Factors Affecting Low Back Pain Symptoms in General Hospital Nurses

Jung-Keun Park, Seung-Hee Jang, Day-Sung Kim, Kyung-Hwa Heo
Occupational Safety and Health Research Institute, KOSHA, Incheon, 403-711

ABSTRACT

Objective: A study was conducted to examine factors of low back pain (LBP) symptoms and also to understand how the LBP symptoms are affected by the factors in general hospital nurses. Background: LBP problem has been remarkably received attention in hospital sector for many years. Methods: The study collected information on LBP symptoms, nursing tasks, personal factors, work organization, physical factors, and psychosocial factors through a questionnaire survey, observation study and focus group interview. Results: A total of 501 nurses participated in the study. Prevalence rate of LBP symptoms was 51% while that of the whole body musculoskeletal symptoms was 80%. In logistic regression analyses, odds ratios ranged from 0.6 to 5.9. The LBP symptoms were significantly influenced by physical factors such as ergonomic factor and work load as well as personal factor such as current health status. Conclusions: LBP symptom factors such as ergonomic factor, work load and current health status should be primarily identified, and then the symptom risks should be assessed and controlled in the hospital nurses. Application: The results of this study can be used for intervention or prevention of LBP symptoms in the hospital sector including the study hospital settings.

Keywords: Low back pain symptoms, Factors, Nurses, General hospital sector

1. Introduction

Hospital nursing work is managed by a number of employees with diverse job titles including nurse. Researchers reported that hospital nurses were at high risk for low back pain (LBP) symptoms (Daraiseh et al., 2010; Fuortes et al., 1994).

It is often known that different types of factors can affect LBP symptoms in nurses. Physical factors generally include forceful exertion, awkward posture, repetitive motion, contact stress, and vibration while psychosocial factors do job demand, decision latitude, social support, and dissatisfaction. There also other factors including personal factor and work organization factor.

The current study was to examine factors of LBP symptoms and also to understand how the symptoms are attributed to those factors in general hospital nurses.

2. Methods

Subjects were nurses recruited from 15 general hospitals across this peninsular. Twenty to seventy nurses were participated in the study where a survey was conducted using a 153-item questionnaire developed for nursing workers. The subjects responded to the self-reported questionnaire with respect to multiple information including LBP symptoms and aspects of exposure to multiple factors. Focus group interviews and onsite observations were made to get supplementary information.

With respect to methodology used in the study, a detailed description was reported elsewhere (Park et al. 2010).

Data were used to get descriptive statistics and to examine how each variable would contribute to LBP symptoms. The study intended to document LBP symptoms and their factors such as personal factor, work organization, physical and psychosocial factor. Each of the physical and psychosocial variables was classified into 4 quartiles such as ‘less than 25 percentile’, ‘25 to less than 50 percentile’, ‘50 to less than 75 percentile’, and ‘75 percentile or more.’ For
each of these variables, a converted score was determined and then classified into a quartile for each variable per subject. The subjects were divided into two groups (i.e., those with and without LBP symptoms) by variable. Chi-square test and multivariate logistic regression were used to examine statistical patterns of data as well as association between set of variables. With a backward deletion approach, multivariate logistic regression was used to determine odds ratios and 95% confidence intervals. All data analyses were performed using the SAS Windows version 9.1.

3. Results

3.1 General and LBP symptoms

A total of 501 nurses were determined in the final data analyses. Age of the subjects was on average 30.7±6.5 years, height 160.4±5 cm, and weight 53.4±7 kg. Nursing work was categorized into 7 tasks: clinical assistance, examination/treatment, patient care, appointment/registration, video display terminal (VDT) task, room rounding, and phone call.

The symptoms prevalence was 51% for the low back body part (Figure 1). Prevalence rate for the whole body was 80%.

![Prevalence rate of low back pain symptoms in the study population (N= 501 nurses).](image)

3.2 LBP symptom factors

In chi-square test, the LBP symptoms were statistically significant in distribution between two groups (with and without LBP symptoms) for current health status, work-time per day, all physical factor variables, and several psychosocial factor variables (job demand, organization system, lack of rewards, pooled score).

In logistic regression, odds ratios ranged from 0.6 to 5.9. Depending on variable, the symptoms were significantly influenced by variables such as current health status, ergonomic factor, or work load.

4. Conclusions

In the non-fatal occupational illness cases approved under workers’ compensation system in Korea, the proportion of LBP cases has been highest over years although the case number has been reportedly decreased.

The prevalence of LBP symptoms was 51% for the low back body part whereas that of whole body musculoskeletal disorder symptoms was 80% in this study. These prevalence levels were higher than those reported in other studies (Park et al., 2008; Cho, 2003).

Odds ratios were 1.6 or higher for most quartiles in the three variables studied. The LBP symptoms were significantly influenced by those factor variables in the study nurses, indicating that those factors should be primarily addressed during intervention for LBP symptoms.

Conclusively, the LBP symptom factors should be first identified and then the symptom risks be assessed in the general hospital nurses. The study results suggest that it is important to identify LBP symptom factors in the nursing personnel, implying that such information can be useful for intervention in the hospital sector.

Acknowledgements

This work was funded by Occupational Safety and Health Research Institute (OSHRI), KOSHA (Publication No. 2010-OSHRI-1094).

References

Cho, K.-H., Musculoskeletal disorder symptom prevalence

Author listing

Jung-Keun Park: jkpark@kosha.net
Highest degree: ScD, Depart. of Work Environment, Univ. of Massachusetts Lowell, USA
Position title: Senior researcher, OSHRI, KOSHA
Areas of interest: Exposure assessment, Musculoskeletal epidemiology, Biomechanics

Seung-Hee Jang: rubystar@kosha.net
Highest degree: MPH, School of Public Health, Seoul National University
Position title: Researcher, OSHRI, KOSHA
Areas of interest: Industrial Hygiene, Surveillance

Day-Sung Kim: ergoman@kosha.net
Highest degree: PhD, Dept. of Industrial Engineering, Incheon National University
Position title: Researcher, OSHRI, KOSHA
Areas of interest: Occupational Ergonomics, Intervention

Kyung-Hwa Heo: viajaba@kosha.net
Highest degree: PhD, School of Public Health, Catholic University
Position title: Researcher, OSHRI, KOSHA
Areas of interest: Occupational Nursing, Job stress