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Association between work style and presenteeism in the Japanese service sector

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Abstract

Objectives: To address ongoing problems concerning population aging and labor shortages in Japan, employers have sought to improve work efficiency and labor productivity. However, it is unclear how presenteeism is affected by working styles in line with current corporate initiatives, such as reduced working hours, varied employment status, and flexible work arrangements. The purpose of this article was to investigate the association between work style and presenteeism.

Methods: This cross-sectional study extracted data from employee profiles, employee attendance records, and a questionnaire in a large service sector company. Multiple linear regression was conducted to estimate the contributions of work style variables to the Work Limitations Questionnaire (WLQ) index score.

Results: In total, 21 500 participants were eligible for analysis. The WLQ index was lower for those working < 35 h/week (adjusted regression coefficient [ARC]:−0.35%; 95% CI: −0.48 to − 0.21) and higher for those working 40-44 h/week or ≥ 45 h/week, compared with those working 35-39 h/week. The position of team manager was positively associated with the WLQ index, whereas senior manager (ARC: −1.44%; 95% CI: −1.71 to − 1.17) and part-time staff (ARC: −1.75%; 95% CI: −1.98 to − 1.52) positions were negatively associated with the WLQ index, compared with non-managers. Those who worked remotely had significantly lower WLQ index scores (ARC: −0.61%; 95% CI: −0.95 to − 0.27).

Conclusions: Reduced working hours and flexible work arrangements were associated with lower work limitations, which imply presenteeism, although additional research is necessary to verify these results.

KEYWORDS

presenteeism, remote working, staggered shift, work limitation, work style, working hours

1 | INTRODUCTION

In the last decade, interest in presenteeism has grown in developed countries because of increasing numbers of older workers.[1] Aging increases the risk of a variety of diseases; therefore, going to work in an unhealthy condition is more prevalent in aging societies.[2] Presenteeism has been defined in two ways. The first of these is attending work while sick. The second definition involves productivity loss as a consequent outcome, which is called work limitation or work function impairment.[3] There are several instruments used to

assess presenteeism. For example, the Japanese version of the Work Limitations Questionnaire (WLQ) is one tool for evaluating work limitations due to presenteeism.[4,5] Presenteeism can be caused by health problems and is associated with an increasing physical and mental health burden.[6] Importantly, productivity loss due to presenteeism has a greater economic impact than sick leave, which is referred to as absenteeism.[7]

To strengthen labor productivity in the context of ongoing population aging and labor shortages in Japan, the Work Style Reform Bill was enacted in June 2018, restricting overtime work, encouraging diverse and flexible forms of work, and eliminating disparities between regular and nonregular employees.[8] In response to this bill, companies have promoted reductions in working hours and offered varied work styles for their workers, such as remote working, staggered shifts, and temporary or part-time work. Staggered shifts mean that workers can change from normal business hours to a fixed schedule with staggered start and finish times.[9] However, labor productivity, measured by gross domestic product per hour worked, remains relatively low in Japan, especially in the service sector.[10] An economic assessment has been conducted on this topic,[11] but few studies have examined the impact of presenteeism. Nevertheless, it is well known that presenteeism is correlated with labor productivity.[3]

Changes in the labor market through the Work Style Reform Bill may influence presenteeism and the consequent work limitations. Previous studies have reported that long work hours,[12] high job demands,[13] job insecurity,[14] and work–family conflicts[15] were associated with presenteeism because workers whose jobs had these characteristics found it difficult to take sick leave when they were unhealthy. Additionally, overwork may contribute to the onset of coronary heart disease, stroke, and mental disorders.[16,17] However, it is unclear how presenteeism is affected by the working styles offered through current corporate initiatives, such as reduced working hours, varied employment status, and flexible work arrangements in Japan. The purpose of this article was therefore to investigate the association between work style and presenteeism. The article is also important in terms of developing a conceptual framework for presenteeism.

2 | SUBJECTS AND METHODS

2.1 | Study design and participants

This cross-sectional study used data extracted from employee profiles, employee attendance records, and a questionnaire in a large private enterprise. The company provides business services at many regional offices throughout Japan and has offered varied flexible work options to employees since before the Work Style Reform Bill was enacted. A total of 26 606 direct employees were retrospectively identified from August to October 2018. A self-administered online questionnaire was distributed to these employees from September to October 2018. The questionnaire was administered as part of the company's annual self-survey for employees to assess labor productivity. Dispatch employees and contractors were excluded from the questionnaire distribution because the company's self-survey does not include these types of workers. Part-time staffs and temporary staffs who covered by employee's health insurance were enrolled; therefore, workers less than 75% of normal working hours of full-time employees were excluded. Only participants who completed all questions were included in the analysis.

2.2 | Ethics

Participation in this study was fully voluntary, and an opt-out approach via the organization's intranet system was used to obtain informed consent before the participants completed the questionnaire. We treated the employee profile and attendance record data anonymously after data extraction, and signed consent was not required. This study was approved by the Ethics Committee of the University of Occupational and Environmental Health, Japan.

2.3 | Outcome

The outcome of interest in the current study was presenteeism, measured using the Japanese version of the WLQ, which is consistent with the latter definition of presenteeism provided in this article.[4,5] We retrieved these data from the employee survey questionnaire. The WLQ measures presenteeism as the percentage of work limitations and consists of 25 items across four dimensions: time management (five items), physical (six items), mental–interpersonal (nine items), and output (five items). The four subscales of the WLQ were transformed into an overall WLQ index to reflect the percentage of overall work limitations. Each question asked about the level of work limitations in the last 2 weeks. Responses were given on a 5-point scale. The calculation of the WLQ index was performed using a specific algorithm. Each of the four subscales ranged from 0% to 100%, and the total WLQ index ranged from 0% to 28%. The WLQ index is a weighted sum of the four subscales calculated using a specific formula that is based on objectively measured productivity.[4] Higher scores indicate greater work limitations. The economic loss caused by work limitations can be estimated by multiplying the overall WLQ index percentage by the total off all employee salaries paid in the last 2 weeks. In a previous study that focused on mental health, the mean WLQ index was 2.6% in the control group and 11.4% among those with major depression.[18]

2.4 | Explanatory variables

Data on sociodemographic characteristics and work style factors in August 2018 (1 month prior to the outcome measurement) were retrieved from the employee profiles and attendance records. Each employee records their attendance record daily, and this attendance record is regularly checked by their manager and administrative staff members. These data included sex, age, monthly working hours, employment status, remote working, and staggered shifts. Employment status was categorized as permanent staff (nonmanagers, team managers, middle managers, and senior managers), part-time staff, and temporary staff. Remote working in this study was defined as working at home or from any other remote location by employee request. Staggered shifts meant that the employee worked on a fixed schedule starting after 7:00 AM and finishing before 10:00 PM because of either the job characteristics or employee request.

2.5 | Statistical analysis

Weekly working hours were calculated by dividing monthly working hours by the number of weeks in August 2018. This variable was categorized as < 35 h/week, 35-39 h/week, 40-44 h/week, or ≥ 45 h/week; these categories were determined on the basis of the sample distribution. Because the company's standard working hours were 7.75 h/day (38.25 h/week), individuals who worked 35-39 h/week were set as the reference group. The Kruskal–Wallis test was used to compare the average WLQ index across groups for the work style variables because the distribution of the average WLQ index is skewed. Univariate and multiple linear regression analyses using the forced-entry method were then conducted to estimate the contribution of each work style variable to the average WLQ index. We adjusted for sex, age, working hours, employment status, remote working, and staggered shifts. We followed the approach previously used in relevant presenteeism studies to include work-related factors in the model.[19-21] Multicollinearity was assessed using the variance inflation factor, which was less than 10 for all variables.[22] A two-sided P <.05 was considered statistically significant. Stata/SE 16.0 (StataCorp, College Station, TX, USA) was used for the statistical analysis.

3 | RESULTS

Table 1 shows the characteristics of the study participants. A total of 21 500 participants completed the employee survey questionnaire and were eligible for analysis (response rate = 80.8%). Two thirds of the participants were women (65.6%), and 29.5% were aged 40-49 years. The mean value for weekly working hours was 37.7 h/week (standard deviation [SD] =5.0 h/week). Part-time staff made up 8.4% of the company's total workforce, and temporary staff made up 6.7%. A total of 2.8% of the workers worked remotely, and 4.9% worked staggered shifts. The average WLQ index was 5.56% (SD: 4.26%, Cronbach's α: 0.81).

Table 2 presents the associations between the work style variables and the WLQ index. There was no significant difference between staggered shifts and the average WLQ index, using the Kruskal–Wallis test. For the other work style variables, there were statistically significant differences across groups in the WLQ index. After adjusting for covariates, the WLQ index was lower for

TABLE 1 Characteristics of the study participants

	N = 21,500
Sex, n (%)	
Female	7396 (34.4)
Male	14 104 (65.6)
Age, n (%)	
20-29 years	3024 (14.1)
30-39 years	5003 (23.3)
40-49 years	6337 (29.5)
50-59 years	5742 (26.7)
≥ 60 years	1394 (6.5)
Mean (SD), years	43.4 (11.1)
Working hours, n (%)	
<35 h/week (<155 /month)	6529 (30.4)
35-39 h/week (155-177 h/month)	8270 (38.4)
40-44 h/week (177-199 h/month)	5139 (23.9)
≥45 h/week (≥200 h/month)	1562 (7.3)
Mean (SD), hours/week	37.7 (5.0)
Employment status, n (%)	
Non-manager	6715 (31.2)
Team manager	6400 (29.8)
Middle manager	3381 (15.7)
Senior manager	1740 (8.1)
Part-time staff	1813 (8.4)
Temporary staff	1451 (6.7)
Remote working, n (%)	599 (2.8)
Staggered shifts, n (%)	1044 (4.9)
WLQ	
Time, mean (SD)	17.9 (18.3)
Physical, mean (SD)	21.6 (21.0)
Mental–interpersonal, mean (SD)	20.1 (17.1)
Output, mean (SD)	21.3 (20.4)
WLQ index, mean (SD)	5.56 (4.26)

Abbreviations: SD, standard deviation; WLQ, Work Limitations Questionnaire.

TABLE 2 Association between work style and presenteeism, as measured by the Work Limitations Questionnaire index

	WLQ index		Univariate analysis		Multivariate analysis*	
	mean (SD)	*P* value for trend	Regression coefficient (95% CI)	*P* value	Adjusted regression coefficient (95% CI)	*P* value
Working hours						
<35 h/week	5.23 (4.16)	<0.001	−0.23 (−0.37 to − 0.10)	0.001	−0.35 (−0.48 to − 0.21)	<0.001
35-39 h/week	5.47 (4.18)		Reference	—	Reference	—
40-44 h/week	5.90 (4.38)		0.43 (0.28 to 0.58)	<0.001	0.36 (0.21 to 0.51)	<0.001
≥45 h/week	6.26 (4.52)		0.79 (0.56 to 1.02)	<0.001	0.67 (0.44 to 0.91)	<0.001
Employment status						
Non-manager	5.54 (4.20)	<0.001	Reference	—	Reference	—
Team manager	6.34 (4.37)		0.80 (0.66 to 0.94)	<0.001	0.78 (0.62 to 0.93)	<0.001
Middle manager	5.71 (4.36)		0.17 (−0.01 to 0.34)	0.054	0.15 (−0.09 to 0.39)	0.213
Senior manager	4.19 (3.89)		−1.35 (−1.57 to − 1.13)	<0.001	−1.44 (−1.71 to − 1.17)	<0.001
Part-time staff	4.04 (3.53)		−1.50 (−1.72 to − 1.28)	<0.001	−1.75 (−1.98 to − 1.52)	<0.001
Temporary staff	5.30 (4.12)		−0.25 (−0.48 to − 0.01)	0.043	0.05 (−0.26 to 0.35)	0.774
Remote working						
No	5.57 (4.27)	0.002	Reference	—	Reference	—
Yes	4.98 (3.93)		−0.59 (−0.94 to − 0.25)	0.001	−0.61 (−0.95 to − 0.27)	<0.001
Staggered shifts						
No	5.55 (4.26)	0.742	Reference	—	Reference	—
Yes	5.60 (4.28)		0.05 (−0.22 to 0.31)	0.741	−0.31 (−0.57 to − 0.05)	0.020
Sex						
Female	5.34 (4.27)	<0.001	Reference	—	Reference	—
Male	5.67 (4.25)		0.32 (0.20 to 044)	<0.001	0.33 (0.16 to 0.51)	<0.001
Age						
20-29 years	5.56 (4.15)	<0.001	Reference	—	Reference	—
30-39 years	5.73 (4.25)		0.17 (−0.03 to 0.36)	0.093	0.06 (−0.14 to 0.27)	0.546
40-49 years	5.48 (4.31)		−0.09 (−0.27 to 0.09)	0.338	0.35 (0.15 to 0.55)	<0.001
50-59 years	5.68 (4.33)		0.11 (−0.07 to 0.30)	0.231	0.78 (0.58 to 0.98)	<0.001
≥ 60 years	4.77 (3.92)		−0.80 (−1.07 to − 0.53)	<0.001	−0.03 (−0.34 to 0.28)	0.850

Abbreviations: CI, confidence interval; SD, standard deviation; WLQ, Work Limitations Questionnaire.

*$R^2 = 0.40$; Adjusted for sex, age, annual hours worked, employment status, remote working, and staggered shifts.

those working < 35 h/week (adjusted regression coefficient [ARC] =−0.35%; 95% CI: −0.48 to − 0.21) and higher for those working 40-44 h/week (ARC = 0.36%; 95% CI: 0.21 to 0.51) or ≥ 45 h/week (ARC = 0.67%; 95% CI: 0.44 to 0.91), compared with those working 35-39 h/week. Regarding employment status, the WLQ index was positively associated with the team manager position (ARC = 0.78%; 95% CI: 0.62 to 0.93) and negatively associated with the senior manager (ARC = −1.44%; 95% CI: −1.71 to − 1.17) and part-time staff (ARC = −1.75%; 95% CI: −1.98 to − 1.52) positions, compared with the position of nonmanager. Remote working was significantly associated with a lower WLQ index (ARC = −0.61%; 95% CI: −0.95 to − 0.27). The results of subanalyses for each subscale of the WLQ are provided in the Data S1.

4 | DISCUSSION

To the best of our knowledge, this is the first study to evaluate the ongoing work style reform in Japan as it relates to presenteeism. We found a significant association between working hours and work limitations. Employment status showed differing trends in relation to work limitations; work limitations were higher for team managers but lower for senior managers and part-time workers. Working remotely was associated with lower work limitations. These findings suggest that reduced working hours and flexible work arrangements may improve presenteeism, although additional research is required to verify these results.

The current study found that work limitations were lower for individuals with shorter working hours than for

those with standard working hours, which suggests a beneficial effect of reduced working hours on presenteeism. This finding is consistent with a previous study that focused on overwork, which found that the odds of sickness presenteeism were approximately two times higher for those working ≥ 60 h/week than for those working < 40 h/week.[12] A possible reason for this is that reduced working hours may help to lessen work-related fatigue and to encourage recovery from this condition.[23] Another possible explanation is that individuals who work long hours may not have enough time to visit a hospital even if they are unhealthy.[24] Although a great deal of attention has been paid to overwork, future studies are needed to compare health outcomes between those with shorter working hours and those with standard working hours.

Interestingly, our results revealed that team managers had relatively high work limitations, whereas senior managers and part-time workers had relatively low work limitations. A previous study in Japan showed that manager positions were associated with high job demand and that manual work was associated with low job control.[25] These results imply that team managers, a middle-ranking position between administration and operations, may face the stressful situation of confronting both high job demand and low job control. Our subanalyses for each subscale of the WLQ support this view; team managers had significantly higher time, mental–interpersonal, and output demands but not physical demands. This finding aligns with typical psychological theoretical frameworks, such as the job demand–control–support model.[26] Therefore, our results suggest that psychological stress could be considered an essential pathway influencing presenteeism.[27]

In contrast, the senior manager position and part-time workers were associated with relatively low work limitations. This relationship may be explained by senior managers' role clarity and high job control or by the healthy worker survivor effect.[28] The present findings for part-time staff members were in line with national statistics; part-time workers have been found to experience less workplace stress than permanent staff members (40.7% vs. 62.1%).[29] Additionally, in line with the current Work Style Reform Bill, these working styles are offered so that workers can continue their employment, for example, while they are caring for their parents. Therefore, the job insecurity of part-time workers might differ from the findings of previous studies, and the healthy worker survivor effect might also exist.[30] Thus, it seems that employment status may influence presenteeism. When seeking to improve presenteeism, employers should consider the job characteristics of each position, including job demand, job role, and job control.

Another important finding of this study is the association between remote working and lower work limitations. This association may depend on the specific circumstances of the case; previous studies have shown mixed results on the health effects of working remotely.[31,32] The major benefit of remote working is flexibility in terms of location and time, which may improve work–life balance and reduce work–family conflict.[31] These factors are associated with lower presenteeism, which is consistent with the findings of the current study.[33,34] In contrast, another previous study reported the reduction of face-to-face communication in the workplace as a negative effect of remote working.[32] Although multiple aspects of remote working should be evaluated, the flexibility of remote working may improve presenteeism.

This study found no association between staggered shifts and work limitations in the univariate analysis, but a negative association between these variables emerged in the multivariate analysis. Generally, staggered shifts have the advantage of allowing workers to avoid the commuter rush, and this arrangement tends to benefit individuals who are able to use their time before or after work effectively.[35] Therefore, this work pattern should improve satisfaction with work–life balance for those who choose it. The results in the univariate analysis can be seen as masking the effect of staggered shifts because of the bias in the sample distribution. For example, the present study included individuals for whom staggered shifts were mandatory as part of their job characteristics, as well as those working staggered shifts voluntarily. Differing effects among these two groups may have offset each other in the current study. Future studies should focus on the health effects of staggered shifts by workers' assignment type (voluntary vs. mandatory).

A strength of this study is its use of a sufficient dataset with a high response rate that made it possible to analyze multiple employment statuses. Additionally, we used employee attendance records to measure working hours accurately, in contrast to most previous studies of working hours, which used self-reports.[12,16] Nevertheless, there are several study limitations. First, reverse causation should be considered because of the study's cross-sectional design; for example, remote working may reduce work limitations, but employees with greater work limitations may choose to work remotely because they are unhealthy. Second, the population studied in this research was from a single large service sector enterprise; therefore, the results should be carefully interpreted in terms of generalization to workers in other industries or in small- or medium-sized enterprises. Third, the findings for participants who worked staggered shifts may have been affected by bias in the sample distribution, as mentioned above. Fourth, we did not evaluate potential mediators of presenteeism, such as occupational stress or other potential pathways; therefore, this study cannot specify which health problems affected presenteeism. Finally, the large sample size of the current study (n = 21 500) may have helped to obtain accurate results but also involves the risk of detecting clinically unimportant results.

In conclusion, the current study found that shorter working hours, the positions of senior manager and part-time worker, and remote working were associated with lower work limitations. These results suggest that reduced working hours and flexible work arrangements may improve presenteeism. As we attempted to reveal the relationship between position and presenteeism using a work psychological model, additional research is required to develop the theoretical framework explaining the influence of presenteeism for each work style. For example, although occupational stress is widely accepted as an important factor in the development of presenteeism, other potential pathways include fatigue, cessation of treatment, and nonpsychosocial complaints. Considering these possibilities, the present study provides insight into the value of the ongoing work style reform in Japan in terms of presenteeism.

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AUTHOR CONTRIBUTIONS

TI and FY conceived the ideas; TI analyzed the data and interpreted the results; TI and FY drafted the initial manuscript.

DISCLOSURE

Approval of the research protocol: This study was approved by the Ethics Committee of the University of Occupational and Environmental Health, Japan.

Informed Consent: An opt-out approach via the organization's intranet system was used to obtain informed consent before the participants completed the questionnaire.

Registry and the Registration No. of the study/trial: N/A.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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