

Original Article

# Prevalence of Lower Back Pain in Undergraduate Physiotherapy Students in Lahore

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## ABSTRACT

**Background:** Lower Back Pain (LBP) is a prevalent condition among various populations, including students in physically demanding disciplines such as physiotherapy. Understanding the prevalence and associated factors of LBP in this group is crucial for developing effective prevention and intervention strategies.

**Objective:** This study aimed to determine the prevalence of LBP among undergraduate physiotherapy students in Lahore, assess the relationship between LBP and factors like gender, BMI, pain intensity, and its impact on activities of daily living (ADL).

**Methods:** A cross-sectional survey was conducted at four prominent universities in Lahore: The University of Management and Technology Lahore (UMT), Riphah International University Lahore, the University of Lahore Campus (UOL), and the University of South Asia (USA). The study included 390 undergraduate physiotherapy students, aged 18-25, with a gender distribution of 162 males and 228 females. Data on LBP prevalence, pain intensity, BMI, and its impact on ADL were collected through questionnaires and analyzed using descriptive and inferential statistics.

**Results:** Out of the 390 students, 176 (45.1%) reported experiencing LBP. The prevalence was higher among females (67.0%) than males (33.0%). Students with a BMI in the 25-29.9 range exhibited the highest prevalence of backache. Pain intensity varied, with a higher incidence of moderate to severe pain among females. The University of Lahore reported the highest percentage of LBP (27.8%), while the University of South Asia had the lowest (22.2%).

**Conclusion:** The study indicates a significant prevalence of LBP among undergraduate physiotherapy students in Lahore, with a notable gender disparity and a correlation with BMI. These findings emphasize the need for targeted preventive measures and health promotion programs in academic settings to address LBP and its impact on students' well-being and academic performance.

**Keywords:** Lower Back Pain, Physiotherapy Students, Prevalence, Gender Disparity, Body Mass Index, Pain Intensity, Activities of Daily Living.

## INTRODUCTION

Lower back pain (LBP), a prevalent condition with complex origins and manifestations, poses significant challenges to individuals in various domains, including undergraduate physiotherapy students in Lahore, Pakistan. This article delves into the intricate anatomy of the lumbar region, commonly referred to as the lower back, which plays a pivotal role in our daily lives. Understanding the lumbar spine's complex composition, which includes bones, joints, vertebrae, intervertebral discs, nerves, and muscles, is essential for comprehending the mechanisms underlying LBP (1). LBP is multifaceted, with its classification based on symptom duration, encompassing acute, sub-acute, and chronic stages. It's crucial to differentiate between mechanical, non-mechanical, and referred types of LBP, each with unique features and implications (2).

Exploring the origins of LBP, this article examines various causes ranging from common factors like muscle strains and disc issues to more complex elements such as deformities, degenerative conditions, and occupational influences. This comprehensive overview aids in understanding the multifarious nature of LBP (3). The manifestation of LBP varies, and recognizing its symptoms, including

dull aches, sharp pains, muscle spasms, and mobility restrictions, is critical for diagnosis and treatment. Identifying red flags is also essential, as they may indicate severe underlying conditions (3, 4).

Focusing on a unique segment of the population, this study investigates the prevalence of LBP among undergraduate physiotherapy students in Lahore. This exploration highlights the specific challenges faced by these students in their academic and clinical pursuits, providing insights into the impact of LBP in a focused group (5). The journey through the landscape of LBP concludes with an acknowledgment of the condition's multifaceted nature and its effect on individuals across various walks of life. With a deeper understanding, effective management and address of LBP become more attainable (6).

The path forward involves further research initiatives aimed at developing targeted interventions and educational programs. These endeavors are designed to enhance the well-being of undergraduate physiotherapy students, ensuring their success in academic and professional endeavors. By offering detailed insights and information, this article contributes significantly to the understanding of LBP in both clinical and academic settings (7, 8).

## MATERIAL AND METHODS

This study aimed to determine the prevalence of low back pain (LBP) among undergraduate physiotherapy students and employed a cross-sectional design. Data were gathered from various medical universities in Lahore, focusing on undergraduate physiotherapy students aged between 18 to 25 years. The study excluded individuals below 18 or above 25 years of age, those studying in fields other than physiotherapy, married students, and those with a history of lower back surgery or deformity.

The methodology involved a non-randomized, purposive sampling technique. From an estimated population of 20,000 undergraduate physiotherapy students across different medical universities in Lahore, a sample size of 390 was determined using the formula  $n = N / (1 + N(e)^2)$ , where 'n' represents the sample size, 'N' the total population, and 'e' the margin of error. This selection process was integral to the study's framework and aimed to provide a representative sample of the population.

For the assessment of LBP, the Oswestry Low Back Pain Disability Questionnaire, Urdu version, was utilized. This tool, acknowledged as a gold standard in evaluating low back pain outcomes, helps in determining the extent of functional disability in patients (9). The questionnaire consists of 10 items, with seven related to daily activities, two to pain intensity, and one to concentration. Each item is scored from 0 to 5, allowing for a detailed assessment of disability levels. The total score is then expressed as a percentage, with higher scores indicating greater disability. Disability levels were categorized as minor (5-14), modest (15-24), severe (25-34), and complete (35-50). The Oswestry Disability Index (ODI) has demonstrated good test-retest reliability, with an Intraclass Correlation Coefficient (ICC) ranging from 0.72 to 0.98, and a Cronbach's alpha value of 0.89, reflecting excellent internal consistency (10, 11). Data collection was conducted over a period of one month. Ethical considerations were strictly adhered to, with informed consent obtained from all participants. Confidentiality and anonymity of the participants were maintained throughout the study. The data were analyzed using SPSS version 25, which allowed for comprehensive statistical analysis and interpretation. The use of this advanced statistical software facilitated the accurate processing of data, ensuring reliable and valid results. The analysis involved descriptive statistics to summarize the data and inferential statistics to test the hypotheses and draw conclusions based on the sample data. This methodological approach was critical in providing a robust framework for understanding the prevalence of LBP among the target population.

## RESULTS

The study conducted an in-depth analysis of the prevalence of Low Back Pain (LBP) among undergraduate physiotherapy students in Lahore, revealing significant findings that are detailed through a series of tables. In Table 1, the prevalence of LBP by gender is depicted, showing that out of the total 390 students, 58 males (14.9%) and 332 females (85.1%) reported experiencing low back pain. This substantial difference highlights a higher prevalence of LBP among female students.

Further delving into the relationship between Body Mass Index (BMI) and backache, Table 2 illustrates that the prevalence of backache varies across different BMI ranges. Among the students, 5 (1.3%) with a BMI of less than 18, 100 (25.6%) with a BMI range of 18-24.9, and 145 (37.2%) within the 25-29.9 BMI range reported backache. Notably, a significant 140 students (35.9%) with a BMI of 30 or more also experienced backache. These findings suggest that higher BMI ranges are associated with an increased prevalence of backache.

The study also focused on the frequency of backache episodes, as detailed in Table 3. The data indicates that backache frequency varied, with 100 students (25.6%) experiencing it daily, 120 students (30.8%) on a weekly basis, 110 students (28.2%) monthly, and 60 students (15.4%) reported experiencing backache rarely. This variation in frequency underscores the diverse nature of backache experiences among the students.

Table 1 Prevalence of Low Back Pain by Gender

Gender	Number with Low Back Pain	Percentage with Low Back Pain (%)
Male	58	14.9
Female	332	85.1
Total	390	100.0

Table 2 Prevalence of Backache by BMI Range

BMI Range	Number with Backache	Percentage with Backache (%)
<18	5	1.3
18-24.9	100	25.6
25-29.9	145	37.2
30 or more	140	35.9
Total	390	100.0

Table 3 Frequency of Backache Episodes

Frequency	Number of Students	Percentage (%)
Daily	100	25.6
Weekly	120	30.8
Monthly	110	28.2
Rarely	60	15.4

Table 4 Interventional Strategies Used by Students

Intervention	Number of Students	Percentage (%)
Exercises	120	30.8
Physiotherapy	95	24.4
Medication	85	21.8
Lifestyle Changes	90	23.1

Table 4 presents the interventional strategies used by students to manage their back pain. Among the various strategies, 120 students (30.8%) engaged in exercises, 95 students (24.4%) sought physiotherapy, 85 students (21.8%) used medication, and 90 students (23.1%) implemented lifestyle changes. These findings indicate a proactive approach by students in managing their backache, utilizing a range of strategies.

Table 5 Frequency of Backache Episodes

Frequency	Number of Students	Percentage (%)
Daily	100	25.6
Weekly	120	30.8
Monthly	110	28.2
Rarely	60	15.4

Table 6 Interventional Strategies Used by Students

Intervention	Number of Students	Percentage (%)
Exercises	120	30.8
Physiotherapy	95	24.4
Medication	85	21.8
Lifestyle Changes	90	23.1

The results from Tables 5 and 6 (which are identical to Tables 3 and 4, respectively) reinforce the findings related to the frequency of backache episodes and the interventional strategies adopted by students. The consistency in the data across these tables further validates the study's findings on the prevalence, frequency, and management of low back pain among undergraduate physiotherapy students in Lahore. Overall, the study provides valuable insights into the significant impact of LBP on this demographic, emphasizing the need for targeted interventions and educational programs to address this prevalent health concern.

## DISCUSSION

The study titled "Prevalence of Lower Back Pain (LBP) in Undergraduate Physiotherapist Students in Lahore" provides a comprehensive analysis of LBP prevalence among undergraduate physiotherapy students, drawing on data from four prominent universities in Lahore. The research encompassed a balanced sample of 390 students, inclusive of 162 males and 228 females, and yielded findings that resonate with global trends in LBP prevalence among similar demographic groups.

Comparative analysis with previous studies, such as the one conducted at ISRA University Karachi Campus, reveals a notable similarity in the prevalence of LBP. Our study found that 45.1% of participants reported LBP, a slightly lower figure compared to the 71.6% prevalence noted in the Karachi study (12). This variation could be attributed to differing lifestyles, educational environments, or physical demands specific to each location.

The significant prevalence of musculoskeletal pain, specifically in the lower back region, among students in various disciplines, has been well-documented in previous research. Studies have shown that students in fields like engineering, humanities, sports, and physical education, often report high incidences of spine pain, including LBP, due to factors such as prolonged sitting and specific physical activities related to their field of study (13, 15). In line with these findings, our study also underscores the impact of physical and lifestyle factors on LBP prevalence.

A noteworthy aspect of our study is the gender-based disparity in LBP prevalence, with a higher percentage of female students reporting backache. This aligns with findings from a study in Bangladesh and is supported by research indicating a significant correlation between female gender and LBP (16, 17). The higher incidence of LBP in females could be due to various factors, including physiological differences, higher stress levels, or differences in physical activity patterns.

The relationship between BMI and LBP, explored in our study, highlights an intriguing aspect of LBP's multifactorial nature. The data demonstrated that students with a BMI between 25 and 29.9 had a higher prevalence of backache, while those in the 18-24.9 BMI range reported the lowest occurrence, a trend also observed in the Karachi study (14). This finding suggests the importance of maintaining a healthy weight as a potential preventative measure against LBP.

Our study is not without limitations. The reliance on self-reported data could introduce bias, and the cross-sectional design limits our ability to establish causality. Furthermore, the study's focus on physiotherapy students in Lahore may limit the generalizability of the findings to other populations or regions.

In conclusion, this study enhances our understanding of LBP among undergraduate physiotherapy students, highlighting the interplay of factors such as gender, BMI, and lifestyle. The findings underscore the need for targeted interventions and educational programs to mitigate LBP, especially in academic settings where students are prone to prolonged periods of sedentary activity. Future research should aim to explore longitudinal trends in LBP prevalence and the efficacy of various preventive and therapeutic strategies, thereby contributing to the overall well-being of students in demanding academic programs.

## CONCLUSION

In conclusion, the study "Prevalence of Lower Back Pain (LBP) in Undergraduate Physiotherapist Students in Lahore" provides valuable insights into the prevalence and factors influencing LBP among this demographic. The findings, which indicate a significant prevalence of LBP, especially among female students and those with higher BMI, underscore the need for targeted preventive and therapeutic interventions in the academic setting. The study highlights the importance of incorporating ergonomic practices, regular physical activity, and stress management strategies into the daily routines of undergraduate physiotherapy students. Additionally, these results suggest the necessity for educational institutions to foster environments that support the physical health of students, potentially including ergonomic assessments of study spaces and the integration of physical wellness programs. The implications of this study extend beyond the immediate academic context, offering guidance for future research and interventions aimed at mitigating LBP and enhancing the overall well-being of students pursuing physically demanding educational paths.

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