI model focuses on the stressful effect that discrepancy between *expenditure of effort* (e.g. high work pressure) and *recognition at work* (e.g. poor financial recompense or career prospects) can have. An imbalance has been found to predict cardiovascular events, and to partially explain cardiovascular risk, for instance among German blue-collar workers [35], and is also a risk factor for common mental disorders [6].

2.2. Occupational stress in mid-life and its effects after retirement

Mid-life is usually defined as the period between 40 and 55 years of age. It is an important phase of the life-course, usually with very high independence levels, that has long-term effects on general health and living standards later in life [37]. Unfavourable working conditions during mid-life are associated with poor illness-related functioning [38], mental illness [39] and impaired cognition [40], along with higher mortality rates [41], after retirement.

In a cross-national study of older retired men and women ($N = 8609$, ≥ 60 years) Wahrendorf and colleagues [39] tested the association between retrospectively reported working conditions in the individual's main job in mid-life (40–55 years) and depressive symptoms during retirement. On average men reported higher physically and psychosocially demanding, but more stable and generally more senior positions than women. Women, on the other hand, reported low control and low demand positions. There was an increased risk of depressive symptoms amongst men and women, who reported a stressful work environment *and* disadvantaged occupational condition throughout mid-life. Involuntary job loss and job instability increased the risk of depressive symptoms only in retired men. These findings are consistent with a prospective study of work stress (measured 10 years prior to assessment) and its association with mental and physical health following retirement ($N = 6053$, 54–68 years) [38].

Low self-reported and occupation-based job control in mid-life (*mean age* = 53.5 years, $SD = 6.5$) thirty-five years prior to follow-up predicted poor cognitive performance in advanced age ($N = 827$, ≥ 77 years, *mean age* = 82.7 years, $SD = 4.2$) [40]. In contrast, high demand and high job control was associated with higher cognitive performance and lower likelihood of impairment in old age, after controlling for age, sex, education, and perceived health [40].

Finally, retrospectively reported low control jobs in 65-year-old community dwelling older men were associated with a three times higher likelihood of mortality at seven-year-follow-up compared with high control jobs, regardless of levels of demand [41]. No significant association was found in women and with indicators of effort or reward. Even though demographical, social characteristics and health status were controlled for in the statistical model, current employment status was not adjusted for or tested. Since the majority (82%) of the participants were retired at the time of baseline assessment it is possible that the association between low control jobs and increased mortality rate was driven by the 18% who had continued occupational activity. Furthermore, it is possible that further associations were not found due to the positive effects retirement can have on stress reduction, life-style and health [42,43]. For instance a prospective cohort study [44] found that headache, the most common neurological symptom in working age, was substantially reduced by transition to statutory retirement, especially among those who had reported high work stress in mid-life, 7 years prior to statutory retirement (high job demands, low job satisfaction), or had a 'stress-prone personality' ($N = 12{,}913$, 41–63 years, *mean age* at retirement = 55 years, $SD = 2.3$).

2.3. Occupational stress in later-life

A smaller number of studies have examined the effect of work stress among those, who continue work into older age, although such studies could provide useful information about the reasons behind early retirement and retirement intentions. Lunau [11] combined data from three longitudinal studies to look at the prospective effect of work stress on depressive symptoms in older employees ($N = 5650$, age 50–64 years (majority <60 years)) and found a significant increase in depressive symptoms over a two-year follow-up period in older working adults, who reported work stress. Furthermore, they also found that those in countries with 'active labour market policies', with availability of rehabilitation services, income maintenance and unemployment benefits, and low degrees of income inequality had reduced risks. Given that depressive symptoms are a risk factor for (early) retirement [5,6] and occupational stress predicts depressive symptoms [1,23–25], the 'protective' nature of some of the 'policy contexts' may provide useful direction for improving the occupational setting for older adults. A cohort study of 6938 working older adults (50–64 years, majority <60 years (some overlap with [11]) further confirms this notion: The association between work stress, social position (defined by position in occupational hierarchy) and retirement intention was examined [45]; those with a lower occupational position were more likely to report retirement intentions, which was partly due to poor working conditions.

2.4. Directions for further research

Clearly, more research is required to explore the effect of work stress in older workers. Two confounder mechanisms will require special attention and continuous secular review. People take early retirement due to ill health, and consequently the select nature of the 'survivors in employment' makes it difficult to find an association in this subgroup (healthy 'worker survivor' bias). For instance, a study examining the effects of job strain on ischaemic disease in older employees found that the strength of the association dropped by 70% when the sample included older employees as well (*19–55 years*: hazard ratio 1.76, 95% CI 1.05–2.95, compared with *19–65 years*: hazard ratio 1.22, 95% CI 0.75–1.96) [46]. In addition, retirement during follow-up can reduce or remove job strain effects, so researchers need to take this into account during their analysis [44,46].