Original Article

Frequency and Risk Factors of Low Back Pain among Physicians and Surgeons working in a Tertiary Care Hospital

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Abstract

Background: Low back pain is a highly prevalent health problem and a major public health concern worldwide. It disrupts daily routines, reduces quality of life, and limits work performance, particularly in physically demanding professions. Healthcare professionals, including physicians and surgeons, are at high risk due to long working hours, poor posture, and other occupational factors.

Objective: To assess the frequency and risk factors of Low Back Pain among physicians and surgeons of the University of Lahore Teaching Hospital.

Methodology: A comparative cross-sectional study, nine months after Ethical approval of the synopsis (REC-UOL-/164-06/2022), was conducted among 44 participants (22 physicians and 22 surgeons). Non-probability convenience sampling was used. Data were collected through a structured questionnaire assessing demographic details and risk factors.

Results: Among 44 respondents, 70.5% reported low back pain. Fatigue was more common in physicians (90.9%) compared to surgeons (59.1%), while surgeons reported higher rates of body twisting (63.6%). Overall, 75% of participants experienced fatigue, 59.1% were overweight, and 4.5% were obese. Significant associations were observed between LBP and fatigue ($p = 0.015$) as well as body twisting ($p = 0.035$).

Conclusion: LBP is highly prevalent among both physicians and surgeons, with fatigue, poor posture, and prolonged standing as major risk factors. Preventive strategies such as ergonomic training, regular exercise, and improved workplace practices are essential to reduce its burden.

Keywords: Low back pain, Occupational Health, workplace hazards, musculoskeletal disorders, chemical exposure

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Introduction

Low back pain (LBP) is a general term for low back discomfort, sometimes radiating to one or both legs, that persists for at least 1 day. It most often occurs in the region between the lower edge of the ribs and the gluteal folds. [1] Globally, LBP is among the top causes of disability due to work and is a significant contributor to decreased quality of life. It also has enormous financial burdens on individuals, families, companies, and health systems. [2] The 2010 Global Burden of Disease report states that musculoskeletal diseases, which encompass LBP, significantly contribute to disability, and

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their burden is measured in DALYs. In developed nations, the lifetime risk for having nonspecific LBP is 60% to 70%, with the rate of one-year prevalence being between 15% and 45%.[3] The rate of LBP is significantly higher in children and adolescents, but peaks between the age groups of 35 to 55, coinciding with degenerative spinal disc changes in an aging population.[4] The worldwide incidence of LBP has been high over the past few decades, with point prevalence rates between 12% and 33% and one-year prevalence rates between 22% and 65%, varying with the population under investigation. [5] About 12.8% of adults complain of LBP, and over half of them are disabled by it. [6] LBP is a medical condition for most individuals, particularly in desk occupations, in which it results in serious illnesses and economic loss through medical bills and lost productivity. [7] LBP is the most common reason for adult disability before age 45, and at ages 45 to 64 years, it is third in rank after respiratory and trauma injuries. Approximately 75% of individuals with LBP have work limitations, especially those with jobs involving heavy physical labor.[8] A survey carried out at the Fattouma Bourguiba Teaching Hospital in Monastir, Tunisia, evaluated the prevalence and occupational effect of LBP in hospital workers. For this research, LBP was diagnosed as pain that had lasted at least one day over the previous year, localized between the lower rib margin and gluteal folds, with or without radiating pain to the knee.[9] Past studies depict differing rates of LBP across the globe: 76% in the Netherlands [10], 46% in Nigeria [11] and Ireland, and 39% in Hong Kong. [12] The risk factors for LBP in the healthcare environment consist of repetitive physical exertion, unsafe posture, lifting heavy weights, and staying in static positions for long periods. Nurses are highly exposed because their jobs are physically demanding, i.e., lifting patients and poor body postures.[13] The effect of LBP on nurses is significant and contributes both to their physical well-being as well as to productivity. Pain, as defined in the case of LBP, acts as a protective mechanism to avoid further harm, but also interferes with activities of daily living.[2] In industrial nations, LBP is a priority health condition, and healthcare professionals, especially nurses, are the most afflicted group.[2] Non-modifiable factors such as obesity, smoking, and prior history of LBP add to the risk factors; however, excessive sitting, poor posture, and heavy lifting are modifiable risk factors.[6] Nurses are more at risk of LBP because their work environment is physically demanding. Numerous studies have targeted LBP prevalence and risk factors among physiotherapists and nurses, with special demands for ergonomic interventions aimed at minimizing physical burden in the healthcare setting.[7] Musculoskeletal disorders, including LBP, manifest through symptoms like tenderness, inflammation, stiffness, and reduced mobility. These conditions affect various parts of the musculoskeletal system, including muscles, joints, tendons, and nerves, leading to significant impairment in daily functioning. The World Health Organization (WHO) identifies musculoskeletal conditions as one of the leading causes of disability worldwide [14]. In a representative Austrian study, 25% of participants reported chronic pain in at least one body region, with 10% of adults experiencing chronic low back pain annually. Similarly, studies in the United States show a rising trend in LBP across all age groups and both genders.[5] This study aimed to examine the prevalence and risk factors associated with LBP among healthcare professionals,

specifically physicians and surgeons at the University of Lahore Teaching Hospital.

Materials and Methods

This comparative cross-sectional study was conducted at the University of Lahore Teaching Hospital over a duration of nine months after IRB/Ethical approval of the synopsis (REC-UOL-/164-06/2022). The duration of the study was 9 months. A total of 44 subjects were recruited through non-probability convenience sampling, with an equal distribution of 22 physicians (50%) and 22 surgeons (50%). The sample size was estimated using the reported prevalence of low back pain in surgeons (46.7%)[15] and physicians (76.4%)[16], with a 90% power of test, 95% confidence level, and 5% margin of error. The inclusion criteria consisted of either gender, aged 25-60 years, and belonging to the specialties of surgery or medicine. Exclusion criteria included individuals with osteoporosis, osteoarthritis, degenerative issues, prior spinal surgery, vertebral fractures/dislocations, spinal tumors, rheumatoid arthritis, pregnancy, or alternative treatments related to back pain and sciatica. Data collection involved administering a structured questionnaire adapted from relevant literature to gather demographic details (age, gender, specialty) and evaluate risk factors associated with low back pain among physicians and surgeons. Data analysis was performed using SPSS version.[22] Descriptive statistics included frequency and percentage for categorical variables. The Chi-Square test was used to assess the associations between variables like gender, work experience, low back pain exercise habits, smoking status, and fatigue.

Results

The results revealed that male doctors comprised a larger percentage (77.3%) than surgeons (68.2%). The two groups had similarly distributed ages, with most of the subjects aged between 25 and 44 years, and no difference in the distribution of ages was found (p = 0.604). For work experience, most of both the physicians and surgeons had 6 to 15 years of experience, with no notable difference between the two groups (p = 0.634). In working time, most of the physicians (72.7%) and surgeons (63.6%) worked 6 to 12 hours a day, with no notable difference in their working time (p = 0.177). As far as work conditions are concerned, most physicians and surgeons provided an assessment of their workplace as "good," but a greater proportion of physicians (77.3%) had good working conditions than surgeons (59.1%). But this difference was also not statistically significant (p = 0.450). In general, the analysis did not identify any meaningful differences between physicians and surgeons in terms of gender, age, experience, working hours, or working conditions as given in Table 1.

Table 1: Demographic and Work-Related Characteristics of Physicians and Surgeons

Variable	Categories	Physicians n (%)	Surgeons n (%)	Chi-Square	P-Value
Gender	Male	17 (77.3%)	15 (68.2%)	0.45	0.498
	Female	5 (22.7%)	7 (31.8%)		
Age	25–34 years	6 (27.3%)	5 (22.7%)	1.852	0.604
	35–44 years	7 (31.8%)	6 (27.3%)		
	45–54 years	5 (22.7%)	7 (31.8%)		
	55–60 years	4 (18.2%)	4 (18.2%)		
Work Experience	0–5 years	1 (4.5%)	1 (4.5%)	1.714	0.634
	6–10 years	9 (40.9%)	5 (22.7%)		
	11–15 years	6 (27.3%)	8 (36.4%)		
	>15 years	6 (27.3%)	8 (36.4%)		
Working Hours (per day)	<6 hours	2 (9.1%)	0 (0%)	3.467	0.177
	6–12 hours	16 (72.7%)	14 (63.6%)		
	>12 hours	4 (18.2%)	8 (36.4%)		
Working Condition	Very Good	4 (18.2%)	5 (22.7%)	2.644	0.450
	Good	17 (77.3%)	13 (59.1%)		
	Average	1 (4.5%)	3 (13.6%)		
	Very Bad	0 (0%)	1 (4.5%)		

The BMI of both the surgeons and physicians was given in Figure 1.

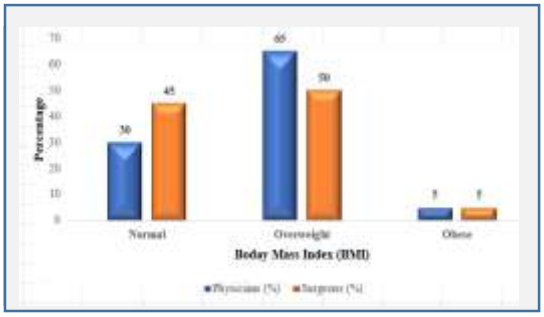

Figure 1: ***Body Mass Index (BMI) of Physicians and Surgeons (%)***

In Table 2, both physicians and surgeons in this study reported a high incidence of low back pain, with 68.2% of physicians and 72.7% of surgeons experiencing the condition. The characteristics of pain were comparable in both populations, with most reporting their pain as diffused rather than localized, and most reporting the intensity to be moderate. Severe pain was quite rare. The time of pain was longer than six months in almost two-thirds of the patients in both groups, and only slightly more than half of the patients in both groups complained about posture-associated pain. Smoking was stated by doctors more often (13.6%) than by surgeons (4.5%), though without a significant difference. Participation in exercise was higher in surgeons, whereas rare exercise was seldom reported. Surgeons also worked longer hours standing, with 40.9% standing 8–10 hours a day, compared to just 18.2% of the physicians. In contrast, shorter standing times (1–3 hours) were more prevalent among physicians. Sitting times were comparable across groups, with the majority spending 3–6 hours sitting each day. The frequency of handling heavy loads was similar in the two groups. The percentage of surgeons who twisted their bodies was significantly higher than that of physicians (31.8%). Although there was a difference in stress levels, higher stress levels were more common among surgeons; the difference was not statistically significant. Physicians (90.9%) felt fatigue far more often than surgeons (59.1%), and this difference was statistically significant. Both groups' obesity rates were low (4.5% each), although most doctors and surgeons were overweight based on body mass index. The only notable differences between the two groups were fatigue, which is more common among doctors, and body twisting, which is more frequent among surgeons. The significant work-related risk factors are shown in table 2.

Table 2: Clinical and Lifestyle Factors of Physicians and Surgeons

Variable	Categories	Physicians n (%)	Surgeons n (%)	Chi-Square	P-Value
History of Low Back Pain	Yes	15 (68.2%)	16 (72.7%)	0.109	0.741
	No	7 (31.8%)	6 (27.3%)		
Pain Characteristics	Localized	7 (31.8%)	8 (36.4%)	0.101	0.750
	Diffused	15 (68.2%)	14 (63.6%)		
Pain Intensity	Mild	5 (22.7%)	6 (27.3%)	0.558	0.757
	Moderate	16 (72.7%)	14 (63.6%)		
	Severe	1 (4.5%)	2 (9.1%)		
Duration of Pain	≤6 months	8 (36.4%)	8 (36.4%)	<0.001	0.623
	>6 months	14 (63.6%)	14 (63.6%)		
Posture-related Pain	Yes	12 (54.5%)	13 (59.1%)	0.931	0.761
	No	10 (45.5%)	9 (40.9%)		
Smoking	Yes	3 (13.6%)	1 (4.5%)	1.100	0.294
	No	19 (86.4%)	21 (95.5%)		
Exercise Participation	Yes	11 (50.0%)	14 (63.6%)	2.249	0.325
	No	11 (50.0%)	7 (31.8%)		
	Occasionally	0 (0%)	1 (4.5%)		
Standing Hours	1–3 hours	7 (31.8%)	1 (4.5%)	7.423	0.060
	3–6 hours	11 (50.0%)	11 (50.0%)		
	6–8 hours	0 (0%)	1 (4.5%)		
	8–10 hours	4 (18.2%)	9 (40.9%)		
Sitting Hours	1–3 hours	5 (22.7%)	5 (22.7%)	2.667	0.446
	3–6 hours	10 (45.5%)	14 (63.6%)		
	6–8 hours	3 (13.6%)	2 (9.1%)		
	8–10 hours	4 (18.2%)	1 (4.5%)		
Carrying Heavy Objects	Yes	7 (31.8%)	8 (36.4%)	0.101	0.750
	No	15 (68.2%)	14 (63.6%)		
Body Twisting	Yes	7 (31.8%)	14 (63.6%)	4.464	0.035*
	No	15 (68.2%)	8 (36.4%)		
Stress	Mild	10 (45.5%)	9 (40.9%)	4.513	0.105
	Moderate	11 (50.0%)	7 (31.8%)		
	Severe	1 (4.5%)	6 (27.3%)		
Fatigue	Yes	20 (90.9%)	13 (59.1%)	5.939	0.015*
	No	2 (9.1%)	9 (40.9%)		
BMI	Normal	6 (27.3%)	10 (45.5%)	1.615	0.446
	Overweight	15 (68.2%)	11 (50.0%)		
	Obese	1 (4.5%)	1 (4.5%)		

Figure 2: ***Clinical and Lifestyle Factors of Physicians and Surgeons***

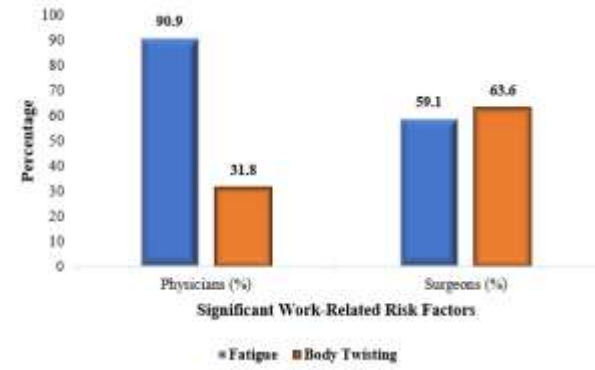

Figure 2: Work-Related Risk Factors among Physicians and Surgeons

Discussion

The study aimed to determine the prevalence and risk factors linked with low back pain among physicians and surgeons at the University of Lahore Teaching Hospital. The findings revealed that 70.5% of participants reported feeling low back pain, which is a reason for concern given the condition's global prevalence.[17, 18] The study focused on physicians and surgeons aged 25 to 60 and collected data using a standardized questionnaire. People who had a history of fractures, spinal injuries, or malignancies were excluded from the study. The results showed that 56.8% of the respondents indicated poor posture, which may contribute to low back pain, especially among surgeons. Numerous surgeons noted frequent twisting of the body during surgical procedures, potentially worsening the condition. Consistent with prior research, this study affirms that prolonged standing, frequent movement, and poor posture are significant risk factors for low back pain among medical professionals. A study conducted in Ibadan [19] reported a 20.6%-point prevalence and a 47.8% 12-month prevalence of low back pain among hospital staff, highlighting the necessity of promoting improved lifting techniques and posture awareness within healthcare environments.

A 2011 survey found that the overall prevalence of low back pain varied by specialty, with gynecologists reporting the highest rates.[15] Prolonged standing and frequent physical activity were identified as significant risk factors, as in the current study's findings. Furthermore, a 2019 study conducted at King Salman Armed Forces Hospital in Saudi Arabia discovered that 76.4% of physicians reported suffering from low back pain, with 70.5% experiencing it within the previous year.[20] Recent studies also underscore the considerable impact of prolonged sitting and standing on the incidence of low back pain among healthcare professionals.[21] The rising prevalence of low back pain among healthcare personnel, particularly surgeons, has been linked to sedentary lifestyles and poor ergonomics.[22] A related review highlighted that surgeons who perform repetitive tasks and maintain poor posture during operations are at an elevated risk of developing chronic low back pain. [22] These findings highlight the importance of improving ergonomic standards and raising awareness in the medical industry to reduce the incidence of low back pain. In conclusion, low back discomfort is extremely common among both surgeons and physicians, with surgeons being particularly affected by disorders related to body twisting and posture. The primary risk factors discovered were long periods of standing, stress, poor posture, and exhaustion. There were statistically significant variations in the frequency of body twisting and exhaustion, with surgeons feeling more twisting and

physicians reporting higher levels of fatigue. The findings highlight the need for enhanced postural awareness, ergonomic practices, and preventive methods among healthcare personnel in reducing low back pain.

Conclusion

Surgeons were more likely than physicians to experience low backache. Most surgeons who experienced low back pain also twisted their bodies, and these risk factors, such as standing for extended periods of time, tension, poor posture, and working hours, were linked to a high incidence of low back pain. The body's twisting and weariness had statistical relevance. However, based on the information gathered, we found that doctors had a higher body mass index than surgeons. Physicians experienced higher levels of fatigue than surgeons.

Limitation

A small sample size (n = 44) and convenience sampling caused selection bias and decreased representativeness. Due to the use of self-administered questionnaires, the data were susceptible to response and recollection bias. Only correlation detection was possible due to the cross-sectional design's limitations on causal inference. Generalizability was further restricted by the study's execution in a single teaching hospital in Lahore. Furthermore, the results may have been affected by the absence of confounding variables, including ergonomic evaluation, fitness levels, and psychosocial stress.

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Conflict of Interest:

The authors declare no conflict of interest.

Author Contribution:

Conceptualization: BA

Methodology: ZY, ST

Analysis: AA, SB, CL

Review Editing: CL, ST, SB