

Mental Health in Young Healthcare and Social Work Professionals: Associations with Psychosocial Work Environment Factors

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Abstract

Background: Associations between work environment factors and mental health may differ between groups. The study aimed to explore associations between aspects of the psychosocial work environment and mental health among young professionals in four healthcare and social work groups in Norway.

Methods: 856 employees were included in this cross-sectional study six years after graduation. The participants completed questionnaires concerned with mental health, work environment, work engagement, and psychological work factors. Data were analyzed with linear and logistic regression analyses.

Results: In the whole sample, poorer mental health was associated with higher demands, lower support, lower job satisfaction, more work-home interaction problems, and lower coping in the job. Each unit increase in work-home interaction problems doubled the likelihood of having case-level psychological distress. The strength of the associations between mental health and other factors, such as the demands and support experienced in the job and perceived coping in the job, varied by professional group.

Conclusions: Problems concerned with the interaction between work and home were generally associated with poorer mental health. Between professional groups, other independent variables were differently associated with mental health. Work environment factors should receive continued attention in efforts to investigate and promote mental health.

Background

The interplay between various forces create, sustain and challenge mental health. Common environmental risk factors for poor mental health concern interpersonal, economic and socio-structural factors [1]. These factors include unemployment and financial insecurity [2], loneliness, bullying and interpersonal conflict [3–5] and stressful life events and trauma, such as assault, rape and war, losing a job, or the death of a close family member or friend [5–8].

With regards to sociodemographic characteristics, women have higher prevalence of all mental disorders than men, with the exception of substance use disorders, for which the prevalence is twice as high among men [9, 10]. Young adults (< 34 years) have been found to have twice as high 12-month prevalence of mental disorders, compared to older adults (> 65 years) [10, 11]. Amongst young adults, university students' mental health has received increasing attention over the last years. National [12, 13] and international [14] studies and reports alike have documented substantial and increasing mental health problems among university students. Other studies have found students' low level of help-seeking to be a more pressing concern [15].

Students' mental health and its development over time appear to differ between professional groups. A longitudinal study from Norway found that nursing students' mental health was worsened during the course of the education program, whereas no significant changes was shown for students of

occupational therapy and physiotherapy [16]. Similarly, between graduation and three years after, healthcare professionals (nurses, occupational therapists and physiotherapists) improved their mental health significantly, while the trend of improvement was not statistically significant for teachers and social work professionals [17].

For young professional employees, aspects of the psychosocial work environment seem to be of importance for their mental health. Several studies and reviews have found that high-strain jobs, characterized by low employee control and high demands, are associated with lower well-being and higher stress levels [18–23] and also associated with sick leave from work [24–28]. However, employees' attitudes towards the job is also of importance for their well-being. While involvement in work and productive activity is in line with the World Health Organization's definition of mental health [29], over-involvement in work may produce poorer mental health (Niedhammer et al., 2006). In a recent example, Skogen and co-workers [30] found that employees with high ratings on 'overcommitment to work', in particular when combined with high imbalance between perceived efforts and rewards in the job, had higher odds of having alcohol-related problems, compared to employees with lower overcommitment.

In view of the evidence, the notion that the psychosocial work environment is important for employees' mental health is well established. In addition, different trajectories of mental health between professional groups during the first years in their professional careers suggest that associations between work environment factors and mental health may differ between groups of employees. Thus, the aim of this study was to explore the associations between aspects of the psychosocial work environment and mental health among young professionals in four healthcare and social work groups in Norway.

Method

Design and data collection

The data were extracted from the STUDDATA database [16], a database containing self-report data from a range of professional groups over a nine-year period. For the current study, a cross-sectional design was employed in the exploration of associations between psychosocial work environment factors and mental health in four groups of healthcare- and social work professionals six years after graduation. Thus, the sample is a group of professionals assumed to be well established in their respective fields of practice, yet relatively early in their career as health and social care professionals. The participants were recruited from six different Norwegian higher education institutions, with the majority from Oslo.

Measures

Sociodemographic variables

The demographic variables used in the present study were age in years (continuous) and gender (male and female). None of the employed research measurements, as described in the following, are under

license.

Work environment factors

Based on Karasek's [31] Job Demands and Control (JDC) model, three variables are constructed based on responses to the Job Content Questionnaire [JDQ; 32]. The instrument has been used in a range of national and international studies of psychosocial work environment factors [e.g., 17, 22, 33, 34].

Demands refer to the work pressure and the workload experienced in the job, and was measured with five items (Cronbach's $\alpha = 0.77$) *Control*, sometimes coined decision latitude, refers to the level of control the employee has over decisions that are important to his work, as well as the possibility of developing and using personal skills in the job. This variable was measured with nine items (Cronbach's $\alpha = 0.75$).

Support concern the perceived support from both supervisors and colleagues at work and was measured with four items (Cronbach's $\alpha = 0.79$). Higher scores indicate higher demands, control and support, respectively.

Work engagement

Job involvement

Job involvement is defined as the degree to which a person's work performance affects his or her self-esteem [35]. The 6-item version of the Job Involvement Scale [36] was used to measure job involvement, and higher total score indicates lower involvement. Cronbach's $\alpha = 0.70$, which indicates that the internal consistency was acceptable in this sample.

Job satisfaction

To assess job satisfaction, the 14-item version of the Work Orientations II Module was included [37]. The 14 items are linked to paid work and evaluate the individual's satisfaction with seven aspects of their present job; job security, high income, good advancement opportunities, an interesting job, a job that allows someone to work independently, a job that allows someone to help other people and a job that is useful to society [38–40]. Higher scores indicate lower overall satisfaction with the job. Cronbach's α for the scale was 0.73.

Psychological work factors

QPS_{Nordic}

The General Nordic Questionnaire for Psychological and Social Factors at Work (QPS_{Nordic}) measures psychological and social aspects at work [41]. The instrument has been used in several large-scale projects [42], and has shown good psychometric properties [43]. QPS_{Nordic} measures different aspects using two-item subscales, among them work-home interaction (whether the job affects private life negatively, or vice versa; inter-item correlation = 0.43), coping in the job (inter-item correlation = 0.51) and collaboration with co-workers (inter-item correlation = 0.29), and these three aspects were included in this

study. Higher scores indicate more work-home interaction problems, better coping in the job, and better collaboration with co-workers.

Mental health

The 12-item General Health Questionnaire (GHQ-12) is widely used as a self-report measure of mental health [44, 45]. A large number of studies in the general adult population, clinical populations, work populations and student populations have provided support for its validity across samples and contexts [45–49]. Six items of the GHQ-12 are phrased positively (e.g. 'able to enjoy day-to-day activities'), while six items are phrased as a negative experience (e.g. 'felt constantly under strain'). On each item, the person indicates the degree to which the item content has been experienced during the two preceding weeks, using four response categories ('less than usual', 'as usual', 'more than usual' or 'much more than usual'). Items are scored between 0 and 3, and positively formulated items are recoded prior to analysis. As a result, the GHQ-12 scale score range is 0–36, with higher scores indicating poorer mental health (more psychological distress). In this study, Cronbach's α for the 12 scale items was 0.86. Case-level scores (the person indicating 'more than usual' or 'much more than usual' on at least four of the 12 items) indicate a level of psychological distress where treatment may be needed [50].

Statistical analysis

Continuous variables were described with means (M) and standard deviations (SD), categorical data with counts and percentages within groups. Group differences regarding age and psychosocial work environment factors were examined with one-way analysis of variance (ANOVA), adjusted by the Bonferroni correction, and with Chi-square test for gender proportions.

Crude and adjusted associations with mental health (GHQ continuous measure) were examined with single and multiple linear regression analysis. Variables with a statistically significant bivariate association with the GHQ score in the total sample were included in the adjusted analyses for all groups. Standardized β values were used as effect size and interpreted according to Cohen [51], differentiating between small (0.30 or lower), medium (0.31–0.50) and large (0.51 or higher) effect sizes. Crude and adjusted associations with case-level psychological distress (GHQ categorical measure) were examined with binary logistic regression analysis. Variables with a statistically significant bivariate association with case-level psychological distress in the total sample were included in the adjusted analyses for all groups. Odds ratio (OR) was used as effect size, and the 95% confidence interval (95% CI) of the OR was reported. The analyses were performed for the total sample and for each of the professional groups separately. Results with a corresponding p -value lower than 0.05 were interpreted as statistically significant.

Ethics approval and informed consent

All participants provided signed informed consent and were informed that participation in the study was voluntary and that their consent to participate could be withdrawn at any time. As the primary purpose of

the parent study, from which the data was gathered, was not related to health, approval of this sub-study from the regional committee for medical and healthcare research ethics was not required (<https://lovdata.no/dokument/NL/lov/2008-06-20-44>). Permission to collect, use and store the data was obtained from the Norwegian Data Protection Official for Research.

Results

Participant characteristics

In total, 856 persons were included in the study. Of these, 386 (45.1%) were nurses, 84 (9.8%) were occupational therapists, 157 (18.3%) were physiotherapists, and 229 (26.8%) were social workers. A summary of the sample characteristics is displayed in Table 1. There were statistically significant group differences with regards to age (mean age ranging between 37 years for social workers and 32 years for physiotherapists) and gender (proportion of females ranging between 92% for nurses and 76% for physiotherapists). Further, group differences were significant with regards to demands (nurses with highest scores, physiotherapists with lowest scores), control (nurses with lowest scores, physiotherapists with highest scores) and support (nurses with lowest scores, physiotherapists with highest scores). There were no significant group differences regarding levels of mental health (mean GHQ score ranging between 10.0 [physiotherapists] and 11.0 [occupational therapists]), nor regarding proportions with case-level psychological distress (proportions ranging between 16% [physiotherapists] and 19% [social workers]).

[TABLE 1 ABOUT HERE]

Associations With Mental Health

Age, gender and job involvement did not show a significant bivariate association with the continuous GHQ score and were therefore not included in the subsequent linear regression analysis. For the total sample, the multiple regression analysis (displayed in Table 2) showed that poor mental health was significantly associated with higher demands and lower support at work, lower job satisfaction, more work-home interaction problems, and lower coping in the job. Among the nurses and physiotherapists, poor mental health was significantly associated with more work-home interaction problems and lower coping in the job. Among the occupational therapists, poor mental health was significantly associated with higher demands at work and more work-home interaction problems. Among the social workers, poor mental health was significantly associated with higher demands and lower support at work. More of the GHQ variance was explained by the employed independent variables for the occupational therapists (31.9%), compared to the other professional groups (16.0% – 21.4%).

[TABLE 2 ABOUT HERE]

Associations With Case-level Psychological Distress

Age, gender, control, support, job involvement, coping in the job and collaboration did not show significant bivariate associations with case-level GHQ score, and these variables were therefore not included in the subsequent multiple logistic regression analysis. For the total sample, the multiple logistic regression model (displayed in Table 3) showed that higher odds of having case-level psychological distress was significantly associated with higher job demands, lower job satisfaction and more work-home interaction problems. For the nurses, higher odds of case-level psychological distress were significantly associated with lower job satisfaction and more work-home interaction problems. For the occupational therapists in particular, but also for the physiotherapists, higher odds of case-level psychological distress were significantly associated with more work-home interaction problems. For the social workers, higher odds of case-level psychological distress were significantly associated with higher job demands.

[TABLE 3 ABOUT HERE]

Discussion

This study aimed to explore the associations between aspects of the psychosocial work environment and mental health among young professionals in four healthcare and social work groups in Norway. Six years after graduation, the levels of mental health were not significantly different between the participating nurses, occupational therapists, physiotherapists and social workers. A range of work environment and psychosocial factors at work were significantly associated with mental health in the sample. However, re-running the analyses for each professional group demonstrated both similarities as well as differences with regards to the factors of importance for mental health.

Sustaining mental health is one of the major challenges for public health globally [52], with reports of 17.6% of the global population experiencing a common mental disorder during the last year and 29.2% having experienced a common mental disorder during the lifetime [53]. Using the GHQ in the current study, the prevalence of 17.2% (range 15.9% – 18.8%) for case-level psychological distress appears to reflect well the global estimates of common mental disorders. In the Norwegian general population, recent prevalence estimates for current self-reported mental disorders have been found to be 6.6% for anxiety [54] and 8.1% for depression [55], while having anxiety and/or depression – largely comparable to the concept of psychological distress – was found among 14.1% of the sample. In line with previous studies [50, 56, 57], these results provide additional support for the GHQ as a relevant screening instrument for mental health problems. The results also indicate similar levels of mental health among participants in the four professional groups, and similar proportions of persons with case-level psychological distress.

For the whole sample, several associations were found between individual predictors and mental health. Case-level psychological distress was associated with higher psychological demands in the work, lower job satisfaction and higher levels of work-home interaction problems. The same factors, in addition to

lower support and lower coping in the job, were associated with poorer mental health when mental health was measured on the continuous GHQ scale. These findings appear logical and are generally consistent with previous research [18, 19, 22, 23, 58]. However, according to Cohen [51], the strength of the associations were relatively weak overall ($\beta \leq 0.22$), which is logical given that the effect sizes for the total sample averages the effects for the participants across professional groups. A notable exception is the finding for work-home interaction problems, for which a one-unit increase in scale ratings more than doubled the risk of experiencing case-level psychological distress. Thus, the overall findings suggest that problems in managing and balancing the demands at work with those at home is a powerful predictor for mental health problems among young professional employees.

Among the work environment factors significantly associated with mental health, some were common across several professional groups, while others were found to be more profession specific. While work-home interaction problems were significantly associated with poorer mental health for nurses, physiotherapists and – in particular – for occupational therapists, this association was not significant for social workers. Instead, for the social workers, the demand and support variables introduced by Karasek and Theorell [31] were systematically associated with their mental health. This is partly in accordance with the findings from the three-year follow up, where higher ratings on demand were associated with poorer mental health in this group [17]. For the social workers, therefore, higher demands appear to predict poorer mental health consistently over the first six years in professional practice. The possibility of reducing work demands and increasing the support between co-workers and between employees and managers may have the potential to improve social workers' mental health.

For nurses and physiotherapists, coping in the job was also directly associated with better mental health (in addition to the already discussed association between work-home interaction problems and mental health). This might reflect higher levels of identification with the job among nurses and physiotherapists, compared to occupational therapists and social workers. Possibly, the finding may indicate that nurses and physiotherapists invest more of their self-esteem into their work. If so, experiencing problems in the job and feeling dissatisfied with one's own work may make nurses and physiotherapists more inclined to react with psychological symptoms, compared to professional groups where self-esteem is less strongly related to the work experience. This reasoning concerned with self-esteem contingencies; i.e., the circumstances under which self-esteem relates more strongly to behaviors or performance, has been supported in theory [59] and previous studies [60, 61]. In line with this interpretation, improving mental health among nurses and physiotherapists may include relying more on sources of self-esteem other than their work performance.

Consistent with the results for most of the professional groups, occupational therapists' mental health was strongly associated with work-home interaction problems. In fact, one unit increase on this scale five times increased the likelihood of being classified with case-level psychological distress. Like the results for the social workers, and consistent with several research studies [e.g., 19, 23] higher demands in the job were also associated with poorer mental health among occupational therapists. Thus, among the work environment factors investigated in this study, reducing work demands and reducing work-home

interaction problems appear to have potential to improve mental health among occupational therapists. While it can be difficult for managers and occupational health services to directly assist occupational therapists in adjusting their work-home interaction, they can be vigilant towards occupational therapists' perception of job demands. Possibly, reducing job demands may also translate into a better balance between the demands at work and at home, which in turn may improve mental health.

As the prediction models were equal across groups, it was possible to compare the proportions of explained outcome variance between the groups. This study demonstrated that the employed work environment variables accounted for a greater proportion of the variance in mental health among occupational therapists (31.9%), compared to nurses, physiotherapists and social workers (16.0% – 21.4%). Therefore, while assessing the work environment in relation to mental health is relevant for all the groups investigated in this study, it appears to be particularly useful when investigating the mental health of occupational therapists.

Study Limitations And Future Research

As this study employed a sample that was relatively modest in size, especially when used in the subgroup analyses (n ranging between 84 and 386), future studies may preferably ensure that group sizes are large enough to be representative of the part population. The representativity of the sample groups used in this study is difficult to verify. The cross-sectional nature of the employed data renders it impossible to verify causal attributions, and reversed causality is in some cases probable. For example, poor mental health may cause lower coping in the job, as well as the oppositely directed association. In the future, longitudinal studies, especially studies involving some form of work environment intervention, may potentially clarify the nature of some of the associations revealed in this study.

Conclusion

The aim of this study was to explore the associations between aspects of the psychosocial work environment and mental health among young professionals in four healthcare and social work groups in Norway. For three of the four groups, problems concerned with the interaction between work and home significantly predicted poorer mental health. The strength of the associations between mental health and other factors, such as the demands and support experienced in the job and perceived coping in the job, varied by professional group. For occupational therapists, the employed work environment factors accounted for a substantial proportion of the variance in mental health, and they should therefore receive continued attention in efforts to investigate and promote mental health.

Abbreviations

ANOVA

Analysis of variance

CI

Confidence interval
JCQ
Job Content Questionnaire
JDC
Job Demands Control model
GHQ
General Health Questionnaire
M
Mean
OR
Odds ratio
QPS Nordic
Nordic questionnaire for psychological and social factors at work
SD
Standard deviation
STUDDATA
The database from which the data used in this study were extracted

Declarations

Ethics approval and consent to participate

All participants provided signed informed consent and were informed that participation in the study was voluntary and that their consent to participate could be withdrawn at any time. Approval from the regional committee for medical and healthcare research ethics was not required (<https://lovdata.no/dokument/NL/lov/2008-06-20-44>). The study was granted permission to collect, use and store the data by the Norwegian Data Protection Official for Research.

Consent for publication

Not applicable

Availability of data and materials

The data analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

Funding

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Authors contributions

TB, PN and AØG contributed to the study design and idea. TB performed the statistical analysis and drafted the manuscript. PN and AØG contributed critical revisions to the manuscript. TB, PN and AØG approved of the final submitted version.

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Tables

Table 1

Characteristics of the sample and of each of the four professional groups

Variables	Total sample	Nurses	Occup. therapists	Physiotherapists	Social workers	<i>p</i>
<i>Sociodemographics</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
Age (years)	34.4 (6.8)	34.1 (6.2)	33.7 (6.7)	31.8 (3.3)	36.8 (8.7)	< 0.001
Gender	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	
Male	113 (13.2)	32 (8.3)	13 (15.5)	38 (24.2)	30 (13.1)	< 0.001
Female	743 (86.8)	354 (91.7)	71 (84.5)	119 (75.8)	199 (86.9)	
<i>Work environment factors</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
Demands	13.4 (2.6)	14.1 (2.6)	12.4 (2.6)	12.3 (2.1)	13.5 (2.7)	< 0.001
Control	26.9 (3.3)	26.0 (3.3)	27.1 (3.0)	27.9 (3.0)	27.6 (3.3)	< 0.001
Support	12.4 (2.0)	12.2 (2.0)	12.5 (1.8)	12.8 (1.7)	12.4 (2.2)	< 0.05
<i>Work engagement</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
Job involvement	16.1 (2.8)	16.1 (2.9)	16.2 (2.7)	16.3 (2.7)	16.0 (2.7)	0.70
Job satisfaction	17.8 (4.0)	17.9 (3.9)	18.6 (3.9)	17.4 (4.0)	17.6 (3.9)	0.19
<i>Psychological work factors</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
Work-home interaction	2.2 (0.8)	2.2 (0.8)	2.2 (0.7)	2.2 (0.8)	2.2 (0.8)	0.63
Coping in the job	4.0 (0.5)	4.1 (0.5)	4.0 (0.4)	4.0 (0.5)	4.0 (0.5)	0.10
Collaboration	1.7 (2.7)	1.7 (0.6)	1.7 (0.6)	1.7 (0.7)	1.7 (0.6)	0.77
<i>Mental health</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
GHQ score	10.6 (4.6)	10.7 (4.6)	11.0 (4.3)	10.0 (4.0)	10.7 (4.9)	0.27
	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	
GHQ case-level score	147 (17.2)	65 (16.8)	14 (16.7)	25 (15.9)	43 (18.8)	0.90

Note. Work environment factors are measured with the Job Demand Control questionnaire. Work engagement is measured with the Job Involvement questionnaire and Work Orientation measure. Psychological work factors are measured with QPS Nordic. Mental health is measured with the General Health Questionnaire. Statistical tests of group differences are ANOVA *F*-test (continuous variables) and Chi-Square tests (categorical variables).

Table 2

Associations with mental health (GHQ ratings) in the sample and in each of the four professional groups

	Total sample	Nurses	Occup. therapists	Physiotherapists	Social workers
	β	β	β	β	β
<i>Work environment factors</i>					
Control	0.01	-0.02	-0.14	0.11	0.05
Demands	0.09*	0.04	0.28*	-0.08	0.18*
Support	-0.11**	-0.10	0.04	-0.03	-0.24**
R² change	7.8 %	6.6 %	18.1 %	1.4 %	16.8 %
<i>Work engagement</i>					
Job satisfaction	0.10*	0.11	0.09	0.07	0.10
R² change	1.6 %	1.4 %	0.4 %	2.0 %	0.9 %
<i>Psychological work factors</i>					
Work-home interaction	0.22***	0.22***	0.37**	0.29**	0.11
Coping in the job	-0.15***	-0.16**	-0.06	-0.27**	-0.05
Collaboration	0.05	0.05	0.10	0.11	0.06
R² change	7.7 %	8.0 %	13.5 %	17.9 %	1.9 %
Total explained variance	17.1 %	16.0 %	31.9 %	21.4 %	19.6 %

Note. Mental health is measured with the General Health Questionnaire. Work environment factors are measured with the Job Demand Control questionnaire. Work engagement is measured with Work

Orientation measure. Psychological work factors are measured with QPS Nordic. Table content is standardized β values taken from hierarchical multiple linear regression analyses.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3

Associations with case-level psychological distress (GHQ ratings ≥ 4) in the sample and in each of the four professional groups

	Total sample	Nurses	Occup. therapists	Physiotherapists	Social workers
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
<i>Work environment factors</i>					
Demands	1.09* (1.01-1.18)	1.12 (0.99-1.27)	1.18 (0.89-1.56)	0.86 (0.66-1.12)	1.18* (1.02-1.37)
Support	0.98 (0.88-1.09)	0.94 (0.80-1.10)	0.99 (0.67-1.44)	1.15 (0.86-1.53)	0.92 (0.75-1.13)
<i>Work engagement</i>					
Job satisfaction	1.10*** (1.04-1.16)	1.11* (1.02-1.20)	1.16 (0.98-1.38)	1.07 (0.95-1.21)	1.07 (0.96-1.19)
<i>Psychological work factors</i>					
Work-home interaction	2.07*** (1.57-2.74)	1.95** (1.30-2.94)	5.06** (1.66-15.45)	2.62** (1.34-5.11)	1.57 (0.91-2.70)
Nagelkerke R²	13.6 %	15.3 %	32.4 %	13.3 %	14.3 %
(Cox Snell R²)	(8.2 %)	(9.0 %)	(20.6 %)	(7.8 %)	(8.9 %)

Note. Psychological distress is measured with the General Health Questionnaire. Work environment factors are measured with the Job Demand Control questionnaire. Work engagement is measured with the Work Orientation measure. Psychological work factors are measured with QPS Nordic. Table content is OR (95 % CI) taken from multiple logistic regression analyses, adjusted for all employed variables.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.01$