



## Original article

# Human service work and long-term sickness absence due to mental disorders: a prospective study of gender-specific patterns in 1,466,100 employees



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## ABSTRACT

**Purpose:** The aim of the study was to investigate sickness absence due to mental disorders in human service occupations.

**Methods:** Participants ( $n = 1,466,100$ ) were randomly selected from two consecutive national 9-year cohorts from the Statistics Finland population database; each cohort represented a 33% sample of the Finnish population aged 25–54 years. These data were linked to diagnosis-specific records on receipt of sickness allowance, drawn from a national register maintained by the Social Insurance Institution of Finland, using personal identification numbers.

**Results:** Sociodemographic-adjusted hazard ratios (HRs) for sickness absence due to mental disorders in all human service occupations combined were 1.76 for men (95% confidence interval [CI], 1.70–1.84) and 1.36 for women (95% CI, 1.34–1.38) compared with men and women in all other occupations, respectively. Of the 15 specific human service occupations, compared with occupations from the same skill/education level without a significant human service component, medical doctors, psychologists, and service clerks were the only occupations with no increased hazard for either sex, and the HRs were highest for male social care workers (HR 3.02; 95% CI, 2.67–3.41).

**Conclusions:** Most human service occupations had an increased risk of sickness absence due to mental disorders, and the increases in risks were especially high for men.

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## Introduction

In human service work, an employee engages in face-to-face interaction with a client to increase, maintain, or protect the client's well-being [1,2]. In such a relationship, the employee provides emotional, cognitive, and social resources to the client. Prolonged expenditure of an employee's resources is theorized to lead to adverse mental health consequences [3–6]; indeed, empirical

studies have recently demonstrated an increased risk for mental disorders in those doing human service work [2,7–11].

According to Wharton [12], human service work is not a risk to mental health as such, but the particular conditions of interactive work may in varying degrees expose workers to emotional problems. Some studies suggest that the adverse mental health consequences of the prolonged expenditure of one's emotional, cognitive, and social resources are triggered and exacerbated by work and workplace-specific factors, such as role conflicts, exposure to threats and violence, and lack of social support [13–19]. Others propose that also wider societal factors, such as strong moral obligation to do something regardless of available resources, the lack of a scientific base for the work, nonvoluntary role of the

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clientele, and low control over outcomes (clientele's well-being), contribute to negative consequences [20–23].

Comparative studies including different types of human service works are needed, and a recent article by Rantonen et al. [24] was the first to address the relative risk of sickness absence due to mental disorders across different human service occupations. In their prospective study on public sector workers in Finland, they were able to show that social workers had a higher risk of long-term sickness absence due to mental disorders compared with preschool teachers and special education teachers but not psychologists.

In this article, we build on the Rantonen study by including a much larger number of human service occupations and implementing a longer follow-up, thus better capturing the idea of prolonged expenditure of a human service employee's resources and the possible associated adverse mental health consequences in several different types of human service work. We also examine sex-specific patterns, as the emotional labor associated with human service work may have adverse gender-specific impacts on mental health [25].

Our research questions are as follows: (1) Are the adverse mental health effects of human service work distributed evenly among different kind of human service occupations? (2) Is there sex-specific variation in the effect of the human service component? In answering the research questions, our register-based study has several advantages, as most previous studies on human services and mental disorders have used self-reported data [26], and only a few have applied a longitudinal design and relied on register data regarding risk of disability pension [9], hospitalization [2], or antidepressant medication use [25].

## Material and methods

### Databases

The data were obtained from a population database maintained by Statistics Finland in which every Finnish resident is registered under a personal identification number. From these data, we selected a 33% random sample of the working-age population (18–64 years at baseline) in two consecutive cohorts (1996–2004 and 2005–2013), which were analyzed together. The sample was formed by first stratifying the data according to gender and age and then selecting every third employee into the sample. For the present study, we included individuals aged between 25 and 54 years ( $n = 1,466,100$ ; 49.3% women; mean age 39.9 years) because younger individuals would have recently entered the occupation and those aged older than 54 years would be likely to retire because of old age during the follow-up. At the start of each cohort, the participants were categorized according to the 2001 International Standard Classification of Occupations (ISCO) codes. ISCO is an International Labour Organization classification structure for organizing jobs into defined set of groups according to the tasks and duties undertaken in the job. We identified 21 human service occupation categories based on the main purpose of the work (to increase, maintain, or protect the well-being of specific clients) and the face-to-face interaction used to achieve this. A similar approach has been used previously [2,25]. Occupations with small numbers of individuals were grouped together with broader occupational categories based on similar job tasks. The resulting 15 human service occupations were further merged into five larger human service categories: health professionals, education professionals, social workers, customer service workers, and miscellaneous (including police officers and psychologists). Information on participants' age, sex, educational background, marital status, income, county, and unemployment periods were collected from the population database.

Data on sickness absence due to mental disorders (International Statistical Classification of Diseases, Tenth Revision, diagnostic categories F00–F99) were obtained from the national register maintained by the Social Insurance Institution of Finland, and the participants were linked to sickness allowance records using personal identification numbers. All Finnish residents aged 16–67 years are entitled to daily allowances of medically certified sick leave [27,28]. After the first 10 days of sick leave, compensation is paid for a maximum of 1 year. A medical certification is required for each absence, and the start and end dates are recorded in the register. We monitored the data over a 9-year period in each of the two cohorts. The first register follow-up on sickness absence due to mental disorders began on January 1, 1996, and ended on December 31, 2004, for the first cohort. The follow-up for the second cohort began on the next day. The end of the follow-up of the second cohort was December 31, 2013. We classified employees with a sickness absence lasting the minimum of 11 consecutive days as cases. Noncases were those with no periods of sickness absence.

### Statistical analysis

Cross-tabulation was used to compare the sociodemographic characteristics of the participants. To compare the sickness absence between occupations, we applied Cox survival analysis. The follow-up began on January 1 at the beginning of each cohort and ended on the day the participant was granted sick leave compensation, became unemployed (i.e., unemployment was censored annually, if at least six unemployed months per year occurred), or died, whichever came first. For the rest of the participants, the follow-up period ended nine years after it began, on December 31. Sick leave due to mental diagnoses in the five broad human service categories was first compared with that in all other occupations combined. Each of the 15 human service occupations was then compared with all other occupations from the same skill or education level (excluding human service occupations from the reference group). Skill similarity was determined by the first character of the 4-digit ISCO code, which defines broader occupational classes. This procedure was used to reduce the influence of other mental health risk factors related to occupational class position. The models were stratified by sex and adjusted for age, marital status, income, educational level, county of residence, and baseline unemployment. Age served as a continuous variable. Marital status categories are single, married, divorced, and widow(er); income categories are greater than 17,691 euros/y and less than 17,691 euros/y; educational categories are no university degree and university degree; place of residence categories are Uusimaa and other counties. The results are presented as hazard ratios (HRs) and their 95% confidence intervals (CIs). The analysis was performed using the SAS program package (V.9.4; SAS Institute, Cary, NC).

## Results

Approximately 12% of the sample ( $n = 1,466,100$ ) was used in human service occupations ( $n = 182,685$ ), with health professionals and educational professionals being the largest human service groups. Women were overrepresented in these occupations (83%), and female human service professionals had also experienced a sick leave period with a mental diagnosis more often than their male counterparts (14% and 10%, respectively; [Table 1](#)).

A higher proportion of women had a university degree compared with men (43% and 32%, respectively), whereas men had higher income. Around 86% of the male human service employees earned more than national median (17,691 euros/y), compared with 72% of women ([Table 2](#)).

**Table 1**

The number of male and female human service employees and the proportions of those with at least one LTSAMD during the follow-up ( $n = 1,466,100$ )

Occupational category	Men, <i>n</i>	LTSAMD, <i>n</i> (%)	Women, <i>n</i>	LTSAMD, <i>n</i> (%)
All employees	743,557	40,024 (5)	722,543	73,148 (10)
All human service	26,489	2618 (10)	156,196	22,367 (14)
Health professionals	9360	1018 (11)	72,435	11,483 (16)
Education professionals	7668	614 (8)	45,927	5730 (12)
Social workers	2402	361 (15)	11,085	2040 (18)
Customer services	3035	243 (8)	21,518	2407 (17)
Miscellaneous	4024	382 (9)	5231	707 (14)
Others	717,068	37,406 (5)	566,347	50,781 (9)

LTSAMD = long-term sickness absence due to mental disorders.

Table 3 presents the HRs of long-term sickness absence due to mental disorders in the five broad categories of human service occupations compared with all other occupations. The adjusted HR in all human service professionals combined was 1.76 for men (95% CI, 1.70–1.84) and 1.36 for women (95% CI, 1.34–1.38). All five human service categories within both genders carried an elevated risk of sick leave with a mental diagnosis compared with all other occupations. The HRs were highest for social workers (2.86 male and 1.74 female), followed by health professionals (1.96 for men and 1.50 for women).

Table 4 presents the adjusted HRs of long-term sickness absence due to mental disorders in the 15 specific human service occupations compared with other occupations from the same skill or education level (see Supplemental Table 1 for the unadjusted results). Of the 15 human service occupations, 10 showed an elevated HR for both sexes. The HRs were highest for male social care workers (HR 3.02; 95% CI, 2.67–3.41), male social workers (HR 2.77; 95% CI, 2.26–3.40), male preschool teachers (HR 2.69; 95% CI, 1.91–3.79), male practical nurses (HR 2.58; 95% CI, 2.31–2.87), male nurses (HR 2.53; 95% CI, 2.21–2.90), male home care assistants (HR 2.23; 95% CI, 1.80–2.77), male childcare workers (HR 2.20; 95% CI, 1.61–3.01), and male special education teachers (HR 1.93; 95% CI, 1.52–2.44), followed by female home care assistants (HR 1.89; 95% CI, 1.80–1.98) and male travel services (HR 1.79; 95% CI, 1.45–2.21). Female secondary school teachers were the only human service employee group with a decreased HR (0.89; 95% CI, 0.83–0.95). Medical doctors, psychologists, and service clerks showed no statistically significant difference from other occupations for either sex. In addition, there was no increased hazard for female primary school teachers.

**Table 2**

Sociodemographic characteristics and LTSAMD in male and female human service employees in men and women ( $n = 182,685$ )

Sociodemographic characteristic	Men, <i>n</i> (%)	LTSAMD, <i>n</i> (%)	Women, <i>n</i> (%)	LTSAMD, <i>n</i> (%)
Marital status				
Single	7531 (28)	737 (10)	36,716 (24)	5094 (14)
Married	16,665 (63)	1513 (9)	99,145 (63)	13,188 (13)
Divorced	2212 (8)	354 (16)	18,244 (11)	3772 (21)
Widow/widower	81 (0.3)	14 (17)	2091 (1)	313 (15)
Educational level				
No university degree	18,039 (68)	1639 (9)	88,313 (57)	12,552 (14)
University degree	8450 (32)	979 (12)	67,883 (43)	9815 (14)
Country				
Uusimaa	7806 (29)	735 (9)	45,876 (29)	6557 (14)
Other counties	18,683 (71)	1883 (10)	110,320 (71)	15,810 (14)
Income (€)				
≥17,691	22,867 (86)	2332 (10)	111,737 (72)	17,212 (20)
<17,691	3622 (14)	286 (8)	44,459 (28)	5155 (12)

LTSAMD = long-term sickness absence due to mental disorders.

## Discussion

In this nationwide register-based longitudinal study, we found that most human service occupations had higher risk of long-term sickness absence due to mental disorders compared with all other occupations but the adverse mental health effects of human service work were not distributed evenly among different kind of human service occupations, and there was also sex-specific variation in the effect of the human service component.

All the five broad human service categories within both genders carried an elevated risk of sickness absence due to mental disorders. The finding is in line with previous studies on mental disorders among human service occupations, but these have mainly relied on self-reported data and cross-sectional designs or short follow-up periods [2,7–11]. Moreover, in this study, the magnitude of the risks varied greatly, being highest for social work (2.86 male and 1.74 female) and lowest for women in customer services (1.06) and men in education (1.40).

The variance was even greater when we compared the 15 specific human service occupations to other occupations from the same skill or education level. Although the risk was more than threefold for male social care workers and nearly twofold for female home care assistants, we actually found that medical doctors, psychologists, and service clerks did not have an increased risk, in contrast with previous studies [2,24]. In their register-based study of public sector workers in Finland, Rantonen et al. [24] found an equal risk of sickness absence due to mental disorders for psychologists and social workers (both male and female). In our study covering all sectors (public, private, and third), male social workers had the highest risk of all studied groups, and the risk was also increased for female social workers, whereas psychologists showed no difference from other occupations for either sex. In a register-based study of affective and stress-related disorders leading to psychiatric treatment in Denmark, Wieclaw et al. [2] found a twofold risk for male medical doctors (compared with all other occupations from all skill or education levels) and no increased risk for women, whereas our study showed no difference for medical doctors of either sex.

Medical doctors and psychologists did not demonstrate an increased risk in our study, even if their work is often related to the suffering of the clients and to treating victims of violence, or critically ill patients, which are all risk factors for employee mental health [6,29–31]. However, medical doctors and psychologists also enjoy salutary factors provided by their strong professions, such as a robust-scientific base for their work, strong union support [20,21], and high access to psychotropic medicines and other medical and therapeutic coping methods [32].

The increases in risks were generally higher for men; therefore, it seems that the effect of the human service component was stronger for male human service workers. This is in line with previous studies showing that men working in human service occupations differ in social position [33], have poorer job satisfaction [34], and a tendency to view their job as a “dead-end job” [35] when compared with their female counterparts.

In addition to human service work and human service professions, our results are likely affected by occupational cultures and occupational selection. Some researchers have argued that being in a gender minority might affect mental health [36], and that subjection to feminine occupational culture might influence men's help-seeking behaviors [35,37]. These mechanisms seem plausible and would most affect the male childcare workers, male preschool teachers, and male nurses, who were among those showing the highest HRs.

Recent studies on occupational selection suggest that personality is an important determinant of occupational choice [38], and

**Table 3**  
HR (95% CIs) for long-term sickness absence due to mental disorder in the five broad human service work categories, by sex

Occupational category	Men		Women	
	HR (95% CI) <sup>*</sup>	HR (95% CI) <sup>†</sup>	HR (95% CI) <sup>*</sup>	HR (95% CI) <sup>†</sup>
Nonhuman service	1.00	1.00	1.00	1.00
All human service	1.79 (1.72–1.87)	1.76 (1.70–1.84)	1.49 (1.46–1.51)	1.36 (1.34–1.38)
Health professionals	1.99 (1.87–2.12)	1.96 (1.84–2.08)	1.66 (1.62–1.69)	1.50 (1.47–1.53)
Education professionals	1.42 (1.31–1.54)	1.40 (1.29–1.52)	1.27 (1.24–1.31)	1.20 (1.16–1.23)
Social workers	2.91 (2.63–3.23)	2.86 (2.58–3.17)	1.96 (1.88–2.05)	1.74 (1.67–1.82)
Customer services	1.48 (1.30–1.68)	1.44 (1.27–1.64)	1.18 (1.13–1.23)	1.06 (1.02–1.11)
Miscellaneous	1.67 (1.51–1.85)	1.64 (1.48–1.82)	1.36 (1.26–1.46)	1.18 (1.09–1.27)

<sup>\*</sup> Unadjusted.

<sup>†</sup> Adjusted for age, marital status, educational level, county, income, and unemployment.

that individuals who choose a gender-atypical occupation also tend to display gender-atypical personality traits [39]. However, for occupational selection to affect our results, certain personality traits would have to be associated with both occupational choices and susceptibility to mental disorders. There are, to the best of our knowledge, no individual-level longitudinal studies on personality traits, occupational choices, and susceptibility to mental disorders. Occupational selection may well play a role in our results, but we have no way to estimate its magnitude.

#### Strengths and limitations

Our extensive data allowed the study of a large number of human service occupations and assessment of the risk of long-term sickness absence due to mental disorders in different human service occupations compared with all other occupations with the same skill or education level. By including only occupations from the same skill or education level in the reference group, we reduced the influence of other mental health risk factors related to occupational class position. Our data also allowed to investigate sex-specific patterns, discussing the possible effects of feminine or masculine occupational cultures. Moreover, the use of a long observation period allowed us to capture the idea of prolonged expenditure of a human service

employee's resources and adverse mental health outcomes. To the best of our knowledge, no major changes occurred in Finland that would have affected data collection between the two cohorts used in our study, and our results were robust when using cohort as a covariate. Our data were based on a national sample, and there was practically no loss to follow-up. We focused on recorded long-term sickness absence, as it constitutes a reliable indicator of employee's health [40], and the use of register data reduced the risk of misclassification bias because a medical certificate was required for each sick leave [27,28]. We used a wide category of mental disorders, as the definitions of many psychiatric illnesses lack specific biological and pathological markers, and are instead based on a convergence of symptoms and familial aggregation patterns, causing different labeling for similar conditions [41].

As we selected a random sample of the working-age population in two consecutive cohorts, the same person could be included in both cohorts. The statistical analyses could not be adjusted for accommodate this, as we were not able to identify these persons. It should also be noted that the occupation of each individual was determined at the start of the 9-year follow-up period, and possible occupational changes could not be traced. Another limitation of this study is its inability to take all possible confounding factors, such as personality, into account.

**Table 4**  
Adjusted HR (95% CIs) of long-term sickness absence due to mental disorders in human service occupations compared with all other occupations at the same skill or education level, by sex

Code	Job title	Men			Women		
		N/events	HR <sup>§</sup>	95% CI	N/events	HR <sup>§</sup>	95% CI
Health professionals							
2221	Medical doctors	3882/236	1.07	0.94–1.22	4618/525	1.03	0.94–1.12
3231*	Nurses	1554/224	2.53	2.21–2.90	28,053/4349	1.30	1.25–1.35
5132	Practical nurses	3066/467	2.58	2.31–2.87	26,600/4396	1.58	1.52–1.65
5133	Home care assistants	858/91	2.23	1.80–2.77	13,164/2213	1.89	1.80–1.98
Education professionals							
2321	Secondary school teachers	4111/291	1.26	1.12–1.43	10,460/1014	0.89	0.83–0.95
2331	Primary school teachers	2965/249	1.52	1.33–1.73	7635/838	1.02	0.95–1.10
2332	Preschool teachers	241/33	2.69	1.91–3.79	6495/865	1.35	1.26–1.45
2340	Special education teachers	633/70	1.93	1.52–2.44	2127/320	1.35	1.21–1.52
5131	Child-care workers	351/41	2.20	1.61–3.01	21,337/3013	1.47	1.40–1.54
Social workers							
2446	Social workers	638/94	2.77	2.26–3.40	4355/772	1.74	1.62–1.88
3460	Social care workers <sup>†</sup>	1764/267	3.02	2.67–3.41	6730/1268	1.76	1.66–1.86
Customer services							
42	Service clerks	2234/149	0.89	0.75–1.06	20,431/2240	1.02	0.97–1.07
511	Travel services	801/94	1.79	1.45–2.21	1087/167	1.25	1.07–1.46
Miscellaneous							
2445	Psychologists <sup>‡</sup>	563/41	1.31	0.96–1.78	2704/320	1.10	0.98–1.23
5162	Police officers	2828/271	1.50	1.30–1.71	400/67	1.40	1.10–1.78

\* Includes both "3231: nurses" and "3232: midwives."

† Includes both "3443: social benefit administrators" and "3460: social care workers."

‡ Includes both "2412: counsellors" and "2445: psychologists."

§ Adjusted for age, marital status, educational level, county, income, and unemployment.

## Conclusions

In this nationwide register-based longitudinal study, we found that human service employees are at increased risk of long-term sickness absence due to mental disorders. The increase in risks, however, differed between occupations and by sex. Compared with men in all other occupations with the same skill/education level, the risks were highest for male social care workers, followed by men in other social services, childcare, and nursing occupations. Medical doctors, psychologists, and service clerks were the only human service professions with no increased risk for either sex. Our results suggest that the human service component present in human service occupations increases the risk of mental ill-health. However, the characteristics of specific human service professions moderate this effect, and the mental health of the employees is also likely to be influenced by other factors such as occupational culture and occupational selection.

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Authors' contributions: K.L. was involved in designing the research questions and drafting the article for content, including analysis and interpretation of data. Kou.A., B.A., V.P., and V.A. were involved in interpreting the data, revising the article for content, and critically reviewing drafts of the article. Kos.A. was involved in analysis of data and revising the article for content. All authors have approved the final version of the article and agree to be accountable for all aspects of the work.

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**Appendix****Supplemental Table S1**

Crude HR of long-term sickness absence due to mental disorders in human service occupations

Code	Job title	Men			Women		
		N/events	HR*	95% CI	N/events	HR*	95% CI
Health professionals							
2221	Medical doctors	3882/236	1.09	0.96–1.25	4618/525	1.06	0.96–1.15
3231†	Nurses	1554/224	2.66	2.33–3.04	28,053/4349	1.42	1.37–1.47
5132	Practical nurses	3066/467	2.68	2.42–2.98	26,600/4396	1.72	1.66–1.79
5133	Home care assistants	858/91	2.19	1.77–2.70	13,164/2213	1.86	1.78–1.96
Education professionals							
2321	Secondary school teachers	4111/291	1.31	1.16–1.47	10,460/1014	0.92	0.86–0.98
2331	Primary school teachers	2965/249	1.55	1.36–1.76	7635/838	1.03	0.96–1.11
2332	Preschool teachers	241/33	2.62	1.86–3.69	6495/865	1.28	1.19–1.38
2340	Special education teachers	633/70	2.10	1.65–2.65	2127/320	1.45	1.29–1.62
5131	Child-care workers	351/41	2.27	1.66–3.10	21,337/3013	1.46	1.40–1.53
Social workers							
2446	Social workers	638/94	2.87	2.34–3.52	4355/772	1.76	1.64–1.90
3460	Social care workers‡	1764/267	3.00	2.65–3.39	6730/1268	1.82	1.71–1.93
Customer services							
42	Service clerks	2234/149	0.86	0.73–1.02	20,431/2240	1.03	0.98–1.08
511	Travel services	801/94	2.02	1.64–2.48	1087/167	1.55	1.33–1.81
Miscellaneous							
2445	Psychologists§	563/41	1.36	1.00–1.85	2704/320	1.12	1.00–1.26
5162	Police officers	2828/271	1.55	1.36–1.76	400/67	1.67	1.32–2.13

\* Unadjusted.

† Includes both “3231: nurses” and “3232: midwives.”

‡ Includes both “3443: social benefit administrators” and “3460: social care workers.”

§ Includes both “2412: counsellors” and “2445: psychologists.”