

Original Article



The association between direct supervisor's behavior and employee presenteeism in Korean wage workers: findings from the fifth Korean Working Condition Survey

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Received: Jan 5, 2021

Accepted: Sep 14, 2021

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Abbreviations

aOR: adjusted odds ratio; CI: confidence interval; IRB: Institutional Review Board; KRW:

ABSTRACT

Background: Presenteeism is a phenomenon in which employees go to work, but physical or mental health problems make it impossible for them to properly demonstrate their abilities, and productivity decreases accordingly. Recent studies have considered the behavior of direct supervisors to be an important factor in the pathogenesis of various health-related outcomes. This study aimed to investigate the association between the direct supervisor's behaviors and presenteeism among wage workers in South Korea.

Methods: A total of 25,798 participants from the fifth Korean Working Condition Survey conducted in 2017 were included in the analysis. The behaviors of direct supervisor were assessed by 6 questionnaire items. In this study, the distribution of the scores was categorized into 4 categories (very good, good, bad, and very bad). To assess presenteeism, the corresponding questionnaire item was used. χ^2 tests and multiple logistic regression analyses adjusted for general, occupational, and psychosocial factors were performed to determine the association between the behaviors of direct supervisor and presenteeism.

Results: Direct supervisor's behavior were significantly associated with presenteeism. The adjusted odds ratios (aORs) of presenteeism in the good, bad, and very bad groups were 1.297 (95% confidence interval [CI]: 1.153–1.458), 1.191 (95% CI: 0.941–1.507), and 1.604 (95% CI: 1.184–2.175), compared with the very good group. Associations between presenteeism and the behaviors of direct supervisor were significant in male workers, but not in female workers. For male workers, the aORs of presenteeism in the good, bad, very bad groups were 1.661 (95% CI: 1.425–1.936), 1.445 (95% CI: 1.053–1.982), 2.340 (95% CI: 1.569–3.491), respectively.

Conclusions: This study suggests that the behavior of a direct supervisor can influence the occurrence of presenteeism, particularly in men. The proper management of senior employee's behaviors is necessary to reduce the risk of presenteeism in the workplace.

Keywords: Presenteeism; Supervisor's behavior; Korean Working Conditions Survey

Korean won; KWCS: Korean Working Condition Survey; OECD: Organization for Economic Cooperation and Development; OR: odds ratio.

Competing interests

The authors declare that they have no competing interests.

Author contributions

Conceptualization: Lee SH, Sim CS; Data curation: Lee SH; Formal analysis: Lee SH, Sung JH; Investigation: Lee SH, Sung JH, Kim DH, Sim CS; Writing - original draft: Lee SH; Writing - review & editing: Lee SH, Sung JH, Kim DH, Sim CS.

BACKGROUND

According to the Organization for Economic Cooperation and Development (OECD) 2019 Economic Outlook, a key task aimed to overcome Korea's continued decline in economic growth was an "Improvement of Labor Productivity". South Korea's labor productivity is only half that of the top ten OECD countries.¹ Therefore, devising a plan to realistically improve labor productivity in accordance with the social atmosphere (e.g., an aging population and reduced number of working hours) is essential.

When measuring labor productivity, absenteeism is considered a direct loss. However, presenteeism is a phenomenon in which employees go to work, but physical or mental health problems make it impossible for them to properly demonstrate their abilities, and productivity decreases accordingly.^{2,3} Unlike absenteeism, it is difficult to make accurate estimates of the direct and indirect losses in production and social costs caused by presenteeism because they are not external, but are related to disease and stress.⁴

The decrease in productivity due to presenteeism is greater than that caused by absenteeism. In economic terms, it is estimated that in the United States, losses from presenteeism amounted to \$15 billion per year.⁵ In addition, the cost associated with the loss of productivity due to presenteeism may be higher than that of direct medical costs.⁶ Other studies have reported that the incidence of severe coronary artery disease is higher in workers who continue to work even when they are sick.⁷ Therefore, presenteeism should be considered a risk factor that threatens workers' health and well-being and not only a factor that reduces labor productivity.

Presenteeism can be caused by various individual, organizational, and social factors^{8,9} and may result from not taking direct action, as workers are determined to endure stress or sickness. Factors such as job insecurity and the risk of unemployment may also influence presenteeism. A hierarchical structure within the organization and a vertical, rigid organizational atmosphere or social climate may cause workers to come to work even when they are sick.¹⁰

Presenteeism, an important phenomenon in terms of productivity and occupational health, is currently being actively studied in South Korea. Previous studies have mainly been limited to occupational groups that work directly with the public, such as nurses,¹¹ physical therapists,¹² and call center workers.¹³ In addition, several studies have found that psychosocial factors such as job insecurity, work-life balance, emotional labor, job stress, and interpersonal relationships within the company are related to presenteeism.¹⁴ In a study of general practitioners in Sweden, significant differences in the reasons for presenteeism were found between men and women.¹⁵ It is worth noting that gender can influence the relationship between different factors and presenteeism.

Other factors related to workers' presenteeism are also being studied. From an occupational health perspective, recent studies have considered the behavior of direct supervisors as an important factor related to the pathogenesis of various health-related outcomes.¹⁶⁻¹⁸ Workers' satisfaction with their direct supervisors is also associated with presenteeism.¹⁹ In addition, studies on the effect of both the positive and negative behaviors of direct supervisors on presenteeism have been studied.²⁰ Another foreign study has suggested that support from supervisors is related to the occurrence of presenteeism.²¹ Based on the findings of these

studies, we considered that the behavior of direct supervisor and their relationship with workers would have an effect on the occurrence of presenteeism among workers in Korea.

However, to the best of our knowledge, no recent study has directly investigated the relationship between the behavior of direct supervisors and presenteeism in Korea. Since the hierarchical relationship within an organization is culturally different for each country, especially between the West and the East, foreign studies may not be applicable to Korea. In addition, few studies have evaluated the influence of gender on presenteeism, which is necessary because men and women are significantly different not only biologically, but also professionally, psychologically, and socially. Therefore, using data from the fifth Korean Working Condition Survey (KWCS), conducted in 2017, this study aimed to classify wage workers in Korea according to general and occupational characteristics, assess the behaviors of direct supervisors, and analyze their relationship with presenteeism.

METHODS

Study subjects

The KWCS has been conducted by the Korea Occupational Safety and Health Research Institute five times since 2006. The data used in this study were obtained from the fifth KWCS conducted in 2017 based on the European Working Condition Surveys and the British Labor Force Survey. The purpose of this study was to determine the overall work environment of employed people nationwide, including the type of employment, occupation, industry, exposure to hazards, and job insecurity. The target population for this survey includes workers, owners, and self-employed persons aged ≥ 15 years who are living in South Korea at the time of the survey.

Among the 50,205 participants in the KWCS, the 30,072 wage and full-time workers who had been employed for more than one year were selected for the present study. Temporary and daily workers who had worked for less than one year were excluded since, due to the shorter working period, they likely would have had less contact with their supervisors. As discussed in previous studies,^{22,23} the high incidence of presenteeism among temporary workers may be due to the pressure and obligation to increase future employment opportunities rather than the effects of the supervisor's behavior. In addition, considering the occupational characteristics of soldiers who must obey orders from their supervisors, the 118 soldiers were excluded. In addition, the 4,156 workers with incomplete survey responses were excluded, comprising 2,767 missing values for confounders and 1,389 missing values for independent and dependent variables. The final number of participants included in the analysis was 25,798.

Variables

General characteristics

The variables related to general characteristics included gender, age, education level, average monthly income, and overall self-reported health status. Education level was categorized as middle school or lower, high school graduate, and university graduate or higher. The average personal monthly after-tax income was classified in units of 1 million KRW earned. The self-reported health status was assessed by the question, "How is your health status in general?" with five response options: very good, good, normal, bad, and very bad. The participants' general health condition was classified into 3 groups: healthy (very good, good), normal (normal), and unhealthy (bad, very bad).

Occupational characteristics

The variables related to occupational characteristics included job classification, size of the company, working hours per week, and shift work. Job classifications, which were based on the sixth Korean Standard Occupational Classifications, were as follows: white collar (managers, experts and related workers, and office workers), pink collar (service workers and sales workers), and blue collar (skilled agricultural, forestry, and fishery workers; craft and related workers; equipment/machine operating and assembling workers; and elementary workers). The size of the company was categorized into < 50 employees, 50–299 employees, and 300 ≥ employees. Working hours per week were categorized into < 40 hours, 40–52 hours, and ≥ 52 hours. This classification was based on the 52-hour overtime legal limit in South Korea. Shift work status was classified using the corresponding questionnaire.

Psychosocial factors

The psychosocial factors were classified into job insecurity, job stress, satisfaction with job, colleague support, effort-reward balance, and work-life balance. Previous studies have found relationships between these factors and presenteeism. Each questionnaire consists of a 5-point Likert scale.²⁴ For each item, the responses were reclassified according to the following criteria:

- Job insecurity was assessed by the question, “I'm going to lose this job in the next 6 month,” with five response options: totally agree, agree, neither agree nor disagree, disagree, and totally disagree. Job insecurity was classified into 2 groups: low (disagree, totally disagree, neither agree nor disagree) and high (totally agree, agree).
- Job stress was assessed by the question, “I'm stressed at work,” with the five response options: always, most of the time, sometimes, rarely, and never. Job stress was classified into 2 groups: low (rarely, never) and high (always, most of the time, sometimes).
- Satisfaction with job was assessed by the question, “What do you think about the overall working environment at your main workplace?” with 4 response options: very satisfied, satisfied, not very satisfied, and not satisfied at all. Satisfaction with job was classified into 2 groups: good (very satisfied, satisfied) and bad (not very satisfied, not satisfied at all).
- Colleague support was assessed by the question, “My colleagues help and support me,” with five response options: always, most of the time, sometimes, rarely, and never. Colleague support was classified into 2 groups: good (always, most of the time, sometimes) and bad (rarely, never).
- Effort-reward balance was assessed by the question, “When I think about my effort and achievements in my job, I am being rewarded appropriately,” with five response options: totally agree, agree, neither agree nor disagree, disagree, totally disagree. Effort-reward balance was classified into 2 groups: good (totally agree, agree, neither agree nor disagree) and bad (disagree, totally disagree).
- Work-life balance was assessed by the question, “Is your working time suitable for family or social life?” with 4 response options: totally agree, agree, disagree, and totally disagree. Work-life balance was classified into 2 groups: good (totally agree, agree) and bad (disagree, totally disagree).

Direct supervisor's behavior

In this study, we set the direct supervisor's behavior as an independent variable and self-reported presenteeism as the dependent variable. The direct supervisor's behavior was assessed using the 6 sub-items included in the following question: “In general, how is your direct supervisor in the following ways? Please select the appropriate response for each item: A) respects me personally, B) praises and acknowledges me when I have done something

well, C) helps the employees work well together, D) helps me with the work, E) gives helpful advice or feedback on my work, and F) encourages me to develop.

Each item had five choices. Respondents chose totally agree, agree, neither agree nor disagree, disagree, totally disagree. Additionally, some chose unknown/no-response or rejected the question. Those who responded with unknown/no-response or rejected the question were excluded from the analysis. The other five responses were classified into 2 groups: totally agree, agree, and neither agree nor disagree were considered a “yes,” while disagree, and totally disagree were considered a “no” for each item. An answer of “yes” was scored as “1” and an answer of “no” was scored as a “0”. All scores were added to obtain a variable ranging from 0 to 6, which was defined as direct supervisor's behavior quality score. Therefore, a higher score corresponded with more positive behaviors. In this study, this variable was analyzed as a categorical variable, and the Cronbach's alpha confidence coefficient was used to calculate the internal consistency. The Cronbach's alpha value for the reliability analysis was 0.78.

All the “yes” answers evaluating 6 aspects of the supervisor's behavior were added together and scored with 6 points indicating that all the direct supervisor's behaviors were positive and 0 points indicating that all behaviors were negative. The distribution of the direct supervisor's behavior scores was classified into 4 categories: very good (6 points), good (4–5 points), bad (2–3 points), and very bad (0–1 point). The category “very good,” which was the highest quality group, was used as the reference for the analysis.

Presenteeism

In previous studies, presenteeism has been defined in several different ways. In this present study, presenteeism was defined as the act of going into work even when the body was in pain.²⁵ To evaluate the occurrence of presenteeism, we used the following question: “Have you gone to work even when you were sick in the past 12 months?” A “yes” response indicated that presenteeism was occurring, while a “no” or “never sick” response indicated that presenteeism was not occurring. The former was classified as ‘ever’, and the latter as ‘never’.

Statistical analysis

The weighted data used in this study were analyzed using the IBM Statistical Package for Social Sciences (SPSS version 24.0; IBM Corp., Armonk, NY, USA). χ^2 test were performed to verify the statistical significance between general and occupational factors and presenteeism. Multiple logistic regression analyses were performed to establish the association between direct supervisor's behavior and presenteeism. In model 1, general and occupational variables, including sex, age, education level, monthly income, general health condition, job classification, size of the company, working hours per week, and shift work were adjusted for. Model 2 included all the variables from model 1 and was further adjusted for psychosocial variables, including job insecurity, job stress, satisfaction with job, effort-reward balance, and work-life balance. The significance level was set to $p < 0.05$ for each analysis.

Ethics statement

The Institutional Review Board (IRB) of the Ulsan University Hospital provided exemption for the review of this study and consent of the study subjects (IRB No. UUH 2020-10-013).

RESULTS

Table 1 classifies the general and occupational characteristics of the study subjects and the 6 psychosocial characteristics surveyed in the questionnaire (job insecurity, job stress, satisfaction with job, colleague support, effort-reward balance, and work-life balance). Significant differences in terms of presenteeism are evident; however, no statistically significant differences were found for job classification and colleague support. The remaining general, occupational, and psychosocial characteristics showed statistically significant differences based on presenteeism. This was almost the same for men and women, respectively (**Supplementary Tables 1 and 2**). All variables except job classification and colleague support had an effect on the occurrence of presenteeism (**Supplementary Table 3**).

Table 2 categorizes the cases in which the respondents answered “yes” to each of the sub-categories of the direct supervisor's behaviors (**Supplementary Table 4**). A significant difference in the distribution of presenteeism is shown. Statistically significant differences in presenteeism among workers according to the behaviors of the direct supervisors in all 6 questions were also shown. An association between each subcategory and the occurrence of presenteeism was also shown. The odds ratios (ORs) of presenteeism associated with the absence of each positive behavior were statistically significant (1.915, 1.576, 1.516, 1.816, 1.558, and 1.830). Even after adjusting for general and occupational variables (model 1), the direct supervisor's behavior was significantly associated with presenteeism. However, after adjusting for additional psychosocial variables (model 2), 3 of 6 sub-categories of the direct supervisor's behaviors were significantly associated with the occurrence of presenteeism. The data were categorized by gender and re-analyzed. Men showed a significant association and high OR for presenteeism for each of the behavioral characteristics even after adjusting for all variables (model 2), but women did not.

Table 3 shows the distribution (scores) of the direct supervisor's behavior in relation to presenteeism according to gender. Each OR was calculated using multiple logistic regression analysis. In both model 1, which was adjusted for general variables and occupational variables that had a significant influence on presenteeism and model 2, which was adjusted for model 1 variables and psychosocial variables, presenteeism tended to increase as the direct supervisor's behavior scores decreased. The data were categorized by gender and re-analyzed. Men showed a significant association with presenteeism and a high OR for all results, but not women. This result was the same even when analyzed including missing values (**Supplementary Tables 5, 6, 7**).

DISCUSSION

In this study, we attempted to comprehensively examine workers in various environments in Korea and analyze the relationship between the behavior of direct supervisors and presenteeism among wage workers using multiple logistic regression analyses. The analyses showed that some of the direct supervisor's behaviors were significantly associated with presenteeism among Korean wage workers, which was maintained even after adjusting for the general, occupational, and psychosocial factors that were found to be related to presenteeism in previous studies. In addition, the fewer positive behaviors in the direct supervisors, the higher the occurrence of presenteeism among workers. Even after adjusting for influential variables, the occurrence of presenteeism increased as the distribution of positive behaviors decreased.

Table 1. General and psychosocial characteristics of the study subjects

Variables	Total	Presenteeism		p-value
		Never	Ever	
Sex				< 0.001
Men	15,631 (60.6)	13,396 (85.7)	2,233 (14.3)	
Women	10,167 (39.4)	8,257 (81.2)	1,910 (18.8)	
Age (years)				< 0.001
≤ 29	4,441 (17.3)	3,876 (87.3)	565 (12.7)	
30–39	7,417 (28.7)	6,265 (84.5)	1,152 (15.5)	
40–49	7,328 (28.4)	6,116 (83.5)	1,212 (16.5)	
50–59	4,957 (19.2)	4,056 (81.8)	901 (18.2)	
≥ 60	1,655 (6.4)	1,341 (81.0)	314 (19.0)	
Education level				< 0.001
Middle school or lower	1,073 (4.2)	829 (77.2)	245 (22.8)	
High school	7,069 (27.4)	5,880 (83.2)	1,188 (16.8)	
College or higher	17,656 (68.4)	14,946 (84.7)	2,710 (15.3)	
Monthly income (KRW)				< 0.001
< 2 million	6,116 (23.7)	5,061 (82.8)	1,055 (17.2)	
2–2.99 million	8,104 (31.4)	6,854 (84.6)	1,250 (15.4)	
3–3.99 million	6,473 (25.1)	5,476 (84.6)	997 (15.4)	
> 4 million	5,105 (19.8)	4,263 (83.5)	842 (16.5)	
General health condition				< 0.001
Healthy	20,322 (78.8)	17,710 (87.1)	2,612 (12.9)	
Normal	5,176 (20.1)	3,793 (73.3)	1,383 (26.7)	
Unhealthy	300 (1.2)	152 (50.6)	148 (49.4)	
Job classification				0.186
White collar	14,462 (56.1)	12,189 (84.3)	2,273 (15.7)	
Pink collar	4,224 (16.4)	3,513 (83.2)	711 (16.8)	
Blue collar	7,112 (27.6)	5,952 (83.7)	1,160 (16.3)	
Size of company (workers)				< 0.001
< 50	15,998 (62.0)	13,525 (84.5)	2,473 (15.5)	
50–299	5,145 (20.0)	4,307 (83.7)	838 (16.3)	
≥ 300	4,655 (18.0)	3,823 (82.1)	832 (17.9)	
Work hours per week (hours)				< 0.001
≤ 40	15,065 (58.4)	12,978 (86.1)	2,087 (13.9)	
41–52	7,567 (29.3)	6,201 (81.9)	1,366 (18.1)	
> 52	3,166 (12.3)	2,476 (78.2)	690 (21.8)	
Shift work				< 0.001
No	22,967 (89.0)	19,428 (84.6)	3,539 (15.4)	
Yes	2,831 (11.0)	2,227 (78.7)	604 (21.3)	
Job insecurity				< 0.001
Low	20,418 (79.1)	16,973 (83.1)	3,445 (16.9)	
High	5,380 (20.9)	4,682 (87.0)	698 (13.0)	
Job stress				< 0.001
Low	3,908 (15.1)	3,505 (89.7)	402 (10.3)	
High	21,890 (84.9)	18,149 (82.9)	3,741 (17.1)	
Satisfaction with job				< 0.001
Good	20,642 (80.0)	17,734 (85.9)	2,908 (14.1)	
Bad	5,156 (20.0)	3,920 (76.0)	1,236 (24.0)	
Colleague support				0.749
Good	24,818 (96.2)	20,836 (84.0)	3,982 (16.0)	
Bad	980 (3.8)	819 (83.6)	161 (16.4)	
Effort-reward balance				< 0.001
Good	23,326 (90.4)	19,793 (84.9)	3,533 (15.1)	
Bad	2,472 (9.6)	1,861 (75.3)	611 (24.7)	
Work-life balance				< 0.001
Good	19,665 (76.2)	16,918 (86.0)	2,747 (14.0)	
Bad	6,133 (23.8)	4,736 (77.2)	1,397 (22.8)	

Values are given as a person (%).

KRW: Korean won.

Supervisor's behavior and presenteeism in Korean worker

Table 2. Distribution of the direct supervisor's behavior and ORs (95% CI) for presenteeism according to gender, after adjusting for covariates

Subject's gender	Variables	Content	Presenteeism No. (%)		p-value ^a	Crude	Model 1 ^c	Model 2 ^d	
			Never	Ever		OR ^b (95% CI)	aOR (95% CI)	aOR (95% CI)	
Total	Is respectful	Yes	21,116 (84.2)	3,950 (15.8)	< 0.001	1	1	1	
		No	539 (73.6)	193 (26.4)		1.915 (1.619–2.265)	1.633 (1.371–1.944)	1.453 (1.212–1.743)	
	Gives compliments	Yes	20,879 (84.2)	3,914 (15.8)	< 0.001	1	1	1	
		No	776 (77.2)	229 (22.8)		1.576 (1.355–1.833)	1.275 (1.089–1.492)	1.133 (0.962–1.333)	
	Cooperates	Yes	20,972 (84.2)	3,948 (15.8)	< 0.001	1	1	1	
		No	683 (77.8)	195 (22.2)		1.516 (1.289–1.784)	1.227 (1.036–1.453)	1.143 (0.961–1.361)	
	Gives help for work	Yes	21,083 (84.2)	3,948 (15.8)	< 0.001	1	1	1	
		No	572 (74.6)	195 (25.4)		1.816 (1.538–2.145)	1.513 (1.272–1.800)	1.362 (1.139–1.629)	
	Gives feedback	Yes	20,870 (84.2)	3,914 (15.8)	< 0.001	1	1	1	
		No	785 (77.4)	229 (22.6)		1.558 (1.340–1.812)	1.296 (1.107–1.517)	1.171 (0.996–1.377)	
	Gives encouragement	Yes	20,832 (84.4)	3,864 (15.6)	< 0.001	1	1	1	
		No	823 (74.7)	279 (25.3)		1.830 (1.591–2.105)	1.484 (1.282–1.718)	1.325 (1.137–1.544)	
	Men	Is respectful	Yes	13,071 (86.0)	2,119 (14.0)	< 0.001	1	1	1
			No	327 (74.1)	114 (25.9)		2.152 (1.730–2.676)	1.805 (1.439–2.264)	1.587 (1.251–2.013)
Gives compliments		Yes	12,952 (86.1)	2,091 (13.9)	< 0.001	1	1	1	
		No	445 (75.9)	142 (24.1)		1.969 (1.621–2.393)	1.590 (1.297–1.949)	1.415 (1.145–1.750)	
Cooperates		Yes	12,999 (86.0)	2,109 (14.0)	< 0.001	1	1	1	
		No	399 (76.3)	124 (23.7)		1.918 (1.560–2.359)	1.593 (1.285–1.975)	1.546 (1.239–1.930)	
Gives help for work		Yes	13,080 (86.1)	2,114 (13.9)	< 0.001	1	1	1	
		No	318 (72.7)	119 (27.3)		2.321 (1.871–2.879)	2.023 (1.615–2.534)	1.839 (1.457–2.322)	
Gives feedback		Yes	12,968 (86.1)	2,093 (13.9)	< 0.001	1	1	1	
		No	429 (75.5)	140 (24.5)		2.014 (1.655–2.452)	1.724 (1.405–2.117)	1.560 (1.262–1.928)	
Gives encouragement		Yes	12,952 (86.3)	2,064 (13.7)	< 0.001	1	1	1	
		No	446 (72.5)	169 (27.5)		2.383 (1.985–2.861)	1.951 (1.611–2.363)	1.749 (1.430–2.139)	
Women		Is respectful	Yes	8,044 (81.5)	1,831 (18.5)	< 0.001	1	1	1
			No	213 (72.9)	79 (27.1)		1.637 (1.259–2.130)	1.401 (1.066–1.840)	1.286 (0.969–1.705)
	Gives compliments	Yes	7,926 (81.3)	1,822 (18.7)	0.236	1	1	1	
		No	331 (79.1)	88 (20.9)		1.153 (0.906–1.467)	0.945 (0.736–1.213)	0.843 (0.652–1.090)	
	Cooperates	Yes	7,972 (81.3)	1,839 (18.7)	0.569	1	1	1	
		No	285 (80.0)	71 (20.0)		1.081 (0.829–1.409)	0.855 (0.649–1.127)	0.749 (0.564–0.993)	
	Gives help for work	Yes	8,003 (81.4)	1,835 (18.6)	0.058	1	1	1	
		No	254 (77.1)	75 (22.9)		1.293 (0.995–1.680)	1.051 (0.800–1.381)	0.920 (0.696–1.217)	
	Gives feedback	Yes	7,901 (81.3)	1,820 (18.7)	0.441	1	1	1	
		No	356 (79.9)	90 (20.1)		1.095 (0.864–1.388)	0.909 (0.711–1.162)	0.820 (0.637–1.056)	
	Gives encouragement	Yes	7,880 (81.4)	1,800 (18.6)	0.028	1	1	1	
		No	377 (77.4)	110 (22.6)		1.277 (1.026–1.589)	1.068 (0.851–1.341)	0.954 (0.753–1.208)	

OR: odds ratio; aOR: adjusted odds ratio; CI: confidence interval.

^ap-values were calculated using the χ^2 test; ^bORs were calculated using multiple logistic regression analysis; ^cModel 1 included general and occupational variables (adjusted for sex, age, education level, monthly income, general health condition, size of company, working hours per week, and shift work); ^dModel 2 included all variables from model 1 plus psychosocial variables (adjusted for job insecurity, job stress, satisfaction with job, effort-reward balance, and work-life balance). Gender adjustment was not applied to the analysis by gender.

When this was analyzed according to gender, the OR showed a clear trend with a higher OR in men compared to both men and women together, and women did not have significant results. The results of this study show that the effect of the distribution of direct supervisor's behavior on presenteeism varies according to gender, with men more affected than women.

Studies have shown that direct supervisors can have a strong influence on workers and their behavior can affect workers' psychological well-being and absenteeism.²⁶ Additionally, the behavior of direct supervisors is related to workers' health problems and musculoskeletal and psychological symptoms.^{27,28} In addition, significantly higher levels of hypertension have been reported in workers who have less-favored supervisors than in those who do not.²⁹ A large-scale cohort study revealed a statistically significant association between direct supervisor behavior and ischemic heart disease.³⁰ In domestic and foreign studies, the association between an unsatisfactory relationship with supervisors and colleagues and the occurrence of

Supervisor's behavior and presenteeism in Korean worker

Table 3. Direct supervisor's behavior scores and ORs (95% CI) for presenteeism, according to gender

Direct supervisor's behaviors	Presenteeism No. (%)		Crude	Model 1 ^c	Model 2 ^d
	Never	Ever	OR ^b (95% CI)	aOR (95% CI)	aOR (95% CI)
Distribution of the direct supervisor's behavior scores ^a					
Total					
Very good	19,551 (84.8)	3,514 (15.2)	1	1	1
Good	1,585 (77.7)	456 (22.3)	1.600 (1.433–1.786)	1.356 (1.210–1.520)	1.297 (1.153–1.458)
Bad	358 (77.4)	105 (22.6)	1.625 (1.303–2.027)	1.324 (1.054–1.664)	1.191 (0.941–1.507)
Very bad	161 (70.2)	68 (29.8)	2.356 (1.771–3.133)	1.789 (1.332–2.404)	1.604 (1.184–2.175)
Men					
Very good	12,201 (86.8)	1,849 (13.2)	1	1	1
Good	900 (76.0)	284 (24.0)	2.082 (1.806–2.400)	1.750 (1.509–2.029)	1.661 (1.425–1.936)
Bad	211 (78.6)	57 (21.4)	1.793 (1.334–2.410)	1.560 (1.148–2.119)	1.445 (1.053–1.982)
Very bad	85 (66.6)	43 (33.4)	3.308 (2.283–4.792)	2.574 (1.750–3.786)	2.340 (1.569–3.491)
Women					
Very good	7,349 (81.5)	1,665 (18.5)	1	1	1
Good	685 (79.9)	172 (20.1)	1.107 (0.929–1.320)	0.969 (0.808–1.162)	0.922 (0.765–1.111)
Bad	147 (75.7)	47 (24.3)	1.419 (1.018–1.977)	1.106 (0.783–1.562)	0.929 (0.650–1.327)
Very bad	76 (74.8)	26 (25.2)	1.485 (0.947–2.330)	1.122 (0.704–1.788)	0.953 (0.591–1.538)

OR: odds ratio; aOR: adjusted odds ratio; CI: confidence interval.

^aVery good, score of 6 (highest score); good, score between 4 and 5; bad, score between 2 and 3; very bad, score between 0 and 1 (lowest score); ^bORs were calculated using multiple logistic regression analysis; ^cModel 1 included general and occupational variables (adjusted for sex, age, education level, monthly income, general health condition, size of company, working hours per week, and shift work); ^dModel 2 included all variables in model 1 plus psychosocial variables (adjusted for job insecurity, job stress, satisfaction with job, effort-reward balance, and work-life balance). Gender adjustment was not applied to the analysis by gender.

sleep disorders has been found.^{31,32} In addition, a recent study was conducted on depression and anxiety symptoms in workers in relation to the supervisor's behavioral patterns.³³ From these studies, it seems that supervisor's behavior and relationship with workers have a strong psychological and physical affect on workers. The findings of this study also suggest that the direct supervisor's behavior influences employee presenteeism. However, presenteeism results from multiple factors. This study was based on the premise that, in addition to the various occupational and psychosocial factors considered, the direct supervisor's behavior can additionally act as an antecedent for presenteeism. In one study examining the effects of various types of social support on health and work-related outcomes, support from the direct supervisor was found to be the most powerful and statistically significant risk factor (even more than that of spouses, relatives, and colleagues) on feelings of stress, burnout, feeling overwhelmed at work, job satisfaction, and intention to change jobs.³⁴ The direct supervisor's behavior has a strong psychological effect on workers, and may result in workers going to work even when they are sick. However, longitudinal studies are needed to confirm this finding. Considering that organizational productivity has been decreasing in recent years, it is important to determine whether the direct supervisor's behavior influences employee presenteeism to improve organizational productivity.

In a study of workers in Australia, the relationship between direct supervisor's behavior and presenteeism was studied, and negative behaviors were found to be more closely related to presenteeism than positive behaviors.²⁰ A comparative study between the East and the West noted that workers in China reported more presenteeism compared to workers in the United Kingdom, and that it is necessary to interpret presenteeism according to each country's cultural context as well as psychosocial factors.²¹ In the case of Korea, the collectivism and achievement-oriented corporate culture within organizations is relatively distinct. Considering this, it can be necessary to understand that relationships among the members of the organization appear as a factor that affect on presenteeism.³⁵ Through this study, it was possible to see a relationship between direct supervisors' behavior and the occurrence of presenteeism among Korean wage workers.

In addition, the results of this study showed that the direct supervisor's behavior was more related to the occurrence of presenteeism in men than in women. As with previous studies, considering that the overall incidence of presenteeism is higher in women than in men, the difference by gender is notable. In other words, while presenteeism is more common in women, the influence of supervisor's behavior on presenteeism is more evident in men. Men and women live in different social conditions and show different psychiatric and psychosocial characteristics. Therefore, the same conditions can affect them differently. To our knowledge, there have been few studies on presenteeism according to gender. To understand the results of this study, we approached it through the concept of organizational commitment, an organizational psychology term referring to the degree of acceptance and being dedicated to an organization's goals and values that may be an important concept for predicting the productivity and efficiency of an organization.³⁶ In addition, another recent study in Korea found an association between organizational commitment and presenteeism.³⁷ Several studies have argued that there are clear gender differences in organizational commitment.³⁸ However, in Korea, no previous studies have directly focused on gender differences with regard to presenteeism or organizational commitment. In some foreign studies, organizational commitment was found to be higher in men than in women, and gender was found to be associated with overall organizational commitment.³⁹ Meanwhile, another study suggested that the gender differences in organizational commitment were not due to gender itself (i.e., differences in tendency or view of value), but family- and career-related variables differed according to gender commitment.⁴⁰ In a Swedish study, supervisor with autocratic leadership styles were significantly associated with the total number of sick days only in men.⁴¹ According to another cross-cultural study, since China has a culturally collectivist context, unlike Western countries, presenteeism can be used as a career-protecting or career-promoting strategy.²¹ Considering these cultural differences that influence presenteeism, we thought that presenteeism tends to increase in men in accordance with the direct supervisor's behavior. Since these differences can be attributed not only to gender differences but also to cultural and organizational settings, more detailed and in-depth approaches and analyses are needed in the future.

This study had some limitations. First, since it was a cross-sectional analysis using data from KWCS, even though the association between the direct supervisor's behavior and presenteeism was shown, no causal relationship could be inferred. In addition, since the findings were based on a self-report survey, the responses are subjective. Second, while the general and occupational psychosocial variables that can influence presenteeism were identified and multiple logistic regression analyses were performed to adjust for them, there is a possibility of bias. Third, while this study adjusted for self-reported overall health status, medical history was not included in the KWCS survey, which may present a bias. Fourth, 6 sub-categories of the direct supervisor's behaviors in the KWCS were evaluated and analyzed; however, they may not be sufficient to fully evaluate the direct supervisor's behaviors. In addition, the accuracy of the analysis may have been reduced by dichotomously approaching and evaluating the answers to each question. Finally, presenteeism can be associated with various social, environmental, and political factors in workplace, which are not considered in this study. In addition, various political factors in the workplace, such as the policy regarding sickness benefit, the flexibility of working schedules, and the composition of the workforce, may affect workers' presenteeism. Since this study was conducted only on the items of the fifth KWCS, more in-depth studies are required in the future. In addition, extensive research should be conducted on presenteeism as well as absenteeism, or other health effects according to the direct supervisor's behavioral characteristics.

To the best of our knowledge, this is the first study to analyze the association between direct supervisor's behavior and presenteeism among wage workers who have worked in Korea for more than one year. Since the concept of presenteeism was established in the 1970s, various related studies have been conducted in Korea and abroad. One foreign study analyzed the association between the negative behaviors of direct supervisors and presenteeism. In Korea, however, most of the studies have analyzed occupational and psychosocial factors such as working hours, shift work, job stress, and job satisfaction, which were adjusted for in this study. In addition, this study used standardized large-scale panel data representing Korean workers and was not limited to a specific occupation group, to increase its representativeness. A quantitative evaluation of the degree of exposure was conducted by scoring. The results of this study are meaningful since we provide a background for different approaches to evaluate presenteeism according to gender.

Our results suggest that managers should understand how supervisor's behaviors affects workers. The results also suggest that continuous monitoring within the workplace and education on the importance of positive behavior in the workplace, such as a respectful attitude, providing appropriate feedback, and supportive encouragement, is necessary. In particular, such training and monitoring deserve more attention in workplaces that have a large number of men. It should be recognized that supervisor's behaviors affect the quality of life and physical and mental well-being of workers as well as the organization's production efficiency and economic state.

CONCLUSIONS

This study suggests that direct supervisor's behaviors can influence the occurrence of presenteeism, particularly in men. The results of this study suggest that proper management and training on senior employees' behaviors is necessary to reduce the risk of presenteeism in the workplace.

SUPPLEMENTARY MATERIALS

Supplementary Table 1

General and psychosocial characteristics of the men study subjects

[Click here to view](#)

Supplementary Table 2

General and psychosocial characteristics of the women study subjects

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Supplementary Table 3

Risk factors for presenteeism, according to general and psychosocial characteristics

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Supplementary Table 4

Distribution of the direct supervisor's behavior score

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Supplementary Table 5

Distribution of the direct supervisor's behavior and presenteeism of missing data (total n = 2,767)

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Supplementary Table 6

Distribution of the direct supervisor's behavior and ORs (95% CI) for presenteeism according to gender after adjusting for covariates including missing values of confounding factors

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Supplementary Table 7

Direct supervisor's behavior scores and ORs (95% CI) for presenteeism according to gender, including missing values of confounding factors

[Click here to view](#)

REFERENCES

1. OECD. *OECD Economic Outlook, Volume 2019 Issue 1*. Paris: OECD Publishing; 2019.
2. Turpin RS, Ozminkowski RJ, Sharda CE, Collins JJ, Berger ML, Billotti GM, et al. Reliability and validity of the Stanford Presenteeism Scale. *J Occup Environ Med* 2004;46(11):1123-33.
[PUBMED](#) | [CROSSREF](#)
3. Cooper C, Dewe P. Well-being--absenteeism, presenteeism, costs and challenges. *Occup Med (Lond)* 2008;58(8):522-4.
[PUBMED](#) | [CROSSREF](#)
4. Preece R. Is health and productivity an issue for all employers? *J Occup Environ Med* 2009;51(9):989.
[PUBMED](#)
5. Hemp P. Presenteeism: at work--but out of it. *Harv Bus Rev* 2004;82(10):49-58.
[PUBMED](#)
6. Goetzel RZ, Long SR, Ozminkowski RJ, Hawkins K, Wang S, Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. *J Occup Environ Med* 2004;46(4):398-412.
[PUBMED](#) | [CROSSREF](#)
7. Kivimäki M, Head J, Ferrie JE, Hemingway H, Shipley MJ, Vahtera J, et al. Working while ill as a risk factor for serious coronary events: the Whitehall II study. *Am J Public Health* 2005;95(1):98-102.
[PUBMED](#) | [CROSSREF](#)
8. Schultz AB, Edington DW. Employee health and presenteeism: a systematic review. *J Occup Rehabil* 2007;17(3):547-79.
[PUBMED](#) | [CROSSREF](#)
9. Lohaus D, Habermann W. Presenteeism: a review and research directions. *Hum Resour Manage Rev* 2019;29(1):43-58.
[CROSSREF](#)
10. Biron C, Saksvik PO. Sickness presenteeism and attendance pressure factors: implications for practice. In: Cooper CL, Quick JC, Schabracq MJ, editor. *International Handbook of Work and Health Psychology*. 3rd ed. West Sussex, UK: Wiley Blackwell; 2009.

11. Gun MS, Choi YH, Park KH. Job stress and presenteeism of clinical nurses. *Korean J Occup Health Nurs* 2011;20(2):163-71.
[CROSSREF](#)
12. Bae YH, Lee JH, Yoo HJ, Kim DE, Lee BR, Kim YH, et al. Associations between work-related musculoskeletal pain, quality of life and presenteeism in physical therapists. *J Korean Soc Occup Environ Hyg* 2012;22(1):61-72.
13. Baek JT, Cho YC. The relationships between emotional labour, depressive symptoms and presenteeism among counselors in call centers. *J Korea Acad Ind Coop Soc* 2015;16(6):4086-97.
14. Cho YS, Park JB, Lee KJ, Min KB, Baek CI. The association between Korean workers' presenteeism and psychosocial factors within workplaces. *Ann Occup Environ Med* 2016;28(1):41.
[PUBMED](#) | [CROSSREF](#)
15. Gustafsson Sendén M, Schenck-Gustafsson K, Fridner A. Gender differences in reasons for sickness presenteeism - a study among GPs in a Swedish health care organization. *Ann Occup Environ Med* 2016;28(1):50.
[PUBMED](#) | [CROSSREF](#)
16. Schyns B, Schilling J. How bad are the effects of bad leaders? A meta-analysis of destructive leadership and its outcomes. *Leadersh Q* 2013;24(1):138-58.
[CROSSREF](#)
17. Kuoppala J, Lamminpää A, Liira J, Vainio H. Leadership, job well-being, and health effects--a systematic review and a meta-analysis. *J Occup Environ Med* 2008;50(8):904-15.
[PUBMED](#) | [CROSSREF](#)
18. Nyberg A, Bernin P, Theorell T. *The Impact of Leadership on the Health of Subordinates. Report No. 1*. Stockholm, Sweden: SALTSA; 2005.
19. Caers R, Akgul KL, Baert S, De Feyter T, De Couck M. Too sick or not too sick? The importance of stress and satisfaction with supervisor support on the prevalence of sickness presenteeism. *Int J Occup Saf Ergon* 2021;27(1):278-89.
[PUBMED](#) | [CROSSREF](#)
20. Gilbreath B, Karimi L. Supervisor behavior and employee presenteeism. *Int J Leadersh Stud* 2012;7(1):114-31.
21. Lu L, Cooper CL, Lin HY. A cross-cultural examination of presenteeism and supervisory support. *Career Dev Int* 2013;18(5):440-56.
[CROSSREF](#)
22. Reuter M, Wahrendorf M, Di Tecco C, Probst TM, Ruhle S, Ghezzi V, et al. Do temporary workers more often decide to work while sick? Evidence for the link between employment contract and presenteeism in Europe. *Int J Environ Res Public Health* 2019;16(10):1868.
[PUBMED](#) | [CROSSREF](#)
23. Kim JY, Lee J, Muntaner C, Kim SS. Who is working while sick? Nonstandard employment and its association with absenteeism and presenteeism in South Korea. *Int Arch Occup Environ Health* 2016;89(7):1095-101.
[PUBMED](#) | [CROSSREF](#)
24. KOSHA, Occupational Safety and Health Research Institute. *Final report of 2017 The Fifth Korean Working Conditions Survey*. Ulsan, Korea: Occupational Safety and Health Research Institute; 2017.
25. Johns G. Presenteeism in the workplace: a review and research agenda. *J Organ Behav* 2010;31(4):519-42.
[CROSSREF](#)
26. Gavin JF, Kelley RE. The psychological climate and reported well-being of underground miners: an exploratory study. *Hum Relat* 1978;31(7):567-81.
[CROSSREF](#)
27. Stout JK. Supervisors' structuring and consideration behaviors and workers' job satisfaction, stress, and health problems. *Rehabil Couns Bull* 1984;28(2):133-8.
28. Montano D. Supervisor behaviour and its associations with employees' health in Europe. *Int Arch Occup Environ Health* 2016;89(2):289-98.
[PUBMED](#) | [CROSSREF](#)
29. Wager N, Fieldman G, Hussey T. The effect on ambulatory blood pressure of working under favourably and unfavourably perceived supervisors. *Occup Environ Med* 2003;60(7):468-74.
[PUBMED](#) | [CROSSREF](#)
30. Nyberg A, Alfredsson L, Theorell T, Westerlund H, Vahtera J, Kivimäki M. Managerial leadership and ischaemic heart disease among employees: the Swedish WOLF study. *Occup Environ Med* 2009;66(1):51-5.
[PUBMED](#) | [CROSSREF](#)

31. Jansson M, Linton SJ. Psychosocial work stressors in the development and maintenance of insomnia: a prospective study. *J Occup Health Psychol* 2006;11(3):241-8.
[PUBMED](#) | [CROSSREF](#)
32. Kim HC, Kim BK, Min KB, Min JY, Hwang SH, Park SG. Association between job stress and insomnia in Korean workers. *J Occup Health* 2011;53(3):164-74.
[PUBMED](#) | [CROSSREF](#)
33. Park CJ, Yook JH, Kim MS, Lee D, Lim HM, Hong YC. The association between quality of direct supervisor's behavior and depressive mood in Korean wage workers: the 4th Korean Working Conditions Survey. *Ann Occup Environ Med* 2019;31(1):e16.
[PUBMED](#) | [CROSSREF](#)
34. Hämmig O. Health and well-being at work: the key role of supervisor support. *SSM Popul Health* 2017;3:393-402.
[PUBMED](#) | [CROSSREF](#)
35. Han K. A study on the interrelationship between the typology of workaholism and situational characteristics of organization, including individual and sociocultural context. *Korean J Bus Adm* 2011;24(5):2519-47.
36. Meyer JP, Allen NJ. A three-component conceptualization of organizational commitment. *Hum Resour Manage Rev* 1991;1(1):61-89.
[CROSSREF](#)
37. Ko J, Im M, Gwon J. The influence of organizational commitment and resilience on presenteeism among clinical nurses. *Korean J Occup Health Nurs* 2020;29(1):38-48.
38. Fisher R, Boyle MV, Fulop L. How gendered is organizational commitment? The case of academic faculty. *Int J Organ Anal* 2010;18(3):280-94.
[CROSSREF](#)
39. Won S, Jun S. Multidimensionality of motivation and organizational commitment: gender differences. *Korean J Public Adm* 2010;48(2):217-48.
40. Chang JY. The gender differences in the effects of job characteristics and work-family conflict on the attachment toward organization and OCB. *Korean J Ind Organ Psychol* 2004;17(1):107-27.
41. Nyberg A, Westerlund H, Magnusson Hanson LL, Theorell T. Managerial leadership is associated with self-reported sickness absence and sickness presenteeism among Swedish men and women. *Scand J Public Health* 2008;36(8):803-11.
[PUBMED](#) | [CROSSREF](#)