Prevalence and Risk Factors of Low Back Pain among Nurses in an Iranian Hospital, (Kermanshah, 2012)

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Abstract: Musculoskeletal disorder is one of the important health problems. From the low back pain prevalence point of view, nurses are placed in the third place among the employed people. Added to considerable medical expenses that are imposed on them, LBP of nurses leads to loss of productivity and reduced ability to work. Thus it would impose additional workload on other nursing personnel. Considering that sufficient information on the prevalence and risk factors of low back pain of nurses does not exist, this study is carried out in two hospitals of Kermanshah (Taleghani and Imam Reza), in 2013, to better understand the underlying factors. This is a cross-sectional study conducted to investigate low back pain risk factors. 348 nurses of the two hospitals were randomly selected. SPSS software version 16 was used to analyze collected data. Finding of this study indicates 54.3% nurses of low back pain among the selected subjects. LBP was more prevalent among female nurses (56.6%). 34.8% nurses of LBP aged 30 – 35. The prevalence of LBP among night shift nurses was 71%. Married nurses were at the highest risk of LBP (64%). 93.6% of nurses in the selected sample cited that their back pain is due to intensive shift schedule, improper handling of patients, large number of patient and lack of access to standard equipment. Although the obtained prevalence of LBP in this study is less than other studies, but it is still significant. So, in order to protect the health of nursing, it is recommended to authorities to consider reducing workload, appropriate planning and use standard equipment.

Key words: Low Back Pain (Lbp) · Nurses · Kermanshah

INTRODUCTION

Musculoskeletal disorders are an important public health problem [1]. Low back pain is considered a common problem and can result in reducing daily activities [2]. Among them are back conditions, a complex problem for certain occupational groups, such as nursing personnel [1]. From the low back pain (LBP) prevalence point of view, nurses are placed in the third place among the employed people and is between 40-50% in America [3-4]. The yearly low back pain prevalence which has been informed up to now is 73 to 76% between the German nurses, 86% between the Italian nurses and 80.9% between the nurses in Hong Kong [4]. LBP is the second most common cause of patients’ reference to doctor in the United State. Among health care staff, nurses are the most vulnerable group of LBP which is largely due to patient and equipment transmission [5]. Heavy physical activity
such as lifting and handling of patients is the most significant cause of LBP in nursing personnel, but other studies include attribute the prevalence of LBP to both physical factors and work satisfaction [4]. Risk factors for back pain can be either of individual origin or related to the workplace. Individual factors include physical activity, muscular weakness, smoking and obesity. The main occupational risk factors are: inadequate equipment, heavy physical work, lifting and handling of patients, improper workplace design [1]. Epidemiological data indicate factors of LBP which include: working for a long time, lifting objects, physical and psychological [6]. Skeletal system disorders, including back pain, have led to long-term absence from work [7] and impose heavy costs on healthcare system. According to American Institute for Occupational Safety and Health yearly cost of damages to this country is estimated about 16 billion dollars [3]. The result of a survey has disclosed that 16.2% of nurse sick leave is because of LBP and 7.9% of the nurses have been shifted to another nursing responsibility [4]. LBP of nurses, in addition to heavy costs, results in losing useful work force and shifts more responsibility to other nursing personnel. So, it seems necessary to carefully look into the matter and give proper solutions so as to alleviate this problem. Since the first step to realize this objective is being aware of LBP status and its causes among nurses, this research is carried out to determine the prevalence and risk factors of LBP among nursing staff working in Kermanshah University of Medical Science. We hope that obtained results of this study be helpful in preventing LBP of nurses and authorities.

**MATERIALS AND METHODS**

This is a cross-sectional study. 348 nurses of the two hospitals of Kermanshah, Imam Reza and Taleghani, were randomly selected. A questionnaire was prepared with 24 items. The questionnaire validity was confirmed by the professionals. By examining Correlation Coefficients of two tests, questionnaire’s reliability was determined as 80%. All the subjects answered a researcher structured questionnaire. After collecting data, SPSS software version 16 was used to analyze them. Analyzed data are summarized in tables of frequency, mean and standard deviation. In order to determine the relationship between back pain and demographic variables, we used Chi Square test with the significant level of 5%.

**RESULTS**

Observed frequency of back pain in the examined subjects was 54.3% (n=189). 34.8% of nurses (n=121) aged between 30-35 and 41.8% (n=79) of them experienced LBP. Therefore, there is significant relationship between age and back pain (P< 0.001) (Table 1). 24.7% of the subjects were male. 47.7% of male and 56.5% of female nurses experienced back pain. No significant relationship exists between sex and LBP. 53.4% of the participants were married and the rest were single. 64% of married participants and 43.2% of single participants experienced back pain and there we found a significant relationship between back pain and marital status of participants (P<0.001). In terms of working experience, 60.52% (n=115) of LBP nurses worked between 4-10 year, 28.96% (n=55) of them were working for more than 10 years. Only 10.52% (n=20) of the participants has less than 3 years of working experience. Conclusively, there is significant relationship between LBP and working experience (P = 0.008).

71.4% of nurses exhibit back pain of rising from body mass index of 18.5 – 25, but there is no significant relationship between these two factors (P = 0.055). Rotating shift nurses, night shift and morning shift nurses indicated LBP symptoms, 50.4%, 71% and 64.6% respectively. There exist a significant relationship between back pain and working shift (P=0.028). 17% of participant cited that they had the symptoms of back pain before nursing. 46% of LBP nurses indicated the symptoms after starting the job. 83.7% of nurses cited back pain as the reason of their sickness absence. Generally, 93.6% of all participants believe that back pain emanates from the following reasons: work pressure, improper handling and lifting of patients, large number of patients, lack of standard equipment.

**DISCUSSION AND CONCLUSION**

According to the finding of present study, nearly 54.3% nursing staff has symptoms of back pain.
The obtained frequency is less than what other studies have shown so far. Reviewing literature indicate that LBP prevalence is 73 to 76% between the German nurses, 86% between the Italian nurses and 80.9% between the nurses in Hong Kong [4]. In another study, Mohseni et al. [8] admit that most of the LBP nurses are between 30-35 years of age. We found no significant relationship between age and sex in the current research; however, women are more prone to LBP than men which may be due to the larger number of female nurses rather than sex. Although LBP symptoms are more common among women [9, 4]. Sikiru and Hanifa [5] reported LBP off-duty prevalence were 85.98% and 14.2 for women and man, respectively. According to Bejia et al. [9], prevalence of LBP among single personnel was 43.2%. 57.7% of individuals with body mass of the normal range have experience back pain but there is no significant relationship between back pain and body mass. This is in contrast with finding in other studies. Mohseni et al. [8] indicated that there is a significant relationship between LBP and body mass. Sharifinia et al. [4] argued that back pain increases by 4% per each kilogram weight increase. The contrast may arise from lower average of personnel age in the present study since most of them had a normal range of body mass. The prevalence of LBP in nurses working evening and night shift is more than others (71%). Sharifinia et al. [4] concluded that exhaustion during work may be a cause of LBP which is consistent with the findings of present study.

This study indicated 29.47% day’s off-duty due to LBP which is lower than other studies. The present study is consistent with the findings of Mohseni et al. [8] and Bejia et al. [9]. According to Mohseni et al. [8], the most common cause of LBP is lifting heavy things (30.4%). In addition, Bejia et al., believe that underlying vocational factors give rise to LBP, such as lifting heavy things, high occupational activity, workplace. Although, in this study, LBP prevalence was significant, the obtained statistics were lower than what is presented in other studies. The researchers believe that it may be due to the lower age range of the participants of this study. Female nurses in night and evening shifts were more prone to LBP. This necessitates the need for proper scheduling, considering rotating shifts and using standard equipment. With regard to findings of present study, it is recommended that to carry on more researches on individual, psychological, social, managerial and economic factors associated with LBP hoping to develop proper strategies for prevention and treatment of LBP.

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REFERENCES