

# The prevalence and risk factors of lower back pain among healthcare workers in Iraq: A cross sectional study

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### ABSTRACT

**Background.** Globally, the LBP prevalence among the general population varies from 15-45%. Work-related LBP is estimated to cause 818,000 disability-adjusted life years lost (DALYs) annually.

**Aim of study.** To determine the prevalence and factors associated with LBP among Iraqi Healthcare workers.

**Methodology.** This is a cross-sectional study that included 220 participants and was conducted at Baghdad during the period from 5/7/2023 to 25/11/2023. Lower back pain was assessed using an Arabic version of the Standardized Nordic Musculoskeletal Questionnaire (NMQ).

**Results.** The life, annual, and weekly prevalence of LBP were 92.7%, 90.9%, and 58.2%, respectively. A statistically significant association was detected between weekly prevalence of LBP and each of female gender, long working hours, BMI, and occupation.

**Conclusion.** LBP is highly prevalent condition among Iraqi HCWs and caused considerable reduction to the quality of life and work performance. Risk factors for weekly prevalence were female gender, longer working hours, obesity, and working as a dentist.

**Keywords:** lower back pain, healthcare workers, Standardized Nordic Musculoskeletal Questionnaire, musculoskeletal disorder

## INTRODUCTION

Pain is a physiological phenomenon that poses significant psychological challenges and has considerable relevance due to its impact on an individual's quality of life. It hinders productivity and may lead to sleep disturbances [1].

One of the most common conditions requiring medical attention is LBP. It is the most prevalent kind of musculoskeletal disorder (MSD)[2]. LBP is indicative of a symptomatology rather than a distinct pathological condition, with a multitude of probable etiologies. The majority of LBP cases are attributed to musculoskeletal causes. Due to the diverse array of potential etiologies within the musculoskeletal domain and the often transient nature of most individuals' pain, it is estimated that only around 15% of patients may be definitively diagnosed with a particular condition to account for their lower back pain. While it is true that the majority of individuals suffering with LBP experience a temporary and limited duration of symptoms, it is worth noting that recurring episodes of pain are prevalent [3]. Conventionally, LBP is thought to have its roots in an overabundance of mechanical stress on the lower back's muscles or structures [4].

The overall population's prevalence of LBP varies from 15% to 45% worldwide [5]. LBP places a heavy financial strain on governments as a result of the quick shift to an industrial lifestyle, especially when it comes to health system expenses, missed workdays, decreased productivity, and elevated disability [6]. It is estimated that 818,000 disability-adjusted life years lost (DALYs) are caused by work-related LBP each year [7].

LBP is a significant public health concern, since it has a broad and substantial impact on social, psychological, and economic aspects. It is often observed that persons with demanding activities are more prone to experiencing this condition. Specifically, around 37% of cases of LBP worldwide may be attributed to occupations that include exposure to vibrations or lengthy periods of standing. Examples of such occupations include HCWs, and professional drivers. A higher percentage of LBP is associated with the recurrent or prolonged uncomfortable postures that are often assumed by professionals in these occupations[8].

Fortunately, a significant proportion of individuals, namely 90%, who have acute low back issues, exhibit signs of recovery within a one-month timeframe when subjected to appropriate conservative treatment methods. However, it is estimated that about 10% of patients with LBP progress to a chronic condition[3]. This raises the need for both prevention and early treatment of lower back pain. Hence, it is evident that there exists a need to identify the risk factors linked to LBP among healthcare professionals in Iraq.

## METHODS

A cross-sectional work that included 220 patients and was conducted at Baghdad during the period from 5/7/2023 to 25/11/2023. A questionnaire-based interview was used as the data collection method. The questionnaire consisted of 3 parts:

1. **Basic characteristics:** Age, gender, marital status, residence, occupation, presence of comorbid conditions, weight, BMI.
2. **LBP prevalence:** It was determined using the Arabic version of the NMQ. The assessment comprises a set of eight questions pertaining to LBP, accompanied by an illustrative image depicting the potential anatomical location of LBP. The questionnaire provides an explanation of the annual prevalence, cumulative life prevalence and one-week prevalence LBP. Additionally, the questionnaire serves to illustrate the outcomes associated with LBP, including hospitalization, occupational changes or modifications, consultations with medical professionals or physiotherapists, and decreased levels of physical activity throughout the preceding 12-month period[9].

### Statistical analysis

Fischer's exact test was used the test the association between studied parameters. A p value <0.05 was considered statistically significant.

## RESULTS

### Basic characters of the studied sample

The age distribution ranged from 21-69 years and the mean of 40.6 years  $\pm$  9.0 SD. The studied sample showed female predominance, as the male to female ratio was 0.44: 1. Most of the studied sample were married (92.7%) and resided in Baghdad (92.7%). Regarding occupation, 40.9% were doctors; as shown in table (1).

Table (1): Basic characteristics of the studied sample.

Variables	No. (N=220)	%
<b>Age (years)</b>		
<40	88	40.0
<sup>12</sup> $\geq$ 40	132	60.0
<b>Gender</b>		

Male	68	30.9
Female	152	69.1
<b>Marital status</b>		
Married	176	80.0
Unmarried	44	20.0
<b>Residence</b>		
Baghdad	278	92.7
Others	22	7.3
<b>Occupation</b>		
Doctor	90	40.9
Dentist	34	15.5
Pharmacist	12	5.5
Others	84	38.2
<b>BMI</b>		
Normal weight	48	21.8
Overweight	102	46.4
Obese	70	31.8

**Table (2): Prevalence of LBP among the studied sample.**

Variables	No. (N=220)	%
<b>Life prevalence</b>		
Yes	204	92.7
No	16	7.3
<b>Have you experienced back pain last year (days)</b>		
None	20	9.1
1-7	72	32.7
8-30	44	20.0
>30	44	20.0
Everyday	40	18.2
<b>Have you experienced back pain last week</b>		
Yes	128	58.2
No	92	41.8

**Table (3): Consequences of LBP among the studied sample.**

Variables	No. (N=220)	%
<b>Job changes</b>		

Yes	80	36.4
No	140	63.6
<b>Leisure activity reduction</b>		
Yes	136	61.8
No	80	36.4
<b>Work activity reduction (days)</b>		
None	74	33.6
1-7	84	38.2
8-30	20	9.1
>30	16	7.3
Everyday	26	11.8
<b>Doctor visit</b>		
Yes	68	30.9
No	150	68.2
<b>Hospital admission</b>		
Yes	8	3.6
No	21	95.5

**Table (4): Association of the weekly prevalence of back pain with sociodemographic and job characteristics.**

Variables	Back pain		P-value
	No	Yes	
<b>Age (years)</b>			
<40	40	48	<b>0.404</b>
	43.5%	37.5%	
≥40	52	80	
	56.5%	62.5%	
<b>Gender</b>			
<b>Male</b>	38	30	<b>0.005</b>
	41.3%	23.4%	
<b>Female</b>	54	98	
	58.7%	76.6%	
<b>BMI</b>			
Normal weight	26	22	<b>0.014</b>
	28.3%	17.2%	
Overweight	46	56	
	50.0%	43.8%	

Obese	20	50	
	21.7%	39.1%	
<b>Marital status</b>			
<b>Married</b>	72	104	<b>0.611</b>
	78.3%	81.3%	
<b>Unmarried</b>	20	24	
	21.7%	18.8%	
<b>Occupation</b>			
Doctor	40	50	0.004
	44.4%	55.6%	
Dentist	4	30	
	11.8%	88.2%	
Pharmacists	4	8	
	33.3%	66.7%	
Others	34	50	
	40.5%	59.5%	
<b>Hours of work per day</b>			
<b>Mean ± SD</b>	7.204 ± 1.8	8.33 ± 3.3	<0.001

## DISCUSSION

The present study found that the life time, 1-years, and weekly prevalence of LBP was 92.7%, 90.9%, and 58.2%; respectively. In Saudi Arabia, Alnaami et al. recorded a 1-year prevalence of 73.9%[2]. In Turkey, Simsek et al. recorded a prevalence of 53%[10], while Karahan et al. found a prevalence of prevalence of 77.1% among nurses, 63.3% among physicians and 72.7% among physical therapists[11].

In the present study, female gender was significantly connected with LBP. This is concordance with the findings by AlMaghrabi et al. in Saudi Arabia[12]. This may be attributed to the fact that women are often engaged in physically demanding duties and domestic responsibilities, including both normal home chores and the care of their families, in addition to their job duties. As a result, their susceptibility to experiencing lower back pain is heightened.

The present study has shown an increased prevalence of LBP among overweight and obese HCWs. This is in concordance with the finding by Roffey et al[13] and Ikeda et al[14].

The present study has found that the weekly prevalence of LBP was significantly higher among dentists than other occupations. This can be explained by the fact that dentists are often subjected to a greater number of incidents involving improper use of the back mechanism, as well as the accumulation of back stress over

an extended period of professional activity. Gaowgzeh et al. revealed that back pain affected dentists 70% of the time, with low back pain accounting for 47.6% of cases. Of these, 90.5% had mild-to-moderate severity and 9.5% had severe low back pain [15].

The imbalance in muscles between the lower back and abdominal muscles that results from the sitting posture of the dentistry profession may be a contributing factor to LBP among dentists at work. Repetitively bending towards the patient can weaken the deep abdominal stability muscles and cause tension and overexertion in the lower back extensor muscles. Research indicates that a strong transverse abdominis muscle reduces the severity of back discomfort.

Increased working hours per day was significantly linked with increased prevalence of LBP. The study done by Abolfotouh et al. shown a significant increase in the LBP prevalence rate among nurses working 12-hours shifts compared to those working 8-hours shifts [16]. Ibrahim et al. discovered a strong association between nurses who working more than 7-hours/day and the occurrence of LBP[17].

## CONCLUSION

LBP is highly prevalent condition among Iraqi HCWs and caused considerable reduction to the quality of life and work performance. Risk factors for weekly prevalence were female gender, longer working hours, obesity, and working as a dentist.

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## References

1. Şimşek Ş, Yagci N, Şenol H. Prevalence of and risk factors for low back pain among healthcare workers in Denizli. *Agri Agri Dernegi'nin Yayin organidir = J Turkish Soc Algol* 2017;29:71–8.
2. Alnaami I, Awadalla NJ, Alkhairy M, Alburidy S, Alqarni A, Algarni A, et al. Prevalence and factors associated with low back pain among health care workers in southwestern Saudi Arabia. *BMC Musculoskelet Disord* 2019;20(1):56.
3. Bartleson J. Low back pain. *Curr Treat Options Neurol* 2001;3(2):159–68.
4. Holtermann A, Clausen T, Aust B, Mortensen OS, Andersen LL. Risk for low back pain from different frequencies, load mass and trunk postures of lifting and carrying among female healthcare workers. *Int Arch Occup Environ Health* 2013;86(4):463–70.
5. Parreira P, Maher CG, Steffens D, Hancock MJ, Ferreira ML. Risk factors for low back pain and sciatica: an umbrella review. *Spine J* 2018;18(9):1715–



- 21.
6. Gouveia N, Rodrigues A, Eusébio M, Ramiro S, Machado P, Canhão H, et al. Prevalence and social burden of active chronic low back pain in the adult Portuguese population: results from a national survey. *Rheumatol Int* 2016;36(2):183–97.
  7. Punnett L, Prüss-Ütün A, Nelson DI, Fingerhut MA, Leigh J, Tak S, et al. Estimating the global burden of low back pain attributable to combined occupational exposures. *Am J Ind Med* 2005;48(6):459–69.
  8. Manzini F, Cesana G, Manzini C, Riva MA. A Pioneering Patient Lift. *Spine (Phila Pa 1976)* 2015;40(2):126–7.
  9. Al Amer HS, Alharbi AA. Arabic version of the Extended Nordic Musculoskeletal Questionnaire, cross-cultural adaptation and psychometric testing. *J Orthop Surg Res* 2023;18(1):672.
  10. Şimşek Ş. Prevalence and Risk Factors of Low Back Pain among Health-care Workers in Denizli. *Ağrı - J Turkish Soc Algol* 2017;
  11. Karahan A, Kav S, Abbasoglu A, Dogan N. Low back pain: prevalence and associated risk factors among hospital staff. *J Adv Nurs* 2009;65(3):516–24.
  12. Almaghrabi A, Alsharif F. Prevalence of Low Back Pain and Associated Risk Factors among Nurses at King Abdulaziz University Hospital. *Int J Environ Res Public Health* 2021;18(4):1567.
  13. Roffey DM, Wai EK, Bishop P, Kwon BK, Dagenais S. Causal assessment of awkward occupational postures and low back pain: results of a systematic review. *Spine J* 2010;10(1):89–99.
  14. Ikeda T, Cooray U, Suzuki Y, Kinugawa A, Murakami M, Osaka K. Changes in Body Mass Index on the Risk of Back Pain: Estimating the Impacts of Weight Gain and Loss. *Journals Gerontol Ser A* 2023;78(6):973–9.
  15. Gaowgzeh RA, Chevidikunnan MF, Al Saif A, El-Gendy S, Karrouf G, Al Senany S. Prevalence of and risk factors for low back pain among dentists. *J Phys Ther Sci* 2015;27(9):2803–6.
  16. Abolfotouh SM, Mahmoud K, Faraj K, Moammer G, ElSayed A, Abolfotouh MA. Prevalence, consequences and predictors of low back pain among nurses in a tertiary care setting. *Int Orthop* 2015;39(12):2439–49.
  17. Ibrahim MI, Zubair IU, Yaacob NM, Ahmad MI, Shafei MN. Low Back Pain and Its Associated Factors among Nurses in Public Hospitals of Penang, Malaysia. *Int J Environ Res Public Health* 2019;16(21):4254.