Favourable changes in physical working conditions and the risk of all-cause sickness absence: A pseudo–experiment

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Conflict of interest

The authors declare that they have no conflicts of interest.

Abstract

Background: We determined whether favourable changes in physical workload and environmental factors reduce sickness absence (SA) days using observational cohort data as a pseudo–experiment.

Methods: The data from the Finnish Helsinki Health Study included three cohorts of employees of the City of Helsinki (2000/2002-2007 [N=2927], 2007-2012 [N=1686] and 2012-2017 [N=1118], altogether 5731 observations). First, we estimated the propensity score of favourable changes (reduction in exposures) in physical workload and environmental factors during each 5-year follow-up period on the baseline survey characteristics using logistic regression. Second, we created and stabilized inverse probability of treatment weights for each participant using the propensity scores. Lastly, we used generalized linear model and fitted negative binomial regression models for over-dispersed count data to estimate whether the favourable changes decrease the risk of short-term (1-3 days), intermediate-term (4-14 days) and long-term (>14 days) SA using employer's register data.

Results: During a 5-year follow-up, 11% of the participants had favourable changes in physical workload factors, 13% in environmental factors, and 8% in both factors. The incidence of short-term, intermediate-term and long-term SA were lower in employees with favourable workplace changes compared to those without such changes. The reductions were largest for long-term SA. Reporting favourable changes in both workload and environmental factors reduced the number of SA days by 41% within one year after the changes and by 32% within two years after the changes.

Conclusion: This pseudo-experimental study suggests that improving physical working conditions reduces SA.

Keywords: Environmental exposure, sick leave, workload, workplace

Introduction

Adverse changes in physical working conditions increase the risk of all-cause sickness absence (SA),[1] while favourable changes in physical working conditions reduce the risk.[1] Heavy physical workload and hazardous exposures increase the risk of all-cause SA spells.[2] Working conditions can lead to SA because of common diseases or work-related diseases.[3] More specifically, exposure to physical workload factors increases the risk of musculoskeletal disorders[4] and exposure to workplace environmental factors increases the risk of pulmonary diseases.[5]

Previous studies in the general working population found that work-related factors account for 20% of all-cause SA,[6] and exposure to physical workload factors account for 26% of SA ≥3 weeks.[7] Heavy lifting and monotonous movements increase the risk of SA.[8] Exposure to extreme bending or twisting of neck or back, work requiring prolonged standing or squatting, and lifting or carrying loads increase the risk of long-spell SA.[9] Workers with a high perceived physical workload return to work more slowly than workers with a low perceived physical workload after SA due to a musculoskeletal disorder.[10] Moreover, a high self-perceived physical workload and exposure to bending or twisting of the back were associated with slower return to work after a long-spell (>15 days) SA due to a non-occupational health probelm.[11]

A number of observational studies found that adverse changes in physical working conditions,[1] working postures,[12] or psychosocial work environment[13] increase the risk of SA. However, observational studies are particularly susceptible to selection bias and confounding.[14] Furthermore, to date, only a limited number of randomized controlled trials have been conducted on the efficacy of various workplace interventions in musculoskeletal disorders and associated SA, such as job rotation,[15] ergonomic interventions,[16] intermittent standing during the workday,[17] and a sit-stand workstation,[18] and they found inconsistent results regarding the effects of workplace ergonomic improvements on musculoskeletal disorders and SA. Some clinical trials found that workplace ergonomic improvements prevent musculoskeletal disorders[19 20] or associated SA,[21 22] while some other trials did not find beneficial effect on musculoskeletal disorders or SA.[15 16 23 24] In some of these clinical trials, the intervention was not implemented well, or adherence of the participants to the intervention was not high enough.

Observational studies are increasingly being analyzed as pseudo-trials to estimate the causal effects of interventions through the propensity score methods.[14] The propensity score estimates the probability of receiving an intervention/treatment conditional on measured baseline covariates.[14] The estimated propensity score is then used to achieve balance in background characteristic using matching, weighting, stratification, or covariate adjustment.[14 25] In the current study we aimed to analyze an observational cohort study as a pseudo-trial to determine whether favourable changes in physical workload and environmental factors reduce the number of SA days and spells.

Methods

Population

This study is part of the Finnish Helsinki Health Study.[26] A total of 8960 employees of the City of Helsinki aged 40-60 years participated in the baseline surveys in 2000/2002 (Figure 1). Of the respondents, 6487 provided their written consent for internal and external record linkage. Of 6487 participants at baseline, 5485 took part in the first follow-up survey in 2007, 5119 in the second follow-up survey in 2012 and 5127 took part in the third follow-up survey in 2017. In the current analysis, we used three cohorts (2000/2002-2007, 2007-2012, and 2012-2017) and limited the sample to employed population. After excluding participants with missing data (Figure 1), 2927 employees were included in 2000/2002-2007 cohort, 1686 employees in 2007- 2012 cohort, and 1118 employees in 2012-2017 cohort (altogether, 5731 observations). The most common reason for exclusion was retirement, as by the final follow-up, 70% had retired. We excluded the participants who have been granted full or partial disability retirement or died after survey year from the analyses of SA one year (N=47 observations) and two following years (N=125 observations) after the survey year. The ethics committees of the health authorities of the City of Helsinki, and the Department of Public Health, University of Helsinki approved the study.

Physical working conditions

Physical working conditions were assessed with 16 items at baseline and all the follow-up surveys using identical questions. The original 18 item inventory was developed at the Finnish Institute of Occupational Health.[27] There were eight items on physical workload factors and eight on environmental factors. Physical workload factors included (i) awkward postures, (ii) rotation of back, (iii) repetitive movements, (iv) standing, (v) sitting, (vi) walking, (vii) heavy physical effort or lifting and carrying heavy loads, and (viii) vibration. Environmental factors included (i) noise, (ii) weak or disturbing illumination, (iii) solvents, gases or irritants, (iv) heat, cold, draft or temperature fluctuations, (v) dry air, (vi) dust and dirt, (vii) moisture and dampness, and (viii) mold. **No detailed definitions for the specific exposures were given.**

Each item had four alternative responses: 1) it does not appear, 2) it appears, but does not bother at all, 3) it appears and somewhat bothers, 4) it appears and bothers a lot. We dichotomized each item into presence of exposure ("it appears and somewhat bothers, or bothers a lot") vs. absence of exposure ("it does not appear, or appears, but does not bother"). We defined a favourable change in working condition during a 5-year follow-up as presence of exposure at baseline and absence of exposure at follow-up. Due to space limitations, further details can be found in previous reports.[2]

The survey 2007 and onwards collected also data on 13 additional questions on the number of hours the participants spent on physical workload factors. The distribution of exposure allowed us to determine the effects of exposure to a single factor, and for a sensitivity analysis, we used three questions on 1) lifting or carrying loads >5 kg, 2) pulling loads >50 kg, and 3) heavy physical effort.

Sickness absence

We collected data on SA from the City of Helsinki personnel for ≥1 day during the survey year and two following years after the survey year. A SA <4 days can be self-certified, but a medical certificate is needed for SA >3 days. We used four outcomes: 1) any, 2) short (1-3 days), 3) intermediate (4-14 days), and 4) long (>14 days) SA.

Covariates

Self-reported information on age, sex, marital status, education, household income, long-standing illness or injury, acute/subacute pain, chronic pain, self-reported physician-diagnosed medical conditions, smoking, alcohol consumption and binge drinking was gathered in all surveys. Body mass index was computed using self-reported weight and height. Information on the participants' average weekly hours of leisure-time physical activity within the past 12 months, including commuting to work was collected in four grades of intensity: walking, brisk walking, jogging, and running, or their equivalent activities. A metabolic equivalent (MET) index was calculated for each participant.[28]

Insomnia symptoms were assessed by four items using the Jenkins Sleep Questionnaire and classified into three groups: good, moderate, and poor sleepers.[29] Job demands and job control were assessed using the Karasek's Job Content Questionnaire.[30] Physical and mental health functioning were assessed using the Short-Form 36 health questionnaire.[31]

Statistical analysis

We analyzed the current study as a pseudo-experiment to mimic a workplace intervention through using a propensity score method to balance the intervention and control groups on a set of measured confounding factors at baseline.[14] First, we estimated the propensity score of favourable changes in working condition on the baseline characteristics using logistic regression for three cohort studies. We included the following baseline characteristics in the propensity scores: age, sex, education, marital status, income, acute/subacute pain, chronic pain, self-reported long lasting medical condition or injury, osteoarthritis, bronchitis, asthma, depression, anxiety, migraine, gastroesophageal reflux disease, peptic ulcer, diabetes, cancer, hypertension (taking a medication), angina pectoris, myocardial infarction, smoking (never, past, current), body mass index (continuous), leisure time physical activity (continuous MET index), alcohol consumption, binge drinking, insomnia symptoms, job demands, job control, physical functioning, mental functioning, and the numbers of SA days and spells during the survey year and during the two following years after the survey year.

Second, we created an inverse probability of treatment weight [IPTW] for each participant using the propensity score and gave weight based on the employee's inverse probability of having favourable changes in working condition. We used Stata's *propwt* command which gives a weight of "1/propensity score" to the employees who had favourable workplace changes during a 5-year follow-up ('treated') and a weight of "1/(1-propensity score)" to the employees who did not have favourable workplace changes ('control').[32] Furthermore, we generated stabilized IPTWs, which have a mean of 1 in both treated and control subsamples. The stabilized weights reduce the variability and produce unbiased treatment effect.[33 34] For each participant we generated three different weights for three cohorts. Third, we used generalized linear model, and controlled for panel data using "cluster (personID)", which allows adjusting standard errors for intragroup correlation. Weight was not constant within ID and each participant had three different weights. The numbers of SA days and spells were used as count outcomes. The conditional variances of SA days and SA spells exceeded the conditional means. We therefore used negative binomial regression for over-dispersed count data. Lastly, we predicted the number of SA days prevented by improving working condition. As a sensitivity analysis, we used nearest neighbour matching with one nearest neighbour. We assessed whether the matching procedure balanced the distribution of the covariates in the intervention and control groups. We estimated the standardised bias, used two-sample t-test to compare differences in covariate means between the intervention and control groups, and compared the pseudo-R^2 before and after matching.[35]

Results

Baseline characteristics

Of the study sample (5731 observations, Table 1), 81% were female, 33% were overweight and 14% obese. Furthermore, 19% were current smokers and 33% had a long-standing illness or injury.

Favourable changes in working condition during the follow-up

Overall, 11% had favourable workplace changes in physical workload factors during a 5-year follow-up period, 13% in environmental factors, and 8% had favourable changes in both physical workload and environmental factors.

Sickness absence

Percentage of employees with SA for ≥1 day was 59% during the survey year, 60% during the following year after the survey, and 70% during the two following years after the survey. In the total sample, the mean number of SA for ≥1 day was 22 ± 45 days and that of long-term SA was 12 ± 40 days during the two following years after the survey.

Percentage of employees with long-term SA was 11% during the survey year, 12% during the following year after the survey, and 19% during the two following years after the survey. In employees with long-term SA, the mean number of days was 47 ± 40 during the survey year, 55 ± 56 during the following year after the survey, and 66 ± 72 during the two following years after the survey.

Favourable workplace changes and risk of sickness absence

The incidence of SA was lower in employees who had favourable changes in working conditions than in those who did not have such changes (Table 2 and Supplemental Table 1). In the employees who had favourable changes in both workload and environmental factors, the number of any SA day was 38% lower during the survey year, 41% lower during one year after the survey year and 32% lower during two following years after the survey year (Table 2). Short-, intermediate- and long-term SA reduced after favourable changes in working conditions. However, the largest reductions were found for long-term SA. The number of long-term SA reduced by 52% during the survey year, 57% during one year after the survey year and by 41% during two following years after the survey year.

For favourable changes in workload factors, the reductions in SA days (Table 2) and spells (Supplemental Table 1) were seen for long-term SA, but not for short- or intermediate-term SA (Table 2). Favourable changes in environmental factors reduced short- and intermediate-term SA, but not long-term SA. However, reductions in SA spells were seen for short-, intermediate- and long-term SA.

Table 3 shows the predicted number of SA days that can be prevented by improving working conditions. For each employee exposed to workplace physical factor, favourable changes in physical workload and environmental factors prevented 6 (95% CI -8.9, -3.1) days within one year and 7.7 (95% CI -12.4, -2.9) days within two years after the intervention. Most of the prevented SA days came from reductions in long-term SA.

Sensitivity analysis and the matching quality

The results for women did not differ from both sexes combined. For men, the study, however, had low statistical power to estimate propensity score.

As a sensitivity analysis, we used nearest neighbour matching instead of weighting. The nearest neighbour matching yielded similar reductions in SA for $\geq$1 day and in long-term SA during both one year and two years after the intervention. It showed 4.6 to 7.6 days lower SA days during 1 or 2 years after the survey year in the intervention group compared with control group. The difference in SA days during the survey year between the intervention and control groups was, however, smaller using nearest neighbour matching.

The quality of the matching was good. The standardised bias was less than 5% for the matching covariates, the pseudo-R^2 was 0.001 and t-test showed no significant differences in covariate means between the intervention and control groups.

We used the 2007-2012 cohort to rule out "bothersomeness" aspect of the questions on working conditions using nearest neighbour matching with one nearest neighbour. A total of 215 participants had favorable changes in lifting or carrying loads >5 kg or pulling loads >50 kg and 173 had favorable change in heavy physical effort during a 5-year follow-up period. Avoidance of lifting, carrying or pulling heavy loads reduced long-term SA by 3 to 6 days and that of heavy physical effort by 6 to 8 days. The improvements had, however, no beneficial effects on short- or intermediate-term SA.

Discussion

The findings of the current pseudo-trial indicate that improvement in physical working conditions reduce the risk of all-cause SA. Favourable changes in physical working conditions reduce SA by 6 days within one year after the intervention and by 8 days within 2 years after the intervention. Most of reductions come from long-term SA spells.

The incidence of long-spell (≥14 days) all-cause SA is about 11-12% in the general working populations,[36 37] and that of SA for ≥8 weeks is about 5%.[9] The burden of chronic diseases, particularly musculoskeletal disorders, rheumatic disease and psychiatric disease is higher among sick-listed people than the general population.[36] The effectiveness of workplace interventions in preventing SA is still uncertain. To date, only a limited number of randomized controlled trials reported beneficial effects of improvement in workplace physical factors on SA. A participatory organizational-level intervention, aiming at the core task at work to lower unreasonable and unnecessary tasks, reduced the incidence of short-term all-cause SA.[38] In workers with musculoskeletal disorders, workplace ergonomic improvements reduced the number of SA days.[21 22] Among construction workers, an intervention to reduce physical workload along with a rest-break tool to improve the balance between work and recovery, and empowerment training to increase a worker's influence at workplace reduced all-cause SA ≥6 days.[39] However, other randomized controlled trials found that a participatory ergonomics intervention[16] and a multi-faceted workplace intervention including participatory ergonomics[24] do not reduce SA due to musculoskeletal disorders. The current study adds to earlier findings that improvement in physical workload and environmental factors reduces all-cause SA. **Future studies on this topic should objectively assess changes in working conditions.**

Strengths and limitations

As a strength, in this study the changes in working conditions preceded the incidence of SA. Sixteen physical workload and environmental factors were assessed using identical questions at the baseline and three follow-up surveys. Furthermore, data on SA were collected using reliable register before the baseline, during the survey and up to 2 years after each survey. To control for prior SA, we included SA before the baseline in the propensity scores. We used a pseudo-experimental design to balance the distribution of baseline covariates between the intervention and control groups, which is superior to an observational study design for estimating causal effects.[40]

The present study, however, had some limitations. The changes in working conditions were defined based on two consecutive surveys carried out at five-year intervals. Such a period is relatively long for defining changes in working conditions. Data on workplace changes happened during the survey year have been collected, but not those happened throughout the 5-year period. It is therefore unknown when workplace changes have occurred during a 5-year period, or if they changed back and forth. Although we were able to better distinguish between change in the exposure and change in the outcome (causal order) as compared to many previous observational studies studying work and SA, this still remains an observational study, yet with a relatively stronger design. Therefore, the results should be interpreted with some caution. The assessment of physical working conditions was based on self-reports, **and work exposures were not defined. Thus, the respondents themselves had to judge what they perceived as rotation of back or repetitive movements, for example.** Although two different questionnaires produced similar results, the assessment is prone to subjectivity. The association between improvement in working conditions and SA is unlikely due to improvement in the participant's health and functioning. Our sensitivity analyses on physical workload factors focusing on time in place of bothersomeness and using the nearest neighbour matching yielded similar reductions in SA, indicating that the beneficial effect of favourable change in working conditions on SA is not due to improvement in participant's health and functioning. In the current analysis, we did not include disability retirement as a cause of absent from work. The beneficial effects of favourable workplace changes may even be greater if cases of disability retirement are also included. Lastly, although we included a large set of covariates in the propensity scores, the role of unmeasured confounders cannot fully be ruled out. The matching or weighting controls to some extend for unmeasured factors that are correlated with measured factors. However, some unmeasured factors are not correlated with matching or weighting variables.[40]

Conclusion: Favourable changes in workplace physical factors reduce all-cause SA rates. Reducing exposure to ergonomic and environmental risk factors at the workplace not only reduces development of work-related diseases, but also reduces their associated SA.

Key points

- Improvement in working conditions reduces sickness absence rates.
- The largest reductions are seen for long-term sickness absence.
- Improvement in workload factors reduces long-term sickness absence, while improvement in environmental factors reduces short- or intermediate-term sickness absence.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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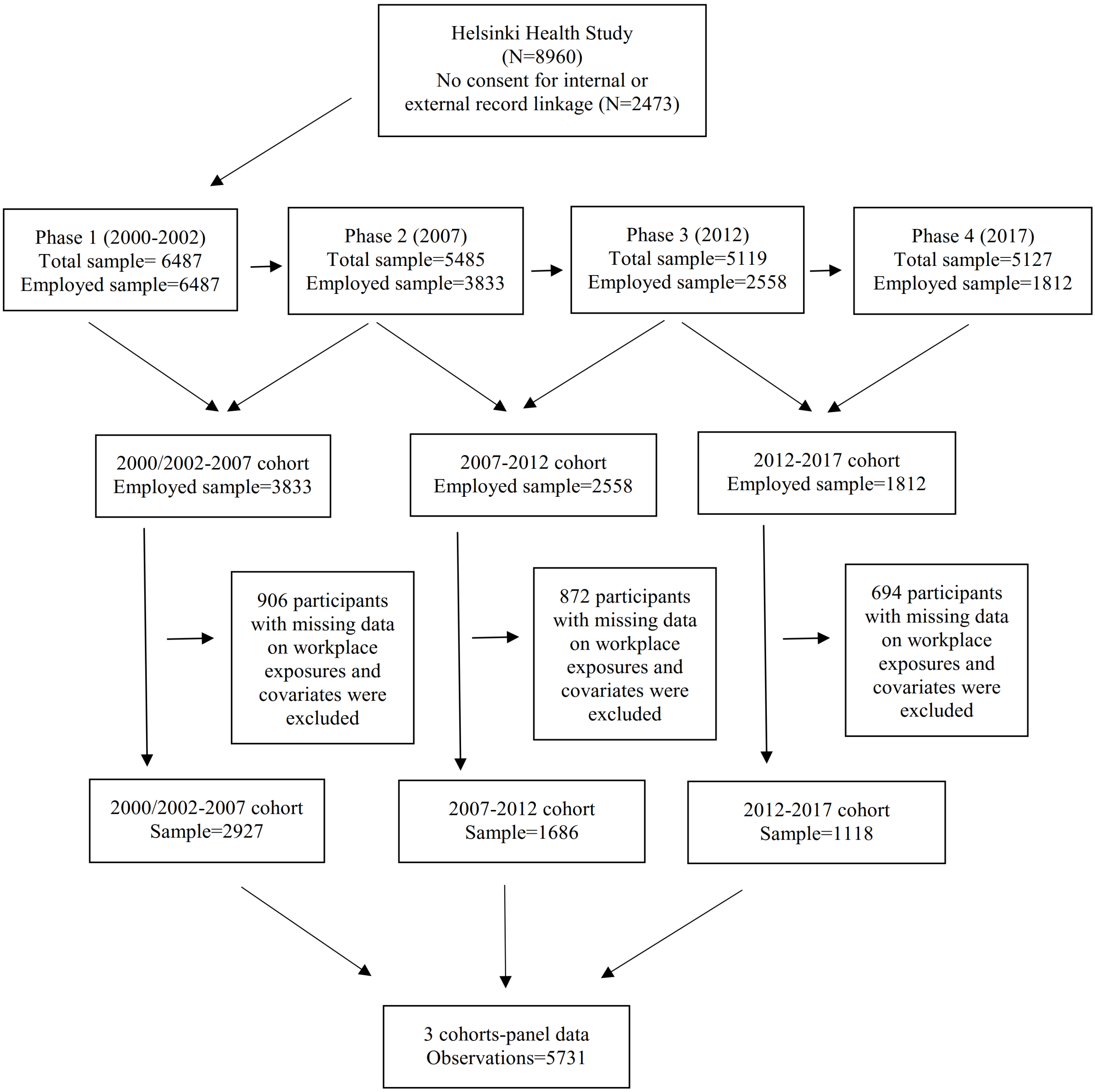
Helsinki Health Study
(N=8960)
No consent for internal or
external record linkage (N=2473)
Phase 1 (2000-2002)
Total sample= 6487
Employed sample=6487
Phase 2 (2007)
Total sample=5485
Employed sample=3833
Phase 3 (2012)
Total sample=5119
Employed sample=2558
Phase 4 (2017)
Total sample=5127
Employed sample=1812
2000/2002-2007 cohort
Employed sample=3833
2007-2012 cohort
Employed sample=2558
2012-2017 cohort
Employed sample=1812
906 participants with missing data on workplace exposures and covariates were excluded
872 participants with missing data on workplace exposures and covariates were excluded
694 participants with missing data on workplace exposures and covariates were excluded
2000/2002-2007 cohort
Sample=2927
2007-2012 cohort
Sample=1686
2012-2017 cohort
Sample=1118
3 cohorts-panel data
Observations=5731

Table 1 Baseline characteristic of the study population

Characteristic	Cohort 2000/2002-2007 (N=2927)		Cohort 2007-2012 (N=1686)		Cohort 2012-2017 (N=1118)	
	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)
Age in 2000/2002						
40	27.1		36.1		50.2	
45	28.3		35.6		43.6	
50	26.2		25.2		6.2	
55	17.8		3.1		0	
60	0.6		0		0	
Female	80.2		81.3		82.8	
Current smoking	22.8		17.0		12.5	
Body mass index		25.1 (4.2)		25.5 (4.4)		26.0 (4.5)
Overweight	31.1		33.4		35.9	
Obese	12.2		14.4		17.4	
Leisure time physical activity (MET)		31.0 (24.6)		34.3 (26.3)		33.8 (28.1)
Long-standing illness or injury	24.4		38.9		44.7	
Chronic pain	23.8		23.3		25.5	
Physician-diagnosed medical conditions						
Arthrosis	8.9		14.1		23.2	
Hypertension (taking a medication)	10.0		14.9		20.4	
Diabetes	1.5		3.1		4.7	
Angina pectoris or myocardial infarction	6.1		1.9		1.1	
Depression	9.9		11.4		12.3	
Anxiety	8.0		6.5		5.9	
Cancer	2.9		4.3		5.0	
Asthma	6.6		8.0		8.2	
Favourable workplace changes						
Physical workload factors	12.3		10.0		11.0	
Environmental factors	13.2		12.9		12.9	
Both factors	8.7		7.6		7.3	
Any sickness absence day						
During survey year	61.9	11.6 (24.3)	58.5	9.4 (19.8)	50.5	7.7 (20.9)
During 1 year after survey	62.5	12.6 (28.8)	55.9	10.1 (27.4)		
During 2 years after survey	72.3	23.8 (46.4)	65.7	19.6 (43.0)		

Table 2 Incidence rate ratio (IRR) of sickness absence (SA) days, comparing employees who had favourable workplace changes with those who did not.

Sickness absence	Favourable changes in physical workload factors			Favourable changes in environmental factors			Favourable changes in physical workload and environmental factors		
	IRR	95% CI	*P*	IRR	95% CI	*P*	IRR	95% CI	*P*
Any SA day									
During survey year	0.70	0.56-0.87	0.001	0.73	0.60-0.90	0.002	0.62	0.49-0.79	<0.001
During 1 year after survey	0.76	0.60-0.96	0.023	0.75	0.56-1.00	0.055	0.59	0.46-0.76	<0.001
During 2 years after survey	0.82	0.67-1.00	0.054	0.83	0.65-1.04	0.106	0.68	0.54-0.86	0.001
Short-term SA									
During survey year	0.95	0.82-1.09	0.461	0.77	0.67-0.88	<0.001	0.88	0.73-1.06	0.180
During 1 year after survey	1.00	0.83-1.20	0.981	0.88	0.75-1.03	0.110	0.81	0.65-1.00	0.052
During 2 years after survey	0.98	0.83-1.15	0.817	0.85	0.74-0.99	0.031	0.78	0.64-0.95	0.016
Intermediate-term SA									
During survey year	0.71	0.58-0.88	0.001	0.63	0.50-0.80	<0.001	0.68	0.51-0.92	0.012
During 1 year after survey	0.90	0.71-1.13	0.364	0.79	0.64-0.98	0.035	0.79	0.57-1.09	0.146
During 2 years after survey	0.91	0.73-1.14	0.427	0.81	0.65-1.00	0.055	0.77	0.57-1.04	0.092
Long-term SA									
During survey year	0.59	0.38-0.90	0.013	0.78	0.57-1.07	0.122	0.48	0.31-0.76	0.002
During 1 year after survey	0.61	0.39-0.97	0.036	0.69	0.41-1.17	0.168	0.43	0.27-0.67	<0.001
During 2 years after survey	0.71	0.51-0.99	0.043	0.82	0.55-1.23	0.342	0.59	0.42-0.84	0.004

Table 3 The predicted number of sickness absence (SA) days prevented by improving working condition.

Sickness absence	Favourable changes in physical workload factors		Favourable changes in environmental factors		Favourable changes in physical workload and environmental factors	
	N (days)	95% CI	N (days)	95% CI	N (days)	95% CI
Any SA day						
During survey year	-3.6	-5.9, -1.4	-3.1	-5.1, -1.1	-4.8	-7.3, -2.3
During 1 year after survey	-3.2	-5.9, -0.4	-3.2	-6.4, 0.0	-6.0	-8.9, -3.1
During 2 years after survey	-3.9	-7.9, 0.1	-3.9	-8.5, 0.8	-7.7	-12.4, -2.9
Short-term SA						
During survey year	-0.1	-0.4, 0.2	-0.6	-0.9, -0.3	-0.3	-0.7, 0.1
During 1 year after survey	-0.0	-0.4, 0.4	-0.3	-0.6, 0.1	-0.5	-0.9, 0.0
During 2 years after survey	-0.1	-0.8, 0.6	-0.7	-1.2, -0.1	-1.0	-1.9, -0.2
Intermediate-term SA						
During survey year	-0.9	-1.5, -0.4	-1.3	-1.9, -0.6	-1.1	-1.9, -0.2
During 1 year after survey	-0.3	-1.0, 0.4	-0.7	-1.4, -0.1	-0.7	-1.7, 0.2
During 2 years after survey	-0.5	-1.8, 0.8	-1.2	-2.5, 0.0	-1.5	-3.2, 0.2
Long-term SA						
During survey year	-2.8	-4.9, -0.6	-1.3	-2.9, 0.4	-3.7	-6.1, -1.4
During 1 year after survey	-3.0	-5.9, -0.2	-2.3	-5.4, 0.9	-5.3	-8.2, -2.3
During 2 years after survey	-3.5	-6.9, -0.1	-2.0	-6.0, 2.1	-5.3	-9.0, -1.7

Favourable changes in physical working conditions and the risk of all-cause sickness absence: A pseudo–experiment

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Supplemental Table 1: Incidence rate ratio (IRR) of sickness absence (SA) spell, comparing employees who had favourable workplace changes with those who did not.

Sickness absence	Favourable changes in physical workload factors			Favourable changes in environmental factors			Favourable changes in physical workload and environmental factors		
	IRR	95% CI	*P*	IRR	95% CI	*P*	IRR	95% CI	*P*
Any SA spell									
During survey year	0.90	0.79-1.03	0.123	0.75	0.66-0.86	<0.001	0.86	0.71-1.04	0.123
During 1 year after survey	0.94	0.80-1.11	0.487	0.85	0.73-0.98	0.029	0.80	0.66-0.97	0.022
During 2 years after survey	0.96	0.82-1.13	0.636	0.85	0.74-0.98	0.022	0.79	0.66-0.96	0.017
Short-term SA spells									
During survey year	0.99	0.86-1.13	0.837	0.78	0.68-0.89	<0.001	0.94	0.77-1.15	0.550
During 1 year after survey	0.99	0.84-1.18	0.941	0.89	0.76-1.05	0.180	0.81	0.66-1.01	0.060
During 2 years after survey	0.99	0.85-1.16	0.927	0.88	0.76-1.01	0.075	0.80	0.66-0.98	0.032
Intermediate-term SA spells									
During survey year	0.74	0.61-0.91	0.003	0.67	0.54-0.83	<0.001	0.71	0.54-0.95	0.019
During 1 year after survey	0.91	0.73-1.13	0.381	0.79	0.64-0.97	0.023	0.80	0.60-1.07	0.131
During 2 years after survey	0.94	0.75-1.17	0.556	0.80	0.64-0.99	0.042	0.77	0.58-1.00	0.053
Long-term SA spells									
During survey year	0.65	0.46-0.91	0.012	0.83	0.63-1.09	0.181	0.62	0.41-0.92	0.019
During 1 year after survey	0.67	0.47-0.94	0.020	0.67	0.50-0.90	0.007	0.69	0.46-1.04	0.075
During 2 years after survey	0.78	0.60-1.02	0.074	0.78	0.62-0.98	0.034	0.80	0.57-1.13	0.205