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ORIGINAL ARTICLE

Who is working while sick? Nonstandard employment and its association with absenteeism and presenteeism in South Korea

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Abstract
Objectives This study sought to examine whether nonstandard employment is associated with presenteeism as well as absenteeism among full-time employees in South Korea.
Methods We analyzed a cross-sectional survey of 26,611 full-time employees from the third wave of the Korean Working Conditions Survey in 2011. Experience of absenteeism and presenteeism during the past 12 months was assessed through self-reports. Employment condition was classified into six categories based on two contract types (parent firm and subcontract) and three contract durations [permanent (≥1 year, no fixed term), long term (≥1 year, fixed term), and short term (<1 year, fixed term)].
Results We found opposite trends between the association of nonstandard employment with absenteeism and presenteeism after adjusting for covariates. Compared to parent firm—permanent employment, which has been often regarded as a standard employment, absenteeism was not associated or negatively associated with all nonstandard employment conditions except parent firm—long term employment (OR 1.88; 95 % CI 1.57, 2.26). However, presenteeism was positively associated with parent firm—long term (OR 1.64; 95 % CI 1.42, 1.91), subcontract—long term (OR 1.61; 95 % CI 1.12, 2.32), and subcontract—short term (OR 1.26; 95 % CI 1.02, 1.56) employment.
Conclusions Our results found that most nonstandard employment may increase risk of presenteeism, but not absenteeism. These results suggest that previous findings about the protective effects of nonstandard employment on absenteeism may be explained by nonstandard workers being forced to work when sick.

Keywords Job insecurity · Subcontract · Parent firm contract · Sickness absence · Sickness presenteeism

Introduction

Since post-WWII, "standard employment" has meant a full-time job with a fixed schedule and assumption of continued employment at the employer's place of business (Kalleberg et al. 2000). However, the most notable labor market trend during past decades in many developed countries is the growth of nonstandard employment arrangements. South Korea (*hereafter* Korea) is not an exception in this trend. Neoliberal reforms and structural adjustments after the Asian financial crisis of 1997 produced a large number of nonstandard workers in Korea (Shin 2010). The Korean Bureaus of Statistics conservatively estimated the increasing number of nonstandard workers to be approximately one-third of all workers throughout the 2000s (Statistics Korea 2015), but trade unions and pro-labor research institutes estimated that almost half of workers were in nonstandard employment arrangements (Kim 2015).

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A growing body of evidence suggests that nonstandard employment may harm workers' health and safety because nonstandard workers often have job insecurity, lower income, and hazardous working conditions (Benach et al. 2007). Epidemiologic studies have reported that nonstandard employment may aggravate a variety of workers' health outcomes, including occupational injury (Im et al. 2012), cardiovascular disorder (Lewchuk et al. 2003), musculoskeletal pain (Kim et al. 2008a), and depressive symptoms (Kim et al. 2012, 2013; Virtanen et al. 2008).

However, previous studies have reported negative or no association between nonstandard employment and absenteeism, or workers being absent from work because of illness, which strongly affects companies' productivity (Lötters et al. 2005). For example, Virtanen et al. (2001) found that temporary employment, which is a common type of nonstandard employment, is associated with lower prevalence of absenteeism by examining data of 5650 health care employees in Finland. A longitudinal study with 4777 workers from Canada found no significant difference in the occurrence of absenteeism between individuals with temporary jobs and individuals with permanent jobs (Tompa et al. 2008).

These counterintuitive findings about nonstandard employment and absenteeism could be explained by the role of job insecurity and disempowerment (Virtanen et al. 2001). Nonstandard workers with job insecurity may be afraid that their work contracts might not be renewed or they might be fired if they take sick leave. One potential way to test this hypothesis is to examine how nonstandard employment is associated with absenteeism and presenteeism, which means that employees work while sick. If nonstandard employees are forced to work while they are sick because of job insecurity, nonstandard employment could be associated with lower prevalence of absenteeism and higher prevalence of presenteeism.

Another important knowledge gap is that previous studies did not consider complex compositions of nonstandard employment. Most occupational health studies about nonstandard employment classified employment into two categories—permanent and temporary/contingent (Benavides et al. 2006; Kim et al. 2008a, b; Tompa et al. 2008)—without considering subcontracting (Min et al. 2013). Previous studies in South Korea have shown that subcontracting workers have vulnerable working conditions, high job insecurity, and low income comparable to other contingent workers (Kim et al. 2008b; Min et al. 2013).

Therefore, the goal of this study was to assess nonstandard employment among full-time workers in South Korea, by considering complex employment relationships. We classified employment condition into six categories based on contract duration [permanent (≥1 year, no fixed term), long term (≥1 year, fixed term), and short term (<1 year, fixed term)] and contract type (parent firm or subcontract) and sought to examine the association of this nonstandard employment with absenteeism and presenteeism.

Methods

Dataset

We analyzed data from the third wave of the 2011 Korean Working Conditions Survey (KWCS), which was conducted by the Korea Occupational Safety and Health Agency (KOSHA). The survey was designed to explore social/occupational risk factors for the working environment, and it benchmarked the European Working Condition Survey (EWCS). The sample population was selected using a multistage random sampling method using enumeration districts from the 2005 Population and Housing Census in Korea. The survey was collected from a nationally representative sample of an actively working population that was ≥15 years old. Original dataset had 50,032 participants which included various types of workers (e.g., self-employed, employer, unpaid family workers, and so on), but the analysis was limited to 27,301 full-time waged workers. After excluding the participants ($n = 690$) with missing values for the variables used in this study, we included 26,611 full-time waged workers in the final data analysis. The KWCS is publicly available under permission from KOSHA at http://www.kosha.or.kr/. Informed consent was not required to use the dataset. This study was exempted from Institutional Review Board approval by Korea University.

Exposure: employment condition

Employment condition was evaluated based on questions about contract duration and contract type. First, contract duration was measured by combining worker's responses for two questions: whether contract duration was 1 year or longer, and whether contract duration was fixed. Based on the responses, contract duration was categorized into three groups: (1) permanent (≥1 year, no fixed term); (2) long term (≥1 year, fixed term); and (3) short term (<1 year, fixed term). Second, contract type was measured with the question, "Are you getting paid by the company you actually work for or by subcontracting company?" If the respondents were paid by the subcontracting company, they were coded as "subcontract," and the remaining respondents were coded as "parent firm." Subcontract is known as an arrangement that a contractor authorizes another company to perform tasks which could affect the employment status of workers, or the manner in which those tasks are performed (Min et al. 2013). By combining information from contract duration and type,

employment condition was categorized into six groups: (1) parent firm—permanent; (2) parent firm—long term; (3) parent firm—short term; (4) subcontract—permanent; (5) subcontract—long term; and (6) subcontract—short term.

Outcome: absenteeism and presenteeism

Absenteeism was assessed with a question, "How many days have you ever been absent due to your health problems during the past 12 months?" People could answer in a continuous scale, and the responses were dichotomized into Yes (≥1 day) or No (Never). Presenteeism was measured with the yes/no question, "Have you ever worked while you were sick during the past 12 months?"

Covariates

This research first controlled for potential confounders, including age, sex, education, and three work-related variables (company size, presence of labor union, and industry), which could be associated with both exposure and outcome variables. Age was divided into the following groups: 15–24, 25–34, 35–44, 45–54, 55–64, and ≥65 years old. Education was divided into three categories: junior high or less; high school graduate or less; and university graduate or more. Presence of labor union was classified into two categories: no (workplace without labor union) and yes (workplace with labor union). Company size was classified into three categories: <50 employees; 50–299 employees; and ≥300 employees at work. Industry for which respondents worked was categorized into 21 sections based on the 9th Korean Standard Industrial Classification: (1) agriculture, forestry, and fishing; (2) mining and quarrying; (3) manufacturing; (4) electricity, gas, steam, and water supply; (5) sewage, waste management, materials recovery, and remediation activities; (6) construction; (7) wholesale and retail trade; (8) transportation; (9) accommodation and food service activities; (10) information and communications; (11) financial and insurance activities; (12) real estate activities and renting and leasing; (13) professional, scientific, and technical activities; (14) business facilities management and business support services; (15) public administration, defense, compulsory social security; (16) education; (17) human health and social work activities; (18) arts, sports, and recreation-related services; (19) membership organizations, repair, and other personal services; (20) activities of households as employers; and (21) activities of extraterritorial organizations and bodies. The last category was excluded in the data analysis of this research because there was only one person in the category.

Further, we determined how the association changed when we adjusted for three potential intermediate variables that could be located in the pathways linking nonstandard employment to presenteeism and absenteeism: monthly income, shift work, and working hours. Monthly income was categorized into six groups: <1000, 1000–1499, 1500–1999, 2000–2999, 3000–3999, and ≥4000K Won. Shift work was measured with a yes/no question about whether workers did shift work. Working hours were measured with the question, "How many hours do you work per week?" Responses were grouped into five categories: <40, 40–49, 50–59, 60–69, and ≥70 h.

Data analysis

Logistic regression models were applied to examine the relationship of employment condition with absenteeism and presenteeism, and all covariates were included as categorical variables in data analyses. In the first step, we examined bivariate association between exposure and outcome. Then, we adjusted for potential confounders, including age, sex, education, industry, company size, and presence of labor union. Finally, we assessed how the association changed when we adjusted for potential intermediate variables of monthly income, shift work, and working hours per week. All analyses were done using STATA/SE version 13.0 (StatCorp, College Station, TX, USA). Data were reported as odds ratios (OR) with 95 % confidence intervals (CI).

Results

Overall distribution of the study population and prevalence of absenteeism and presenteeism during the past 12 months are shown in Table 1. Both absenteeism and presenteeism generally were more frequent among women, older individuals, less educated individuals, individuals with lower incomes, and individuals with longer working hours. Prevalence of absenteeism was lower among shift workers and employees at workplaces with ≥300 employees and without labor unions. Presenteeism was more common among shift workers and employees at workplaces with ≥300 employees and with labor unions.

Parent firm—permanent employment has been considered as a "standard employment" since post-WWII (Benach et al. 2007; Kalleberg et al. 2000) and was used as a reference group and all other employment conditions were considered as nonstandard employment in this study. We found opposite trends between the association of nonstandard employment with absenteeism and presenteeism after adjusting for potential confounders (i.e., age, sex, education, company size, presence of labor union, and industry). Absenteeism was not associated or negatively associated with nonstandard employment, such as parent firm—short term (OR 0.80; 95 % CI

Table 1 Distribution of study population and prevalence of absenteeism and presenteeism during the past 12 months by key covariates in South Korea ($N = 26,611$)

	Distribution	Absenteeism during the past 12 months		Presenteeism during the past 12 months	
	N (%)	*N* (%)	*p* value[a]	*N* (%)	*p* value[b]
Sex			0.046		<0.001
Male	16,000 (60.1)	1478 (9.2)		3086 (19.3)	
Female	10,611 (39.9)	1058 (10.0)		2466 (23.2)	
Age (years)			<0.001		<0.001
<25	1268 (4.8)	97 (7.7)		195 (15.4)	
25–34	7187 (27.0)	712 (9.9)		1418 (19.7)	
35–44	8543 (32.1)	828 (9.7)		1869 (21.9)	
45–54	6295 (23.7)	611 (9.7)		1370 (21.8)	
55–64	2580 (9.7)	252 (9.8)		571 (22.1)	
≥65	738 (2.8)	36 (4.9)		129 (17.5)	
Education			0.001		<0.001
Junior high or less	2376 (8.9)	244 (10.3)		595 (20.9)	
High school graduate or less	10,195 (38.3)	1042 (10.2)		2171 (21.3)	
University graduate or more	14,040 (52.8)	1250 (8.9)		2786 (19.8)	
Monthly income (Won)			<0.001		<0.001
<1000K	2073 (7.8)	145 (7.0)		411 (19.8)	
1000–1499K	4962 (18.7)	496 (10.0)		1140 (23.0)	
1500–1999K	5968 (22.4)	649 (10.9)		1231 (20.6)	
2000–2999K	7738 (29.1)	758 (9.8)		1550 (20.0)	
3000–3999K	3754 (14.1)	316 (8.4)		747 (19.9)	
≥4000K	2116 (8.0)	172 (8.1)		473 (22.4)	
Shift work			<0.001		<0.001
No	24,070 (90.5)	2343 (9.7)		4934 (20.5)	
Yes	2541 (9.6)	193 (7.6)		618 (24.3)	
Working hours per week			<0.001		<0.001
<40	1093 (4.1)	62 (5.7)		191 (17.5)	
40–49	14,877 (55.9)	1129 (7.6)		2766 (18.6)	
50–59	4585 (17.2)	564 (12.3)		1092 (23.8)	
60–69	4158 (15.6)	530 (12.8)		983 (23.6)	
≥70	1898 (7.1)	251 (13.2)		520 (27.4)	
Company size			<0.001		0.210
<50 employees	20,029 (75.3)	1924 (9.6)		4129 (20.6)	
50–299 employees	4559 (17.1)	477 (10.5)		981 (21.5)	
≥300 employees	2023 (7.6)	135 (6.7)		442 (21.9)	
Presence of labor union			<0.001		<0.001
No	22,822 (85.8)	2096 (9.2)		4659 (20.4)	
Yes	3789 (14.2)	440 (11.6)		893 (23.6)	

Distribution of worker's industry was not shown

[a] *p* value of Chi-square test comparing prevalence of absenteeism across groups

[b] *p* value of Chi-square test comparing prevalence of presenteeism across groups

0.70, 0.92) and subcontract—permanent (OR 0.63; 95 % CI 0.39, 1.01), which was marginally significant, with the exception of parent firm—long term (OR 1.88; 95 % CI 1.57, 2.26) (Table 2). However, presenteeism was not associated or positively associated with all forms of nonstandard employment, including parent firm—long term (OR 1.64; 95 % CI 1.42, 1.91), subcontract—long term (OR 1.61; 95 % CI 1.11, 2.32), and subcontract—short term (OR 1.26; 95 % CI 1.02, 1.56) (Table 3). When we additionally adjusted for potential intermediate variables (i.e., monthly income, shift work, and working hours), the associations with both absenteeism and presenteeism did not change significantly.

Table 2 Association between nonstandard employment and absenteeism during the past 12 months in South Korea ($N = 26{,}611$)

Employment condition			Absenteeism						
Contract type	Contract duration	*N* (%)	Prevalence	Unadjusted		Model 1[d]		Model 2[e]	
			N (%)	OR	95 % CI	OR	95 % CI	OR	95 % CI
Parent firm contract	Permanent[a]	20,925 (78.6)	2002 (9.6)	1.00	Reference	1.00	Reference	1.00	Reference
	Long term[b]	913 (3.4)	151 (16.5)	1.87[f]	1.56, 2.24	1.88[f]	1.57, 2.26	1.88[f]	1.56, 2.26
	Short term[c]	3716 (14.0)	304 (8.2)	0.84[g]	0.74, 0.96	0.80[g]	0.70, 0.92	0.81[g]	0.71, 0.93
Subcontract	Permanent[a]	341 (1.3)	20 (5.9)	0.59[h]	0.37, 0.93	0.63	0.39, 1.01	0.69	0.43, 1.10
	Long term[b]	154 (0.6)	8 (5.2)	0.52	0.25, 1.06	0.57	0.27, 1.18	0.60	0.29, 1.26
	Short term[c]	562 (2.1)	51 (9.1)	0.94	0.70, 1.26	0.96	0.70, 1.33	0.98	0.71, 1.35

[a] ≥1 year, no fixed term

[b] ≥1 year, fixed term

[c] <1 year, fixed term

[d] Adjusted for sex, age, education, industry, company size, and presence of labor union

[e] In addition to Model 1, adjusted for monthly income, shift work, and working hours

[f] $p < 0.001$

[g] $p < 0.01$

[h] $p < 0.05$

Table 3 Association between nonstandard employment and presenteeism during the past 12 months in South Korea ($N = 26{,}611$)

Employment condition			Presenteeism						
Contract type	Contract duration	*N* (%)	Prevalence	Unadjusted		Model 1[d]		Model 2[e]	
			N (%)	OR	95 % CI	OR	95 % CI	OR	95 % CI
Parent firm contract	Permanent[a]	20,925 (78.6)	4240 (20.3)	1.00	Reference	1.00	Reference	1.00	Reference
	Long term[b]	913 (3.4)	270 (29.6)	1.65[f]	1.43, 1.91	1.64[f]	1.42, 1.91	1.65[f]	1.42, 1.91
	Short term[c]	3716 (14.0)	777 (20.9)	1.04	0.95, 1.13	1.00	0.91, 1.10	1.03	0.94, 1.14
Subcontract	Permanent[a]	341 (1.3)	81 (23.8)	1.23	0.95, 1.58	1.20	0.92, 1.57	1.19	0.91, 1.55
	Long term[b]	154 (0.6)	45 (29.2)	1.62[g]	1.15, 2.30	1.61[h]	1.11, 2.32	1.63[h]	1.12, 2.36
	Short term[c]	562 (2.1)	139 (24.7)	1.29[h]	1.06, 1.57	1.26[h]	1.02, 1.56	1.29[h]	1.04, 1.60

[a] ≥1 year, no fixed term

[b] ≥1 year, fixed term

[c] <1 year, fixed term

[d] Adjusted for sex, age, education, industry, company size, and presence of labor union

[e] In addition to Model 1, adjusted for monthly income, shift work, and working hours

[f] $p < 0.001$

[g] $p < 0.01$

[h] $p < 0.05$

Discussion

Although nonstandard workers account for more than 30 % of waged workers in South Korea (Statistics Korea 2015), their right at workplace has been often neglected so far. Previous studies found that nonstandard workers are more likely to work under hazardous condition and less likely to exercise their rights at work (Im et al. 2012; Kim et al. 2008b). In addition, "Labor Standard Act" does not specify worker's right to use sick leave in South Korea. Therefore, labor union at workplace could play an important role to exercise the right, but labor union density is low as 2.8 % in 2015 among nonstandard workers, whereas it is 16.9 % among standard workers (Statistics Korea 2015). Labor union often cannot protect nonstandard workers' right including whether or not taking a day off while sick.

This study found that most nonstandard employment may increase risk of presenteeism, but not absenteeism, among full-time employees in South Korea. Previous studies have reported that nonstandard employment is not associated or is negatively associated with absenteeism, which is counterintuitive given the mounting evidence for negative consequences of nonstandard employment on workers' health. Our results suggest that previous findings could potentially be explained by nonstandard workers being forced to work when sick, leading to increased presenteeism.

These findings suggest that nonstandard employees, compared to standard employees, tend to report to work even when sick. This difference could be attributable to job insecurity, which influences the decision whether to work when sick (Heponiemi et al. 2010; Virtanen et al. 2003). Job insecurity may play a role as a "presence factor" that leads employees to work even while sick and to accept hazardous working conditions to maintain their position (Virtanen et al. 2003).

The findings about absenteeism among the parent firm—long term employment group need more careful interpretation because this group was the only one that had a significantly higher prevalence of absenteeism as well as a higher prevalence of presenteeism. Absenteeism measures two different issues simultaneously: (1) whether workers are sick, and (2) whether workers are allowed to take leave when sick. Regarding the first issue, we expect that the nonstandard employment group in this study may have poor overall health, based on the previous studies about the health of fixed-term (Kim et al. 2008a, 2012; Lewchuk et al. 2003; Virtanen et al. 2008) or subcontracted workers (Min et al. 2013) in South Korea. When it comes to the second issue, we hypothesize that the parent firm—long term employment group is relatively empowered to take sick leave compared to other nonstandard employment types. Indeed, previous studies often classified this group as standard workers because their contract term is longer than 1 year (Kim et al. 2006, 2008a). Future studies needs to disentangle the impact of these two issues using a dataset with more detailed health indicators.

Although we analyzed absenteeism and presenteeism separately in the dataset, two measures could be related to each other. The relationship could be negative, which means that increase of presenteeism would result in decrease of absenteeism. This is probable if employees may choose to work while sick instead of being absent at work because of job insecurity. On the other hand, presenteeism could be positively related to absenteeism as previous studies pointed out that presenteeism is a critical predictor of absenteeism in the future. When we estimated the bivariate association between the two measures as a post hoc analysis, it showed the strong positive association (OR 6.08, 95 % CI 5.59–6.62). However, it is difficult to disentangle and to interpret the relationship between the twos in this research, due to the cross-sectional nature of our dataset.

Given the rapid increase of nonstandard employment worldwide, our results imply that occupational health research needs to pay more attention to presenteeism, which is strongly influenced by job insecurity (Aronsson et al. 2000). Presenteeism of nonstandard workers might not be a critical issue for employers compared to absenteeism, because it was less likely to influence workers' productivity because they were still at work. However, a growing body of evidences has indicated that presenteeism is a critical factor for productivity loss (Johns 2010) as well as a predictor of future absenteeism (Bergstrom et al. 2009). This means that presenteeism may not only influence productivity of current employer but also decrease productivity of society in the long term by leading to higher prevalence of absenteeism.

Several limitations should be noted. First, because we analyzed a cross-sectional dataset, there could be a potential reverse causation, meaning that people with poor health condition are more likely to work as nonstandard workers. A study with a longitudinal dataset is required to examine the association in the future. Second, there could be unmeasured residual confounding, such as having a chronic disease (e.g., diabetes). For example, workers with poor health conditions are more likely to work as nonstandard employees and the prior health status could influence worker's experience of presenteeism as well as absenteeism. Third, absenteeism and presenteeism in the data analysis were coded as binary variables using an arbitrary cutoff (no vs. 1 day or more). However, when we conducted a post hoc analysis using a different cutoff (e.g., less than 2 vs. 2 days or more), the results were not changed significantly. Furthermore, we assessed absenteeism by self-reported questionnaires, which could be vulnerable to recall bias. Although presenteeism is difficult to be measured using other sources except self-reports, administrative dataset could be utilized to assess absenteeism more accurately in future studies.

However, we also note strengths of this study. To our knowledge, this is one of the first studies to examine how nonstandard employment is associated with absenteeism as well as presenteeism. This study empirically suggests that previous negative or null findings in the association between nonstandard employment and absenteeism could be explained by nonstandard workers being forced to work while sick, not by them being less likely to be sick.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee. The data of KWCS are publicly available under permission from KOSHA at http://www.kosha.or.kr/, and for this type of study formal consent is not required. This study was exempted from Institutional Review Board approval by Korea University.

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