ORIGINAL ARTICLE

Epidemiology and Clinical Characteristics of Low Back Pain in A Tertiary Hospital in Khulna, Bangladesh: A Cross-sectional Study

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Abstract

Background and objective: Low back pain (LBP) is a leading cause of disability worldwide, including a significant portion of the Bangladeshi population; however, comprehensive epidemiological data are lacking. This study aimed to explore the prevalence, risk factors, and prescribing patterns for LBP in the population of Khulna region of Bangladesh. **Methods:** A cross-sectional study was conducted from January 2024 to December 2024 in the outpatient department (OPD) of Orthopaedics at Gazi Medical College Hospital (GMCH), Khulna. A total of 300 patients of all age groups and both genders were included in the study. Data regarding demographics and clinical types of LBP were recorded and analyzed. **Results:** Among the total 300 LBP cases, there were 100 males and 200 females. The majority of the respondents belonged to the age groups of 31-45 years. Most of the respondents were housewives (65.0%). Among the risk factors, sedentary lifestyle was the most prevalent one (55%), and poor posture was the most frequent work-related factor (51%). Hypertension was prevalent in 12% of patients. Spondylosis was the most common etiology (72%) of low back pain among the respondents. **Conclusion:** Work-related factors and lifestyle choices contribute to the occurrence of LBP. Adjusting posture and lifestyle modification reduces LBP risk. Understanding its epidemiology is crucial for optimizing care and implementing preventive strategies.

Keywords: Epidemiology, Clinical characteristics, Low back pain.

Introduction

Low back pain (LBP) is a global public health concern that affects all ages, vocations, and socioeconomic origins. Up to 84% of adults will experience this musculoskeletal ailment at some point in their lives.[1] Low back pain is a key cause of disability and work absenteeism globally, resulting in significant economic issues and decreased productivity.[2] The lack of structural alterations, such as disc space reduction, nerve root compression, bone or joint fractures, or noticeable scoliosis or lordosis that could cause back pain, is what defines nonspecific or mechanical LBP. Less than 10% of LBP can be linked to a specific illness.[3] Workers who are subjected to significant levels of physical strain, such as lifting weights, performing repetitive motions, and adopting infrequently static positions, are more likely to get nonspecific LBP.[4]

Psychosocial, sociodemographic, and ergonomic issues are some of the contributing causes to LBP. LBP is caused by work-related variables such as hard lifting, bending, poor posture, and extended sitting. In addition to physical inactivity, smoking, age, being female, and psychological variables like sadness and anxiety, there are several more factors linked to the development of LBP.[5] LBP can be caused by a variety of mechanical factors, including degenerative changes, herniated discs, compressed nerves, and muscle strains. Tumors, infections, and inflammatory diseases are examples of non-mechanical causes. Internal organs such as the kidneys and gallbladder may cause discomfort that is referred to LBP.[6]

Preventive measures and care optimization can be enhanced by knowledge of the epidemiology of LBP in many contexts. Published research is not adequate in

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Khulna region. The purpose of the study was to ascertain the prevalence, etiology, risk factors, and presentation patterns of LBP patients in Gazi Medical College Hospital (GMCH), a tertiary teaching hospital in Khulna city.

Materials and methods

This cross-sectional study was conducted from January 2024 to December 2024 on 300 patients affected with low back pain visiting the OPD of Orthopaedics at GMCH, Khulna. The study subjects were selected by a consecutive type of non-probability sampling. All patients of either sex and all age groups having low back pain (both old and new cases) who were willing to participate in the study were included. Patients having other coexisting musculoskeletal diseases were excluded from the study.

Ethical clearance was obtained from the Institutional Ethical Review Board (IERB) of Gazi Medical College. After getting proper consent, data were collected by face-to-face conversation regarding the patients' demographic information, clinical features and risk factors of LBP. The data were analyzed with a computer using Jamovi Open Statistical Software (version 2.6.26 for Windows). Quantitative data were expressed by mean ± standard deviation (SD); qualitative data were expressed by frequency tables and graphs.

Results

This study was conducted on 300 patients with low back pain. Their demographic characteristics and types of occupation are described below and presented in **Table 01**.

Among the study subjects, 100 (33.0%) were male and 200 (67.0%) were female. The mean age of the patients was 41.8±13.5 years. The majority of the respondents belonged to the age group of 31-45 years, each consisting of 130 (43.2%) patients. Among the study subjects, 192 (64.0%) came from rural areas and 108 (36.0%) came from urban areas. Also, most of the patients [212 (71.0%)] came from middle-class families. Most of the respondents were housewives [195 (65.0%)].

Table 01: Demographic characteristics and occupational distribution of the study subjects

Demographic characteristics	Patients (n = 300)
Gender	
Male	100 (33.0%)
Female	200 (67.0%)

Demographic characteristics	Patients (n = 300)
Age group	41.8 ± 13.5 years*
16-30 years	76 (25.0%)
31-45 years	130 (43.0%)
46-60 years	67 (22.0%)
61-75 years	25 (8.0%)
76-90 years	2 (1.0%)
Locality	
Rural	192 (64.0%)
Urban	108 (36.0%)
Socioeconomic condition	
Lower class	84 (28.0%)
Middle class	212 (71.0%)
Upper class	4 (1.0%)
Occupation	
Housewife	195 (65.0%)
Labourer	47 (16.0%)
Farmer	24 (8.0%)
Businessman	9 (3.0%)
Student	13 (4.0%)
Service holder	10 (3.0%)
No occupation	2 (1.0%)

*Mean ± SD of Age

Table 02 and Figure 01 show the clinical characteristics of the respondents. Considering body mass index (BMI), the majority of the patients (42%) were overweight. Among the risk factors, sedentary lifestyle was the most prevalent one (55%), and poor posture was the most frequent work-related factor (51%). Also, 66% of patients told that, they had been experiencing moderate type of pain. Difficulty in bending/standing was the most common (91%) associated symptom along with low back pain.

Table 02: Clinical characteristics of the study subjects

Clinical features	Patients (n = 300)
BMI category	26.4 ± 4.7 (kg/m^2) *
Underweight	6 (2.0%)
Normal	110 (37.0%)
Overweight	127 (42.0%)
Obese	57 (19.0%)
Risk factors	
Trauma	67 (22.0%)
Previous back injury	23 (8.0%)
Sedentary lifestyle	165 (55.0%)
Obesity	45 (15.0%)

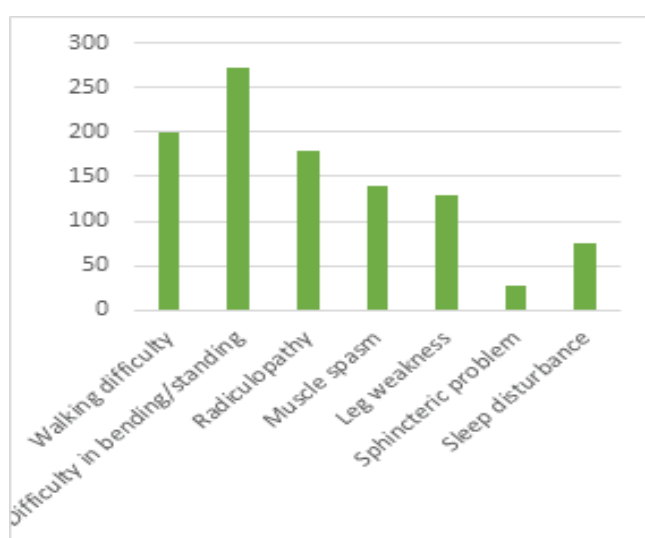| Clinical features	Patients (n = 300)
Work related factors	
Prolonged sitting	27 (9.0%)
Heavy lifting	53 (18.0%)
Poor posture	154 (51.0%)
Long distance travels	29 (10.0%)
Undefined	37 (12.0%)
Severity of pain	
Moderate	198 (66.0%)
Severe	49 (16.0%)
Mild	53 (18.0%)

*Mean ± SD of BMI

Figure 01: Frequencies of associated symptoms in the patients with LBP

Table 03 show the comorbidities of the patients along with the etiologies of low back pain. Majority of the patients (80%) did not have any chronic comorbidity. Hypertension was prevalent in 12% of patients. Spondylosis was the most common etiology (72%) of low back pain among the respondents.

Table 03: Frequency of comorbidities and etiologies of LBP

Comorbidities	Patients (n = 300)
Hypertension	37 (12.0%)
Diabetes mellitus	17 (6.0%)
Bronchial asthma	5 (2.0%)
No comorbidities	241 (80.0%)
Etiologies	
Spondylosis	216 (72.0%)
Spondylolisthesis	68 (23.0%)

Etiologies	
Back strain	30 (10.0%)
Urinary tract infection	16 (5.0%)
Disc prolapse	5 (2.0%)
Degenerative change	13 (5.0)
Compression fracture (L1)	3 (1.0%)

Discussion

The prevalence of LBP is rising in worldwide, becoming a significant public health concern. While the understanding of the epidemiology of LBP is advancing, research in developing countries remains limited. The prevalence of LBP varies across studies, possibly due to factors such as social dynamics, economic disparities, study populations, and methodologies.[7]

The mean age of the study patients was 41.8 years, and LBP was more prevalent among individuals aged 31-45 years. Similar findings were observed in the research conducted by Eyichukwu and Ogugua[8] and Omoke and Amaraegbulam[9] noted a peak age incidence of LBP in the 31–40-year and 42–50-year age groups, respectively.

Previous studies have shown diverse patterns of sex distribution in LBP, likely influenced by socioeconomic factors, study demographics, occupations, and research methods. In this study, LBP was more prevalent among females (67.0%), consistent with some previous research.[8,10] Research suggests that women who have given birth when compared to those who are yet to give birth may face a higher risk of chronic LBP as they age, contributing to the observed higher prevalence of LBP among females in the study.[11]

Most of the study patients were housewives (65.0%) and labourer (16.0%). Study by Ogunbode Omokhodion et al.[12] associated LBP with occupational activities, bending, and poor posture. In Thailand, rice farmers experienced increased LBP from slouched sitting, forward bending, and lifting.[13] Sedentary habits contribute to LBP development in most patients in this study. Certain sedentary occupations, such as office jobs and long-distance travel, can contribute to LBP from prolonged sitting.[14]

Obesity is a recognized factor contributing to LBP, often linked to a sedentary lifestyle. This study found that 19.0% of patients were obese and 42.0% were overweight. Research has shown a correlation between obesity and LBP incidence.[15] Substantial weight gain can intensify pressure on the lower back, potentially causing lumbar disc herniation and LBP.

The primary manifestations observed among the study patients were difficulty with walking, standing, or

bending. About 25% of LBP patients experienced sleep disturbances. Research links LBP to insufficient sleep duration and quality. Consequently, integrating sleep improvement into LBP management offers valuable benefits.[16] Around 60% of the study patients had radicular pain. Notably, Katembo et al.[17] reported a rate of radiculopathy as high as 84.2% in their study.

Hypertension is the main comorbidity in this study. Chronic painful conditions like LBP have been linked to higher hypertension risk.[18] This study found that about 12% of LBP patients had hypertension, comparable to a previous report.[10]

Non-specific LBP accounted for most cases of LBP in our series consistent to the findings of an earlier study.[19] Spondylosis, a non-specific LBP stands out as the most prevalent etiology of LBP in this study, similar to the findings of previous studies.[8,19] However, in the United States, lumbar strain or sprain accounts for around 70% of mechanical LBP cases.[20] This divergence could be attributed to the referral pattern of our patient cohort.

Limitations of the study

Given the descriptive nature of this study, it's not possible to eliminate the influence of confounders. Furthermore, because it is conducted within a hospital setting, the applicability of the data to the broader population may be limited.

Conclusion

Low back pain is a frequent catalyst for work absenteeism and functional disability, posing a significant public health concern. Mechanical and non-specific causes underlie a larger portion of LBP cases in our environment. Work-related aspects, such as heavy lifting, poor posture, and prolonged sitting, increase LBP risk. Individuals prone to LBP at work should prioritize posture adjustments to minimize excessive bending and stretching movements.

Conflict of interest: None declared.

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