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ARTICLE

Prevalence and Risk Factors for low back pain among Nurses at Benghazi Medical Centre, Libya.

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ABSTRACT

Lower back pain (LBP) is recognized as a cause of morbidity in developed nations in different occupational situations. Health care workers (HCWs), in particular nurses, are especially vulnerable to LBP. About 60–80% of the general people suffer from LBP at some time during their lives. However, there is not enough care about workplace health and safety problems facing the health care workforce in developing nations, such as Libya. Thus, this study aimed to find out the status of low back pain and factors affecting pain among the nurses in Benghazi Medical Centre (BMC), Libya. Cross-sectional study was conducted on BMC in 2018. The data was collected by a self-administered questionnaire. Chi-square was used to determine the association between associated risk factors and LBP prevalence ($p<0.05$). There is a high prevalence (79%) of low back pain among nurses in BMC. Individual and work-related factors were found as risk factors for LBP. In Libya, nurses are considered as a critical health and safety concern, as a result of the weakness of policies in healthcare organizations. Consequently, a proper no weight lifting policy should be considered. If not, proper manual lifting must be implemented.

Keywords: *Lower back pain, manual lifting, prevalence, nurses, risk factors.*

INTRODUCTION

Low back pain *(LBP)* is the most common and leading category of occupational injury in health care or work-related health problems. Hospital workers, nurses in particular, experience more LBP than many other groups, due to the nature of their job. Nurses play a major role in patient care. The nursing profession is one of the most challenging professions, as this job demands a mixture of physically *(such as manual handling of patients)* and mentally demanding tasks *(such as dealing with crises) (Ghilan et al., 2013; Davis & Kotowski, 2015)*.

A nurse has to provide a 24-hour service in shifts, which means either long term night work or work involving rotation between day, evening, and nights. This disrupts the circadian rhythm resulting in sleep disturbances, fatigue, and impaired work performance and safety awareness. Thus, they are always at risk of developing many occupational health problems, such as low back pain *(Davis & Kotowski, 2015)*.

Studies conducted among nurses worldwide showed the high prevalence of LBP in Libya *(87%)*, Bangladesh *(66%)*, Egypt *(79.3%)*, Taiwan *(66%)*, Switzerland *(73%-76%)*, and Malaysia *(56.9%) (Davis & Kotowski, 2015; Mukhtad & Mohamed, 2018; Sanjoy et al., 2017; Hoy et al., 2012; Meucci et al., 2015)*.

The consequences of LBP are poor quality of life, job absenteeism, decreased productivity of individual and national health services due to high turnover. In Libya, LBP is more prevalent in health professionals, especially nurses, and is affecting all health services. Likewise, there is hardly any research regarding the status of LBP among nurses in Benghazi.

Thus, this study aimed to find out the status of low back pain and factors affecting pain among the nurses in Benghazi Medical Centre *(BMC)*, Libya.

MATERIALS AND METHODS

A cross-sectional study was conducted in Benghazi Medical Centre *(BMC)* in 2018. The data was collected through a self-administered questionnaire. The first part included general socio-professional characteristics *(age, marital status, body mass index, working hours)*. The second part focused only on the nurses with low back pain, with the description of their complaint *(onset, risk factors related to work and recurrence)*. The third part explored the physical and organizational characteristics of the nurses' occupational environment *(workplace, time stress, working postures, toughness of different tasks such as the handling of equipment, lifting, moving of and caring for patients)*.

Among the 243 nurses, only 200 agreed to answer our questionnaires, so the response rate was 82.3 %. The study included all workers who had worked for one year or more. This study also excluded workers with a history of back injury and/or surgery, and workers with less than one working year. The percentage and frequency of demographic information was determined and compared. Chi-square was used to determine the association between associated risk factors and LBP *($p<0.05$)* with SPSS v.22 *(IBM, USA)*.

RESULTS

The majority of the participants were females *(87%)*. The ages of participants ranged from 20 to 60 years. The majority of participants *(82.2%)* had working experience that ranged between 6 and 24 years. The general prevalence for LBP was 79%, 50% for males and 84% for females.

Table 1: Low Back Pain Features among Nurses.

LBP characteristics	LBP Cases N=159 (%)
Onset	
Acute Pain	92 (58)
Chronic Pain	67 (42)
Risk Factors	
Repetitive	53 (33)
Manual Lifting	77 (48)
Awkward Posture	17 (11)
Pregnancy	12 (8)
Pain Severity	
Discrete	16 (10)
Moderate	98 (62)
Intense	45 (28)
Recurrence	
Yes	105 (66)
No	54 (34)
Sedation Factors	
Rest	44 (28)
Antalgic posture	15 (9)
Medical treatment	76 (48)
Surgical treatment	24 (15)

LBP features are shown in Table 1, individual risk factors are shown in Table 2, physical risk factors in Table 3, and psychosocial work risk factors in Table 4. 61% of the nurses reported that the reason of their work absenteeism was due to work-related factors leading to LBP.

DISCUSSION

The current study found that the prevalence rate of LBP among nurses was 79 % at BMC. This outcome agrees with prevalence of LBP at the operating room of the Al-Fateh children's hospital in Benghazi city, Libya, which was 87 % *(Mukhtad & Mohamed, 2018)*. It also agrees with the International Labor Organization *(ILO, 2016)* annual report on prevalence rate of LBP among healthcare workers *(HCWs)*, in particular for nurses *(6%_87%) (Boughattas et al., 2017)*. In China, prevalence rate of LBP among nurses is also 87% (Sun et al., 2007), while in Turkey it was 62% *(Davis & Kotowski, 2015; Sanjoy et al., 2017)*. However, 58.1% was the prevalence rate of LBP among nurses in Tunisia *(Boughattas et al., 2017)*. Accordingly, it is necessary to implement solutions for risks and hazards at work and apply prevention actions of ergonomics at work. Non occupational factors such as socio-demographic and behavioral characteristics *(age, BMI, absence of physical exercise)* were included in our study reinforcing the value of the distribution of LBP among nurses. Previous studies stated that the exposure to LBP increased among older age groups, so the age factor is positively associated with chronic LBP *(Mukhtad & Mohamed, 2018; Boughattas et al., 2017; Berquez-Doise et al., 2002; Karahan et al., 2009)*. Also, a study among the nurses in Bangladesh found a positive association between age with chronic LBP *(Sanjoy et al., 2017; Berquez-Doise et al., 2002)*. The majority of the target group did not perform any sort of physical exercise, as routine exercise can enhance body health, performance, and tolerance of quick fatigue and can clearly diminish the risk exposure to LBP. A study in Libya informed that the lifestyle of Libyans is relatively free of the culture of regular exercise *(Mukhtad & Mohamed, 2018)*.

In addition, the literature review revealed that nurses suffered from acute LBP and the majority of them reported that 42% of LBP patients had recourse to medical treatment and 9.6% to physiotherapy *(Boughattas et al., 2017; Berquez-Doise et al., 2002; Yassi & Lockhart, 2013)*. These can be confirmed by the results of the current study.

Moreover, occupational factors such as manual lifting of objects/patients, truck flexion/torsion, and layout of material in the workplace were included in our study as the main work hazards that induce the risk of LBP among nurses. Manual lifting of patients can put medical staff as one of the most affected occupations from LBP *(Mukhtad & Mohamed, 2018; Boughattas et al., 2017; Berquez-Doise et al., 2002; Hinmikaiye & Bamishaiye, 2012; Keriri, 2013; Sikiru & Hanifa, 2010)*.

Table 2: Individual factors related to Low Back Pain.

	LBP (%)	No LBP (%)	*p*-value
Age			
20-30	17.1	25.9	<0.001
31-40	20.5	45.7	<0.001
41-50	39.2	19.8	<0.001
51-60	23.1	8.6	<0.001
BMI*			
< 25	46.4	67	0.004
≥ 25	53.6	33	<0.001
Physical Exercise			
Yes	3.4	17.6	0.001
No	96.6	82.4	<0.001

**BMI: Body Mass Index*

Table 3: Physical factors related to low back pain.

	LBP Subjects (%)	No LBP (%)	*p*-value
General State			
Good	12.9	27	<0.001
Fair	59.4	55.1	0.04
Bad	27.7	17.9	<0.001
Work Space			
Large	12.8	15.5	<0.001
Enough	46.2	64.3	0.17
Narrow	31.6	20.2	<0.001
Very narrow	9.4	-	<0.001
Trunk Flexion			
Exceptional	5	16.5	<0.001
1 to 2 times / day	28	53	<0.001
3 to 10 times / day	42	28	<0.001
> 10 times / day	25	2.5	<0.001
Trunk Torsion			
Exceptional	26	54	<0.001
1 to 2 times / day	35	33	<0.001
3 to 10 times / day	23	11	<0.001
> 10 times / day	16	2	<0.001
Toughness of material handling			
Null	19.5	40.3	<0.001
Moderate	36.4	25.8	0.02
Important	27.3	29	<0.001
Very important	17	4.8	<0.001
Toughness of rise of patients			
Null	1.3	10.3	<0.001
Moderate	43.8	44.8	0.09
Important	42.5	41.4	<0.001
Very important	12.5	34	<0.001

Table 4: Psychosocial work factors related to low back pain.

Risk Factors	LBP Subjects (%)	No LBP (%)	*p*-value
Psychological Demand			
Low	41.5	55.3	0.05
High	58.5	44.7	<0.001
Decision Authority			
Low	54.2	56.5	0.7
High	45.8	43.5	<0.001
Social Support			
Low	53.4	50.6	0.6
High	46.6	49.4	<0.001
Job strain			
Yes	42.4	49.4	0.6
No	57.6	50.6	<0.001

Consequently, manual lifting task is one of the main ergonomic factors that can threaten nurses to develop LBP *(Boughattas et al., 2017; Sun et al., 2007)*. Without doubt, many studies mentioned that nurses showed the highest LBP complaints *(Hoy et al., 2012; Meucci et al., 2015; Berquez-Doise et al., 2002; Yassi & Lockhart, 2013)*.

Furthermore, more than half of the nurses stated that the reason of their absenteeism was LBP. The evidence related high absenteeism rate to lumbar problems. It was 39% higher than those informed in the other literature, where the rate of absenteeism varied between 15% and 26.1% *(Boughattas et al., 2017; Hinmikaiye & Bamishaiye, 2012; Keriri, 2013; Brunner, 2010)*. Thus, this can be explained by a more important severity.

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