Mental health by gender-specific occupational groups: profiles, risks and dominance of predictors

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Abstract

Background We defined gender-specific profiles of mental ill-health for the main occupational groups using three outcomes; antidepressant use, sickness absence (SA) due to depression, and suicides. We also examined which occupational groups had the highest risk of the outcomes, and compared the importance of their predictors.

Methods From a random register cohort of Finnish working age population, individuals in the six largest occupational groups in 2004 for men and women were included (N=414 357). We used register data to define the first antidepressant purchase (i.e. use), the first long-term SA spell for depression, and suicide between Jan 1st 2005 and Dec 31st 2014. We assessed the risk of each outcome by occupational group with logistic regression models, and used dominance analysis to compare the relative importance of predictors.

Results In all six occupational groups for women, the prevalence of antidepressant use and SA for depression was higher than in the men's occupational groups. The opposite was observed for suicides. The risk of antidepressant use was lower, but the risk of suicide was 2-times higher among men in low vs. high-skilled occupations. Among women, a lower skill-level was associated with a higher risk of SA due to depression. Gender was the most important predictor of all outcomes.

Limitations We lacked information on history of medication use or health problems prior to follow-up.

Conclusions Gendered occupational status was an underlying factor explaining distinctive mental health profiles in the working population. Occupational class-dependent behavioural patterns related to mental health existed among men.

Key words antidepressant; depression; gender; mental health; occupation; sickness absence; suicide

Abbreviations

ATC = Anatomical Therapeutic Chemical (code)

CI = confidence interval

ISCO = International Standard Classification of Occupations (codes)

OECD = the Organisation for Economic Co-operation and Development

SA = sickness absence

SII = Social Insurance Institute

RR = risk ratio

WHO = World Health Organization

Introduction

Mental health issues are a pressing problem among working populations. In the OECD countries, mental disorders are the second largest cause for work disability (Birnbaum et al., 2010; OECD, 2010; Theis et al., 2017) and their proportion is still increasing (Viola and Moncrieff, 2016). A common way to address this issue is to focus on the sources of work stress and other adverse working conditions that may negatively affect the mental health of employees (Madsen et al., 2017; Silva-Junior and Fischer, 2014). However, an equally important approach would be to focus on the illness-related behavioural patterns that are indicated by the way mental health problems are dealt with. These patterns constitute the "mental health profiles" of the different employee groups.

There are reasons to expect differences in mental health profiles between occupational groups stratified both by gender and social class. Mental health problems that are referred to as internalizing disorders, and can be measured as psychotropic medication use or sickness absence (SA) due to mental disorders, are commonly reported to be at a higher level among women than men (Laaksonen et al., 2010). In contrast, externalizing disorders, defined by antisocial behaviour, substance abuse, and in the worst case suicide, are at a higher level among men (Hawton and van Heeringen, 2009; Hicks et al., 2007). Furthermore, previous studies have indicated that the risk of suicide is higher in the low-skilled compared to high-skilled occupations (Milner et al., 2013), and similar findings have been published for depression and frequent mental distress (Fan et al., 2012). Antidepressant use among men, on the contrary, has been observed to be lower in the low versus high-skilled occupations (Kivimaki et al., 2007).

These differences may reflect gendered and social class-related behavioural patterns when facing mental health problems. Behaviours may not be entirely consciously organized but affected by social positions, thus, people's patterns of thinking, social norms

and values can be class- and gender-dependent that further determine health and illness-related behaviours (Bourdieu, 1984; Williams, 1995). For example, it has been shown that women are more likely than men to seek social support in response to stress (Taylor et al., 2000) or other psychological issues (Liddon et al., 2018), and they also adopt better health promoting behaviours such as the use of health services (Courtenay, 2000). Social pressure among men to endorse societal roles, including working-class masculinity, then may make them more likely to embrace traditional health-related beliefs that men are independent, strong, and tough. Consequently, they are likely to adopt poor health-related behaviours, such as dismissal of any need for help, that can increase their health risks (Courtenay, 2000).

Research on socio-cultural habitus supports occupational class-dependent behavioural patterns in the manifestations of general and mental health (Veenstra, 2007). However, the associations between occupational class indicators and mental health outcomes may not follow a linear occupational gradient (Muntaner et al., 2003), and the results may also depend on the outcome (Kivimaki et al., 2007; Lahelma et al., 2005; Milner et al., 2013; Pekkala et al., 2017). Furthermore, the intersections of social class and gender can be complex (Iyer et al., 2008). Partially irrespective of social class, women are more frequently than men employed in emotionally demanding occupations associated with emotional exhaustion (Zapf, 2002) and other mental health problems (Yoon et al., 2017).

Due to the above mentioned complexities, previous studies have been unable to establish distinctive mental health profiles for different occupational groups. We addressed these complexities and examined the mental illness-related behavioural patterns of different occupational groups for men and women. In addition to the profiles, we quantified the risk of mental ill-health in relation to the occupational groups separately among men and women. Finally, to better understand the importance of occupation, in relation to other predictors, in these associations, we aimed to rank the predictors of mental ill-health by their importance.

Methods

Study population

Flow chart of the sample selection is in Figure 1. We used a randomly selected population cohort that included 33% of the 18-64 year old permanent Finnish residents at the end of 2004 (N=1 098 964). These data were sampled by and derived from the Population Register maintained by Statistics Finland. From the Population Register we also obtained information about each individual's age, sex, marital status (single, married, separated/divorced, or widowed), total annual personal income, unemployment during the previous year (minimum of one month unemployment vs. not), and occupation. Information about occupation was available only if the individual had been employed on the last day of the year 2004 and therefore students, unemployed, and those outside the labour force for other reasons became excluded (N=354 680).

The occupations were classified according to the 2001 International Standard Classification of Occupations codes (ISCO) and we used the 2-digit level for categorizing them. Based on the numbers of individuals in each group we defined the six largest occupational groups among men, i.e. the "men's occupational groups": 1) technical special professionals (code 21), 2) technical professionals (31), 3) service professionals (34), 4) building and mining professions (71), 5) mechanics and repairmen (72), and 6) traffic operators (83). Among women, the corresponding six "women's occupational groups" were: 1) teachers (23), 2) health care professionals (32), 3) service professionals (34), 4) office workers (41), 5) care work and catering (51), and 6) other services, including cleaning (91). Only one group, service professionals, was among the six largest in both genders. For the analyses we selected individuals belonging to these 11 occupational groups (N=490 712). After excluding men who were working in the "women's occupations" (except for the service

professionals), and women who were working in the "men's occupations", the analytical sample size was 414 357.

Outcomes

Each participant was followed up for three outcomes, namely; 1) the first antidepressant use, 2) the first SA spell >9 days for depression, and 3) suicide, from the first of January 2005 onwards. The occurrence of each outcome was followed up independently of the other outcomes, and the follow-up was censored at the date of death.

The use of antidepressant medications (defined as WHO Anatomical Therapeutic Chemical (ATC) code N06) was based on the purchase data that were obtained from the Finnish Prescription Register maintained by the Social Insurance Institute (SII). The register contains the dispensing date and the ATC code for all purchased medications reimbursed to Finnish residents in non-institutional settings. The start dates of all SA spells >9 days for depression were also obtained from the SII records. Dates of death due to suicide were provided by the National Death Register that is maintained by Statistics Finland. The outcomes were linked to the participants' socio-demographic characteristics using national identity codes that are unique to each permanent resident in Finland. All data were anonymized before they were made available for the researchers.

Statistical analyses

In this large sample of working age population we constructed mental health profiles for the six largest occupational groups in men and in women in relation to three mental health outcomes with varying level of severity: antidepressant medication use, long-term SA for depression, and suicides. First we ranked the occupations from 1 to 11 for each outcome. This means, for example, that the occupational group with the lowest level of suicides

(count/10 000) was ranked first, the occupational group with the second lowest level was ranked second, etc. Based on the rankings for all three outcomes, we could draw a profile for each occupational group from the least to most severe outcome.

The risk ratios (RR) with 95% confidence intervals (CI) for antidepressant use, SA for depression and suicide in association with the six largest occupational groups among men and women were calculated using logistic regression (proc genmod in SAS). We used the occupational group with the highest classification, indicating the highest skill-level, as the reference group. The models were adjusted for age, marital status, income and unemployment during the previous year. We also tested the interactions for occupational group and unemployment in the previous year and found that they were statistically non-significant (p>0.05) in all models for both genders. This indicated no differences between those who had been working or unemployed during the year preceding the follow-up.

To better understand the importance of occupational class, in relation to other predictors, in the associations with the three mental health outcomes, we conducted a dominance analysis (Budescu, 1993). In this analysis all the model predictors are compared to each other and ranked by their relative importance (Azen and Budescu, 2003). In addition to occupational class (categorized as: low, intermediate, and high skill level), we included in these analyses gender, age, marital status (married vs. not), personal income (using quintiles as cut-off points) and unemployment in the previous year (yes vs. no). Dominance analyses were conducted with Stata 14.0 software (Stata Corporation, College Station, Texas) and all other analyses with SAS 9.4 (SAS Institute Inc, Cary, NC, USA).

Results

Descriptive statistics of the study population by gender are presented in Table 1. Mean age was 41.7 (SD=11.1) years among men, and 42.1 (SD=11.5) years among women. Prevalence

of and mean follow-up times for mental health outcomes by the occupational groups for both genders are shown in Table 2. Among men, service professionals had the highest prevalence of antidepressant use (17%) as well as SA due to depression (5.0%) (Table 2). The prevalence of suicides ranged from 0.12% (technical special professionals) to 0.36% (building and mining). Among women, the highest prevalence of antidepressant use was observed for the group other service (27%) and that of SA in the group of care work and catering services (11%). Suicide rates ranged from 0.04% (service professionals) to 0.10% (other service).

Figure 2 presents the profiles of mental ill-health by occupational groups using the three outcomes. All the women's largest occupational groups had similar trends: they placed higher in relation to antidepressant use and SA than the men's occupational groups, and lower for suicides. The trends were the opposite for the men's occupational groups, which were similar to each other. The profiles for service professionals, group found among both men and women, also differed between genders.

In Table 3 we quantify the associations for the largest occupational groups in men and women with the three mental health outcomes. There were some occupational differences regarding antidepressant use among men. The use of antidepressants was less likely in the building and mining group (RR 0.94, 95% CI 0.90, 0.97) as well as in the group traffic and operators (RR 0.87, 95% CI 0.84, 0.91) when compared to the highest skill-level (technical special professionals). Among women, the likelihood of antidepressant use was also slightly higher in the lower skill-level occupations

SA due to depression among men was less likely in the building and mining group (RR 0.81, 95% CI 0.74, 0.88) in comparison to the highest skill-level. Among women, the highest risk of SA due to depression was in the care work and catering group (RR 1.23, 95% CI 1.18, 1.29) when compared to the highest skill-level that is teachers. Risk ratios

above one were observed also for service professionals and for the group other services and cleaning.

Regarding suicide in men, compared to the highest skill-level, the risk was increased in the three lowest skill-level groups; that is, building and mining occupations (RR 2.13, 95% CI 1.42, 3.21), mechanics and repairmen (RR 1.89, 95% CI 1.26, 2.83), and traffic and operators (RR 1.92, 95% CI 1.26, 2.92). No differences between occupational groups were observed for suicides among women, however, the number of suicides among women was low resulting in wide confidence intervals.

In the dominance analysis, the included predictors explained only a small proportion of the absolute variance in the outcomes. When women and men were included in the same models these proportions were 1.5% for antidepressant use, 2.1% for SA for depression, and 3.5% for suicides (Table 4). The order of predictors for antidepressant use and SA for depression were the same, gender accounting for most (80-87%) of all the explained variance while other predictor's proportions were below 10%. For suicide also, gender was the main predictor (65%), followed by marital status (16%) and occupation (11%).

Discussion

Summary of findings

In this study we constructed the mental health profiles for the main occupational groups in the Finnish working age population among men and women. All women's largest occupational groups had higher ranking for antidepressant use and SA due to depression compared to men's largest occupations, but the opposite was observed for suicides. Between occupational groups among men, the risk of antidepressant use was the lowest in the low vs. high-skilled occupational groups, whereas the risk of suicide was the highest in the low-

skilled groups. Among women, the risks of antidepressant use and SA due to depression were somewhat higher in the low vs. high-skilled occupational groups, but there were no occupational differences in the risk of suicides. Of all predictors, gender was the most important regarding the three outcomes, although only little of the absolute variance in the outcomes was explained by the examined predictors. Occupational class was the third important predictor of suicides, but it had no role in the other associations.

Mental health profiles

The gender differences in the mental health profiles found in our data, as well as the high importance of gender as a predictor for each outcome, may be explained by socially constructed gender-role orientations. These orientations can be broadly divided into expressivity, including characteristics associated with femininity, and instrumentality that relates to characteristics of masculinity. According to Courtenay (2000) masculinity can be demonstrated by health-related behaviours including denial of weakness or vulnerability and dismissal of any need for help. It has been shown that people high in instrumentality are more likely to engage in male-dominated occupations (Evans and Steptoe, 2002). Instrumentality has also been associated with lower levels of mental ill-health including depression (Bromberger and Matthews, 1996) and SA (Evans and Steptoe, 2002). These are in accordance with our findings for the SA due to depression as well as for antidepressant use that were ranked lower in the men's than in the women's occupational groups. However, women's higher tendency for help-seeking can also contribute to the higher levels of antidepressant use and SA spells, and the higher suicide rates among men suggest that in terms of mental health service use men are not able to obtain timely treatment.

Regarding the gender differences in our study, the employees in service professions are particularly interesting. It has been suggested that gender would make little

difference for mental health outcomes in relation to other work-related stressors if men and women were in the same position (Emslie et al., 1999). In contrast to this, the profiles for men and women in the group of service professions in our data were different following the gendered profiles observed for all examined occupations. However, despite belonging to the same occupational category, it is possible that there are differences in the job tasks between men and women. This may have contributed to the observed differences to some extent.

Occupations and mental ill-health

In our further analyses comparing the risks of mental ill-health between occupational groups, the risk of SA due to depression and of antidepressant use were the lowest among the lowest skilled occupations among men. This may be related to differences in help-seeking behaviours. Avoidance of health care has been suggested to be a form of social action through which men from lower socioeconomic groups maintain their status (Courtenay, 2000). In addition, health consciousness may be at a higher level in the higher socioeconomic groups (Wardle and Steptoe, 2003). Indeed, mental health literacy has been linked to higher education (Holman, 2015), and further, to increased use of mental health services (Bonabi et al., 2016). Differences in health consciousness and mental health literacy may thus partly explain the higher levels of antidepressant use in the high vs. low skilled occupations among men.

For suicide, the risk among men was the highest in the lowest skill-level occupations, whereas the analysis for women did not show as clear pattern, possibly partly due to power limitations. These findings agree with those from prior studies (Milner et al., 2013; Pirkis et al., 2017). Some characteristics of instrumentality, including denial of weakness or vulnerability and dismissal of need for help, may be more common among the low vs. high-skilled occupations, and contribute to the findings for men. It has also been

suggested that the elevated risk in the low-skilled occupations may derive from powerlessness, frustration and disrespect (Pirkis et al., 2017), or poorer overall socioeconomic circumstances (Roberts et al., 2013). However, in our data this association remained even after adjusting for income. Overall, that such a small proportion of the absolute variance in the outcomes was explained by the examined predictors suggests there are other factors responsible for the risk of mental ill-health. These likely include genetic (Mirkovic et al., 2016) and epigenetic (Roy and Dwivedi, 2017) factors, adverse childhood experiences (Cheong et al., 2017), and their interactions (Kim and Lee, 2016).

Strengths and limitations

Analysing a large representative sample of the working age population is the major strength of this study. The validity of the register data used to define all the outcomes is high with no loss to follow-up or bias due to self-reporting. We were also able to control for individual-level socio-demographic factors as well as unemployment during the previous year. Although we used general population sample, generalizability to other countries need to be verified. The limitations include the lack of history of medication use or health problems prior to follow-up that may precede suicide, for example. Antidepressant use may also reflect symptoms not directly linked to mental health issues (Sihvo et al., 2008). We neither had information about the actual use of the purchased antidepressants, so a minor degree of unmeasured confounding is likely to exist regarding this outcome. However, the definitions of SA spells and suicides are less likely to be confounded.

Conclusions

We observed different mental health profiles for the largest occupational groups for men and women, and our findings suggest that gendered occupational status is an underlying factor

explaining distinctive mental health profiles in the working population. This finding was supported by our dominance analysis where gender was the most important of the examined predictors for all outcomes. Within the male population in particular, there seem to be different behavioural patterns related to mental health among those in the lower vs. high skilled occupations.

Conflicts of interest None declared

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Figure legends

Figure 1. Flow chart of the sample selection.

Figure 2. Profiles of mental ill-health for the largest occupational groups among men (m, solid lines) and women (w, dashed lines).

References

Azen, R., Budescu, D.V., 2003. The dominance analysis approach for comparing predictors in multiple regression. Psychological methods 8, 129-148.

Birnbaum, H.G., Kessler, R.C., Kelley, D., Ben-Hamadi, R., Joish, V.N., Greenberg, P.E., 2010. Employer burden of mild, moderate, and severe major depressive disorder: mental health services utilization and costs, and work performance. Depression and anxiety 27, 78-89.

Bonabi, H., Muller, M., Ajdacic-Gross, V., Eisele, J., Rodgers, S., Seifritz, E., Rossler, W., Rusch, N., 2016. Mental Health Literacy, Attitudes to Help Seeking, and Perceived Need as Predictors of Mental Health Service Use: A Longitudinal Study. The Journal of nervous and mental disease 204, 321-324.

Bourdieu, P., 1984. Distinction: A Social Critique of the Judgement of Taste. Routeledge, London.

Bromberger, J.T., Matthews, K.A., 1996. A "feminine" model of vulnerability to depressive symptoms: a longitudinal investigation of middle-aged women. Journal of personality and social psychology 70, 591-598.

Budescu, D.V., 1993. Dominance analysis: A new approach to the problem of relative importance of predictors in multiple regression. Psychological bulletin 114, 542-551.

Cheong, E.V., Sinnott, C., Dahly, D., Kearney, P.M., 2017. Adverse childhood experiences (ACEs) and later-life depression: perceived social support as a potential protective factor. BMJ open 7, e013228.

Courtenay, W.H., 2000. Constructions of masculinity and their influence on men's well-being: a theory of gender and health. Soc Sci Med 50, 1385-1401.

Emslie, C., Hunt, K., Macintyre, S., 1999. Problematizing gender, work and health: the relationship between gender, occupational grade, working conditions and minor morbidity in full-time bank employees. Soc Sci Med 48, 33-48.

Evans, O., Steptoe, A., 2002. The contribution of gender-role orientation, work factors and home stressors to psychological well-being and sickness absence in male- and female-dominated occupational groups. Soc Sci Med 54, 481-492.

Fan, Z.J., Bonauto, D.K., Foley, M.P., Anderson, N.J., Yragui, N.L., Silverstein, B.A., 2012. Occupation and the prevalence of current depression and frequent mental distress, WA BRFSS 2006 and 2008. Am J Ind Med 55, 893-903.

Hawton, K., van Heeringen, K., 2009. Suicide. Lancet 373, 1372-1381.

Hicks, B.M., Blonigen, D.M., Kramer, M.D., Krueger, R.F., Patrick, C.J., Iacono, W.G., McGue, M., 2007. Gender differences and developmental change in externalizing disorders from late adolescence to early adulthood: A longitudinal twin study. Journal of abnormal psychology 116, 433-447.

Holman, D., 2015. Exploring the relationship between social class, mental illness stigma and mental health literacy using British national survey data. Health (London, England : 1997) 19, 413-429.

Iyer, A., Sen, G., Ostlin, P., 2008. The intersections of gender and class in health status and health care. Global public health 3 Suppl 1, 13-24.

Kim, J.S., Lee, S.H., 2016. Influence of interactions between genes and childhood trauma on refractoriness in psychiatric disorders. Progress in neuro-psychopharmacology & biological psychiatry 70, 162-169.

Kivimaki, M., Gunnell, D., Lawlor, D.A., Davey Smith, G., Pentti, J., Virtanen, M., Elovainio, M., Klaukka, T., Vahtera, J., 2007. Social inequalities in antidepressant treatment and mortality: a longitudinal register study. Psychol Med 37, 373-382.

Laaksonen, M., Mastekaasa, A., Martikainen, P., Rahkonen, O., Piha, K., Lahelma, E., 2010. Gender differences in sickness absence--the contribution of occupation and workplace. Scand J Work Environ Health 36, 394-403.

Lahelma, E., Martikainen, P., Rahkonen, O., Roos, E., Saastamoinen, P., 2005. Occupational class inequalities across key domains of health: results from the Helsinki Health Study. Eur J Public Health 15, 504-510.

Liddon, L., Kingerlee, R., Barry, J.A., 2018. Gender differences in preferences for psychological treatment, coping strategies, and triggers to help-seeking. The British journal of clinical psychology 57, 42-58.
Madsen, I.E.H., Nyberg, S.T., Magnusson Hanson, L.L., Ferrie, J.E., Ahola, K., Alfredsson, L., Batty, G.D., Bjorner, J.B., Borritz, M., Burr, H., Chastang, J.F., de Graaf, R., Dragano, N., Hamer, M., Jokela, M., Knutsson, A., Koskenvuo, M., Koskinen, A., Leineweber, C., Niedhammer, I., Nielsen, M.L., Nordin, M., Oksanen, T., Pejtersen, J.H., Pentti, J., Plaisier, I., Salo, P., Singh-Manoux, A., Suominen, S., Ten Have, M., Theorell, T., Toppinen-Tanner, S., Vahtera, J., Vaananen, A., Westerholm, P.J.M., Westerlund, H., Fransson, E.I., Heikkila, K., Virtanen, M., Rugulies, R., Kivimaki, M., 2017. Job strain as a risk factor for clinical depression: systematic review and meta-analysis with additional individual participant data. Psychol Med 47, 1342-1356.
Milner, A., Spittal, M.J., Pirkis, J., LaMontagne, A.D., 2013. Suicide by occupation: systematic review and meta-analysis. The British journal of psychiatry : the journal of mental science 203, 409-416.
Mirkovic, B., Laurent, C., Podlipski, M.A., Frebourg, T., Cohen, D., Gerardin, P., 2016. Genetic Association Studies of Suicidal Behavior: A Review of the Past 10 Years, Progress, Limitations, and Future Directions. Frontiers in psychiatry 7, 158.
Muntaner, C., Borrell, C., Benach, J., Pasarin, M.I., Fernandez, E., 2003. The associations of social class and social stratification with patterns of general and mental health in a Spanish population. Int J Epidemiol 32, 950-958.
OECD, 2010. Sickness, Disability and Work: Breaking the Barriers. A Synthesis of Findings across OECD Countries OECD Publishing, Paris.
Pekkala, J., Blomgren, J., Pietilainen, O., Lahelma, E., Rahkonen, O., 2017. Occupational class differences in diagnostic-specific sickness absence: a register-based study in the Finnish population, 2005-2014. BMC Public Health 17, 670.
Pirkis, J., Currier, D., Butterworth, P., Milner, A., Kavanagh, A., Tibble, H., Robinson, J., Spittal, M.J., 2017. Socio-Economic Position and Suicidal Ideation in Men. Int J Environ Res Public Health 14.
Roberts, S.E., Jaremin, B., Lloyd, K., 2013. High-risk occupations for suicide. Psychol Med 43, 1231-1240.
Roy, B., Dwivedi, Y., 2017. Understanding epigenetic architecture of suicide neurobiology: A critical perspective. Neuroscience and biobehavioral reviews 72, 10-27.
Sihvo, S., Isometsa, E., Kiviruusu, O., Hamalainen, J., Suvisaari, J., Perala, J., Pirkola, S., Saarni, S., Lonnqvist, J., 2008. Antidepressant utilisation patterns and determinants of short-term and non-psychiatric use in the Finnish general adult population. Journal of affective disorders 110, 94-105.
Silva-Junior, J.S., Fischer, F.M., 2014. Long-term sickness absence due to mental disorders is associated with individual features and psychosocial work conditions. PLoS One 9, e115885.
Taylor, S.E., Klein, L.C., Lewis, B.P., Gruenewald, T.L., Gurung, R.A., Updegraff, J.A., 2000. Biobehavioral responses to stress in females: tend-and-befriend, not fight-or-flight. Psychological review 107, 411-429.
Theis, K.A., Roblin, D., Helmick, C.G., Luo, R., 2017. Prevalence and causes of work disability among working-age U.S. adults, 2011-2013, NHIS. Disability and health journal.
Wardle, J., Steptoe, A., 2003. Socioeconomic differences in attitudes and beliefs about healthy lifestyles. J Epidemiol Community Health 57, 440-443.
Veenstra, G., 2007. Social space, social class and Bourdieu: health inequalities in British Columbia, Canada. Health Place 13, 14-31.
Williams, S.J., 1995. Theorising class, health and lifestyles: can Bourdieu help us? Sociology of Health & Illness 17, 577-576.
Viola, S., Moncrieff, J., 2016. Claims for sickness and disability benefits owing to mental disorders in the UK: trends from 1995 to 2014. BJPsych open 2, 18-24.
Yoon, J.H., Kang, M.Y., Jeung, D., Chang, S.J., 2017. Suppressing emotion and engaging with complaining customers at work related to experience of depression and anxiety symptoms: a nationwide cross-sectional study. Industrial health 55, 265-274.

Zapf, D., 2002. Emotion work and psychological well-being: A review of the literature and some conceptual considerations. Human Resource Management Review 12, 237-268.

Table 1. Descriptive statistics of the random sample of Finnish working age population by gender, including men in men's largest and women in women's largest occupations.

Variable total N=414 370	Men (N=182 795)	Women (N=231 562)
Marital status	N (%)	
Single	87 497 (36.26)	76 998 (30.9)
Married	127 909 (53.0)	133 717 (53.6)
Divorced	24 671 (10.2)	33 828 (13.6)
Widowed	1209 (0.50)	4883 (1.96)
Income (quartiles in the total sample)		
1st	16 324 (6.78)	24 106 (9.67)
2nd	35 938 (14.9)	74 041 (29.7)
3rd	74 667 (31.0)	101 313 (40.7)
4th	113 947 (47.3)	49 766 (20.0)
Unemployment*		
No	223 717 (92.7)	228 012 (91.4)
Yes	17 569 (7.28)	21 414 (8.59)

* Unemployed during the year prior to follow-up

Table 2. The prevalence of mental health outcomes by the six largest occupational groups among a random sample of Finnish men and women.

	Antidepressant use		Depression SA		Suicide	
Occupational group	N (%)	Follow-up years (SD)	N (%)	Follow-up years (SD)	N (%)	Follow-up years (SD)
Men (N=182 795)						
Technical special professionals (25 885)	3975 (15.4)	9.0 (2.64)	960 (3.71)	9.7 (1.40)	32 (0.12)	9.9 (0.70)
Technical professionals (28 537)	4343 (15.2)	9.0 (2.62)	1149 (4.03)	9.7 (1.51)	51 (0.18)	9.9 (0.83)
Service professionals (29 622)	5027 (17.0)	8.8 (2.74)	1410 (4.76)	9.6 (1.59)	47 (0.16)	9.9 (0.87)
Building and mining (30 658)	4847 (15.8)	8.9 (2.61)	1045 (3.41)	9.6 (1.49)	110 (0.36)	9.8 (0.97)
Mechanics and repairmen (38 867)	6151 (15.8)	8.9 (2.59)	1507 (3.88)	9.6 (1.53)	112 (0.29)	9.9 (0.92)
Traffic, operators (29 226)	4230 (14.5)	9.0 (2.55)	1147 (3.92)	9.6 (1.58)	88 (0.30)	9.8 (1.02)
Women (N=231 562)						
Teachers (28 272)	6848 (24.2)	8.3 (3.22)	2242 (7.93)	9.5 (1.86)	16 (0.06)	9.9 (0.57)
Health care professionals (25 885)	6556 (25.3)	8.3 (3.22)	2505 (9.68)	9.4 (2.00)	16 (0.06)	10.0 (0.55)
Service professionals (41 945)	10 670 (25.4)	8.3 (3.25)	3659 (8.72)	9.4 (1.95)	18 (0.04)	9.9 (0.58)
Office workers (35 602)	9358 (26.3)	8.2 (3.35)	3038 (8.53)	9.4 (1.96)	23 (0.06)	9.9 (0.65)
Care work, catering (68 690)	18 221 (26.5)	8.2 (3.28)	7087 (10.3)	9.3 (2.09)	49 (0.07)	9.9 (0.56)
Other service, cleaning (31 168)	8351 (26.8)	8.2 (3.32)	2914 (9.35)	9.3 (2.08)	32 (0.10)	9.9 (0.74)

SA, sickness absence.

Table 3. Associations for the largest occupational groups in Finnish men and women with the three mental health outcomes.

	Antidepressant use			SA for depression			Suicide		
Occupational group	RR*	95% CI		RR	95% CI		RR	95% CI	
Men									
Technical special professionals	ref			ref			ref		
Technical professionals	0.97	0.94	1.01	1.07	0.98	1.16	1.36	0.88	2.12
Service professionals	1.06†	1.02	1.10	1.22†	1.12	1.32	1.15	0.73	1.81
Building and mining	0.94†	0.90	0.97	0.81	0.74	0.88	2.13†	1.42	3.21
Mechanics and repairmen	0.97	0.93	1.00	0.95	0.88	1.03	1.89†	1.26	2.83
Traffic, operators	0.87†	0.84	0.91	0.95	0.87	1.04	1.92†	1.26	2.92
Women									
Teachers	ref			ref			ref		
Health care professionals	1.03	1.00	1.06	1.16†	1.10	1.23	1.12	0.55	2.26
Service professionals	1.03	1.00	1.06	1.08†	1.03	1.14	0.75	0.38	1.48
Office work	1.05†	1.02	1.08	1.04	0.99	1.10	1.12	0.58	2.17
Care work, catering	1.05†	1.02	1.07	1.23†	1.18	1.29	1.25	0.69	2.29
Other service, cleaning	1.04†	1.01	1.07	1.15†	1.08	1.21	1.75	0.91	3.37

***** Models adjusted for age, marital status, income and unemployment during the year prior to follow-up; † p-value <0.05

SA, sickness absence.

Table 4. Ranking of predictors in the dominance analyses using the combined random sample of Finnish men and women.

Predictor	Antidepressant use			SA due to depression			Suicide		
	ranking	% of all explained variance	% of absolute variance	ranking	% of all explained variance	% of absolute variance	ranking	% of all explained variance	% of absolute variance
Gender	1	80.2	1.2	1	87.3	1.8	1	64.9	2.3
Marital status	3	5.1	0.08	3	2.3	0.05	2	16	0.6
Unemployment	2	3.1	0.05	4	2.2	0.04	4	4.9	0.2
Income	4	9.2	0.1	2	6.3	0.1	6	1.4	0.05
Age	5	1.9	0.03	5	1.0	0.02	5	1.5	0.05
Occupational class	6	0.5	0.01	6	0.9	0.02	3	11.3	0.4
Total		100	1.5		100	2.1		100	3.5

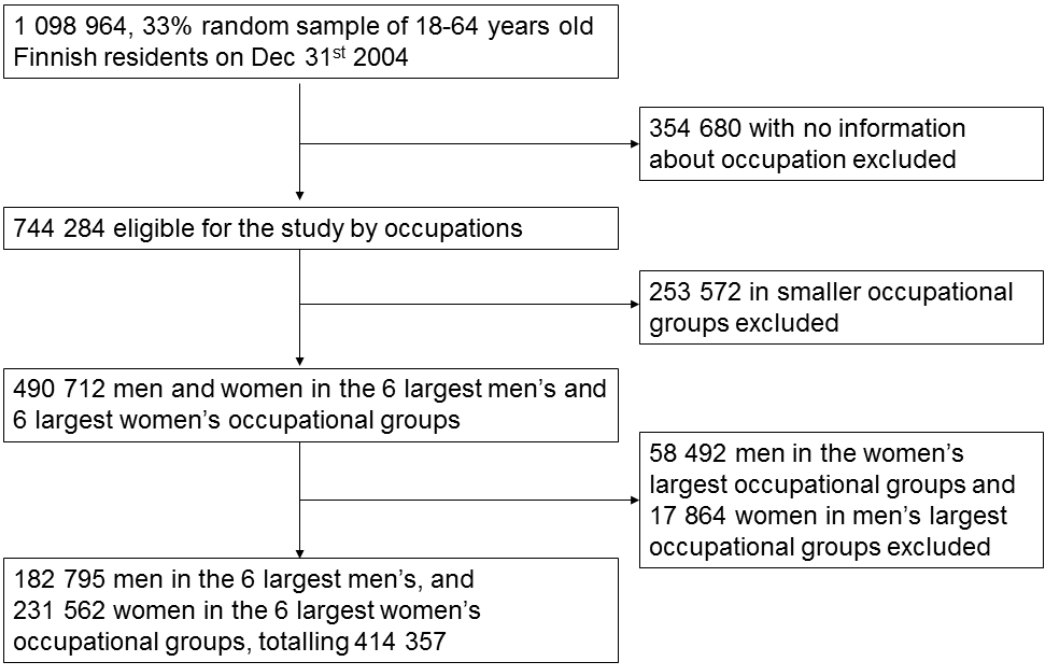

Figure 1. Flow chart of the sample selection.

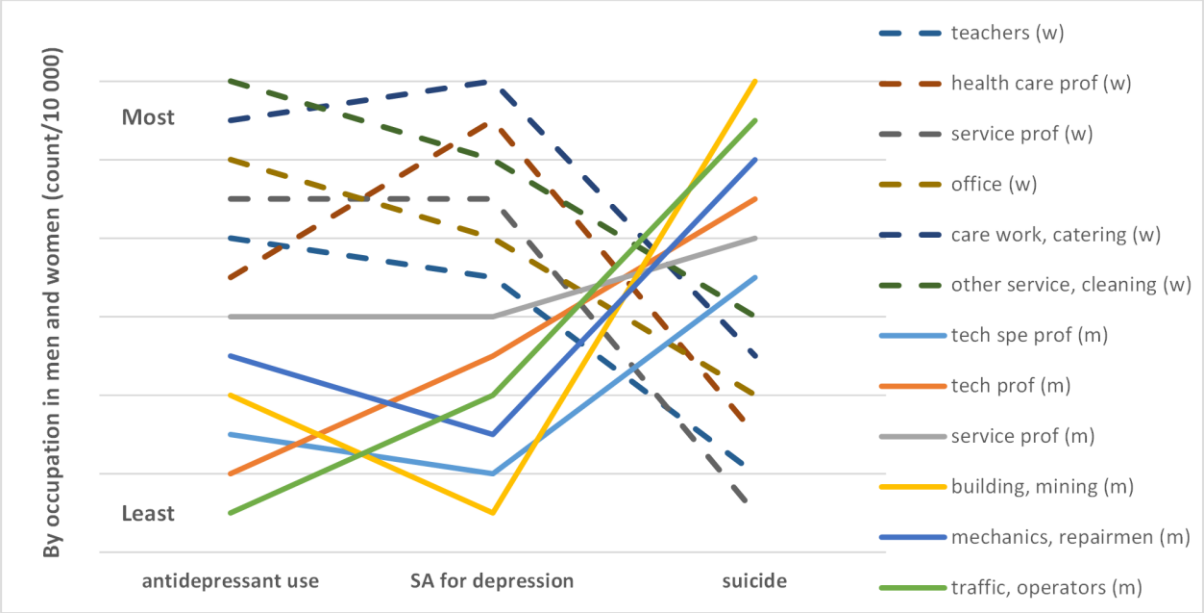

Figure 2. Profiles of mental ill-health for the largest occupational groups among men (m, solid lines) and women (w, dashed lines).