

Brief Report

10-year trends of educational differences in long sickness absence due to mental disorders

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Abstract: Objectives: Mental disorders are a key cause of sickness absence (SA) and challenge prolonging working careers. Thus, evidence on the development of SA trends is needed. In this study, educational differences in long SAs due to mental disorders were examined in two age groups among employees of the City of Helsinki from 2004 to 2013. **Methods:** All permanently and temporarily employed staff aged 18-34 and 35-49 were included in the analyses (n=~27800 per year). SA spells of ≥ 14 days due to mental disorders were examined annually. Education was classified to higher and lower levels. Joinpoint regression was used to identify major turning points in SA trends. **Results:** Joinpoint regression models showed that lower educated groups had more long SAs spells due to mental disorders than those groups with higher education. SA trends decreased during the study period in all studied age and educational groups. Lower educated age groups had similar SA trends. Younger employees with higher education had the fewest SAs. **Conclusions:** A clear educational gradient was found in long SAs due to mental disorders during the study period. SA trends decreased from 2004 to 2013.

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Key words: Educational differences, Long-term sick leave, Mental disorders, Work disability, Young adults

Introduction

In Finland and many other OECD-countries, mental disorders are the most common diagnostic cause for sick-

ness absence (SA) and disability retirement alongside musculoskeletal disorders^{1,2}. SAs due to mental disorders are often long and recurrent in nature^{3,4}. Mental disorders pose high risks even among younger people, who may have long SAs due to mental disorders more often than older employees⁴. Generally, socioeconomic positions, such as one in education, have their own contributions to SA, i.e., higher classes have less SAs^{5,6}. However, in the case of SA due to mental disorders, the evidence is inconsistent^{2,7-9}.

Mental disorders challenge work ability and efforts for prolonging working careers, thus the knowledge on recent trends and demographic differences is needed to target preventive measures more effectively. A Dutch study showed that the incidence of SA >3 weeks long due to mental disorders decreased over the study period of 2001-2010 in all economic sectors¹⁰, but evidence for increasing trends also exists¹¹. Also, our own studies show that trend directions in long SA due to any cause vary by age group and gender during the period of 2002-2013¹². In order to add evidence on educational differences in recent trends of SA due to diagnosed mental disorders, we examined 10-year trends among 18-34 and 35-49 year-old employees.

Material and Methods

This serial cross-sectional study is a part of the Helsinki Health Study on health and wellbeing among employees of the City of Helsinki, Finland¹³. Helsinki is the capital of Finland with approximately 600,000 inhabitants and 40,000 employees (approx. 73% women). All permanently and temporarily employed 18-34 and 35-49-year-old employees of the City of Helsinki from the years 2004-2013 (approx. 27,800 employees per year, Table 1) were included. The groups were chosen based on previous knowledge on age-differences in SA¹² and the participants' attachment to employment, i.e., the younger group included those entering and starting their work career whereas the older group included those with established

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Table 1. Descriptive statistics for the study population in 2004-2013.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
N	26921	26819	27068	27273	27944	28208	28480	28302	28283	28636
Women										
18-34	7716	7728	8057	8382	8932	9351	9746	9675	9778	10107
35-49	12365	12215	12058	11907	11965	11546	11321	11251	11121	11004
Men										
18-34	2670	2705	2866	2958	3052	3397	3634	3533	3495	3639
35-49	4170	4171	4087	4026	3995	3914	3779	3843	3889	3886
Educational level, %										
18-34										
Higher	35.5	35.1	34.0	33.8	34.3	34.6	35.1	36.5	37.6	38.0
Lower	64.5	64.9	66.0	66.2	65.7	65.4	64.9	63.5	62.4	62.0
35-49										
Higher	45.2	45.8	46.5	47.0	47.4	47.8	49.2	49.6	49.7	51.4
Lower	54.8	54.2	53.5	53.0	52.6	52.2	50.8	50.4	50.3	48.6
Long SA spells due to mental disorders*										
18-34	5.6	5.9	6.0	6.3	5.9	4.8	5.3	4.7	5.0	4.5
35-49	6.0	6.4	6.7	6.1	5.9	5.1	5.5	5.6	4.4	4.5
SA days due to mental disorders*										
18-34	242.3	297.7	280.1	304.1	283.7	254.8	302.7	231.6	258.0	236.5
35-49	289.8	310.6	640.7	328.2	264.8	246.0	294.9	298.4	241.7	254.8

*/100 person-years. SA=sickness absence.

work career. Under 18-year-old employees were excluded due to under-age (approx. 480 employees per year) and 50-year-olds were excluded due to increasing amounts of disability retirements, and thus health-related selection (approx. 14800 employees per year).

City of Helsinki's personnel register was used to obtain individual-level information on the employees' socio-demographic factors. Data on long SAs, ≥ 14 days, due to mental disorders (mental and behavioral disorders, ICD-10 codes F00-F99) from 2004 to 2013 were collected from the registers kept by the Social Insurance Institution of Finland.

Education was classified to two levels according to the highest qualification obtained from the Statistics Finland register of educational degrees: higher education (Bachelor's degree, Master's degree or doctorate) and lower education (Comprehensive school, upper-secondary school, vocational school). Lower educational level was more common: $\sim 64\%$ among younger and $\sim 52\%$ among older age groups. The educational level rose slightly over time among both age groups during the study period (Table 1).

Statistical methods

SA per 100 person-years for long spells due to mental disorders were calculated annually, i.e., each year is a cross-section for the two age groups and educational levels. Women and men were pooled together due to a small number of SA events in the data. Age-adjusted joinpoint

regression modelling¹⁴⁾ was used to identify major turning points in SA trends. Annual percent changes along with 95% confidence intervals (CI) are presented for each identified SA trend period. Analyses were conducted using Joinpoint Regression Program version 4.1.1¹⁵⁾.

Results

Younger employees with higher education had less spells than their older counterparts (Fig. 1). The age-adjusted joinpoint regression models showed that lower educated groups had similar changes and levels in the trends during the study period of 2004-2013. Among lower educated groups, the amount of SA due to mental disorders first increased until 2006/2007 and then decreased toward the end of the study period: 35-49-year-olds had a rapid decrease from 2006 to 2013 (-5.9% annually, 95% CI $-9.4, -2.1$). Those with higher education had decreasing trends during the whole study period. The amount of SA spells decreased more rapidly among 18-34-year-olds (-5.0% annually, 95% CI $-8.1, -1.8$).

Discussion

We examined changes in 10-year trends in long SA due to mental disorders among 18-34 and 35-49-year-old employees in two educational groups. The main results were: 1) A clear educational gradient exists in long SA due to

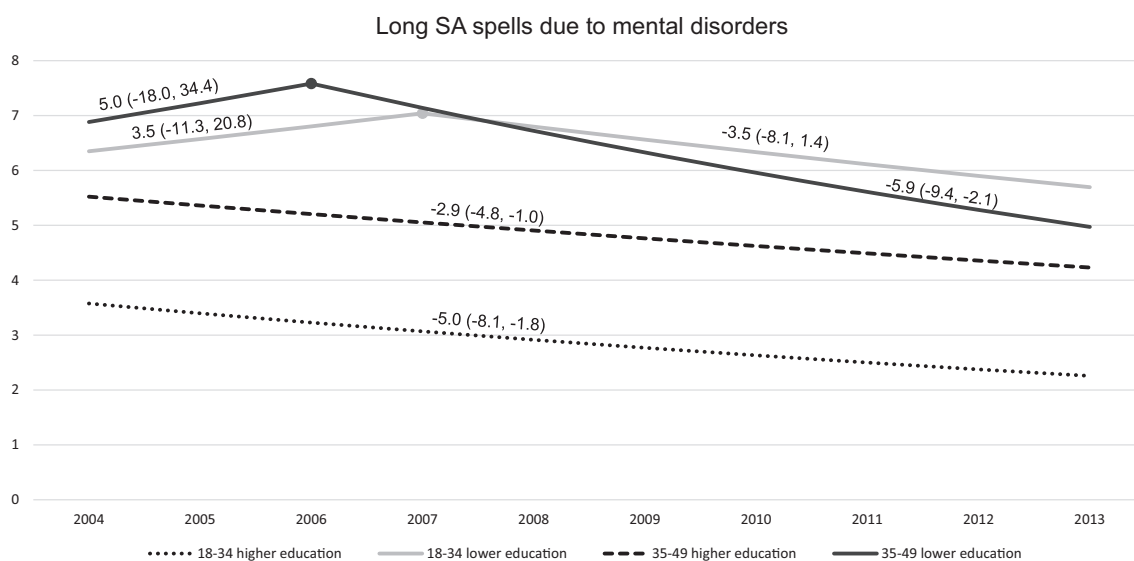


Fig. 1. Age-adjusted jointpoint regression modeled long (≥ 14 days) SA spells due to mental disorders/100 person-years by age and education. Numbers within lines indicate the annual percent change (95% CI).

mental disorders. 2) SA trends decreased from 2004 to 2013 in all studied age and educational groups. 3) Lower educated age groups had broadly similar amounts of SA due to mental disorders. 4) Younger, 18-34-year-old higher educated had the lowest amount of SA spells of all studied groups.

Our previous study with the same participants showed that educational differences are strong in all-length SA spells due to any cause⁶⁾, but former evidence shows contradictory findings for the association between socioeconomic position and SA due to mental disorders^{2,7-9)}. This study adds evidence that clear educational differences in long SA due to mental disorders exists over time. Strenuous working conditions⁷⁾ and health-related selections²⁾ might be associated with such differences.

This study showed that SA spells due to mental disorders decreased from 2004 to 2013. Our previous results show that the trend directions in all-cause long SA spells among the same age groups were less consistent¹²⁾. However, the downward trend is in line with the amount of sickness allowance payments due to mental disorders during the same period in Finland¹⁶⁾, and also evidence from the Netherlands^{10,17)}. The downward trend is a positive sign, but the absolute change in the amount of SA due to mental disorders is still quite modest. Changes in the trends might be related to an increasing amount of support and treatment for mental disorders¹⁸⁾, economic recession¹⁰⁾, work-environments becoming more demanding (those with disabilities may not be employed at all)^{17,19)}, and also to staff-changes and the fact that severe cases of mental disorders lead to disability retirement^{2,20)}.

Previous evidence shows that 18-34-year-olds have less long SA spells than older employees¹²⁾, and the incidence of SA due to common mental disorders among em-

ployees increases with age up to 50+ years¹⁷⁾. However, according to the trends, educational differences might exceed the age-differences in SA due to mental disorders, as lower educated younger employees seem to have more SA than older employees with higher education.

Trends suggest that educational differences were steeper and widening among younger employees, and some supporting evidence exists²⁾. Absolute trends showed (data available upon request) that the difference between the higher and lower educated was about 50% in the beginning and over 100% at the end of the study period. Among older employees, educational differences were smaller and narrowed over the study period (from ~30% to ~10%). However, the magnitude of educational differences in SA due to mental disorders needs further scrutiny.

Methodological considerations

This study was based on a large number of employees of the City of Helsinki. The registers used in this study constitute a reliable and comprehensive data source, and cover all employees. However, registers lack further information on the participants, their health-related backgrounds, and working conditions.

Joinpoint modeling enables the identification of turning points in the SA trends. However, the small number of SA spells due to mental disorders affects the statistical power to detect changes in the trends, therefore, we were able to use only two educational groups. Education is a hierarchical and relatively stable measure of socioeconomic position, but the youngest employees in the study might not have finished their educational career yet. Additional sensitivity analyses (data available upon request) showed that occupational class differences in SA due to

mental disorders were similar as the educational differences.

The City of Helsinki is the largest employer in Finland, but the differences in, for example, education and SA policies limits the generalizability to municipalities in other countries.

Conclusions

An educational gradient was found in long SAs due to mental disorders: lower educated employees had more such SAs than employees with higher education. SA spells decreased from 2004 to 2013. Younger employees with higher education had least SAs of all groups, but both age groups with lower education had similarly high SA trends. Further research should focus on the magnitude of educational differences in SA due to mental disorders over time.

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Conflicts of Interest: The authors declare that there are no conflicts of interest.

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