

The prevalence of musculoskeletal disorders among nurses working in emergency department

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Abstract

Introduction: Musculoskeletal disorders can be associated with various physical and psychological disorders for the affected individuals.

Objectives: In the present study, the prevalence of musculoskeletal disorders among nurses working in emergency departments was studied.

Methods: The study was conducted in three teaching hospitals affiliated to Qazvin University of Medical Sciences (2018-2019). Musculoskeletal disorders were studied among 100 nurses working in the emergency department using Nordic questionnaire. Collected data were then analyzed using SPSS version 16.

Results: A total number of 100 nurses participated in this study. Among them, 83 of them were female. The mean age of participants was 28.7±6.2 years. The most prevalent musculoskeletal disorders were in the lumbar region (67%) and then in the neck, knees and shoulders, respectively. The results also showed that rest, decreased activity, leaving the workplace, or inability to perform activity at work or home was occurred after musculoskeletal disorders (30%). No significant relationship between demographic variables and the prevalence of musculoskeletal disorders was observed ($p>0.05$).

Conclusion: The present study showed that prevalence of musculoskeletal disorders among emergency nurses is high. Given the fact that a significant portion of hospital care services is provided by nurses, their physical health should always be considered by managers and policy makers and the necessary measures should be taken into account in this regard.

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Introduction

Work-related musculoskeletal disorders refer to injuries in a person caused by factors associated with work that may occur in muscles, ligaments, bones, joints and tendons (1). Musculoskeletal disorders are one of the main reasons for disability among health and medical staff (2). In many developed countries, such injuries are considered as an occupational health priority. Physically, nursing is a challenging occupation (3), therefore, the risk of musculoskeletal disorders among nurses is high (3-6). In fact, the physical health of nurses is highly important, since physical injuries can lead to feelings of tension in them. Occurrence of physical disorders among nurses can lead to physical disabilities, disruption in daily activities, emotional problems, multiple occupational problems, and ultimately an increase in direct and indirect costs of healthcare systems. Therefore, paying attention to their health is a necessity. For corrective interventions, having epidemiologic information about the problem is essential, therefore, it is necessary

to conduct accurate epidemiological studies to improve the situations (7). In addition to physical symptoms, the occurrence of musculoskeletal disorders can be associated with many other complications for healthcare workers. For instance, a study in 2017 showed that the occurrence of musculoskeletal disorders in hospital staff significantly reduced their quality of life (8). Bazazan et al reported that an increase in musculoskeletal disorders among nurses could have a negative impact on their satisfaction with their occupation (9). The results of another study have also shown that the occurrence of musculoskeletal disorders could negatively affect the quality of services provided to the patient (10). On the whole, the performance of hospital staff has a significant impact on the health of community as well. Among the hospital staff, the emergency staff, due to the specific nature of their work, are more exposed to stresses caused by emergency situations and related factors, which can affect the quality of their work and consequently the productivity of the organization. The physical stresses in the

work environment of these staff can cause musculoskeletal disorders in them. Since emergency staff are exposed to several stressors, it can be expected that a great percentage of them with higher levels of vulnerability, will be exposed to physical and mental disorders. Therefore, the need to investigate these disorders among them is evident (11).

Objectives

Studies on musculoskeletal disorders and its related risk factors among nurses working in emergency departments are very limited (3). Therefore, the aim of the present study was to investigate the prevalence of musculoskeletal disorders among nurses working in emergency departments.

Patients and Methods

Study patients

This descriptive study was conducted on 100 nurses working in emergency departments of three teaching hospitals affiliated to Qazvin University of Medical Sciences. The inclusion criteria for the present study were having at least a bachelor's degree in nursing and at least six months of working experience in the emergency departments. Nurses who reported absence from work for any reason during the study or those who were unwilling to participate were excluded. Sampling was conducted by three researchers and after obtaining the necessary permissions from the Ethics Committee of the University of Medical Sciences. The researchers first referred to the hospitals and after coordination with the hospital officials, received a list of employed nurses. Then, in coordination with the head nurses, they referred to the departments in the morning work shifts and distributed the questionnaires among the nurses. Given the busy environment of the study settings, the nurses were told to complete the questionnaires until the end of the shift whenever there was time for them. At the end of the shift, the researchers referred to the departments and gathered the questionnaires.

In this study, data were collected using Nordic Musculoskeletal Questionnaire. The questionnaire consists of two sections; a) a general questionnaire; and b) a specific questionnaire. The purpose of the general questionnaire is a general survey, in which symptoms of the disorders are monitored throughout the body. While the specific questionnaire assesses these symptoms in particular areas of the body, such as the back, neck and shoulders. The general section of this questionnaire consists of eight items that ask a series of questions about the demographic information related to the questionnaire. The specific section of this questionnaire consists of three parts, each with eight similar questions related to different areas of the body. Individuals with musculoskeletal disorders will be those who will positively answer the questions of whether in the last 12 months they had any feelings of pain and discomfort in the nine areas of the body including the

neck, shoulders, elbows, wrists and hands, back, waist, thighs, knees and legs. The validity and reliability of the questionnaire in Iran was done by Namnik et al (12).

Ethical approval

The present study is a part of a student proposal approved by Qazvin school of nursing and midwifery conducted from 2018 to 2019. To preserve ethical consideration, the following steps were taken; Obtaining permission as well as the ethics code from the research department of the university, obtaining permission from the principals of hospitals, explaining the study and its objectives to the nurses participating in the study, preserving the anonymity of the participants, and taking informed consent from the participants. Participants were also told that participation in the study was voluntary, and if they did not want to cooperate, they would be excluded without any problems. The study approved by ethics committee of Qazvin University of Medical Sciences (IR.QUMS.REC.1396.503) and has been conducted in accordance with the tenets of the Declaration of Helsinki (1964) and its later amendments. Informed consent forms were obtained.

Data analysis

Collected data were analyzed using SPSS version 16 by a statistics specialist. The statistical tests used were mean, frequency, Pearson correlation and chi-square test.

Results

A total number of 100 nurses participated in this study. Among these, 83 of them were female, since 45 of them were married. The mean age of participants was 28.7 ± 6.2 years. The mean working experience of nurses was 6.1 ± 5.8 years.

Totally, 42% of nurses had pain in their neck during the last 12 months, while 38% of nurses had pain in their shoulders during the last 12 months. Around, 13% of nurses had pain in their elbows during the last 12 months, since 31% of nurses had pain in their wrists during the last 12 months. About 39% of nurses had pain in their upper back during the last 12 months and 67% of them had pain in their lumbar region during the last 12 months. Additionally, 25% of nurses had pain in their hips and thighs during the last 12 months, while, 44% of them had pain in their knees during the last 12 months. Besides, 28% of nurses had pain in their ankle region during the last 12 months.

Totally, 34% of nurses had pain in their neck during the last 7 months. Likewise, 27% of nurses had pain in their shoulders during the last 7 months. Accordingly, 9% of nurses had pain in their elbows during the last 7 months. Our study showed, 21% of nurses had pain in their wrists during the last 7 months, since 30% of nurses had pain in their upper back during the last 7 months. About 46% of nurses had pain in their lumbar region during the last 7 months, while 23% of nurses had pain in their hips and

thighs during the last 7 months and 33% of them had pain in their knees during the last 7 months, while 28% of nurses had pain in their ankle region during the last 7 months.

Totally, 18% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their neck, while 14% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their shoulders. Consequently 7% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their elbows, while 12% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their wrists. Similarly, 11% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their upper back, since 30% of them had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their lumbar region. Around 14% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their hips and thighs, while 26% of them had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their knees. Finally, 17% of nurses had to rest, decrease activity, leave the workplace, or unable to perform at work or home during the past 12 months due to pain in their ankle region. The results of this study did not show a significant relationship between the demographic variables, such as gender, type of hospital, participants' education and age with the prevalence of musculoskeletal disorders ($p>0.05$).

Discussion

Musculoskeletal disorders can be associated with so many physical and psychological disorders for the affected person. In this study, the prevalence of such disorders was investigated among high-risk populations, nurses working in emergency departments. Based on the results of this study, a great percentage of nurses had some degree of musculoskeletal disorders. The most prevalent musculoskeletal disorders were in the lumbar region (67%) and then in the neck, knees and shoulders, respectively. The results also showed that rest, decreased activity, leaving the workplace, or inability to perform activity at work or home was occurred after musculoskeletal disorders (30%).

Previous studies on the prevalence of musculoskeletal disorders among nurses working in emergency departments also showed relatively similar results to the results of the present study. In a study in 2019, Bazazan et al examined the prevalence of musculoskeletal disorders among 380 nurses working in emergency departments. For this, they used Nordic Musculoskeletal Questionnaire. The results of this study also showed that musculoskeletal

disorders among these nurses are highly prevalent (9). In another study in Egypt, Sorour and El-Maksoud studied the prevalence of musculoskeletal disorders among 58 nurses working in emergency departments. To investigate musculoskeletal disorders among nurses, Sorour and El-Maksoud used Nordic Musculoskeletal Questionnaire. The results of their study showed that the prevalence of musculoskeletal disorders was slightly higher than the results of the present study. In addition, the most commonly affected sites in the study of Sorour and El-Maksoud were neck, shoulder, and lower back, respectively (13). The difference between prevalence of skeletal musculoskeletal disorders among the two studies can be related to the difference in the study setting and the participants. In the study by Sorour and El-Maksoud, nearly 33 percent of nurses were overweight, which could be a reason for a higher prevalence of musculoskeletal disorders. In another study in this regard, Imani et al, examined the prevalence and risk factors for back pain in pre-hospital emergency staff. In this study, in which 298 pre-hospital emergency care technicians participated, musculoskeletal disorders were assessed using Nordic Musculoskeletal Questionnaire. Similar to the results of the present study, the results of the study by Imani et al showed that the prevalence of musculoskeletal disorders was 46% (14). The results of the study by Aljerian et al, conducted in Saudi Arabia, were similar to the present study (15). Emergency staff is more affected in the lumbar region. The high prevalence of lower back injuries among emergency nurses may be due to the fact that emergency nurses usually do measures such as venipuncture, sampling, dressing and other nursing measures in standing position and in this case, most of the pressure is entered in the lower back region.

Health managers and planners need to plan and intervene to reduce the occurrence of these injuries. Measures such as reducing the number of hours per month emergency nurses working, increasing the number of nursing staff in the emergency departments, increasing the number of service personnel for relocation of patients in the emergency departments, organizing training workshops on musculoskeletal injuries and the importance of preventing them for nurses, providing a healthy and stress-free environment, creating a comfortable chairs and beds for nurses, screening nursing for early signs of musculoskeletal disorders to prevent further injuries, changing the workplace of nurses working in the emergency departments to other departments periodically, encouraging nurses to do physical activity and exercise regularly, as well as improve their nutritional stats, are some of the measures that can be considered in this regard. However, the effectiveness of these actions should be investigated in detail in future studies.

Conclusion

The present study showed that the prevalence of

musculoskeletal disorders among emergency nurses was high, and in some parts of the body, such as the lumbar region, the probability of these damages was higher. Given the fact that a significant portion of hospital care services is provided by nurses, their physical health should always be considered by managers as well as policy makers while the necessary measures should be taken into account in this regard. Their inadequate physical health does not only damage their own body, but also can reduce the quality of services provided by them. Considering the importance of the topic, it is suggested that interventional studies to determine the effect of different interventions on reducing the prevalence of musculoskeletal disorders among nurses in the emergency departments should be considered.

Limitations of the study

Due to the fact that all the hospitals studied were educational and in the emergency departments, nursing students usually attend and do some work, the results may not be generalized to non-teaching hospitals. Also, the use of a questionnaire alone to investigate the prevalence of musculoskeletal disorders is one of the other limitations of this study, which should be considered.

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Authors' contribution

MS, Designing protocol of study, article writing; FZ, Designing protocol of study, article writing; PS, Designing protocol of study and data gathering; MY, Designing protocol of study and data gathering; HR, Designing protocol of study, article writing and data analysis. All authors read and signed the final version of the article before submission.

Conflicts of interest

The authors declare that there is no conflict of interest.

Ethical considerations

Ethical issues (including plagiarism, accuracy of data, double publication) have been completely observed by the authors.

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