Prevalence of low back pain among female nurses working in secondary and tertiary healthcare, kingdom of Bahrain

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ABSTRACT

Background: Occupational related illnesses and injuries have high rates in healthcare settings, and low back pain (LBP) in particular, is considered to be the second most prevalent type of pain and one of the leading musculoskeletal disorders. In addition, LBP has tremendously influenced the rates of absenteeism and performance. **Objectives:** The objectives of the study were to estimate the prevalence of LBP among nurses and to assess the presence of risk factors, both general and occupational, and the burden caused by LBP. **Materials and Methods:** This cross-sectional study used a modified questionnaire to obtain its data. The study was conducted among nurses working in secondary and Tertiary Healthcare in Salmaniya Medical Complex, from June 23, 2016, to January 19, 2017; the sample size being 215 nurses. **Results:** Nearly 73.5% of the studied nurses reported that they have suffered from LBP in the previous year. Using Chi-square, it was found that LBP was significantly prevalent among three of the general risk factor groups: Bahraini nurses (92.5%), nurses younger than 30 (92%) and those with a history of musculoskeletal or rheumatological disorders (90.6%). Only three occupational risk factors were found to be significant: Lifting objects, walking, and running for long distances (81.4%, 79.4%, and 70.8%, respectively). As a result of their LBP, 52.5% of the nurses experienced some restrictions in their movements while 43.7% have visited therapists for consultations. Regarding absenteeism, out of the 158 nurses who suffered from LBP, 39% took days off because of their LBP. **Conclusion:** LBP is highly prevalent in the studied population and is therefore considered a major concern, with consequences on both individual and governmental levels. Hence, more light should be shed on the matter to help reduce its prevalence and its ensuing effects.

KEY WORDS: Low Back Pain; Occupational Health; Nurses

INTRODUCTION

Occupational related illnesses and injuries have high rates in healthcare settings.[1-3] Based on previous researchers, four main health concerns face healthcare workers nowadays, they include musculoskeletal injuries; mainly low back pain (LBP), workplace violence, shift work, and needlestick injuries;[4] and in recent studies increased workload and stress have been added to the list.[5] According to the US Food and Drug Administration, chronic body aches are getting more and more common, and after conducting intensive research, it was found that back pain is the second most prevalent type of pain.[2]

The National Institute for occupational safety and health defines LBP as either chronic or acute pain of the lumbosacral, buttock or upper leg region.[4] LBP is considered to be one of the leading musculoskeletal disorders that predominantly

affect populations in both developing and developed countries, it can affect people of all ages, from children to fully-grown adults and is a very frequent reason for medical consultation. At present, LBP is mainly treated with analgesics, but in some cases, physical therapy, rehabilitation, and spinal manipulation are used as an alternative way for treating LBP.[5]

Although LBP has diverse etiologies, it has a high association with the nursing occupation worldwide (40–90%). Hence, it is considered an occupational hazard.[6,7] In respect to the prevalence of LBP, a previously conducted study in Iran revealed that LBP is one of the most important medical issues among healthcare workers.[8] A 12-month study conducted in more developed countries; England, Australia, France, Italy, and the United States in the year of 2015 reported that the prevalence is estimated to be ranged from 29% to 60%.[9] In 2014, a study that was conducted in Nepal revealed that 78% of nurses were suffering from LBP.[10] Furthermore, a study conducted among nursing students and newly graduated nurses, noticed that they have a higher incidence of LBP.[11] In Gaziantep, Turkey, it was found that 84% of nurses experienced LBP.[12] Fewer studies were published from Gulf countries; however, in Saudi Arabia, LBP among nurses ranged between 48% and up to 85%.[6,13,14] In 2015, at Hamad General Hospital in Doha, a study was conducted on 254 nurses from different departments, and it concluded that the prevalence of LBP was high among them.[9]

Many researches have been conducted around the world to determine the association between the different variables and the possibility of developing LBP.[15] A study was conducted among nurses in Nepal revealed that LBP was predominantly more prevalent in married nurses (88%) in comparison to unmarried ones (69%). Furthermore, it was found that LPB was associated with prolonged standing (82%).[10] Other studies revealed that nurses who remained standing most of the workday (97.9%), participated in activities that required lifting, repositioning patients (83.3%), and bending forward (95.8%), and those who did not use any aiding equipment, experienced more LBP.[12] Moreover, a study was conducted among nurses working in Taiwan revealed that the severity of LBP was directly related to the career length.[16]

Because of the fact that nurses play an important role in the workplace and that they constitute approximately one-third of the working force at any hospital, LBP is believed to have a substantial impact on their attendance and work restrictions.[6] As a fallout to the rapidly increasing prevalence of LBP among nurses, the nurses themselves are becoming more worried that their LBP condition may affect their performances.[17] LBP is a major cause of activity limitation and absenteeism throughout the world, and therefore, imposes high economic burdens on both the individuals and government. A study that was conducted in Jordan showed that LBP was a leading cause of disability, and it was highly associated with

increased absenteeism and decreased performance.[3] In the United States, an estimated 149 million work days are lost every year because of LBP with total costs estimated to be 100–200 billion US$ a year.[18]

Based on the previously mentioned researchers, and due to the fact that we lack such studies in our country, we have decided to shed more light on the matter and to construct this research to be about the prevalence of LBP in nurses working in secondary and tertiary healthcare. Furthermore, we will put all of the previously mentioned risk factors of developing LBP in mind.

MATERIALS AND METHODS

Participants

The study took place in Salmaniya medical complex (SMC), Kingdom of Bahrain, from June 23, 2016, to January 19, 2017. A cross-sectional study design was carried out using a proportional stratified sampling technique, which ensured that each department (strata) was represented by a sufficient amount of study subjects ($n = 215$).

Inclusion and Exclusion Criteria

The inclusion criteria were the following: Females, who worked as full-time nurses (>36 h/week) and have been working for the past 2 consecutive years. On the other hand, nurses who have been absent for more than 6 months during the past 2 years or were currently or recently pregnant were excluded.

Ethical Consideration

Participants were informed about the aims and purposes of our research and were assured complete confidentiality in handling of their personal information. Verbal consents were taken from the volunteers. The protocol was presented to the Ethical Committee of the Arabian Gulf University and the Ethical Committee of the Ministry of Health and was approved. Before the process of data collection, approval was taken from the directorate and department of nursing in SMC.

Statistical Analysis

The statistical analysis was based on the information acquired from the questionnaires. This was done using Statistical Package for the Social Sciences (SPSS) version 24 and Microsoft Excel. SPSS was used to cross-analyze the information based on several parameters found in the questionnaire, and through it, frequencies and means were determined for the descriptive and inferential analyses; for categorical analysis, Chi-square was used. Excel was used mainly to create the figure.

RESULTS

Findings of the present study are depicted in Figure 1 and Tables 1-4.

DISCUSSION

Our study findings revealed that the prevalence of LBP in the studied population was estimated to be 73.5%. After studying the general risk factors, it was found that age is considered a significant risk factor, as the nurses whose age was <30 years

Table 1: Sample characteristics of female nurses working in SMC. Kingdom of Bahrain, June 2016

Characteristics	*n* (%)
Department	
PD*	18 (8.4)
OBG†	61 (28.4)
IM‡	21 (9.8)
EM§	21 (9.8)
MTS**	26 (12.1)
ICU††	38 (17.7)
ON‡	30 (14)
Total	215
Nationality	
Bahraini	80 (37.2)
Non-Bahraini	135 (62.8)
Total	215
Age	
<30 years	25 (11.7)
30–39 years	120 (56.3)
≥40 years	68 (31.9)
Total	213
BMI***	
Normal	87 (41)
Overweight	93 (43.9)
Obese	32 (15)
Total	212
Marital status	
Married	208 (96.7)
Unmarried	7 (2.3)
Total	215
Number of children	
None	16 (7.5)
One	26 (12.2)
>One	171 (80.2)
Total	213

*Pediatrics, †obstetrics and gynecology, ‡internal medicine, §emergency medicine, **main theater and surgery ††intensive care unit (includes neonatal, pediatric and adult's ICUs), ‡oncology, ***body mass index (categories: Normal between 17 and 25, overweight between 25 and 30, obese more than 30). SMC: Salmaniya medical complex, ICU: Intensive care unit

had the highest prevalence of LBP (92%) when compared to other age groups. Furthermore, it was found that the nationality is also considered a factor that helped in increasing the risk of developing LBP, as the Bahraini nurses who suffered from LBP were 92.5% of the total Bahrainis in comparison to other nationalities. In addition, a positive medical history of musculoskeletal or rheumatologic disorders is also a significant factor in developing LBP, as 90.6% of the nurses that had a history developed LBP. As for the occupational risk factors, it was observed that only three were applicable to the studied population and those were lifting objects, walking, and running for long distances (81.4%, 79.4%, and 95.7%, respectively). Contrary to our expectations, we found that working in different departments was not a main risk factor that could be applied to the studied population, although its *P*-value was close to significance ($P = 0.09$). As a result of their LBP, 52.5% of the nurses reported that they have had suffered from movement restrictions which could have affected their productivity and quality of life. In addition, 43.7% of the nurses have reported that they sought help regarding their condition by visiting a doctor, a physiotherapist or a healthcare provider. Furthermore, absenteeism was found to be a major consequence of LBP, as 39.2% of the nurses reported that they took days off because of their pain.

The prevalence of LBP that our study estimated (73.5%) is a figure which is comparable to that of another study conducted in Nepal (78%) in the year of 2014.[10] However, it differed from other studies that were conducted elsewhere around the globe. For instance, a study that was done in more developed countries, such as England, Australia, France, Italy, and the United States of America, estimated that the prevalence of LBP among nurses was between 29% and 60%.[9] It also differed from that of a study conducted among nurses working in Gaziantep, Turkey, as the prevalence of LBP in their study was estimated to be 84%.[12] Although other researchers[2,8,10,19] have suggested many causes and risk
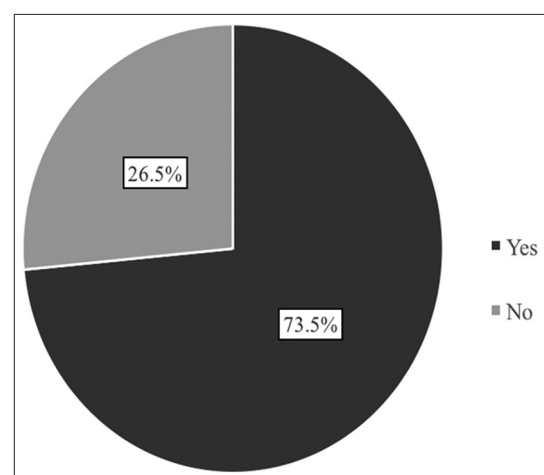
Figure 1: Prevalence of low back pain among nurses working in secondary and tertiary healthcare in Salmaniya medical complex. Kingdom of Bahrain, June 2016

Table 2: Presence of LBP in relation with several significant general risk factors in nurses working in SMC. Kingdom of Bahrain, June 2016

Characteristics	Presence of LBP in the previous year			
	Yes (%)	No (%)	Total	*P*
Age				
<30 years	23 (92.0)	2 (8.0)	25	0.001
30–39 years	94 (78.3)	26 (21.7)	120	
≥40 years	39 (57.4)	29 (42.6)	68	
Total	156 (73.2)	57 (26.8)	213	
Nationality				
Bahraini	74 (92.5)	6 (7.5)	80	<0.001
Non-Bahraini	84 (62.2)	51 (37.8)	135	
Total	158 (73.5)	57 (26.5)	215	
Musculoskeletal or rheumatological disorders				
Presence	29 (90.6)	3 (9.4)	32	0.017
Absence	126 (70.4)	53 (29.6)	179	
Total	155 (73.5)	56 (26.5)	211	

LBP: Low back pain, SMC: Salmaniya medical complex

Table 3: Presence LBP in relation with several occupational risk factors in nurses working in SMC. Kingdom of Bahrain June 2016

Characteristics	Presence of LBP in the previous year			
	Yes (%)	No (%)	Total (%)	*P*
Department				
PD*	16 (88.9)	2 (11.1)	18	0.09
OBG†	41 (67.2)	20 (32.8)	61	
IM‡	17 (81.0)	4 (19.0)	21	
EM§	14 (66.7)	7 (33.3)	21	
MTS**	22 (84.6)	4 (15.4)	26	
ICU†	23 (60.5)	15 (39.5)	38	
ON‡‡	25 (83.3)	5 (16.7)	30	
Total	158 (73.5)	57 (26.5)	215	
Lifting objects				
Yes	92 (81.4)	21 (18.6)	113	0.006
No	66 (64.7)	36 (35.3)	102	
Total	158 (73.5)	57 (26.5)	215	
Walking distance				
Yes	85 (79.4)	22 (20.6)	107	0.049
No	73 (67.6)	35 (32.4)	108	
Total	158 (73.5)	57 (26.5)	215	
Running distance				
Yes	22 (95.7)	1 (4.3)	23	0.011
No	136 (70.8)	56 (29.2)	192	
Total	158 (73.5)	57 (26.5)	215	

*Pediatrics, †obstetrics and gynecology, ‡internal medicine, §emergency medicine, **main theater and surgery ††intensive care unit (includes neonatal, pediatric and adult's ICUs), ‡‡oncology. LBP: Low back pain, SMC: Salmaniya medical complex

factors of LBP, not all of which were found to be significant in the studied population (e.g., Trauma history, frequent bending, frequent carrying of patients, and standing for long periods).[8,15,18] As for the burden of LBP, a study carried out in Qatar revealed that 50.8% of nurses with LBP sought rest days or/and sick leaves, while 58.7% sought medical care, and 15.9% have visited a physiotherapist, figures which were slightly higher than those found in our study.[9]

After extensive research, we believe that our study is the first in the country that sheds light on this highly prevalent and important issue. Furthermore, all departments in SMC were included proportionally in our study sample so that we can have unbiased results that represent the entire population. When it comes to the limitations, we faced some difficulties with nurses who worked in busy departments and departments that were difficult to access (e.g., intensive care units). In addition, when we started the process of data collection we found that some questionnaires were empty or that many questions were left unanswered.

After assessing the previously mentioned effects of LBP and comparing our findings with other studies, the high percentage rates have to lead us to believe that they have the potential to pose a great deal of burden on both the individuals and the government. On the individual level, LBP may cause various problems as it could decrease the productivity of each individual, affect their lifestyle, and create a change in their quality of life. In terms of the governmental burden, it may have a significant impact on both the social and economic state. In conclusion, LBP is an issue that has a high resonance, and therefore, should be addressed promptly and effectively, as better preventative measures should be developed and more awareness should be raised to achieve the desired goal, which is to decrease its prevalence and minimize its effects on the population in hand, especially in a demanding job like nursing to make sure that each individual has optimum health

Table 4: Burden of LBP among nurses working in SMC. Kingdom of Bahrain June 2016 (*n*=158)

Characteristics	*n* (%)
Movement restrictions	
Yes	83 (52.5)
No	75 (47.5)
Visiting therapist*	
Yes	69 (43.7)
No	89 (56.3)
Absenteeism	
Yes	62 (39.2)
No	96 (60.8)
Duration**	
<7 days	58 (37.2)
7–30 days	38 (24.4)
>30 days but not everyday	34 (21.8)
Everyday	26 (16.7)

*Includes doctors, physiotherapists and other healthcare providers.
**Duration of total days suffering from LBP. LBP: Low back pain,
SMC: Salmaniya medical complex

and quality of life, so that they can contribute effectively in their place of work. We also recommend that a nationwide study should be carried out to assess the impact and economic burden of LBP.

CONCLUSION

LBP is highly prevalent in the studied population and is, therefore, considered a major concern, with consequences on both individual and governmental levels. Hence, more light should be shed on the matter to help reduce its prevalence and its ensuing effects.

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