

244

What makes you
work while you
are sick?
Evidence from a
survey of union
members

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TIIVISTELMÄ

Tutkimuksessa tarkastellaan sairauspoissaoloihin ja sairaana työskentelyyn vaikuttavia tekijöitä käyttäen SAK:n työolobarometriä vuodelta 2008. Työaikamuodot vaikuttavat poissaoloja enemmän sairaana työskentelyyn. Kokoaikatyö, toteutuneen ja halutun työajan epäsuhta, vuoro- ja periodityö sekä ylipitkä viikkotyöaika lisäävät todennäköisyyttä työskennellä sairaana. Säännöllinen ylityö lisää myös sairaana työskentelyä, mutta vastaavasti vähentää sairauspoissaoloja. Tämän lisäksi tutkimuksessa havaitaan, että kolmen päivän sairausloman mahdollisuus ilman lääkärintodistusta sekä tehokkuusvaatimusten löysääminen vähentävät sairaana työskentelyä.

ABSTRACT

We examine the prevalence of sickness absenteeism and presenteeism, using survey data covering 725 Finnish union members in 2008. Controlling for worker characteristics, we find that sickness presenteeism is much more sensitive to working-time arrangements than sickness absenteeism. Permanent full-time work, mismatch between desired and actual working hours, shift or period work and overlong working weeks increase the prevalence of sickness presenteeism. We also find an interesting trade-off between two sickness categories: regular overtime decreases sickness absenteeism, but increases sickness presenteeism. Furthermore, the adoption of three days' paid sickness absence without a sickness certificate and the easing of efficiency demands decrease sickness presenteeism.

Keywords: absenteeism, presenteeism, working-time arrangements

INTRODUCTION

Sickness absenteeism and presenteeism are counterparts. In the case of absenteeism workers are absent from work because of sickness. In the case of presenteeism workers are present at work in spite of their sickness. Sickness absenteeism has been a focus of

the EU Labour Force Surveys since the early 1970s. In contrast, sickness presenteeism is a newcomer. Based on surveys utilising different data sources, this concept emerged in the empirical literature as late as the 1990s.

Decrease in sickness absenteeism reduces firms' costs, but it also contains a possibility for decreasing productivity through sickness presenteeism (Goetzel et al., 2004). In particular, sickness presenteeism may contribute to workers' ill health and firms' costs in the long run (Dew et al., 2005; Kivimäki et al., 2005; Ahola et al., 2008), and even to dysfunctional "competitive presenteeism", which is an extreme example of competitive culture at workplaces (Simpson, 1998).

Hence, both absenteeism and presenteeism include the possibility of productivity losses. In absenteeism it is 100 per cent, since the workers' contribution during sickness absence is non-existent. Direct and indirect costs caused by presenteeism are more difficult to estimate (Middaugh, 2006). Notions in the literature are more or less partial and conditional upon the work culture and workers' behaviour, as well as upon differences in data sets and estimation methods. Based on 113 studies surveyed by Shultz and Edington (2007), the costs caused by sickness presenteeism may exceed the costs of ordinary medical care, at least in the case of allergies and arthritis.

Before the evaluation of costs, knowledge of the determinants of sickness presenteeism is essential. It is reasonable to assume that sickness presenteeism is affected by the same factors as sickness absenteeism, i.e. factors related to workers and working conditions (e.g. Böckerman and Ilmakunnas, 2008). According to the literature, special attention should be paid to working-time arrangements (Webster, 2007), workers' replacement practices (Aronsson et al., 2000), attendance-pressure factors (Aronsson and Gustafsson, 2005) and personal attitudes (Hansen and Andersen, 2008).

In this paper, we focus on the prevalence of sickness presenteeism in comparison with sickness absenteeism. Using survey data of Finnish union members from 2008, we provide fresh evidence of the prevalence of both work-related sickness categories. We also examine sickness presenteeism by gender and the sector of the economy, with special focus on working-time arrangements. The Finnish case has a broader interest, because flexible working-time arrangements have increased rapidly during the 2000s. At the same time, variation in working-time arrangements has increased substantially at workplaces. Both of these developments may have implications for presenteeism.

DATA

Our data set consists of 725 members in SAK-affiliated unions. SAK, the Central Organisation of Finnish Trade Unions, is the largest workers' confederation in Finland, and includes 26 unions. The members of these unions cover all sectors of the Finnish economy. However, most of them are blue-collar workers. It is important to note that the survey provides a broad picture of the labour market in Finland, because the union density is roughly 70 per cent (Böckerman and Uusitalo, 2006). The initial sample for the survey constitutes a random sample of the SAK-affiliated union members. 1044 individuals were selected for a telephone interview that was conducted by Statistics Finland in February 2008. Out of this sample, 725 persons or roughly 70 per cent participated in the interviews. The exact definitions of the variables and descriptive statistics are provided in the Appendix (Table A1).

Dependent variables of the models estimated, absenteeism and presenteeism, are constructed as in Aronsson and Gustafsson (2005). Those who have never been or once been absent (present while sick) during the last 12 months are marked as zero, those who have been absent several times as one. This gives a prevalence of 32 per cent for absenteeism and 30 per cent for presenteeism among the survey respondents. For women the average is higher than for men. The correlation between absenteeism and presenteeism is strongly positive. Half of the workers who have been several times absent from work have also been several times present at work while sick.

Explanatory variables include the sector of the economy, educational attainment, age groups, the presence of children, establishment size and workers' replaceability. Replaceability includes two possibilities: replacement by substitutes and replacement by colleagues. In the literature, as discussed by Hansen and Andersen (2008), workers' replaceability and working-time arrangements have achieved the status of key theoretical variables, i.e. the choice of working while sick is related to the possibilities and incentives. In particular, the actual (compared with the theoretical) possibilities of replacement are stressed.

Besides these, the models include several dummy variables for working-time arrangements: working hours match (between desired and actual weekly working hours), shift or period work, regular overtime, and overlong weekly working hours. The

working-time match between the desired and the actual working hours is used as an indicator of working-time balance. We use a single indicator for shift or period work, because period work bears a similarity to shift work in the sense that the hours for two or three weeks are fixed, without the usual limitations for daily or weekly hours.

There are two variables that capture the rules at the workplace: the three days' rule (three days' paid sickness absence without a sickness certificate), and the efficiency rule (a statement that in tough situations efficiency substitutes for everything else). The efficiency rule reflects the relative position of workers compared with employers. The respondents were asked to assess their work by means of the statement: "In tough situations efficiency rules out everything else". If the respondents agreed with the statement, as 48 per cent did, the variable for the efficiency rule was set as one, otherwise as zero. This indicator strongly correlates with other workplace quality measures that are available in the survey, like continuing rush and the possibilities to influence one's work. To avoid multicollinearity problems, we prefer to use one overall indicator instead of several.

RESULTS

Baseline estimates

The results from probit models for sickness absenteeism and presenteeism are presented in Table 1. To make it easier to read the estimates, we report the marginal effects. For binary variables, they are calculated as differences in probabilities. The estimates reveal that presenteeism is much more sensitive to working-time arrangements than absenteeism. Some common factors exist, however. In both sickness categories, the public sector workers and those involved in shift or period work are overrepresented.

The first ten explanatory variables are background variables. When these factors are controlled for, it is possible to assess the impact of replaceability and other workplace characteristics that are firms' possible policy instruments. In the case of sickness absenteeism, there are two such instruments: shift or period work and regular overtime. Participation in shift or period work increases the prevalence of sickness absenteeism

by 7 per cent and the presence of regular overtime decreases absenteeism by 14 per cent.

In the case of sickness presenteeism, participation in shift or period work has the same sign as for sickness absenteeism, i.e. participation in shift or period work increases sickness behaviour in both sickness categories. However, in the case of sickness presenteeism, participation in regular overtime is associated with a positive effect (12 per cent) that is contrary to sickness absenteeism. Therefore, there is a trade-off between two sickness categories: regular overtime decreases sickness absenteeism, but increases sickness presenteeism.

Other working-time arrangements also have an influence on sickness presenteeism. Participation in permanent full-time work increases the prevalence of sickness presenteeism by 11 per cent. Interestingly, if the desired and the actual working hours match, sickness presenteeism is reduced by 8 per cent less compared with the case in which they do not match. Furthermore, if the regular weekly working hours exceed 48 hours, sickness presenteeism is 22 per cent higher, compared with those who work less.

Finally, the effects of two rules are assessed. The presence of the three days' rule at the workplace, i.e. three days' paid sickness absence without a sickness certificate, decreases sickness presenteeism by 7 per cent. The presence of the efficiency rule at the workplace, i.e. "in tough situations efficiency rules out everything else", increases the prevalence of sickness presenteeism by 8 per cent. Therefore, focusing only on efficiency clearly increases workers' sickness behaviour in the form of presenteeism. Intuitively, a reasonable amount of "slack" is useful in organisations, if the aim is to minimise the prevalence of presenteeism.

Presenteeism by gender and the sector of the economy

Next, we focus on the prevalence of presenteeism by gender and the sector of the economy, using the same specification as earlier but, to save space, reporting the estimates only for the policy variables. By pooling all the observations together in the estimation of the baseline models, we imposed the restriction that the determination process of sickness presenteeism is exactly the same between men and women and in different sectors of the economy.

The results in Table 2 show that the model works better for women, as measured by pseudo R^2 and the statistical significance of the estimates, i.e. there are three statistically significant coefficients for men and five for women. Interestingly, if replacement takes place in the form of substitutes, the prevalence of women's sickness presenteeism decreases by 18 per cent. However, replaceability does not affect men's sickness presenteeism. One possible explanation is that men are not as able or willing to leave their tasks to others.

For women, permanent full-time work increases sickness presenteeism by 19 per cent, compared with fixed-term and part-time work. It is possible that women are more vulnerable to atypical work. Thus, they may be forced to show their employer their commitment more than men. Furthermore, the match between the desired and the actual hours has a stronger influence on sickness presenteeism for women than it has for men. For women the match decreases the prevalence of sickness presenteeism by 11 per cent. For men the point estimate is 7 per cent, but it is not statistically significant at the conventional levels.

Regular overtime increases men's sickness presenteeism by 13 per cent. In contrast, for women regular overtime is statistically insignificant. In addition, the presence of the three days' rule decreases men's sickness presenteeism by 9 per cent. For women the point estimate is roughly the same, but far from statistically significant. Women's sickness presenteeism is 16 per cent higher at the workplaces in which efficiency rules out everything else.

Table 3 reports the results by the sector of the economy. The best fit is achieved in the private service sector, the worst in the processing industries. There are also differences in the estimates. In the processing industries the relevant policy variables are replaceability by substitutes, the working hours match and regular overtime. The possibility of replacement by substitutes decreases sickness presenteeism by 13 per cent and the working hours match 12 per cent. However, in the processing industries the most important factor is regular overtime. It increases the prevalence of sickness presenteeism by 24 per cent.

In private services the relevant policy variables are permanent full-time work, shift or period work, the three days' rule and the efficiency rule. Participation in permanent full-time work increases sickness presenteeism by 14 per cent, shift or period work by

16 per cent and the efficiency rule by 14 per cent. Besides these effects, the three days' rule decreases sickness presenteeism by 16 per cent.

In the public sector, only two policy variables are relevant. This is interesting, because the public sector is clearly overrepresented in sickness presenteeism, as shown in Table 1. Extending weekly working time over 48 hours increases the prevalence of sickness presenteeism by 57 per cent. Furthermore, permanent full-time work increases sickness presenteeism by 17 per cent.

DISCUSSION AND CONCLUSIONS

Two work-related sickness categories, absenteeism and presenteeism, are counterparts. However, the explanations for their prevalence point to different factors. If one controls for worker characteristics, sickness presenteeism is much more sensitive to working-time arrangements than sickness absenteeism.

According to our results, participation in permanent full-time work, regular overtime and overlong working weeks increase the prevalence of sickness presenteeism. In contrast, the match between the desired and the actual working hours decreases it. These results are accordance with the ones in Hansen and Andersen (2008), except the finding for permanent full-time work. One possible explanation for the fact that participation in permanent full-time work increases sickness presenteeism is related to the degree of control, as outlined by Aronsson and Gustafsson (2005). Workers in permanent full-time work have a higher degree of control over their work, compared with workers in fixed-term and part-time work. Hence, they are less replaceable while sick.

The rules matter. If workers are eligible for three days' paid sickness absence without a sickness certificate, they work less often while sick. The pattern is especially strong for men and for those who work in private services. Furthermore, we took advantage of a variable that describes the presence of the efficiency rule at the workplace, according to which "in tough situations efficiency rules out everything else". We used it as an indicator for a normal work pace that could be violated, for example, when delivery dates were threatened. We find that the presence of the efficiency rule increases

sickness presenteeism in general, and especially for women and for those who work in the private service sector.

The most important limitation is that as we are analysing cross-sectional data, we cannot explore the question of causality. This would require an instrumental variables strategy, involving instruments that would predict the presence of working-time arrangements but not the prevalence of sickness presenteeism. Hence, it is possible that the estimates presented are subject to selection bias, at least to some degree, if the unobserved factors that determine whether workers participate in certain aspects of working-time arrangements also influence their behaviour regarding working while sick. Another obvious limitation is that we used a survey of union members. Union members are not a fully representative sample of the total workforce, even in a country with high union density.

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Table 1. The determinants of sickness absenteeism and presenteeism.

<i>Dependent variables</i>	<i>Absenteeism</i>		<i>Presenteeism</i>	
	DF/dx	Std. Err.	DF/dx	Std. Err.
<i>Controls</i>				
Men	-0.07	0.04	-0.10**	0.04
Processing industries	-0.13**	0.05	-0.11**	0.05
Private services	-0.15***	0.05	-0.12**	0.05
Secondary education	-0.02	0.05	0.08*	0.04
Higher education	-0.13**	0.05	0.06	0.07
35 - 50 years	-0.03	0.04	0.00	0.05
> 50 years	-0.25***	0.04	-0.05	0.05
20 - 50 workers	0.01	0.05	-0.02	0.05
> 50 workers	0.06	0.04	-0.03	0.04
Children	-0.11***	0.04	0.00	0.04
<i>Policy variables</i>				
Replacement by substitutes	-0.01	0.06	-0.11**	0.06
Replacement by colleagues	0.02	0.06	-0.07	0.06
Permanent full-time work	0.07	0.05	0.11**	0.04
Working-hours match	-0.02	0.04	-0.08**	0.04
Shift or period work	0.07*	0.04	0.07*	0.04
Regular overtime	-0.14***	0.05	0.12**	0.06
> 48 hours a week	-0.09	0.09	0.22**	0.10
Three days' rule	-0.01	0.04	-0.07*	0.04
Efficiency rule	0.05	0.04	0.08**	0.03
Observed probability	0.32		0.30	
Predicted probability	0.30		0.29	
Pseudo R ²	0.09		0.06	
<i>N</i>	725		725	

Notes: Reported estimates are marginal effects from probit models, evaluated at variable means. Robust standard errors reported. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2. The determinants of sickness presenteeism by gender.

<i>Policy variables</i>	<i>Men</i>		<i>Women</i>	
	DF/dx	Std. Err.	DF/dx	Std. Err.
Replacement by substitutes	-0.07	0.07	-0.18*	0.10
Replacement by colleagues	-0.02	0.06	-0.16	0.10
Permanent full-time work	0.01	0.07	0.19***	0.06
Working-hours match	-0.07	0.05	-0.11*	0.06
Shift or period work	0.04	0.05	0.10	0.06
Regular overtime	0.13*	0.08	0.11	0.11
> 48 hours a week	0.22*	0.14	0.27*	0.15
Three days' rule	-0.09**	0.05	-0.07	0.06
Efficiency rule	0.02	0.04	0.16**	0.06
Observed probability	0.27		0.35	
Predicted probability	0.26		0.33	
Pseudo R ²	0.06		0.10	
<i>N</i>	424		301	

Notes: The models include the same unreported controls as in Table 1. Reported estimates are marginal effects from probit models, evaluated at variable means. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3. The determinants of sickness presenteeism by the sector of the economy.

<i>Policy variables</i>	<i>The processing industries</i>		<i>Private services</i>		<i>The public sector</i>	
	DF/dx	Std. Err.	DF/dx	Std. Err.	DF/dx	Std. Err.
Replacement by substitutes	-0.13*	0.07	-0.16	0.12	-0.05	0.14
Replacement by colleagues	-0.11	0.07	-0.08	0.12	0.04	0.13
Permanent full-time work	0.02	0.07	0.14*	0.07	0.17*	0.09
Working-hours match	-0.12**	0.06	0.00	0.06	-0.10	0.09
Shift or period work	0.01	0.06	0.16***	0.06	0.02	0.09
Regular overtime	0.24***	0.10	-0.03	0.10	0.11	0.15
> 48 hours a week	0.15	0.15	0.07	0.17	0.57**	0.13
Three days' rule	-0.04	0.05	-0.18***	0.06	-0.04	0.10
Efficiency rule	0.04	0.05	0.14**	0.06	0.10	0.08
Observed probability	0.27		0.29		0.38	
Predicted probability	0.26		0.25		0.37	
Pseudo R ²	0.07		0.16		0.13	
<i>N</i>	334		224		167	

Notes: The models include the same unreported controls as in Table 1. Reported estimates are marginal effects from probit models, evaluated at variable means. Robust standard errors reported. * significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix

Table A1. Definitions and means of the variables.

<i>Variable</i>	<i>Definition</i>	<i>All</i>	<i>Men</i>	<i>Women</i>
Sickness categories				
Absenteeism	Person has been absent several times because of illness during the past 12 months = 1, otherwise = 0	32	30	34
Presenteeism	Person has been present several times while sick during the past 12 months = 1, otherwise = 0	30	27	35
Sector				
The public sector	Employer is state or municipality = 1, otherwise = 0 (reference)	23	11	40
Processing industries	Employer is in the processing industries = 1, otherwise = 0	46	65	19
Private services	Employer is in the private service sector = 1, otherwise = 0	31	24	41
Education				
Primary level	Comprehensive education only = 1, otherwise = 0 (reference)	23	22	24
Secondary education	Upper secondary or vocational education = 1, otherwise = 0	65	69	59
Higher education	Polytechnic or university education = 1, otherwise = 0	13	9	17
Age				
Less than 35 years	Less than 35 years = 1, otherwise = 0 (reference)	23	25	20
35 – 50 years	Age 35–50 = 1, otherwise = 0	45	46	44
> 50 years	Age > 50 years = 1, otherwise = 0	32	29	36
Children	Person has at least one child = 1, otherwise = 0	58	58	58
Establishment size				
Less than 20 workers	Size of plant less than 20 workers = 1, otherwise = 0 (reference)	44	37	53
20 - 50 workers	Size of plant 20 - 50 workers = 1, otherwise = 0	20	20	21
> 50 workers	Size of plant over 50 workers = 1, otherwise = 0	36	44	26
Replaceability				
No replacement	Replacement is not possible = 1, otherwise = 0 (reference)	11	14	8
Replacement by substitutes	Replacement is possible by substitutes = 1, otherwise = 0	33	27	43
Replacement by colleagues	Replacement is possible by colleagues = 1, otherwise = 0	55	60	49
Working-time arrangements				
Permanent full-time	Permanent full-time work = 1, otherwise = 0 (fixed-term or part-time work)	88	92	82

Working hours match	Desired and actual weekly working hours match = 1, otherwise = 0	66	67	64
Shift or period work	Shift or period work = 1, otherwise = 0	41	40	43
Regular overtime	Regular paid and unpaid overtime = 1, occasional or none = 0	11	12	9
> 48 hours a week	Weekly working hours more than 48 = 1, otherwise = 0 (48 weekly hours are the maximum working time according to the EU working time directive from 1993.)	4	4	4
Rules				
Three days' rule	Three days' paid sickness absence possible without a sickness certificate, as defined in the collective labour agreements = 1, otherwise = 0	45	38	55
Efficiency rule	In tough situations efficiency rules out everything else in firm, according to the survey respondent = 1, otherwise = 0	48	46	52
<i>N</i>		725	424	301