

ORIGINAL ARTICLE

Job insecurity is associated with presenteeism, but not with absenteeism: A study of 19 720 full-time waged workers in South Korea

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Abstract

Objective: This study examined whether perceived job insecurity was associated with absenteeism and presenteeism, and how these associations varied when the differential cutoff was applied to define absenteeism and presenteeism.

Methods: We analyzed a nationally representative dataset of 19 720 full-time waged workers from the 4th Korean Working Conditions Survey (2014). As an independent variable, perceived job insecurity was assessed. As dependent variables, absenteeism and presenteeism were measured. Seven differential cutoffs (from “1 day” to “7 days”) were used when defining absenteeism and presenteeism. A Poisson regression model with a robust error variance was applied for the analysis.

Results: When “1 day” was cutoff to define absenteeism and presenteeism, job insecurity was not associated with both absenteeism (PR: 1.07, 95% CI: 0.97, 1.16) and presenteeism (PR: 1.05, 95% CI: 1.00, 1.10). When the higher cutoff was used, the association between job insecurity and absenteeism was attenuated and remained statistically nonsignificant. However, statistically significant associations between job insecurity and presenteeism were observed when the differential cutoff was used: “2 days” (PR: 1.07, 95% CI: 1.01, 1.13), “3 days” (PR: 1.14, 95% CI: 1.06, 1.22), “4 days” (PR: 1.15, 95% CI: 1.05, 1.26), “5 days” (PR: 1.18, 95% CI: 1.06, 1.30), “6 days” (PR: 1.17, 95% CI: 1.02, 1.33), and “7 days” (PR: 1.17, 95% CI: 1.02, 1.34).

Conclusion: This study found that perceived job insecurity was associated with presenteeism, but not absenteeism. Furthermore, the association differed by cutoff applied to define presenteeism among full-time waged workers in South Korea.

KEYWORDS

absenteeism, job insecurity, presenteeism, South Korea

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1 | INTRODUCTION

Job insecurity can be defined as workers' perception of the uncertainty about their job and threat to current job status.^{1,2} Although nonpermanent employees have been found to be more likely to perceive their job status as insecure, studies indicated that perceived job insecurity could act as a psychosocial stressor among permanent workers.³ After the 1997 Asian financial crisis, mass dismissal has occurred, and secure employment has decreased in South Korea.⁴ Due to downsizing-related layoffs, workers have felt fear of job loss even if they actually did not experience losing their job.⁵

A growing body of evidence has reported that perceived job insecurity could have a negative influence on workers' health.⁶⁻⁸ For example, in a study of 16 European countries, job insecurity was associated with higher odds of poor self-rated health.⁹ A meta-analysis of 13 cohort studies found that higher job insecurity could lead to a higher risk of coronary heart disease.¹⁰ Also, in a meta-analysis of 20 cohort studies, job insecurity is related to a higher risk of depressive symptoms.¹¹

When workers are sick, they should make a choice between being absent at work because of sickness (ie, Absenteeism) and being present at work despite sickness (ie, Presenteeism). Although previous studies reported that job insecurity was associated with presenteeism¹²⁻¹⁴ as well as absenteeism,^{15,16} the findings were inconsistent among the studies.¹⁷ In a study using a random sample of Austrian employees, no statistically significant difference was observed in the frequency of absenteeism and presenteeism according to workers' fear of job loss.¹⁶ However, a Canadian study found that perceptions of job insecurity were associated with more days of presenteeism, whereas not with absenteeism.¹⁸

Globally, absenteeism has been considered as an indicator of workers' health problems,^{15,16} and relatively recent studies have focused on presenteeism.¹⁹ Although some previous studies focused on the interdependence between absenteeism and presenteeism,^{20,21} little attention has been paid to its determinants. Under the chronic situation of job insecurity in South Korea since the 1997 financial crisis,⁴ health problems of Korean workers could be linked to an increase in presenteeism as well as absenteeism.²² However, only a few studies considered absenteeism and presenteeism simultaneously when investigating the health influence of job insecurity.²²

Moreover, there was a lack of consensus on defining absenteeism and presenteeism among the previous studies investigating their determinants.^{23,24} For example, some studies defined absenteeism and presenteeism as any experience of being present while sick or being absent at work.^{18,22} Two or more episodes were also used when defining presenteeism in the previous study.^{25,26} There were other studies applied ordinal or continuous scale for assessing absenteeism and presenteeism.^{12,16,18} However, most of the previous studies have used a single criterion when defining absenteeism and presenteeism regardless of working conditions. It could be problematic considering that the relationship of

presenteeism with work factors including job insecurity could be moderated by the way to define presenteeism.²⁷

To fill these knowledge gaps, this study sought to address the following questions using a nationally representative dataset of Korean workers: (a) Is perceived job insecurity associated with absenteeism and presenteeism? (b) Do these associations differ by cutoff of absenteeism and presenteeism?

2 | METHODS

2.1 | Study population

This research analyzed the dataset from the 4th Korean Working Conditions Survey (KWCS), conducted by the Occupational Safety and Health Research Institute in 2014. The survey benchmarked the European Working Conditions Survey after modification for considering cultural differences.²⁸ The purpose of KWCS was to identify the mechanical, physical, chemical, and psychosocial working environment of Korean workers. Multi-stage random sampling design was applied using enumeration districts from the 2010 Population and Housing Census as a sampling frame. The survey population was a nationally representative sample of an economically active population (≥ 15 years old) including waged workers, self-employed/employer, unpaid family workers, and others. Data were collected through an in-person interview by trained personnel between June 1st and August 31st of 2014. The KWCS is publicly available at <http://www.kosha.or.kr/> under permission from Korea Occupational Safety & Health Agency.

Although the original dataset had 50 007 participants, the present analysis was limited to 28 240 waged workers who reported that they were full-time employees. Because the more working days a worker has, the more absenteeism and presenteeism may increase, we restricted the study population to workers who usually work 5 days or more per week ($N = 25\ 888$). After removing the data with missing values for independent variables, dependent variables, and potential confounders, the size of the study population was 19 720. Because the Korean Working Conditions Survey is a publicly released dataset, this study was exempted from informed consent by Institutional Review Board approval by Korea University (KUIRB-2019-0147-01).

2.2 | Measurements

2.3 | Dependent variable: Absenteeism and Presenteeism

Absenteeism was measured by asking "Over the past 12 months how many days in total were you absent from work

for reasons of health problems?” Workers could answer on a continuous scale. Presenteeism was measured with a question “Over the past 12 months did you work when you were sick?” Workers who choose yes were required to answer how many days they worked despite their sickness. Seven differential cutoffs (from “1 day” to “7 days”) were used when defining case of absenteeism and presenteeism. For example, if 1 day was cutoff for defining absenteeism, workers who were absent at work for 1 day or more were considered as case of absenteeism. Also, if 2 days were cutoff, we defined workers who were absent at work for 2 days or more as having experience of absenteeism. After this process, we could create seven different binary variables for absenteeism. Presenteeism was defined through the same process.

2.4 | Independent variable: Perceived job insecurity

Perceived job insecurity was assessed by two questions: (a) “I might lose my job in the next 6 months” and (b) “If I were to lose or quit my current job, it would be easy for me to find a job of similar salary.” Respondents could answer each question on a five-point scale ranging from “strongly disagree (1)” to “strongly agree (5).” After reverse-coding the second question, we calculated summed scores from the two questions. Resulting summed scores ranged from 2 to 10, with higher scores indicating a higher level of perceived job insecurity. Using the median value of summed scores as a cutoff point, respondents were classified into two categories: Secure (4 or lower) and Insecure (higher than 4).

2.5 | Potential confounders

We selected demographic (ie, gender, age, and number of household members), socio-economic (ie, education level and monthly income), and work-related variables (ie, employment status, occupation, weekly working hours, size of enterprise, and type of workplace) as potential confounders.

Age was coded into five groups: <30, 30-39, 40-49, 50-59, and ≥ 60 years old. Number of household members was divided into four categories (1, 2, 3, and ≥ 4). Education level was divided into three categories (middle school graduate or less, high school graduate, college graduate or more). Monthly labor income was classified into five categories (<1500K, 1500-1999K, 2000-2999K, 3000-3999K, and ≥ 4000 K Won). “As of May 2020, 1,000 Korean Won (KRW) is approximately equivalent to 0.8 US dollars.”

Employment status was measured using the questions about contract duration and contract type: (a) whether contract duration was 1 year or longer (“ ≥ 1 year” or “<1 year”), (b) whether contract duration was fixed (“fixed term” or “no fixed term”),

and (c) whether workers are paid by the company they actually work for or by subcontracting company (“parent firm” or “subcontract”). Based on the responses, employment status was categorized into six groups: (a) parent firm—permanent (parent firm, ≥ 1 year, no fixed term); (b) parent firm—long term (parent firm, ≥ 1 year, fixed term); (c) parent firm—short term (parent firm, <1 year, fixed term); (d) subcontract—permanent (subcontract, ≥ 1 year, no fixed term); (e) subcontract—long term (subcontract, ≥ 1 year, fixed term); and (f) subcontract—short term (subcontract, <1 year, fixed term). Occupation was coded into nine categories: senior manager, professional, technical/semi-professional, clerical, service, sales, skilled, machine operator, and unskilled. Weekly working hours were classified into four groups (<40, 40-49, 50-59, and ≥ 60 hours). Enterprise size was categorized based on the number of workers according to which labor laws are differently applied to in South Korea (<5, 5-29, 30-299, and ≥ 300). Type of workplace was categorized into three groups: private sector, public sector (ie, public sector and joint private-public organization or company), and not-for-profit sector/NGO.

2.6 | Analysis

A Poisson regression model with a robust error variance was applied to examine how perceived job insecurity were related to absenteeism and presenteeism after controlling for potential confounders. Given the high prevalence of presenteeism among study population (>10%), odds ratios from the logistic regression model would overestimate prevalence ratios in cross-sectional study.²⁹ All covariates were included as categorical variables in the analysis. Results were presented as prevalence ratios (PRs) with 95% confidence intervals (CIs). All statistical analyses were performed with STATA/SE version 13.1 (Stata Corp.).

3 | RESULTS

Table 1 presents the distribution of the study population, the prevalence of absenteeism (0 days vs 1 day or more), presenteeism (0 days vs 1 day or more), and perceived job insecurity. Overall, 9.1% of workers reported experience of absenteeism, and 23.2% of workers reported experience of presenteeism during the past 12 months, when 1 day was applied as a cutoff. Experience of absenteeism was more common among workers who were female, 40-49 years old, lived in three-person household, had lower education level, earned 1500K won or more per month, were parent firm-long-term contract employee, were sales worker, worked 50-59 hours per week, worked in enterprise employing 30-299 workers, and worked in the public sector. Prevalence of presenteeism was higher among workers who were female, 40-49 years

TABLE 1 Distribution of study population and prevalence of absenteeism, presenteeism, and perceived job insecurity by key covariates among full-time waged workers in South Korea (N = 19 720)

	Distribution	Absenteeism during the past 12 mo (0 d vs 1 d or more)	Presenteeism during the past 12 mo (0 d vs 1 d or more)	Perceived job insecurity
	N (%)	N (%)	N (%)	N (%)
Total	19 720 (100.0)	1795 (9.1)	4580 (23.2)	9767 (49.5)
Gender				
Male	10 249 (52.0)	865 (8.4)	2123 (20.7)	5163 (50.4)
Female	9471 (48.0)	930 (9.8)	2457 (25.9)	4604 (48.6)
Age (years old)				
<30	2688 (13.6)	211 (7.9)	500 (18.6)	1206 (44.9)
30-39	5443 (27.6)	473 (8.7)	1197 (22.0)	2349 (43.2)
40-49	6038 (30.6)	607 (10.1)	1534 (25.4)	2895 (48.0)
50-59	4029 (20.4)	385 (9.6)	976 (24.2)	2222 (55.2)
≥60	1522 (7.7)	119 (7.8)	373 (24.5)	1095 (71.9)
Number of household members				
1	2649 (13.4)	226 (8.5)	572 (21.6)	1358 (51.3)
2	4054 (20.6)	363 (9.0)	954 (23.5)	2164 (53.4)
3	5136 (26.0)	497 (9.7)	1196 (23.3)	2546 (49.6)
≥4	7881 (40.0)	709 (9.0)	1858 (23.6)	3699 (46.9)
Education level				
College graduate or more	10 608 (53.8)	905 (8.5)	2325 (21.9)	4625 (43.6)
High school graduate	7413 (37.6)	729 (9.8)	1773 (23.9)	3974 (53.6)
Middle school graduate or less	1699 (8.6)	161 (9.5)	482 (28.4)	1168 (68.8)
Monthly labor income (KRW)				
≥4000K	1887 (9.6)	181 (9.6)	421 (22.3)	882 (46.7)
3000-3999K	3075 (15.6)	291 (9.5)	695 (22.6)	1479 (48.1)
2000-2999K	5962 (30.2)	553 (9.3)	1376 (23.1)	2728 (45.8)
1500-1999K	4139 (21.0)	399 (9.6)	1024 (24.7)	1971 (47.6)
<1500K	4657 (23.6)	371 (8.0)	1064 (22.9)	2707 (58.1)
Employment status				
Parent firm-Permanent	14 793 (75.0)	1335 (9.0)	3414 (23.1)	6926 (46.8)
Parent firm-Long term	861 (4.4)	97 (11.3)	217 (25.2)	386 (44.8)
Parent firm-Short term	3283 (16.7)	286 (8.7)	709 (21.6)	1984 (60.4)
Subcontract-Permanent	221 (1.1)	23 (10.4)	62 (28.1)	118 (53.4)
Subcontract-Long term	106 (0.5)	9 (8.5)	29 (27.4)	61 (57.6)
Subcontract-Short term	456 (2.3)	45 (9.9)	149 (32.7)	292 (64.0)
Occupation				
Senior manager	463 (2.4)	33 (7.1)	81 (17.5)	219 (47.3)
Professional	1786 (9.1)	137 (7.7)	456 (25.5)	695 (38.9)
Technical/Semi-professional	1094 (5.6)	86 (7.9)	257 (23.5)	451 (41.2)
Clerical	5734 (29.1)	458 (8.0)	1124 (19.6)	2603 (45.4)
Service	2544 (12.9)	269 (10.6)	661 (26.0)	1296 (50.9)
Sales	2499 (12.7)	288 (11.5)	579 (23.2)	1174 (47.0)
Skilled	2070 (10.5)	222 (10.7)	514 (24.8)	1126 (54.4)
Machine operator	1326 (6.7)	124 (9.4)	346 (26.1)	729 (55.0)
Unskilled	2204 (11.2)	178 (8.1)	562 (25.5)	1474 (66.9)

(Continues)

TABLE 1 (Continued)

	Distribution	Absenteeism during the past 12 mo (0 d vs 1 d or more)	Presenteeism during the past 12 mo (0 d vs 1 d or more)	Perceived job insecurity
	N (%)	N (%)	N (%)	N (%)
Weekly working hours				
<40	1406 (7.1)	114 (8.1)	313 (22.3)	798 (56.8)
40-49	13 057 (66.2)	1044 (8.0)	2779 (21.3)	6251 (47.9)
50-59	2571 (13.0)	330 (12.8)	714 (27.8)	1371 (53.3)
≥60	2686 (13.6)	307 (11.4)	774 (28.8)	1347 (50.2)
Size of enterprise (no. of workers)				
<5	4012 (20.3)	379 (9.5)	932 (23.2)	2068 (51.6)
5-29	7721 (39.2)	682 (8.8)	1815 (23.5)	3770 (48.8)
30-299	6150 (31.2)	594 (9.7)	1455 (23.7)	3016 (49.0)
≥300	1837 (9.3)	140 (7.6)	378 (20.6)	913 (49.7)
Type of workplace				
Private sector	16 870 (85.6)	1588 (9.4)	3984 (23.6)	8225 (48.8)
Public sector	2681 (13.6)	195 (7.3)	566 (21.1)	1470 (54.8)
Not-for-profit sector/NGO	169 (0.9)	12 (7.1)	30 (17.8)	72 (42.6)

old, had household members who lived with, earned 1500-1999K won per month, had lower education level, were subcontract worker, were machine operator, worked longer hours per week, worked in enterprise employing fewer workers, and worked in the private sector. Perceive job insecurity was prevalent among workers who were male, older, lived in two-person household, had lower education level, had lower labor income, were short-term contract employee, were unskilled worker, worked less than 40 hours per week, worked in enterprise employing less than 5 workers, and worked in the public sector.

Tables 2 and 3 show how perceived job insecurity is related to absenteeism and presenteeism when we applied “1 day” as a cutoff. After controlling for potential confounders including employment status, workers who perceived their job as insecure showed a higher prevalence of absenteeism (PR: 1.07, 95% CI: 0.97-1.16) and presenteeism (PR: 1.05, 95% CI: 1.00-1.10) than those who perceived their job as secure, but both results were statistically nonsignificant. In the gender-stratified analysis, the association between perceived job insecurity and presenteeism was statistically significant only among male workers (PR: 1.09, 95% CI: 1.01-1.17).

As shown in Tables 4 and 5, the association of perceived job insecurity with absenteeism and presenteeism differed by the cutoff. Prevalence of absenteeism and presenteeism during the past 12 months by differential-cutoff and gender were presented in Appendix S1. When “1 day” was cutoff, perceived job insecurity was related to a higher prevalence of absenteeism and presenteeism, although the results were statistically nonsignificant.

However, when “2 days” was used as a cutoff, the association became statistically significant in the presenteeism analysis, whereas the association was attenuated and remained statistically nonsignificant in the absenteeism analysis. Also, when the higher cutoff was used, the association between perceived job insecurity and absenteeism remained statistically nonsignificant. However, the association between perceived job insecurity and presenteeism remained statistically significant. In the gender-stratified analysis, female workers showed similar results with the total population in the absenteeism analysis, except for when “3 days” and “4 days” were cutoff. Whereas male workers showed similar results with the total population in the presenteeism analysis.

4 | DISCUSSION

This study found that 23.2% of Korean workers reported experience of presenteeism during the past 12 months, whereas 9.1% reported experience of absenteeism. Previous studies have indicated several determinants of presenteeism including organizational factors (eg, understaffing, low organizational support, and strict absence policy) and work-related factors (eg, workload and time pressure), as well as individual factors (eg, affective commitment and financial difficulties).³⁰ High prevalence of presenteeism is concerning, considering that it could lead to health problems and absenteeism in later period.³¹ Previous studies reported that the experience of presenteeism was related to poor self-rated health,³² depression,³³ absenteeism,³⁴ and lower work performance.³⁵

TABLE 2 Association between perceived job insecurity and absenteeism among Korean full-time waged workers by gender (N = 19 720)

Job insecurity	Distribution	Prevalence of absenteeism (0 d vs 1 d or more)	Crude		Adjusted	
	N (%)	N (%)	PR	95% CI	PR	95% CI
Secure	9953 (50.5)	881 (8.9)	Reference		Reference	
Insecure	9767 (49.5)	914 (9.4)	1.06	0.97, 1.15	1.07	0.97, 1.16
			<i>P</i> value: .216		<i>P</i> value: .167	
<i>Stratified by gender</i>						
Male (N = 10 249)						
Secure	5086 (49.6)	402 (7.9)	Reference		Reference	
Insecure	5163 (50.4)	463 (9.0)	1.13	1.00, 1.29	1.11	0.97, 1.26
			<i>P</i> value: .053		<i>P</i> value: .118	
Female (N = 9471)						
Secure	4867 (51.4)	479 (9.8)	Reference		Reference	
Insecure	4604 (48.6)	451 (9.8)	1.00	0.88, 1.12	1.03	0.91, 1.16
			<i>P</i> value: .940		<i>P</i> value: .696	

Abbreviations: CI, confidence intervals; PR, prevalence ratios.

Adjusted for gender (not included in gender-stratified analysis), age, number of household members, education level, monthly income, employment status, occupation, weekly working hours, size of enterprise, and type of workplace.

**P* < .05.

***P* < .01.

****P* < .001.

TABLE 3 Association between perceived job insecurity and presenteeism among Korean full-time waged workers by gender (N = 19 720)

Job insecurity	Distribution	Prevalence of presenteeism (0 d vs 1 d or more)	Crude		Adjusted	
	N (%)	N (%)	PR	95% CI	PR	95% CI
Secure	9953 (50.5)	2249 (22.6)	Reference		Reference	
Insecure	9767 (49.5)	2331 (23.9)	1.06*	1.00, 1.11	1.05	1.00, 1.10
			<i>P</i> value: .035		<i>P</i> value: .070	
<i>Stratified by gender</i>						
Male (N = 10 249)						
Secure	5086 (49.6)	995 (19.6)	Reference		Reference	
Insecure	5163 (50.4)	1128 (21.9)	1.12**	1.04, 1.20	1.09*	1.01, 1.17
			<i>P</i> value: .004		<i>P</i> value: .033	
Female (N = 9,471)						
Secure	4867 (51.4)	1254 (25.8)	Reference		Reference	
Insecure	4604 (48.6)	1203 (26.1)	1.01	0.95, 1.09	1.02	0.95, 1.10
			<i>P</i> value: .686		<i>P</i> value: .532	

Abbreviations: CI, confidence intervals; PR, prevalence ratios.

Adjusted for gender (not included in gender-stratified analysis), age, number of household members, education level, monthly income, employment status, occupation, weekly working hours, size of enterprise, and type of workplace.

**P* < .05.

***P* < .01.

****P* < .001.

TABLE 4 Association between perceived job insecurity and absenteeism by differential cutoff among Korean full-time waged workers (N = 19 720)

Absenteeism over the past 12 mo														
Job insecurity	0 d vs 1 d or more		0-1 d vs 2 d or more		0-2 d vs 3 d or more		0-3 d vs 4 d or more		0-4 d vs 5 d or more		0-5 d vs 6 d or more		0-6 d vs 7 d or more	
	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI
Secure	Reference		Reference		Reference		Reference		Reference		Reference		Reference	
Insecure	1.07	0.97, 1.16	0.97	0.87, 1.07	0.93	0.81, 1.08	0.92	0.76, 1.10	0.96	0.78, 1.17	1.00	0.80, 1.26	0.99	0.77, 1.26
	P value: .167		P value: .529		P value: .335		P value: .350		P value: .659		P value: .998		P value: .915	
<i>Stratified by gender</i>														
Male (N = 10 249)														
Secure	Reference		Reference		Reference		Reference		Reference		Reference		Reference	
Insecure	1.11	0.97, 1.26	1.02	0.88, 1.19	1.12	0.91, 1.37	1.11	0.86, 1.43	1.12	0.85, 1.48	1.17	0.86, 1.58	1.05	0.76, 1.44
	P value: .118		P value: .785		P value: .293		P value: .414		P value: .423		P value: .326		P value: .785	
Female (N = 9471)														
Secure	Reference		Reference		Reference		Reference		Reference		Reference		Reference	
Insecure	1.03	0.91, 1.16	0.91	0.79, 1.06	0.77*	0.63, 0.95	0.73*	0.56, 0.95	0.78	0.58, 1.05	0.80	0.56, 1.14	0.90	0.62, 1.32
	P value: .696		P value: .229		P value: .014		P value: .020		P value: .102		P value: .219		P value: .594	

Abbreviations: CI, confidence intervals; PR, prevalence ratios.

*P < .05.

**P < .01.

***P < .001.

† Adjusted for gender (not included in gender-stratified analysis), age, number of household members, education level, monthly income, employment status, occupation, weekly working hours, size of enterprise, and type of workplace.

TABLE 5 Association between perceived job insecurity and presenteeism by differential cutoff among Korean full-time waged workers (N = 19 720)

Presenteeism over the past 12 mo														
Job insecurity	0 d vs 1 d or more		0-1 d vs 2 d or more		0-2 d vs 3 d or more		0-3 d vs 4 d or more		0-4 d vs 5 d or more		0-5 d vs 6 d or more		0-6 d vs 7 d or more	
	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI	PR [†]	95% CI
Secure	Reference		Reference		Reference		Reference		Reference		Reference		Reference	
Insecure	1.05	1.00, 1.10	1.07*	1.01, 1.13	1.14**	1.06, 1.22	1.15**	1.05, 1.26	1.18**	1.06, 1.30	1.17*	1.02, 1.33	1.17*	1.02, 1.34
	<i>P</i> value: .070		<i>P</i> value: .022		<i>P</i> value: .001		<i>P</i> value: .004		<i>P</i> value: .002		<i>P</i> value: .025		<i>P</i> value: .025	
<i>Stratified by gender</i>														
Male (N = 10 249)														
Secure	Reference		Reference		Reference		Reference		Reference		Reference		Reference	
Insecure	1.09*	1.01, 1.17	1.12**	1.03, 1.22	1.23***	1.10, 1.38	1.19*	1.03, 1.37	1.20*	1.02, 1.40	1.25*	1.03, 1.53	1.27*	1.03, 1.55
	<i>P</i> value: .033		<i>P</i> value: .008		<i>P</i> value: <.001		<i>P</i> value: .017		<i>P</i> value: .023		<i>P</i> value: .027		<i>P</i> value: .024	
Female (N = 9,471)														
Secure	Reference		Reference		Reference		Reference		Reference		Reference		Reference	
Insecure	1.02	0.95, 1.10	1.03	0.96, 1.11	1.07	0.97, 1.18	1.12	0.99, 1.27	1.16*	1.01, 1.33	1.10	0.92-1.32	1.10	0.91, 1.32
	<i>P</i> value: .532		<i>P</i> value: .431		<i>P</i> value: .161		<i>P</i> value: .075		<i>P</i> value: .033		<i>P</i> value: .286		<i>P</i> value: .332	

Abbreviations: CI, confidence intervals; PR, prevalence ratios.

P* < .05.*P* < .01.****P* < .001.

†Adjusted for gender (not included in gender-stratified analysis), age, number of household members, education level, monthly income, employment status, occupation, weekly working hours, size of enterprise, and type of workplace.

Using the data of healthcare workers, subway workers, and petrochemical refinery workers, Cho et al reported that a higher level of job insecurity was observed among Korean workers compared to workers in United States and Netherlands.³⁶ Low education level, low income, and low job position have been reported as a risk factor for a higher level of job insecurity among Korean workers,³⁶ which is consistent with the findings of this research. Researchers suggest that job insecurity has been increasing since the 1997 economic crisis in South Korea. Along with the economic recession, Korean workers have faced extensive restructuring of labor market including massive layoffs, frequent flexible contracts, and adoption of early retirement schemes.^{4,36}

Our findings suggest that perceived job insecurity is associated with higher prevalence of presenteeism, whereas no statistically significant relationship was observed with absenteeism. To understand these results, we may need to consider how absenteeism interacts with presenteeism in relation to job insecurity. For example, insecure workers might choose to work while sick rather than to take sick leave because they are afraid of losing their jobs.³⁰ Previous researchers referred to this kind of presenteeism as “concealed absenteeism.”²⁶ Kim et al found that nonpermanent workers, who often perceive their job as insecure, were more likely to report presenteeism and less likely to report absenteeism compared to permanent workers.²² Therefore, presenteeism should be considered along with absenteeism when investigating the health influence of the work environment, especially for the insecure working population.

Notably, we found that the relationship between perceived job insecurity and presenteeism could be different when we used different cutoff to define presenteeism. For example, the association was statistically significant when we applied “5 days” as a cutoff, whereas the association became attenuated and nonsignificant when “1 day” was used as a cutoff to define presenteeism. Using “1 day” as a cutoff to understand work-related determinants of presenteeism, several previous studies found statistically nonsignificant association.^{14,22} These nonsignificant findings might be changed if they use different cutoff as shown in this study. Future studies need to consider the various definition of presenteeism when investigating its work-related determinants.

We also found a gender difference in the association between job insecurity and presenteeism. Perceived job insecurity was related to a higher prevalence of presenteeism only among male workers. In Korean society, male workers often have a relatively higher burden of supporting their families than female workers. According to the data analyzed in this study, 83.5% of male workers were a major contributor to their household income, whereas 33.2% of female workers were a major contributor. Under this situation, the job insecurity of male workers could lead to a higher prevalence of presenteeism. On the other hand, we should be cautious

when interpreting the null association between job insecurity and presenteeism among female workers. Even female workers who perceived their job status as secure showed a higher prevalence of presenteeism compared to male workers perceiving their job as insecure. Also, it was observed that perceived job insecurity was associated with a lower prevalence of absenteeism among female workers, except for when “1 day” was cutoff. Future studies should investigate the underlying factors that determine the gender difference in presenteeism.

This study has some limitations. First, due to the cross-sectional design of KWCS, we could not provide temporal order between exposure (ie, perceived job insecurity) and outcome (ie, absenteeism and presenteeism). Thus, there could be a possibility of reverse causation. For example, workers who were absent at work might be worried about job loss. Using longitudinal design is needed in future study examining the association. Second, there could be healthy worker survival effects because KWCS is a cross-sectional survey, which means that workers who have experienced severe health problems might already quit their job and did not participate in the survey. Also, we should be cautious about interpreting the prevalence of absenteeism and presenteeism because our study population was restricted to full-time waged workers who might have relatively secure working conditions compared to part-time workers. Third, there could be residual confounding including prior health condition.³⁷ For example, workers who have chronic diseases are more likely to have insecure job status and experience of absenteeism and presenteeism. Fourth, because the single-item question was used to measure absenteeism and presenteeism, we could not consider the type or severity of workers’ illness at the time of being absent or present at work.³⁸ Workers’ choice to be absent or present at work could be dependent on the severity of illness.

On the other hand, the strength of this study should be noted. A nationally representative dataset of a large sample size in South Korea was analyzed in this study. This allowed us to examine whether perceived job insecurity is related to absenteeism and presenteeism after controlling for work-related confounders including size of enterprise.

5 | CONCLUSION

This study showed that perceived job insecurity is associated with a higher prevalence of presenteeism but not with absenteeism, and that these associations could differ by cutoff applied to define presenteeism. These results suggest that presenteeism as well as absenteeism should be considered as occupational health concerns when implementing policy to promote Korean workers’ health condition. It is also necessary to define presenteeism and absenteeism considering different cutoff according to working conditions.

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DISCLOSURE

Approval of the research protocol: Because the Korean Working Conditions Survey is a publicly released dataset, this study was exempted from informed consent by Institutional Review Board approval by Korea University (KUIRB-2019-0147-01). *Registry and the registration no. of the study/trial:* N/A. *Animal studies:* N/A.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHORS' CONTRIBUTIONS

J-H Kim conceptualized the study, analyzed the data, and wrote the manuscript. J Yoon participated in design, analysis, and in preparing the manuscript. J Bahk reviewed the draft and provided critical comments on it. S-S Kim coordinated the study, reviewed the draft and provided critical comments on it. All authors read and approved the final manuscript.

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SUPPORTING INFORMATION

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

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