



Original Article

Prevalence, Risk Factors and Effects of Low Back Pain on Quality of Life among Healthcare Professionals of Lahore, Pakistan

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ABSTRACT

Low back pain being a prevalent disease is affecting the quality of life. The health care professionals also experience low back pain due to their nature of work. **Objective:** To determine the prevalence of low back pain with its contributing factors and its impact on life's quality of healthcare professionals. **Methods:** The cross-sectional study design was applied to conduct this study. In this study, a total of 384 health care professionals from different hospitals of Lahore, Pakistan were randomly surveyed. Descriptive statistics and Chi square test used to analyze the data (p -value < 0.05). **Results:** The frequency of pain in lower back was 63% among health care professionals. A total of 56% female healthcare professionals had low back pain. Risk factors i.e. smoking behavior, poor posture at work, standing time, working hour per day, sleeping disorder and general stress had significant association with pain intensity rating scale (p -value < 0.05). The quality of life of healthcare professionals measured with Oswestry disability index (ODI) had also significant relation with low back pain (p -value < 0.05). **Conclusions:** In conclusion, the pain in lower back was more prevalent in female healthcare professionals. Occupational risk factors, Smoking behavior, sleeping disorder and general stress were considered as major risk factors. The most useful coping strategy was rest. The quality of life of healthcare professionals were highly effected by low back pain.

INTRODUCTION

Low back pain (LBP) is the sixth-highest burden and is associated with higher impairment globally [1]. The low back pain is also considered as the fifth cause to consult doctors all over the world. It also considered as an issue of health throughout history, dating back to BC 1500 [2]. Low back discomfort affects a lot of people worldwide, and this figure is rising day by day. People from all around the world experience low back pain. China has an 80% prevalence of lower back pain, while Korea has a 90% prevalence [3]. The

long working hours, excess load of work, insufficient working staff and instruments, less time of break during work, incorrect work position and road traffic injuries can all be occupational risk factors for LBP in healthcare workers [4, 5]. The activities related to physical work, smoking behavior and household factors such as use of computers and watching television are considered as major risk factors [6]. Several studies have found a number of risk factors connected to LBP in the general population,

such as advanced age, alcohol, drug misuse, family history and gender. The frequency of exercise, obesity, incorrect alignment and posture and smoking are also contributing towards low back pain. The professional considerations such as extended sitting and standing; past back injuries; as well as psychological and social concerns are also leading cause of low back pain [7, 8]. The pain in low back among healthcare professionals may interfere with providing quality patient care, result in lost workdays, and increase financial burden [9]. Due to its severity, it is the main reason for job loss, changing work environments, taking leave from job and it effects the resources of healthcare, along with decrease in activities of daily life and social life [10]. The risk factors that can be changed occupation-related issues such bad posture, prolonged sitting, and lifting large loads. Age and a patient with history of pain in lower back are non-modifiable contributing factors while inactivity in life, high BMI and smoking behavior are modifiable factors [11, 12]. Ignoring pain as a musculoskeletal system symptom has major health repercussions, ranging from discomfort to a lower quality of life to injury and disabilities [13]. So, the study aimed to determine the prevalence, risk factors of low back pain and its impact on the quality of life of health care professionals of Lahore, Pakistan.

METHODS

The cross sectional study was designed to find out the prevalence of low back pain and its effects on the quality of life of healthcare professionals. The study was conducted in both public and private hospitals of Lahore, Pakistan. The duration of study was 8 months from December 2022 to July 2023. The study population was healthcare professionals who were working in both public and private selected hospitals of Lahore. Male and female healthcare professionals aged 18-60 years working from more than six months in randomly selected private and public hospitals were included in this study. While participants with pregnancy, degenerative joint disease, arthritis, vertebral fractures and spondylolisthesis were not included in this study. The random sampling technique was used. The size of sample was calculated by following formula in which proportion of population (p) is 50% or 0.5, confidence level (z)=1.96 and margin of error (e) is considered as 5% or 0.05.

$$n = \frac{z^2 p(1-P)}{e^2}$$

A total of 384 health care professionals were randomly surveyed from selected public and private hospitals of Lahore. Data were collected using a structured self-administered English version questionnaire which consist of three parts. The first part consisted of socio-demographic related questions, the second part consisted of work related questions and the third part consisted of

Oswestry Disability Index (ODI) questionnaire developed by Fairbank, Couper, Davies & O'Brien in late 1970, which quantified the effect of disability on quality of life of healthcare professionals. The data were analyzed using descriptive and statistical analysis (Chi square). P-value < 0.05 was considered significant. The confidence interval of 95% was considered to find out prevalence of pain in lower back. Chi square was considered as to find out the consequence of risk factors and to find out the relation between intensity level of low back pain and other variables.

RESULTS

A total of 384 participants were selected from public and private hospitals. The mean age of participants was 31.13±5.82 years. A total of 56% participants were female in this study. The profession of 47%, 25%, 17%, 12% participants were medical doctors, nurses, allied health professionals and dentist respectively. In term of working experience, 55% of the participants had less than 5 years which were majority participants of this study. According to body mass index (BMI), a total of 60% of the participants were with normal weight while 27% of the participants were overweight. A total of 84% of the participants were non-smokers. In term of consumption of tea or coffee, 75% of the participants consume tea or coffee. A total of 77% of the participants did not go for exercise regularly. A total of 37% participants had experienced work related stress and 49% of the participants remained in poor posture at work place. The participants which felt mild to severe pain made up 64 % of this study. About 80% of the participants used the rest technique to handle low back pain while 10% participants used medication to tackle the low back pain. About 3% of the participants did physiotherapy techniques to reduce their back pain. A total of 82% of participants have experienced minimal disability while 15% of participants have experienced moderate disability. Statistical analysis (Chi square) was done between pain intensity rating scale and other variables of low back pain. The nature of hospital, profession and working experience was statistically significant as the p-value was less than 0.05 (Table 1).

Table 1: Statistical analysis between pain intensity rating scale and sociodemographic variables

Categories	Pain intensity rating scale				p-value
	No pain F (%)	Mild F (%)	Moderate F (%)	Severe F (%)	
Nature of hospital					
Public A	33(8.59)	49(12.76)	29(7.55)	9(2.34)	0.000
Public B	17(20.05)	65(16.92)	2(0.52)	16(4.16)	
Private C	48(12.5)	19(4.9)	5(1.30)	0(0)	
Private D	42(10.93)	28(7.29)	2(0.52)	0(0)	
Gender					
Male	68(17.70)	68(17.70)	29(7.55)	11(2.86)	0.786
Female	79(20.57)	93(24.21)	29(7.55)	14(3.64)	

Marital status					
Married	61(15.88)	70(18.22)	22(5.72)	8(2.08)	0.317
Unmarried	72(18.75)	91(23.69)	36(9.37)	17(4.42)	
Educational status					
Graduation	88(22.91)	113(29.42)	37(9.63)	21(5.46)	0.232
Master	33(8.59)	32(8.33)	9(2.34)	2(0.52)	
Specialization	18(4.6)	14(3.64)	12(3.12)	2(0.52)	
Profession					
Doctors	53(13.80)	89(23.17)	20(5.20)	15(3.90)	0.005
Nurses	35(9.11)	30(7.81)	24(6.25)	7(1.82)	
Dentists	21(5.46)	19(4.94)	6(1.56)	1(0.26)	
Allied health professionals	31(8.07)	23(5.9)	8(2.08)	2(0.52)	
Working experience					
<5 y	87(22.65)	87(22.65)	30(7.81)	6(1.56)	0.029
5-10 y	37(9.63)	58(15.10)	24(6.25)	14(3.64)	
11-15 y	14(3.64)	11(2.86)	3(0.78)	3(0.78)	
>15 y	2(0.52)	5(1.30)	1(0.26)	2(0.52)	

Body Mass Index (BMI) was not considered as significant as the p value is 0.243. Smoking behavior, sleeping disorder and general stress was considered as significant as p-value is less than 0.05. While BMI, tea or coffee consumption and exercise behavior had p-value more than 0.05 and considered as insignificant (Table 2).

Table 2: Statistical analysis between pain intensity rating scale and risk factors of LBP

Categories	Pain intensity rating scale				p-value
	No pain	Mild	Moderate	Severe	
	F (%)	F (%)	F (%)	F (%)	
BMI					
Underweight	21(5.46)	22(5.72)	5(1.30)	0(0)	0.243
Normal	84(21.87)	91(23.69)	36(9.37)	20(5.20)	
Overweight	35(9.11)	48(12.5)	17(4.42)	5(1.30)	
Smoking behavior					
Smoker	12(3.12)	37(9.63)	8(2.08)	5(1.30)	0.035
Non smoker	128(33.33)	124(32.29)	50(13.02)	20(5.20)	
Consumption of coffee or tea					
Yes	103(26.82)	123(32.03)	46(11.97)	18(4.68)	0.808
No	37(9.63)	38(9.89)	12(3.12)	7(1.82)	
Sleeping disorder					
Not at all	85(21.87)	109(28.38)	19(4.94)	12(3.1)	0.000
A little	54(14.06)	51(13.28)	32(8.33)	13(3.38)	
Severe	1(0.26)	1(0.26)	7(1.82)	0(0)	
General stress					
Not at all to minimum	75(19.53)	52(13.54)	18(4.68)	11(2.86)	0.000
Moderate	62(16.14)	90(23.43)	32(8.33)	14(3.64)	
High	3(0.78)	19(4.94)	8(2.08)	0(0)	
Exercise regularly					
Yes	28(7.29)	43(11.19)	14(3.64)	2(0.52)	0.157
No	112(29.16)	118(30.72)	44(11.45)	23(5.98)	

Physical effort, poor posture, frequent bending or twisting at work and working hour per day were statistically significant. While work stress, working shift, lifting heavy objects, transferring patients, traveling time per day and

Leave due to lower back pain were insignificant as the p-value is less than 0.05 (Table 3).

Table 3: Statistical analysis between pain intensity rating scale and work related risk factors

Categories	Pain intensity rating scale				p-value
	No pain	Mild	Moderate	Severe	
	F (%)	F (%)	F (%)	F (%)	
Work stress					
Very low	19(4.94)	23(5.98)	9(2.34)	6(1.56)	0.293
Low	48(12.5)	53(13.80)	20(5.20)	13(3.38)	
Moderate	56(14.58)	66(17.1)	18(4.68)	4(1.04)	
High	17(4.42)	19(4.94)	11(2.86)	2(0.52)	
Physical effort at work					
No/Low	39(10.15)	61(15.88)	13(3.38)	8(2.0)	0.000
Medium	81(21.09)	76(19.79)	23(5.98)	5(1.30)	
High	20(5.2)	24(6.23)	22(5.72)	12(3.12)	
Poor posture at work					
Never to occasionally	58(15.10)	74(19.27)	23(5.98)	6(1.56)	0.004
Regularly	74(19.27)	77(20.05)	26(6.77)	12(3.12)	
Permanent	8(2.0)	10(2.6)	9(2.3)	7(1.82)	
Frequent bending or twisting					
Yes	66(17.18)	68(17.70)	36(9.3)	3(0.78)	0.000
No	74(19.27)	93(24.21)	22(5.72)	22(5.72)	
Lifting heavy objects					
Yes	37(9.63)	57(14.84)	19(4.94)	13(3.38)	0.064
No	103(26.82)	104(27.08)	39(10.15)	12(3.12)	
Transferring patients					
Yes	30(7.81)	37(9.63)	12(3.12)	6(1.56)	0.923
No	109(28.38)	124(32.29)	46(11.97)	19(4.94)	
Overall standing time					
1-4 h	36(9.37)	64(16.66)	31(8.07)	12(3.12)	0.001
5-8 h	55(14.32)	54(14.06)	21(5.46)	10(2.60)	
>8 h	49(12.76)	43(11.19)	6(1.56)	3(0.78)	
Working hour per day					
4-6 h	37(9.63)	85(22.13)	34(8.85)	22(5.7)	0.000
6-8 h	62(16.14)	54(14.06)	10(2.60)	0(0)	
>8 h	4(10.67)	22(5.72)	14(3.64)	3(0.78)	
Traveling time per day					
1-3 h	109(28.38)	135(35.15)	47(12.23)	23(5.98)	0.45
4-6 h	27(7.03)	24(6.25)	11(2.86)	2(0.52)	
>6 h	4(1.04)	2(0.52)	0(0)	0(0)	
Working shift					
Day time	91(23.69)	118(30.72)	31(8.07)	13(3.38)	0.005
Night time	21(5.46)	12(3.12)	4(1.04)	3(0.78)	
Both	28(7.29)	31(8.07)	23(5.98)	9(2.34)	
Leave due to pain					
Yes	37(9.63)	27(7.03)	10(2.60)	3(0.78)	0.115
No	103(26.82)	134(34.89)	48(12.5)	22(5.72)	

The pain intensity rating scale and impact of low back pain on quality of life had showed high significance (p-value 0.05)(Table 4).

Table 4: Statistical analysis between pain intensity rating scale and quality of life

Categories	Pain intensity rating scale				p-value
	No pain	Mild	Moderate	Severe	
	F (%)	F (%)	F (%)	F (%)	
Quality of life					
Minimal disability	124(32.29)	138(35.93)	38(9.89)	16(4.16)	0.000
Moderate disability	13(3.38)	22(5.72)	16(4.1)	6(1.56)	
Severe disability	3(0.78)	1(0.26)	4(1.04)	3(0.7)	
Crippled	0(0)	0(0)	0(0)	0(0)	
Bed bound	0(0)	0(0)	0(0)	0(0)	

DISCUSSION

Our study focused on finding the prevalence and risk factors of low back pain and its effect on quality of life among health care professionals of Lahore. Pain in lower back is considered as one of the main issue of public health and its prevalence is high in number in healthcare professionals of both public and private hospitals. Although, the healthcare professionals work at public hospitals are more complaining about private hospitals. Female healthcare professionals have high occurrence of low back pain as comparison to male healthcare professionals. Previous study in Şimşek et al., also has similar findings about the high occurrence of low back pain among females [2]. Smoking behavior, sleeping disorder and general stress are responsible for lower back pain. Work related risk factors are also considered as major reason of low back pain among healthcare professionals. Çınar-Medeni et al., also identified similar risk factors associated with low back pain in healthcare workers [15]. The most useful coping strategy that is used by many healthcare professionals is rest in comparison to other coping strategies. The low back pain has highly effect the quality of life of healthcare professionals because due to low back pain the daily activities of healthcare professionals are disturbed. Spinhoven et al., also suggested that rest is the most useful coping strategy among chronic back pain patients [16]. We find out that the prevalence of low back pain in our study is 63.2%. In comparison to our study Luhur et al., in 2022 conducted a study in Indonesia to find out the prevalence of low back pain and they find that the prevalence of low back pain was 62.7% [17]. The findings of prevalence of low back pain approximately aligns with our study results and might difference is due to difference in sample size, methodology and study designs. In our study, we find out that there is association with low back pain and different risk factors like work related risk factors are the main cause of low back pain. In contrast of our findings Zahra et al., conducted a study in Tabuk, Saudi Arabia in 2020 which also found different risk factors are responsible for the cause of lower

back pain like lifting of heavy objects, work with bending position, the wrong positing of body and unstable condition of working [18]. The mean age of health care professionals in our study is 31.13±5.82. In similar to aforementioned findings, a study was conducted by Zahra et al., in Saudi Arabia and find out that the mean age of its study participants was 31.6±8.65. The findings of our study related with the above mentioned study but mild variation was due to difference in study methodology [18]. In our study we find out that there is no correlation between low back pain and obesity but the work related risk factors are major contributors of low back pain. In comparison to our study Ibrahim et al., conducted study in 2019 in Malaysia and find out that obesity and low back pain was highly correlated which was contrary to our study. But the relevance of low back pain with an unfavorable work environment was in accordance of our study [5, 19]. We find in our study results that that perceived stress scores are significantly associated with low back pain. In contrast to our study, Tsuboi et al., reported that high perceived stress was independently associated with a higher prevalence of LBP [20]. The results vary from our study. But in comparison to our study Vinstrup et al., in 2020 find out in his study that low back pain and perceived stress was highly significant correlated which relates with our study findings [21]. Our study indicates that the quality of life of healthcare professionals is highly associated with pain in low back. In comparison to our study Mroczek et al., in 2020 found out that quality of life of healthcare professionals was highly effected by low back pain. The above mentioned study aligns with our study [22]. We find in our study that rest is the most frequent method used by many healthcare professionals. The aforementioned result has similarity with the finding of study conducted by Ibrahim et al., 2019 which determined that rest is more prevalent method used by healthcare professionals to cope with low back pain [19].

CONCLUSIONS

It is concluded that low back pain is considered as one of the main issue of public health and its prevalence is high in healthcare professionals of both public and private hospitals. Low back pain is more prevalent among participants working at public sector hospitals. Female healthcare professionals have high occurrence of low back pain as comparison to male. Healthcare professionals suffering from sleeping disorder had more prevalent low back pain. Stress is indicated as the major risk contributor of low back pain. Occupation related risk factors are also considered as major reason of low back pain among healthcare professionals. The most useful coping strategy that is used by many healthcare professionals was rest. The low back pain is highly effect the quality of life of healthcare

professionals.

Authors Contribution

Conceptualization: NR, MW, RZ, JS

Methodology: ZU, FT

Formal analysis: ZU, FT

Writing-review and editing: NR, MW, RB, MZ, MR, RZ, JS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFERENCES

- [1] Vujcic I, Stojilovic N, Dubljanin E, Ladjevic N, Ladjevic I, Sipetic-Grujicic S. Low back pain among medical students in Belgrade (Serbia): a cross-sectional study. *Pain Research and Management*. 2018 Feb; 2018: 8317906. doi: 10.1155/2018/8317906.
- [2] Şimşek Ş, Yağcı N, Şenol H. Prevalence of and risk factors for low back pain among healthcare workers in Denizli. *Agri*. 2017 Apr; 29(2): 71-8. doi: 10.5505/agri.2017.32549.
- [3] Mijena GF, Geda B, Dheresa M, Fage SG. Low back pain among nurses working at public hospitals in eastern Ethiopia. *Journal of Pain Research*. 2020 Jun; 13: 1349-57. doi: 10.2147/JPR.S255254.
- [4] Terzi R and Altın F. The prevalence of low back pain in hospital staff and its relationship with chronic fatigue syndrome and occupational factors. *Agri*. 2015 Jul; 27(3): 149-54. doi: 10.5505/agri.2015.26121.
- [5] Farooq MW, Tahir N, Ch NA, Khatara JR. Road Traffic Injuries: Quality of Pre and Post Hospital Care in Pakistan. *Journal of Positive School Psychology*. 2023 May; 7(4): 1551-64.
- [6] Fernandes JA, Genebra CV, Maciel NM, Fiorelli A, Conti MH, De Vitta A. Low back pain in schoolchildren: a cross-sectional study in a western city of São Paulo State, Brazil. *Acta Ortopedica Brasileira*. 2015 Sep; 23: 235-8. doi: 10.1590/1413-785220152305148842.
- [7] Kongsted A, Lancet Low Back Pain Series Working Group. Low back pain: a call for action. *Lancet Oncology*. 2018 Jun; 39(10137): 2384-8. doi: 10.1016/S0140-6736(18)30488-4.
- [8] Koes BW, Van Tulder M, Thomas S. Diagnosis and treatment of low back pain. *BMJ*. 2006 Jun; 332(7555): 1430-4. doi: 10.1136/bmj.332.7555.1430.
- [9] 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. *International Orthopaedics*. 2015 Dec; 39: 2439-49. doi: 10.1007/s00264-015-2900-x.
- [10] 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 Musculoskeletal Disorders*. 2019 Dec; 20: 1-7. doi: 10.1186/s12891-019-2431-5.
- [11] Ali AA, Haq N, Hussain A, Rafique M, MR MI, Ahmad T, et al. Assessment of frequent work related musculoskeletal disorders in patients visiting the physiotherapy OPD of civil hospital Quetta, Pakistan: A cross sectional survey. *Indian Journal of Physiotherapy and Occupational Therapy-An International Journal*. 2021 Apr; 15: 91.
- [12] Nachemson AL. Advances in low-back pain. *Clinical Orthopaedics and Related Research (1976-2007)*. 1985 Nov; 200: 266-78. doi: 10.1097/00003086-198511000-00031.
- [13] Parent-Thirion A, Biletta I, Cabrita J, Vargas Llave O, Vermeylen G, Wilczyńska A, et al. Sixth European working conditions survey-overview report. 2016 Nov. doi: 10.2806/422172.
- [14] Fairbank JC and Pynsent PB. The Oswestry disability index. *Spine*. 2000 Nov; 25(22): 2940-53. doi: 10.1097/00007632-200011150-00017.
- [15] Çınar-Medeni Ö, Elbasan B, Duzgun I. Low back pain prevalence in healthcare professionals and identification of factors affecting low back pain. *Journal of Back and Musculoskeletal Rehabilitation*. 2017 Jan; 30(3): 451-9. doi: 10.3233/BMR-160571.
- [16] Spinhoven P, Ter Kuile MM, Linszen AC, Gazendam B. Pain coping strategies in a Dutch population of chronic low back pain patients. *Pain*. 1989 Apr; 37(1): 77-83. doi: 10.1016/0304-3959(89)90155-3.
- [17] Luhur LJ, Ruma A, Sugianto P. Characteristics of Patients with Low Back Pain among Healthcare Professionals at John Piet Wanane General Hospital: A Cross-Sectional Study. *AKSONA*. 2022 Jul; 2(2): 72-7. doi: 10.20473/aksona.v2i2.36728.
- [18] Zahra N, Sheha EA, Elsayed H. Low back pain, disability and quality of life among health care workers. *IJPRPM*. 2020 Apr; 9(2): 34-44.
- [19] 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. *International Journal of Environmental Research and Public Health*. 2019 Nov; 16(21): 4254. doi: 10.3390/ijerph16214254.
- [20] Tsuboi Y, Ueda Y, Naruse F, Ono R. The association

between perceived stress and low back pain among eldercare workers in Japan. *Journal of Occupational and Environmental Medicine*. 2017 Aug; 59(8): 765-7. doi: 10.1097/JOM.0000000000001062.

- [21] Vinstrup J, Jakobsen MD, Andersen LL. Perceived stress and low-back pain among healthcare workers: a multi-center prospective cohort study. *Frontiers in Public Health*. 2020 Aug; 8: 297. doi: 10.3389/fpubh.2020.00297.
- [22] Mroczek B, Łubkowska W, Jarno W, Jaraczewska E, Mierzecki A. Occurrence and impact of back pain on the quality of life of healthcare workers. *Annals of Agricultural and Environmental Medicine*. 2020 Jan; 27(1): 36-42. doi: 10.26444/aaem/115180.