



Contents lists available at ScienceDirect

Safety and Health at Work

journal homepage: www.e-shaw.net

Original Article

Assessing the Association Between Emotional Labor and Presenteeism Among Nurses in Korea: Cross-sectional Study Using the 4th Korean Working Conditions Survey



Sung Won Jung, June-Hee Lee, Kyung-Jae Lee*

Department of Occupational & Environmental Medicine, Soonchunhyang University Hospital, Seoul, Republic of Korea

ARTICLE INFO

Article history:

Received 4 April 2019

Received in revised form

25 October 2019

Accepted 6 December 2019

Available online 17 December 2019

Keywords:

emotions

nurses

presenteeism

Republic of Korea

workplace

ABSTRACT

Background: Presenteeism has emerged as an important health-related issue and has been studied in a variety of occupation groups. This study examines the relationship between emotional labor and presenteeism in nurses in Republic of Korea.

Methods: As a cross-sectional study, our study was conducted on 328 female nurses participating in the fourth Korean Working Conditions Survey (2015). Nurses were identified by the Korean Industry Classification Code. Multivariable logistic regression analysis was performed to explore the association between emotional labor and presenteeism.

Results: Female nurses who always or sometimes hide their emotions in the workplace were found to have a high risk for presenteeism compared with female nurses who rarely hide their emotions in the workplace {odds ratio [OR] = 2.40 [95% confidence interval (CI) 1.04–5.54]; OR = 4.12 [95% CI 1.72–9.84], respectively}. Furthermore, the risk of presenteeism was higher in nurses who sometimes engaged with complaining customers compared with nurses who rarely did so, but it lacked statistical significance.

Conclusion: Presenteeism in nurses can cause various negative secondary effects; therefore, an alternative should be sought to mediate nurses' emotional labor to prevent presenteeism.

© 2019 Occupational Safety and Health Research Institute, Published by Elsevier Korea LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

The concept of presenteeism was first introduced in the mid-1990s as an important factor related to productivity within the business administration sector and is still one of the most researched concepts in the field of occupational health [1]. The term has slightly different interpretations. The most representative interpretation involves two aspects: (1) when an employee has come into work but is limited in his or her capacity to work because of health issues [2] and (2) the act of coming into work despite having health issues [3]. Although some definitional confusion will be addressed in what follows, the most recent scholarly conception of presenteeism involves showing up for work when one is ill [4]. Presenteeism is a relatively new concept. While it is personal in nature, it may also be a very serious concern for employers as employee health is directly related to a company's productivity and the employer's profit margins [5,6]. Presenteeism has also received considerable attention through research that showed presenteeism

to have higher indirect economic costs because of decreased productivity compared with other related illnesses [7].

Previous research on various occupational groups has established the prevalence and factors of presenteeism. The major occupational group for research includes healthcare workers such as nurses, doctors, and nurses' aides [8–10]. In particular, nurses' presenteeism seems to require special attention as it may have dire results. When a nurse comes to work with health issues, there can be a decline in concentration that may lead to a decline in the quality of nursing [11]. This has already been recognized as an issue that may place coworkers, patients, and patients' families at risk [12].

Nurses provide medical services as professionals simultaneously with emotional services, such as dealing with patients face-to-face and listening to their complaints. This characteristic of nurses' tasks is inevitably related to emotional labor. The term emotional labor was introduced for the first time in the 1980s as “the management of feeling to create a publicly observable facial and bodily display” [13] and was defined as an individual's efforts, plans, and control

* Corresponding author. Soonchunhyang University Hospital, 59 Daesagwan-ro, Yongsan-gu, Seoul 04401, Republic of Korea.
E-mail address: leekj@schmc.ac.kr (K.-J. Lee).

necessary to cater to the emotional expression that an organization demands in the interaction between people [14]. Furthermore, as competition between medical institutions intensifies, institutions seek to gain a friendly atmosphere by educating nurses on kindness and enforcing uniform standards of emotional expression [15].

Such emotional labor causes emotional dissonance, which can lead to emotional burnout, exhaustion, low level of job satisfaction, or performance and even depression [14,16]. Previous research has found that stress, burnout, low level of job satisfaction, and depression can all serve as risk factors for presenteeism [17]. This suggests that emotional labor may directly or indirectly affect presenteeism. However, there is a lack of research identifying the relationship between emotional labor and presenteeism and a lack of research on particular occupational groups, such as nurses. Therefore, this study aimed to use data from the fourth Korean Working Conditions Survey (KWCS) to identify the relationship between emotional labor and presenteeism in nurses in Republic of Korea.

2. Materials and methods

2.1. Study participants

This study used data from the fourth KWCS, a survey conducted by the Occupational Safety and Health Research Institute under a government mandate. The survey was conducted in 2014 and used multiarea random sampling based on all workers over the age of 15 years to be more representative of the nation as a whole. The KWCS was developed based on the European Working Conditions Survey. The KWCS is a national open-source database with safeguards to protect the participants' anonymity and privacy rights and consisted of door to door interviews targeting wage workers. Statistics Republic of Korea determined the KWCS information's reliability to increase the usage of its data. The survey's response rate was 33.0%, the cooperation rate 69.9%, and the refusal rate 14.2%. The objective is to provide a better and safer working environment by providing information on the overall working environment of the Korean people, identifying work-related factors, health effects, and accidents.

The total number of people surveyed was 50,007. All the fourth KWCS participants should respond to a questionnaire about their occupations based on the Korean Industry Classification Code; of these, the number of nurses from the total of participants was 395. All 395 nurses were adults over the age of 20 years. For the purposes of this research, all male nurses ($n = 19$, very few numbers), nonwage worker ($n = 1$), participants that provided inadequate answers ($n = 47$), such as "I don't know" or left answers blank) were excluded. Thus, the data of 328 female nurses were selected and used for this research.

2.2. Measurements

2.2.1. General and occupational characteristics

Data were collected on general characteristics, including age (20–29 years, 30–39 years, 40–49 years, or ≥ 50 years), level of education (high school level or lower, college, university, or higher), and monthly income [based on posttax amount; <1,500,000 Korean won (KRW), 1,500,000 ~ 1,990,000 KRW, 2,010,000 ~ 2,490,000 KRW, or $\geq 2,500,000$ KRW] and occupational characteristics, including employment status (permanent or temporary), working hours per week (≤ 40 hours, >40 and <52 hours, or ≥ 52 hours), shift work (yes or no), number of employees (<5 , 5–49, 50–299, or ≥ 300), and workplace ergonomic risk (low or high). We included workplace ergonomic risk as a confounder for analysis in our study design because musculoskeletal pain is crucial for

presenteeism and also workers exposed to various ergonomic risks were vulnerable groups of presenteeism [18,19]. Ergonomic risk variable was calculated, which was the sum of the scores for the five questions: tiring or painful positions, lifting or moving people, carrying or moving heavy loads, standing, repetitive hand or arm movements, dealing directly with people who are not employees at your workplace, such as customers, passengers, pupils, and patients. There were seven original possible responses for this question: "At all times," "Most of the time," " $\frac{3}{4}$ of the time," "Half of the time," " $\frac{1}{4}$ of the time," "Rarely," and "Not at all." One to seven point was assigned for "Not at all" to "At all times". Then, the sum of the score were categorized into "High" group and "Low" group, based on the median value [20].

2.2.2. Workplace psychosocial factors

Presenteeism is affected by various psychosocial factors in the workplace. According to previous studies, as an organizational factor, job-related stress factors (such as job control, job demand, support, job satisfaction, and job insecurity), and workplace discrimination were well-known risk factors for presenteeism [17,21]. The aforementioned factors are also included in the KWCS questionnaires.

Based on the questionnaires of the fourth KWCS, the items of workplace psychosocial factor were selected: (1) job control: five questions (able to choose or change order of task, methods of work, speed or rate of work, whether you have a say in the choice of working partners, can take a break when you want); (2) job demand: two questions (working at very high speed, working with tight deadline); (3) social support: two questions (colleagues help and support you, supervisors help and support you); (4) job satisfaction: one question (Overall, what do you think about the work environment that you usually do?); (5) job insecurity: two questions (loss of job within the next 6 months, ability to find a job with a similar wage in case of unemployment); (6) workplace discrimination: 10 questions (Over the past 12 months, have you ever experienced workplace discrimination based on your age, race, nationality, sex, religion, disability, sexual orientation, education level, region, and employment status) [22,23].

Three questions about job control were yes/no questions: able to choose or change order of task, methods of work, speed or rate of work; one point was assigned for "yes". The responses of two questions about job control (whether you have a say in the choice of your working partners, can take a break when you want) were "always", "most of the time", "sometimes", "rarely", and "never". One point was assigned for "always", "most of the time", and "sometimes". Then, the sum is calculated for each factor and categorized into "low" and "high" group, based on median value [20]. Aforementioned categorizing method was applied to other variables.

2.2.3. Health status

General poor worker health is well-known factor that affects presenteeism [2]. Therefore, in this study, the participants who have past 1 year medical history (cardiovascular disease, injury, depression, and insomnia or sleep disorder) related to presenteeism were classified into the group with health status "poor" [2,17].

2.2.4. Emotional labor

This research used two items from the fourth KWCS questionnaire to determine the level of emotional labor. One previous study that used the fourth KWCS to evaluate the health effects of emotional labor had also used the same two items by grouping them [24]. The first item was "I have to hide my emotions during work." The original possible responses were grouped into three new possible responses: "Always" (originally "Always" and "Almost

always”), “Rarely” (originally “Almost never” and “Never”), and “Sometimes.” The second item used was “I manage customers or patients who complaining angrily at work.” There were seven original possible responses for this question: “At all times,” “Most of the time,” “ $3/4$ of the time,” “Half of the time,” “ $1/4$ of the time,” “Rarely,” and “Not at all.” From these responses, “At all times,” “Most of the time,” and “ $3/4$ of the time” were grouped together as “Always”; “Half of the time”; and “ $1/4$ of the time” were grouped together as “Sometimes”, and “Rarely” and “Not at all” were grouped together as “Rarely.”

2.2.5. Presenteeism

The term “presenteeism” is used to describe the concept of workers coming to work even when they need to rest at home because of illness or injury [3,4]. This study classified presenteeism as a dependent variable, when a person answered “yes” to the question “Over the past 12 months, did you work at least one day when you were sick?” Many previous studies that used the fourth KWCS to evaluate presenteeism also used this question [25–27].

2.3. Data analysis

A Chi-square test was conducted to analyze the distribution of nurses that experienced presenteeism according to general (age, education level, and monthly income), occupational characteristics (employment status, weekly working hours, number of employees, shift work, and ergonomic risk), workplace psychosocial factors (job control, job demand, social support, job satisfaction, job insecurity, and workplace discrimination), and health status. The Chi-square test was also conducted to analyze the distribution of the independent variables “Hiding emotions at workplace” and “Engaging with complaining customers” on the distribution of presenteeism experience.

Multivariable logistic regression analysis was conducted to analyze the impact of “Hiding emotions at workplace” and “Engaging with complaining customers” on the risk of presenteeism. The adjusted odds ratio (OR) and 95% confidence interval (CI) were calculated through after correcting for general, occupational characteristics, workplace psychosocial factors, and health status. The analysis models according to the adjusted variables were as follows: (1) Model I: crude OR; (2) Model II: adjusted by age, education level, monthly income, employment status, weekly working hours, number of employees, shift work, and ergonomic risk; (3) Model III: Model II + adjusted by job control, job demand, social support, job satisfaction, job insecurity, and workplace discrimination; (4) Model IV: Model III + adjusted by health status. The statistical software SPSS 14.0 (SPSS Inc., Chicago, IL) was used for statistical analysis and p value (≤ 0.05).

2.4. Ethical considerations

Each survey participant in KWCS provided permission via face-to-face interview, and each participant's anonymity was guaranteed. This study was approved by the Institutional Review Board of S. University Hospital (IRB No. 2018-07-015).

3. Results

3.1. The distribution of presenteeism among female nurses in relation to general and occupational characteristics

As the overall prevalence, 96 nurses (29.3%), from a total of 328, responded to having experienced presenteeism. There were no significant distributional difference on other variables, but only ergonomic risk was found to be significantly different. Nurses

group who exposed to high ergonomic risk showed more experience of presenteeism (33.3%) than low group (23.1%) (Table 1).

3.2. The distribution of presenteeism among female nurses in relation to workplace psychosocial factors and health status

Female nurses in high workplace discrimination group showed more experience of presenteeism (44.9%). Also, nurses who were in poor health status group (50.0%) showed more experience of presenteeism than good health status group (27.8%). There were no significant difference between job control, job demand, social support, job satisfaction, and job insecurity between presenteeism (Table 2).

3.3. The distribution of presenteeism among female nurses in relation to emotional labor

Those who responded “Always” to the item “Hiding emotions at workplace” (41.7%) had more experience of presenteeism compared with those who chose the other responses [“Sometimes” (27.5%) and “Rarely” (13.4%)], and the result was statistically significant. The responses for the item “Engaging with complaining

Table 1
Number of nurses with presenteeism by general and occupational characteristics

| Variables | Total (n = 328) | Presenteeism | | p value* |
|----------------------------------|-----------------|--------------|------------|--------------------|
| | | No (n, %) | Yes (n, %) | |
| Age (years) | | | | |
| 20–29 | 75 | 62 (82.7) | 13 (17.3) | 0.052 |
| 30–39 | 126 | 88 (69.8) | 38 (30.2) | |
| 40–49 | 102 | 65 (63.7) | 37 (36.3) | |
| ≥ 50 | 25 | 17 (68.0) | 8 (32.0) | |
| Education level | | | | |
| High school or lower | 16 | 11 (68.8) | 5 (31.3) | 0.815 [†] |
| College | 119 | 82 (68.9) | 37 (31.1) | |
| University or higher | 193 | 139 (72.0) | 54 (28.0) | |
| Monthly income (KRW, 105) | | | | |
| <150 | 24 | 17 (70.8) | 7 (29.2) | 0.581 |
| 150–199 | 112 | 83 (74.1) | 29 (25.9) | |
| 200–249 | 87 | 63 (72.4) | 24 (27.6) | |
| ≥ 250 | 105 | 69 (65.7) | 36 (34.3) | |
| Employment status | | | | |
| Permanent | 317 | 224 (70.7) | 93 (29.3) | 0.591 [†] |
| Temporary | 11 | 8 (72.7) | 3 (27.3) | |
| Weekly working hours | | | | |
| ≤ 40 | 163 | 118 (72.4) | 45 (27.6) | 0.746 |
| >40, <52 | 126 | 86 (68.3) | 40 (31.7) | |
| ≥ 52 | 39 | 28 (71.8) | 11 (28.2) | |
| Number of employees | | | | |
| <5 | 81 | 59 (72.8) | 22 (27.2) | 0.748 |
| 5–49 | 121 | 88 (72.7) | 33 (27.3) | |
| 50–299 | 86 | 59 (68.6) | 27 (31.4) | |
| ≥ 300 | 40 | 26 (65.0) | 14 (35.0) | |
| Shift work | | | | |
| No | 228 | 165 (72.4) | 63 (27.6) | 0.357 |
| Yes | 100 | 67 (67.0) | 33 (33.0) | |
| Ergonomic risk | | | | |
| Low | 130 | 100 (76.9) | 30 (23.1) | 0.048 |
| High | 198 | 132 (66.7) | 66 (33.3) | |

p-value < 0.05.

* Based on Chi-square test.

[†] Based on Fisher's exact test.

Table 2
Number of nurses with presenteeism by workplace psychosocial factors and health status

| Variables | Total (n = 328) | Presenteeism | | p value* |
|---------------------------------|-----------------|--------------|------------|--------------|
| | | No (n, %) | Yes (n, %) | |
| Job control | | | | |
| Low | 220 | 154 (70.0) | 66 (30.0) | 0.701 |
| High | 108 | 78 (72.2) | 30 (27.8) | |
| Job demand | | | | |
| Low | 307 | 217 (70.7) | 90 (29.3) | 0.942 |
| High | 21 | 15 (71.4) | 6 (28.6) | |
| Social support | | | | |
| Low | 116 | 85 (73.3) | 31 (26.7) | 0.454 |
| High | 212 | 147 (69.3) | 65 (30.7) | |
| Job satisfaction | | | | |
| Low | 57 | 35 (61.4) | 22 (38.6) | 0.089 |
| High | 271 | 197 (72.7) | 74 (27.3) | |
| Job insecurity | | | | |
| Low | 308 | 218 (70.8) | 90 (29.2) | 0.941 |
| High | 20 | 14 (70.0) | 6 (30.0) | |
| Workplace discrimination | | | | |
| Low | 279 | 205 (73.5) | 74 (26.5) | 0.009 |
| High | 49 | 27 (55.1) | 22 (44.9) | |
| Health status | | | | |
| Good | 306 | 221 (72.2) | 85 (27.8) | 0.027 |
| Poor | 22 | 11 (50.0) | 11 (50.0) | |

p-value < 0.05.

* Based on Chi-square test.

customers” did not show any significant differences [“Always” (28.2), “Sometimes” (33.9), “Rarely” (26.6%)] (Table 3).

3.4. Association between the degree of emotional labor and presenteeism

Multivariable logistic regression models were conducted to determine the relationship between the degree of emotional labor and presenteeism. Therefore, we ran four logistic regression models in sequence on the method abovementioned: (1) model I, crude OR; (2) model II, adjusted by age, education level, monthly income, employment status, weekly working hours, number of employees, shift work, and ergonomic risk; (3) model III, model II + adjusted by job control, job demand, social support, job satisfaction, job insecurity, and workplace discrimination; (4) model IV, model III + adjusted by health status.

The results of model I indicated that female nurses who responded “Always” or “Sometimes” to the item “Hiding emotions at workplace” had a higher risk of experiencing presenteeism than those who responded “Rarely” [OR = 2.37 (95% CI 1.07–5.22), OR = 4.55 (95% CI 2.03–10.17), respectively].

The association remained statistically significant after further adjusting for general and occupational characteristics [OR = 2.61 (95% CI 1.15–5.97), OR = 4.87 (95% CI 2.09–11.35), respectively] in model II, workplace psychosocial factors [OR = 2.45 (95% CI 1.06–5.66), OR = 4.25 (95% CI 1.78–10.12), respectively] in model III, and health status [OR = 2.40 (95% CI 1.04–5.54), OR = 4.12 (95% CI 1.72–9.84), respectively] in model IV.

The OR of presenteeism was higher in nurses that responded “Sometimes” to the item “Engaging with complaining customers” than those that responded “Rarely,” but did not show significant correlations in model I. These patterns were consistent across all different models (Table 4).

Table 3
Distribution of presenteeism by hiding emotions and engaging with complaining customer

| Groups | Total (n = 328) | Presenteeism | | p value* |
|--|-----------------|--------------|------------|------------------|
| | | No (n, %) | Yes (n, %) | |
| Hiding emotions at workplace | | | | |
| Rarely | 67 | 56 (86.6) | 9 (13.4) | <0.001 |
| Sometimes | 153 | 111 (72.5) | 42 (27.5) | |
| Always | 108 | 63 (58.3) | 45 (41.7) | |
| Engaging with complaining customers | | | | |
| Rarely | 177 | 130 (73.4) | 47 (26.6) | 0.402 |
| Sometimes | 112 | 74 (66.1) | 38 (33.9) | |
| Always | 39 | 28 (71.8) | 11 (28.2) | |

p-value < 0.05.

* Based on Chi-square test.

4. Discussion

This cross-sectional design research identified the relationship between presenteeism and the level of emotional labor among female nurses who participated in the fourth KWCS, such as “Hiding emotions at work” and “Engaging with complaining customers”. The more nurses were required to hide their emotions at workplace, the more susceptible they were to presenteeism. We think this result is meaningful because, as far as we know, there is a lack of research concerning the relationship between presenteeism and emotional labor for Korean female nurses.

Among the 328 female nurses in our study, the prevalence of presenteeism was 29.3%. At a focus group interview of 20 Korean nurses performed for qualitative research, all 20 nurses responded that they had experienced presenteeism [9]. In a study that included 250 Korean nurses, 45.6% responded that they had experienced presenteeism [28], and in a study that included 3,000 Swiss nurses, a high percentage (32.9%) reported they had experienced presenteeism [29]. These results indicate that the rate of presenteeism within the nursing occupation is high regardless of Eastern/Western differences.

Our study’s results are in line with the findings of various previous studies. In this study, the higher the exposure to ergonomic risk and discrimination, the higher the rate of presenteeism. In studies involving only nurses exposed to ergonomic risk factors, the risk of presenteeism increased with the degree of low back pain [19]. Also, previous study about the impact of the musculoskeletal pain, closely related to ergonomic risks, on presenteeism in a fortune 100 companies showed that severity of pain showed a predominantly positive relation to presenteeism [30]. Many studies have identified the negative effects on mental health of workplace discrimination [31]. Poor mental health from discrimination, especially depression, is closely associated with presenteeism [32]. It is widely known, through previous research, that workers suffering from underlying diseases are more susceptible to presenteeism [33]. Our study also showed that poor health status group had a higher proportion of presenteeism.

Emotional labor, especially “Hiding emotions at workplace”, showed a significant relation with presenteeism. This study confirmed that the higher the level of emotional hiding, the higher the risk of presenteeism. Emotional labor such as hiding emotions can increase the risk of sleep disorders and insomnia in workers [24]. It has been found that patients with these types of disorders are prone to presenteeism [34]. Furthermore, emotional labor can function as the cause of work-related stress which leads to emotional dissonance [35]. Previous studies have found that

Table 4

The odds ratios and 95% confidence intervals of emotional labor on presenteeism

| Groups | Model I | | Model II | | Model III | | Model IV | |
|---------------------------------------|-----------|------------|-----------|------------|-----------|------------|-----------|-----------|
| | OR | 95% CI | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| Hiding emotions at workplace | | | | | | | | |
| Rarely | Reference | | Reference | | Reference | | Reference | |
| Sometimes | 2.37 | 1.07–5.22 | 2.61 | 1.15–5.96 | 2.45 | 1.06–5.66 | 2.40 | 1.04–5.54 |
| Always | 4.55 | 2.03–10.17 | 4.87 | 2.09–11.35 | 4.25 | 1.78–10.12 | 4.12 | 1.72–9.84 |
| Engaging complaining customers | | | | | | | | |
| Rarely | Reference | | Reference | | Reference | | Reference | |
| Sometimes | 1.32 | 0.78–2.24 | 1.21 | 0.69–2.12 | 1.18 | 0.67–2.10 | 1.19 | 0.67–2.11 |
| Always | 0.91 | 0.41–2.02 | 0.72 | 0.31–1.67 | 0.68 | 0.28–1.61 | 0.68 | 0.28–1.62 |

OR, odds ratio; CI, confidence interval.

Model I: Crude odds ratio.

Model II: Adjusted by age, education level, monthly income, employment status, weekly working hours, number of employees, shift work, and ergonomic risk.

Model III: Model II + job control, job demand, social support, job satisfaction, job insecurity, and workplace discrimination.

Model IV: Model III + health status.

workers with less work-related stress are less likely to experience presenteeism [36]. Emotional labor has various other negative effects, such as a low level of job satisfaction and burnout syndrome [37]. A low level of job satisfaction is known to have a significant relationship with presenteeism as well [38].

This study was one of the few studies that confirmed a correlation between emotional labor (“Hiding emotions at workplace” and “Engaging with complaining customers”) and presenteeism. Another strength of the study was the pool of participants. This study specifically used responses from nurses, increasing its significance and validity. This study also identified that risk factors, such as “Hiding emotions at workplace,” show clear quantitative dispositions and confirmed such factors to be among the first to be considered when assessing preventative measures for nurses experiencing presenteeism.

There were several limitations to this study. First, the number of participants was relatively small number using the Korean Industry Classification Code to select study participants in the fourth KWCS. Also, it was an unweighted study result, but there were many meaningful previous studies with unweighted results using KWCS [39,40]. Hence, this study has even greater implications because significant results were achieved within a small pool of participants. This approach allowed us to identify the existence of the phenomenon and construct a research model that can find a cause and effect relationship in future studies. Second, the causal relationship between presenteeism and emotional labor cannot be identified through a cross-sectional study. Yet, as there is a lack of previous research, this research can be used as a reference for future research. Third, the fourth KWCS does not include other factors, especially personal factors such as lifestyle and home circumstance, that may affect presenteeism in the questionnaire. Therefore, confounding variables could not be fully taken into account. Additionally, categorized self-report questionnaires were used, making it difficult to objectively evaluate emotional labor as an independent variable. In addition, we could not evaluate the dependent variable, presenteeism, as a tool that can be objectively evaluated like the Stanford Presenteeism Scale. KWCS questionnaire should be supplemented by reflecting these points. Nevertheless, there is an abundance of previous research based on KWCS and the European Working Conditions Survey, so we believe this research is sufficiently valuable.

This study confirmed that emotional labor, such as “Hiding emotion at workplace” is related to presenteeism in nurses. Compared with nurses who rarely hide their emotion at workplace, nurses who sometimes or always hide their emotion at workplace showed a significant rise in the risk of presenteeism. Nurses’

presenteeism can bring about a decrease in concentration at work and the quality of nursing [11] and endanger the safety of co-workers [12]. The most important effect is the risk to patient safety [41]. Various studies have analyzed the factors that can affect presenteeism. Therefore, measures must be established to help decrease the risk of presenteeism through arbitration or alternatives that can manage nurses’ emotional labor. Furthermore, future research to confirm definite causality is warranted.

Ethics approval and consent to participate

Approved by the Institutional Review Board of S. University Hospital.
(IRB No.SCHUH2018-07-015).

Consent for publication

Not applicable.

Availability of data and materials

The fourth KWCS data are publicly available.

Funding

This work was supported by the Soonchunhyang University Research Fund.

Author contributions

Study conception and design was carried out by SW Jung, KJ Lee, JH Lee; data acquisition was carried out by SW Jung; data analysis and interpretation was carried out by KJ Lee, SW Jung; drafting the manuscript was carried out by SW Jung; critical revision was done by JH Lee, KJ Lee. All authors read and approved the final manuscript.

Conflicts of interest

The authors have no conflicts of interests.

Acknowledgments

The authors would like to thank the Statistics Team of the Occupational Safety and Health Research Institute for offering the raw data from the Korean Working Conditions Survey.

References

- [1] Shamansky SL. Presenteeism...or when being there is not being there. *Public Health Nurs* 2002;19(2):79–80.
- [2] Schultz AB, Edington DW. Employee health and presenteeism: a systematic review. *J Occup Rehabil* 2007;17(3):547–79.
- [3] Aronsson G, Gustafsson K, Dallner M. Sick but yet at work. An empirical study of sickness presenteeism. *J Epidemiol Community Health* 2000;54(7):502–9.
- [4] Johns G. Presenteeism in the workplace: a review and research agenda. *J Organizational Behav* 2010;31(4):519–42.
- [5] Amick 3rd BC, Lerner D, Rogers WH, Rooney T, Katz JN. A review of health-related work outcome measures and their uses, and recommended measures. *Spine* 2000;25(24):3152–60 (Phila Pa 1976).
- [6] Lofland JH, Pizzi L, Frick KD. A review of health-related workplace productivity loss instruments. *Pharmacoeconomics* 2004;22(3):165–84.
- [7] 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.
- [8] Aysun K, Bayram S. Determining the level and cost of sickness presenteeism among hospital staff in Turkey. *Int J Occup Saf Ergon* 2017;23(4):501–9.
- [9] Kim J, Suh EE, Ju S, Choo H, Bae H, Choi H. Sickness experiences of Korean registered nurses at work: a qualitative study on presenteeism. *Asian Nurs Res (Korean Soc Nurs Sci)* 2016;10(1):32–8.
- [10] Letvak SA, Ruhm CJ, Gupta SN. Nurses' presenteeism and its effects on self-reported quality of care and costs. *Am J Nurs* 2012;112(2):30–8 quiz 48, 39.
- [11] Kim H-S. A comparative study regarding health condition and work stress of nurses working in cancer ward and general ward. *Asian Oncol Nurs* 2001;1:191–203.
- [12] Middaugh DJ. Presenteeism: sick and tired at work. *Dermatol Nurs* 2007;19(2):172–3. 85.
- [13] Russell HA. *The managed heart: commercialization of human feeling*. Berkeley: University of California Press; 1983. p. 320–36.
- [14] Morris JA, Feldman DC. The dimensions, antecedents, and consequences of emotional labor. *Acad Manage Rev* 1996;21(4):986–1010.
- [15] Park H-J. Emotional labour, emotional expression and burnout of clinical nurses. *J Korean Acad Nurs Adm* 2009;15(2):225–32.
- [16] Yoon SL, Kim JH. Job-related stress, emotional labor, and depressive symptoms among Korean nurses. *J Nurs Scholarsh* 2013;45(2):169–76.
- [17] Garrow V. *Presenteeism: a review of current thinking*. Brighton, United Kingdom: Institute of Employment Studies; 2016. p. 69–75.
- [18] Choi S, Yi Y, Kim J. Exposure to adverse social behavior in the workplace and sickness presenteeism among Korean workers: the mediating effects of musculoskeletal disorders. *Int J Environ Res Public Health* 2018;15(10).
- [19] d'Errico A, Viotti S, Baratti A, Mottura B, Barocelli AP, Tagna M, et al. Low back pain and associated presenteeism among hospital nursing staff. *J Occup Health* 2013;55(4):276–83.
- [20] Baek K, Yang S, Lee M, Chung I. The association of workplace psychosocial factors and musculoskeletal pain among Korean emotional laborers. *Saf Health Work* 2018;9(2):216–23.
- [21] 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.
- [22] Kim G, Min B, Jung J, Paek D, Cho SI. The association of relational and organizational job stress factors with sleep disorder: analysis of the 3rd Korean working conditions survey (2011). *Ann Occup Environ Med* 2016;28(1):46.
- [23] Lee N, Sung H, Kim JH, Punnett L, Kim SS. Perceived discrimination and low back pain among 28,532 workers in South Korea: effect modification by labor union status. *Soc Sci Med* 2017;177:198–204.
- [24] Lim SS, Lee W, Hong K, Jeung D, Chang SJ, Yoon JH. Facing complaining customer and suppressed emotion at worksite related to sleep disturbance in Korea. *J Korean Med Sci* 2016;31(11):1696–702.
- [25] Jeon SH, Leem JH, Park SG, Heo YS, Lee BJ, Moon SH, et al. Association among working hours, occupational stress, and presenteeism among wage workers: results from the second Korean working conditions survey. *Ann Occup Environ Med* 2014;26(1):6.
- [26] Lee B. Relationship between hiding emotions and health outcomes among south Korean interactive service workers. *Workplace Health Saf* 2016;64(5):187–94.
- [27] Oh SW, Jung KT, Park JY. The association of health risks with absenteeism and presenteeism. *Korean J Occup Environ Med* 2007;19(4):304–14.
- [28] Lee YM, Jung MH. Presenteeism and absenteeism according to health problems on nurses. *J Korean Acad Community Health Nurs* 2008;19(3):459–68.
- [29] Dhaini S, Zuniga F, Ausserhofer D, Simon M, Kunz R, De Geest S, et al. Absenteeism and presenteeism among care workers in Swiss nursing homes and their association with psychosocial work environment: a multi-site cross-sectional study. *Gerontology* 2016;62(4):386–95.
- [30] Allen H, Hubbard D, Sullivan S. The burden of pain on employee health and productivity at a major provider of business services. *J Occup Environ Med* 2005;47(7):658–70.
- [31] Brohan E, Slade M, Clement S, Thornicroft G. Experiences of mental illness stigma, prejudice and discrimination: a review of measures. *BMC Health Serv Res* 2010;10:80.
- [32] Evans-Lacko S, Knapp M. Global patterns of workplace productivity for people with depression: absenteeism and presenteeism costs across eight diverse countries. *Soc Psychiatry Psychiatr Epidemiol* 2016;51(11):1525–37.
- [33] Collins JJ, Baase CM, Sharda CE, Ozminkowski RJ, Nicholson S, Billotti GM, et al. The assessment of chronic health conditions on work performance, absence, and total economic impact for employers. *J Occup Environ Med* 2005;47(6):547–57.
- [34] Kucharczyk ER, Morgan K, Hall AP. The occupational impact of sleep quality and insomnia symptoms. *Sleep Med Rev* 2012;16(6):547–59.
- [35] Karimi L, Leggat SG, Cheng C, Donohue L, Bartram T, Oakman J. Are organisational factors affecting the emotional withdrawal of community nurses? *Aust Health Rev* 2017;41(4):359–64.
- [36] Gilbreath B, Karimi L. Supervisor behavior and employee presenteeism. *Int J Leadersh Stud* 2012;7(1):114–31.
- [37] Brothridge CM, Grandey AA. Emotional labor and burnout: comparing two perspectives of "people work". *J Vocational Behav* 2002;60(1):17–39.
- [38] Caverley N, Cunningham JB, MacGregor JN. Sickness presenteeism, sickness absenteeism, and health following restructuring in a public service organization. *J Manage Stud* 2007;44(2):304–19.
- [39] Kim J. The relationship between frequency of injuries and workplace environment in Korea: focus on shift work and workplace environmental factors. *Saf Health Work* 2018;9(4):421–6.
- [40] Lee G. Korean emotional laborers' job stressors and relievers: focus on work conditions and emotional labor properties. *Saf Health Work* 2015;6(4):338–44.
- [41] Brborovic H, Brborovic O, Brumen V, Pavlekovic G, Mustajbegovic J. Are nurse presenteeism and patient safety culture associated: a cross-sectional study. *Arh Hig Rada Toksikol* 2014;65(2):149–56.