Educational differences in disability retirement among young employees in Helsinki, Finland

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Introduction

Disability retirement (DR) is a major problem in Western work life and public health, and it tends to be more common in lower socioeconomic groups. It burdens the national economy, and also has adverse consequences for the individual given that work is an important source of material and mental wellbeing. While young adults approximately one in four has a chronic disease, but not all diseases affect work ability. However, mental disorders may be more severe than somatic disorders in terms of coping with work. It was known that mental disorders may be more severe than somatic disorders, but it was also observed that those with a higher risk of DR due to any cause and to mental and non-mental causes among young employees. Methods: Personnel register data of the City of Helsinki from the years 2002–2013 for 25-to-34-year-old employees (n = 41225) were linked to register data from the Finnish Centre for Pensions on DR (n = 381), and from Statistics Finland on education. Education was categorised into four hierarchical groups. The mean follow-up time was 5.7 years. Cox regression analysis was used. Results: There were 381 DR events and of the events, over 70% were due to mental disorders and 72% were temporary. A consistent educational gradient was found. Those with a basic education were at the highest risk of DR due to any cause (HR 4.64, 95% CI 3.07, 7.02), and to mental (HR 4.79, 95% CI 2.89, 7.94) and non-mental causes (HR 4.32, 95% CI 2.10, 8.91). Conclusions: DR due to any cause, and to mental and non-mental causes, followed a clear educational gradient. Early intervention, treatment and rehabilitation with a view to maintaining work ability are needed among young employees, especially those with low education. Adapting working conditions to their health and work ability may also help to avoid premature exit from work.

Methods

Data

Helsinki is the capital of Finland, and the municipality is the largest employer in the country with ~40,000 employees. Its main areas of operation include healthcare, education, social-welfare services, public transport, culture, construction and technical services. All employees are covered by the same personnel administration and registration systems, policies and occupational healthcare service. We used the City of Helsinki’s personnel registers to obtain individual-level information on its employees’ socio-demographic factors. The registers cover all employees and their work contracts. Information on education was obtained from Statistics Finland’s register of completed education and degrees. Information on DR was derived from the Finnish Centre for Pensions national register and the data were linked to the City of Helsinki register data and Statistics Finland register data on educational degrees.
Table 1 Follow-up time and causes of DR according to education among 25–34-year-old employees (n=41 225)

<table>
<thead>
<tr>
<th>Education</th>
<th>Follow-up periods</th>
<th>Follow-up time</th>
<th>Causes for DR</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>days, mean</td>
<td>Any cause</td>
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<tr>
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<tr>
<td>Lower secondary</td>
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<td>1540</td>
<td>199</td>
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<tr>
<td>Basic</td>
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<td>1640</td>
<td>75</td>
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<tr>
<td>All</td>
<td>52 532</td>
<td>1634</td>
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</tr>
<tr>
<td>Women</td>
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<tr>
<td>Men</td>
<td>13 807</td>
<td>1643</td>
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</tr>
</tbody>
</table>

Methods

Initially, all persons aged 25–34 years who were employed permanently or temporarily by the City of Helsinki during 2002–2013 were included in the study. Those who had worked for the City of Helsinki for <4 consecutive months, which is the maximum probation time, were excluded to ensure that the employees in question have been able to work, and those occupational healthcare personnel had assessed their suitability for their work tasks. After exclusions, 41 225 (74% women) employees were included in the study population (table 1).

All 16–64-year-olds in Finland are eligible for DR if their ability to undertake gainful employment has deteriorated over at least a year on account of a diagnosed psychiatric or physical disease. Permanent, temporary and part-time DRs, which were included in this study, require a major loss of work ability. Temporary DR is granted if there is a possibility that work ability can be restored through rehabilitation and treatment. Full-time or partial DR is granted if work ability has been lowered by at least three fifths or two fifths, respectively for at least a year.22 The three groups of diagnostic causes included were (i) any cause; (ii) mental causes (mental and behavioural disorders, ICD-10 codes F00-F99) and (iii) non-mental causes (all others).

Four hierarchical educational groups were formed based on the highest qualifications achieved20: basic education (comprehensive school), lower-secondary (upper-secondary school, vocational school), upper-secondary (a Bachelor’s degree from a university or institution of applied sciences) and higher education (a Master’s or doctoral degree).

The ethics committees of the Department of Public Health, the University of Helsinki and the health authorities of the City of Helsinki approved the study.

Statistical methods

Cox proportional hazard models were used to estimate the hazard ratios (HR) and their 95% confidence intervals (CI) for DR during 2002–2013. The models were adjusted for gender. Women and men were pooled together as the association between education and DR was similar among both (P=0.3 for interaction). Age was used as the time scale and therefore age-adjustment was not needed.22 The follow-up started in 2002 or when the subject reached the age of 25, whichever was later, and continued until the end of 2013 or ended if the employee retired (n=381), died (n=148) or turned 35 years. Educational level was entered as a time-dependent covariate in the model, which means that the value of the covariate may change over time.22 If the employee’s educational level increased during the follow-up (n=11307), the follow-up was terminated in previous educational group and started in the new educational group. The mean follow-up time was ca. 5.7 years for each participant and ca. 4.5 years for each follow-up period. The analyses were conducted separately for DR due to any cause, and mental and non-mental causes. The proportional hazards assumption, examined using Schoenfeld residuals,24 was valid.

Results

There were 381 (0.7%) disability-retirement events altogether (table 1). Of these, over 70% were due to mental disorders (n=276). Temporary DR was the most common type among these young employees, especially when due to mental disorders (table 2). Temporary DRs due to mental disorders continued longer than those due to non-mental causes.

The risk for DR due to any cause followed an educational gradient and was the highest among those with a basic (HR 4.64, 95% CI 3.07, 7.02) and lower-secondary (HR 3.77, 95% CI 2.60, 5.47) education (table 3). A similar risk was found for DR due to mental causes, also following a strong educational gradient and being the highest risk among those with a basic (HR 4.79, 95% CI 2.89, 7.94) and a lower-secondary (HR 4.02, 95% CI 2.56, 6.32) education. DR due to non-mental disorders again followed the same pattern: a strong educational gradient with the highest risk among those with a basic education (HR 4.32, 95% CI 2.10, 8.91), followed by those educated to the lower-secondary level (HR 3.28, 95% CI 1.71, 6.29).

Discussion

Our aim was to examine the association between socioeconomic position indicated by educational level, and DR due to any diagnostic cause, and to mental and non-mental causes among younger, i.e. 25–34-year-old employees. The main findings were as
follows: (i) a consistent and steep educational gradient of DR risk due to any diagnostic cause was found; (ii) the risk for DR due to mental and non-mental causes showed a similar steep educational gradient; (iii) mental disorders were the main reason for DR among the young employees under scrutiny; and (iv) most DRs among young employees were temporary.

The differences between educational groups in the risk of DR due to any diagnosed cause were similar,13,17,25 and even larger15,18 than those found in previous studies with participants who were older or represented a broader age range. We used four educational groups, but in a Norwegian study educational differences in DR existed throughout a more detailed educational classification.13 Educational differences in DR due to mental causes were large in our study. However, previous findings on educational and other socioeconomic differences in DR due to mental causes among adult populations are inconsistent. Some studies report a steep gradient,13,18 and others only small or non-existent socioeconomic differences.1,18,26 The educational differences in DR due to non-mental causes were also large in our study: previous studies on older participants have reported wide educational differences especially in DR due to musculoskeletal diseases.13,18 We were unable to stratify our analyses because of the low number of DRs due to musculoskeletal diseases. However, studies based on broader age ranges have reported educational differences even in DR due to other than musculoskeletal or mental causes.13,18

A number of factors may influence the association between education and DR. According to findings from previous studies, those with lower-level individual abilities, a low socioeconomic position and health problems during childhood and youth may follow lower-level educational tracks.18,27,28 A low-level education, in turn, may influence health through the acquisition or non-acquisition of material and non-material resources,28,29 and lead to more physically and psychosocially demanding occupations.13,18

One reason for the increased DR risk among those with a lower as opposed to a higher socioeconomic position25 may be that people with similar health problems might not have the same opportunities to accommodate their work to their ill-health, depending on the task requirements and their working conditions.13,17 Although the DR risk increases with age,13,30 educational differences may be steeper among younger than among older adults.17,31 One reason for this could be that those in lower socioeconomic positions retire on the grounds of disability at a younger age,32 which was even evident in our study of 25–34-year-old employees. It may be that DR is postponed longer among those in higher socioeconomic positions because of the increased flexibility in their work that allows them to continue working despite deteriorating health.3,13 Hence, the more highly educated who apply for DR might have more serious conditions than their less highly educated counterparts, but may also be better placed to find a new job with manageable requirements.33

Medically confirmed disease is an essential component of work disability, but several other factors are also influential.17,34 Self-reported health, health behaviours, comorbidity, social relationships and support contacts and unemployment are further contributory factors that have been associated with the DR risk.25,30,32,33 Because of the short time of exposure to working conditions at an early age, work may have only limited effects on the association between education and DR.15 The majority of the young employees we studied were able to complete at least lower-secondary education, and they all had been in employment. Many young adults nowadays have to change jobs due to fixed-term contracts, and their work environments may thus change frequently. Given that the participants in our study had been employed by the City of Helsinki for at least four consecutive months, their suitability for their work tasks would have been assessed within the occupational healthcare system.

Mental disorders were the most common diagnostic cause for DR among the young employees, which is in accordance with previous findings.1,13 The distributions of the main diagnoses in DR tend to change substantially with age: whereas mental causes are dominant among younger retirees, musculoskeletal causes are dominant among older ones.12,32,36 The educational differences in DR due to mental causes were large among the young employees in our study. However, among older adults, those in the higher socioeconomic groups might have an elevated risk of DR due to mental causes, given the potential contribution of complexity and mental demands in their work tasks.32,37 Correspondingly, musculoskeletal diseases are a common cause for DR among older employees, especially those in manual jobs with prolonged exposure to physically strenuous working conditions.32

About 40% of DR due to mental causes had depression as a diagnosis (data not shown). Depression has a lifetime prevalence of about 25% among 18–29-year-olds38 and a relatively high recurrence rate.39 As in previous studies,4 most DRs due to mental causes among our young employees were temporary and granted longer than temporary DRs due to other causes. Mental disorders tend to have phases of remission and recurrence, and their development and final outcome are hard to predict.4,39 Temporary DR incorporates vocational retraining and rehabilitation,4,40 which are widely used among younger recipients to facilitate their return to work in another, more suitable occupation or job.41 Return to work after temporary DR is more common among the under 35-year olds than in older age groups.3

In Finland, economic downturn started in 2008, at the midpoint of our study period. Downsizing may have led to increased pressure on employees. Job insecurity increases mental health problems,42 and the possible unemployment may affect the risk of DR.43 Also organizational changes, such as privatisation of public sector, may increase the risk of work disability because of adverse psychosocial factors.44 Thus, the changes in the economic situation during our study period may have had an impact on the risk of DR among the young employees.

### Methodological considerations

This study was based on a large number of young employees of the City of Helsinki. Information on education and DR were drawn from complete registers with no reporting bias. We were able to link the registers of the City of Helsinki and the Finnish Centre for Pensions national register data to Statistics Finland’s register of completed education and qualifications, which is an accurate national register that includes the highest degree or the most recent qualification and is updated annually. However, it is a limitation that the registers we used in this study lack further information on the participants, their health-related background,
working conditions and employment history outside of the City of Helsinki. Moreover, it was not possible to conduct detailed diagnosis-specific analyses given the relatively small number of DR events. Although the association between education and DR was similar among the women and men in our study, more DR events would allow detailed examination of possible gender differences. The number of events limited the analyses especially among the more highly educated groups.

Focusing on people who have been employed for at least the maximum probation time ensures that the participants were healthy enough to work during their recorded pathway. We chose the age group of 25-to-34-year olds to represent young employees because DR events among the younger are extremely rare. Given that the participants in our study were municipal employees of a single employer, the results could be generalised with caution to the Finnish municipal sector, but generalizability to the labour force in general is limited.

Conclusions
There was a consistent and steep educational gradient for DR due to any diagnosed cause and mental and non-mental causes among the young employees under investigation. There is an abundance of research on work-ability problems among older employees, but our study extends the findings to young employees, who may also suffer from work disability and therefore need preventive measures. Priority should be given to efforts aimed at the prevention of long-term disability leading to DR, especially among young employees who may lose decades of productive working time.

Our findings suggest that preventive measures are needed among young employees with a low level of education in particular. Supervisors and occupational healthcare practitioners should monitor the mental health and work ability of all young employees. Those at risk should be identified and resources targeted at an early stage. Equal access to continued employment should be enabled to all young employees with different kinds of disabilities and health problems.

Key points
- Steep educational gradients were found in the risk of disability retirement (DR) due to any cause, and to mental and non-mental causes among young, 25–34-year-old employees.
- For the most part the DR among young employees was temporary and due to mental causes.
- Preventive measures are needed in order to maintain work ability among young employees, especially those with a lower educational level.

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Conflicts of interest: None declared.

References


