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Cardiovascular disease, diabetes and early exit from paid employment in Europe; the impact of work-related factors

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ABSTRACT

Background/objectives: The aims of the study were to examine (i) the association between cardiovascular disease (CVD) or diabetes and exit from paid employment via disability benefits, unemployment, early retirement or other exit routes; and (ii) the impact of work-related factors on exit from paid employment among individuals with CVD or diabetes.

Methods: Respondents of the longitudinal Survey of Health and Retirement in Europe (SHARE) were included if they were aged >50 years, had paid employment at baseline, and a known employment status after 2 or 6 years (n = 5182). A baseline-interview provided information on the presence of diagnosed CVD and diabetes, and physical and psychosocial work-related factors. During follow-up interviews information on work status was collected. Multinomial regression analyses were used to investigate the association between CVD, diabetes and exit from paid employment, and the impact of work-related factors.

Results: Workers with CVD or diabetes had significantly increased probabilities of disability benefits (OR 2.50, 95% CI 1.69–3.70) and early retirement (OR 1.34, 95% CI 1.05–1.74), but a comparable probability of unemployment (OR 1.10, 95% CI 0.71–1.71). Regarding disability benefits, individuals who had a stroke had the highest probability (OR 3.48, 95% CI 1.31–9.23). Perceived high job demands with low rewards or with low control at work further increased the probability of early exit among individuals with CVD or diabetes.

Conclusions: Our study shows a prominent role of CVD and diabetes in premature losses to the workforce, and it shows that optimizing psychosocial work-related factors could be beneficial in people with CVD or diabetes.

1. Introduction

In Europe, cardiovascular disease (CVD) has the highest burden of disease [1,2] to which the globally rising burden of diabetes contributes [3,4]. Because of an increase in the average life expectancy of the population, most Western countries are increasing the statutory retirement age from 65 to 67 years and even above. This will lead to a higher proportion of older employees active in the workforce. As employees age, the prevalence of CVD increases, leading to an increasing number of individuals with CVD in the workforce. It therefore becomes increasingly important to gain insight into the impact of CVD on the ability of these people to maintain long-term paid employment. A healthy working environment might be one of the modifiable factors to support workers to maintain their ability to work.

Previous studies have shown that self-perceived poor health is related to early exit from paid work [5,6], but little is known on the ability of workers with specific CVD manifestations, such as stroke and heart disease, or diabetes to remain at work in the long term. Although previous studies have mainly investigated short-term return to work after a cardiac event [7], two recent studies demonstrated that permanent premature exit from the workforce occurred in 19% of the workers with CVD in general [8] and in 50% among workers diagnosed with myocardial infarction [9]. In addition to CVD, diabetes is also related to premature workforce exit. In a systematic review, it was found that among individuals with diabetes type 2, 7.2% of men and 12.8% of women left the workforce prematurely, compared with 2.2% of men and 3.3% of women without diabetes [10].

Among workers with CVD or diabetes, work-related factors may play a role in people's ability to stay at work. Two models that are widely used to describe the impact of work-related factors are the job demand-

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control model [11] and the effort-reward imbalance model [12]. These models postulate respectively that higher job demands in combination with lower job control or higher efforts in combination with lower rewards contribute to chronic work stress. High physical job demands have shown to increase the risk of staying out of work for at least 12 months after a severe myocardial infarction [9]. Having a combination of high physical demands and a lower job control had a threefold risk of staying out of work for at least 12 months in men with coronary heart diseases [13]. Effort-reward imbalance at work has so far only been associated with elevated risks of onset of CVD [14,15] but as far as we know, has never been studied as a potential determinant of workforce exit among individuals having CVD or diabetes.

In this study, we aim to get insight into how CVD and diabetes influenced early exit from paid work and whether work-related factors can support workers with CVD or diabetes to remain in paid employment. Understanding these associations is necessary to refine strategies for preserving this increasing group of diseased to the workforce in a sustainable way. We hypothesize that CVD and diabetes increase the prevalence of early exit from the workforce and that a strenuous working environment increases this prevalence even more.

2. Methods

2.1. Study design, population and flow of participants

The data were derived from the longitudinal Survey of Health, Ageing, and Retirement in Europe (SHARE). SHARE aims to collect health, social, and economic data on the population aged ≥50 years. The first wave of data collection started in 2004 and 2005 in 11 European Union countries, divided in three European regions: northern (Sweden, Denmark), central and western (The Netherlands, Belgium, Germany, Austria, Switzerland, France), and southern Europe (Italy, Spain, Greece).

In the participating SHARE countries, the institutional conditions with respect to sampling were so different that a uniform sampling design for the entire project was not feasible. Different registries at the national or local level were used, enabling stratification by age.

Respondents were included, when at baseline they (a) were aged between 50 years and the country-specific statutory retirement age, (b) had paid employment, and (c) provided information about the presence of CVD and diabetes. In total, 7233 of the 28,517 (47%) respondents met these criteria. Furthermore, information about employment status at two and/or six years follow-up was available for 5182 respondents (72% of those who met the baseline inclusion criteria), which form the study population for the analyses. The SHARE study was reviewed and approved by ethics committee of the University of Mannheim (until 2011) and the Ethics Council of the Max-Planck-Society for the Advancement of Science (since 2011). Informed consents were obtained from all subjects at the time of enrolment.

2.2. Work status

The primary outcome measure in this study is self-reported work status. Work status was measured after 2 years and after 6 years. In both follow-up interviews, a single question was asked: "in general, which of the following best describes your current employment status? The possible answers were: retired, employed or self-employed, unemployed and looking for work, permanently sick or disabled, homemaker, other".

We classified individuals as still being in paid employment if they (i) worked until they reached the statutory retirement age, or if they (ii) were still at work at the end of the follow-up period ('employed' or 'self-employed'). We classified individuals into those who made the transition to not working, if they reported at any of the follow-up waves to be permanently sick or disabled, unemployed and looking for work, early retired, homemaker, or other. The 'disability benefits' category includes individuals receiving a disability benefit. The 'unemployed' category includes those individuals who became unemployed before they reached the statutory retirement age. 'Early retirement' is defined as self-reported retirement before the statutory country-specific retirement age. The category 'other' includes individuals who left paid employment via another pathway than disability benefits, unemployment, and early retirement and mainly consists of homemakers.

Only the first event in time was considered. When multiple transitions out of the workforce took place at the same point in time, the following hierarchy in descending order was used: (i) disability benefits, (ii) unemployment, (iii) other (mainly homemaker), and (iv) early retirement.

2.3. CVD and diabetes

At baseline information was collected on self-reported CVD and diabetes. We defined the disease as 'present' when at least one positive answer was given to the question: "Has a doctor ever told you that you had any of the conditions on this card?". For 'CVD', individuals could indicate whether they had had (i) a stroke or cerebral vascular disease, or (ii) a heart disease. The diagnosis 'heart disease' was defined as myocardial infarction, coronary thrombosis, any other heart problems including congestive heart failure, and excluding high blood pressure and high cholesterol. For 'diabetes', individuals were asked whether they had diabetes or high blood glucose levels. When there was more than one diagnosis present multiple diagnoses were taken into account.

In addition to the history of disease, individuals were asked to indicate their age at first occurrence of the disease. We defined a recent case as an individual who was diagnosed within 2 years before enrolment in the study.

2.4. Work-related factors

At baseline, physical and psychosocial work-related factors were measured. Physical work demands were asked on a four point scale ranging from 'strongly agree' (1) to 'strongly disagree' (4). High physical work demands were defined as having answered the question 'My job is physically demanding' with 'strongly agree' (1) or 'agree' (2). Psychosocial work-related factors were measured with questions derived from the validated job-demand-control [11] questionnaire and effort-reward-imbalance questionnaire [12], since these were previously applied to analyze the intention to retire using the baseline information of SHARE [16]. The items were measured on a four point scale ranging from 'strongly agree' (1) to 'strongly disagree' (2). Time pressure at work was measured by asking 'I am under constant time pressure due to a heavy workload'. High time pressure was defined as answering this question with 'strongly agree' or 'agree'. Job control was measured with two items, asking for (i) freedom to make decisions in how the work is performed, and (ii) the opportunity to develop new skills. The sum score of these two items were dichotomized based on the sample distribution. A low job control was defined based on the country-specific median values. To assess the job demand control-model, time pressure and physical work demands were combined into one measure for job demands, using the country-specific median values of the sum score of these two items. Four groups were distinguished: high control and low demands, high control and high demands, low control and low demands, and low control and high demands. Rewards were defined in a similar way, based on five items addressing support, recognition, salary/earnings, job promotion prospects and job security. The underlying dimensions of the effort-reward imbalance model were based on a sum score of the two demands items (time pressure and physical demands) for the 'effort'-dimension, and the sum score of the five reward items for the 'rewards'-dimension, both adjusted for the number of items. Subsequently, effort-reward imbalance was