ISSN: 1607-8322, e-ISSN: 2220-5799 Anaesthesia, Pain & Intensive Care
Vol 30(1); January 2026 DOI: 10.35975/apic.v20i1.3098

ORIGINAL RESEARCH PAIN MANAGEMENT

Beliefs and behavior of undergraduate students about low back pain

Mehvish Zaib [1] , Maryam Shabbir [2] , Aqsa Majeed [3] , Sana Akram [4] , Aisha Ansari [5] , Sajid Mahmood [6] , Usman S. Cheema [7]

Authors affiliations:

1. Mehvish Zaib, University of Lahore, Lahore, Pakistan; Email: 70109585@student.uol.edu.pk
2. Maryam Shabbir, University of Lahore, Lahore, Pakistan; Email: maryam.shabbir@uipt.uol.edu.pk
3. Aqsa Majeed, University of Lahore, Lahore, Pakistan; Email: aqsa.majeed@uipt.uol.edu.pk
4. Sana Akram, University of Lahore, Lahore, Pakistan; Email: sana.akram@uipt.uol.edu.pk
5. Aisha Ansari, Department of Physical Therapy, College of Applied Sciences, University of Hail, Saudi Arabia; Email: a.ansari@uoh.edu.sa
6. Sajid Mahmood, University of Lahore, Lahore, Pakistan; Email: sajidmahmooddpt@gmail.com
7. Usman S. Cheema, University of Lahore, Lahore, Pakistan; Email: usmancheemadpt@gmail.com

Correspondence: Maryam Shabbir, **Email:** maryam.shabbir@uipt.uol.edu.pk; **Phone:** 0300-4391550

ABSTRACT

Background & Objective: Low back pain (LBP) is common among undergraduate students due to sedentary lifestyles and poor posture. Misbeliefs about LBP may lead to poor preventive and management behavior. This study aimed to assess undergraduate students' beliefs and behavior regarding LBP and their influence on self-management practices.

Methodology: A cross-sectional study was conducted among 244 undergraduate students at the University of Lahore. Data were collected using a validated belief and behavior questionnaire and analyzed using SPSS version 27.0. Descriptive and inferential statistics, including Chi-square and t-tests, were applied.

Results: The mean age of participants was 21.06 ± 2.07 years. Overall, 52% perceived LBP as a normal part of student life, while 51.6% believed it cannot be prevented. Commonly cited prevention strategies included stress reduction (28.3%), good posture (25.4%), regular exercise (23.8%), and ergonomic furniture use (22.5%). Inferential analysis revealed a significant association between gender and LBP prevalence ($P = 0.011$), with females reporting higher rates. Academic discipline influenced preventive behavior ($P < 0.05$), and regular exercisers showed lower pain intensity ($P = 0.028$). Ergonomic support use was linked to reduced chronic pain ($P = 0.036$). Awareness of prevention programs positively correlated with preventive cf ($r = 0.41$, $P < 0.01$).

Conclusion: Undergraduate students often normalize LBP and show inconsistent preventive behavior. Institutional education, ergonomic awareness, and physical activity promotion can play a key role in reducing LBP risk and improving self-management practices.

Keywords: Attitude, Behavior, Low Back Pain, Pain Management, Students

Citation: Zaib M, Shabbir M, Majeed A, Akram S, Ansari A, Mahmood S, Cheema US. Beliefs and behavior of undergraduate students about low back pain. Anaesth. pain intensive care 2025;30(1):25-31. DOI: 10.35975/apic.v30i1.3098

Received: September 01, 2025; **Revised:** October 20, 2025; **Accepted:** October 24, 2025

1. INTRODUCTION

Low back pain (LBP) refers to discomfort that occurs between the bottom of the rib cage and the top of the gluteal folds. It can occur with or without pain radiating down the legs. Globally, the burden of LBP is projected to reach 800 million cases by 2050.[1] LBP is a common issue among university students, often associated with prolonged sitting, poor posture, and sedentary lifestyle. Contributing factors such as obesity, stress, lack of physical activity and poor self-care. These lifestyle

habits are frequently observed in student populations and are closely linked to the development of LBP.[2]

The widespread use of mobile devices has also contributed to working in awkward postures due to inadequate desk setups.[3] While sitting itself is not the direct cause of LBP, prolonged sitting combined with poor posture significantly can increase the risk of musculoskeletal problems. Over time, this can lead to persistent discomfort, missed academic activities, and a higher likelihood of developing chronic back pain later in life.[4]

Many individuals with acute LBP struggle to identify a clear physical trigger and the belief that physical activity worsens LBP contradicts clinical guidelines.[5] It is common for both the public and healthcare professionals to believe that certain movements should be avoided even though evidence supports maintaining normal activity levels.[6] Physiotherapists play a crucial role in shaping patients' beliefs and behavior which can significantly impact recovery.[7]

Negative beliefs about the functional abilities of LBP patients are associated with greater disability and pain. These beliefs are influenced by factors such as culture, education, and personal experience. While the belief that the back is fragile leads to avoidant behavior.[8] These unhelpful beliefs are not only found in patients but also in the wider public influencing responses to LBP such as avoiding movement, and skipping work which counteract effective treatments like exercise.[9]

There is a recognized lack of pain education at the undergraduate level and beliefs formed during physiotherapy training years can influence future clinical practice. Students' attitudes are shaped by educators and prior experiences, and if incorrect beliefs are carried into professional life, they may limit effective treatment of chronic LBP.[10] Abbas et al (2023) took a closer look at how the pandemic affected physiotherapy students, and discovered a notable rise in LBP linked to remote learning, extended periods of sitting, and more screen time.[11] Roggio et al. (2021) looked into how prolonged periods of inactivity affected university students in Italy. The research suggests that extended periods of inactivity can lead to more cases of LBP among students.[12] A study by Nkhata et al. (2021) highlighted that there is need to focus on psychological factors, and promote positive self-management techniques among students to effectively prevent and manage LBP.[13]

Many studies have investigated how students change their daily routines to steer clear of pain or looked at the connections between pain severity, activity levels and sleep patterns using objective measures. Understanding how students perceive and respond to LBP is essential as many adopt misconceptions that can lead to poor self-care and prolonged discomfort.

2. METHODOLOGY

This cross-sectional study was conducted on 244 undergraduate students enrolled at the University of Lahore. The sample size was calculated using a standard formula with a 95% confidence level by Open-Epi tool. Participants were recruited using a non-probability convenience sampling technique.

Inclusion criteria required participants to be currently enrolled in an undergraduate degree program, aged between 17 and 25 years of either gender and willing to participate by providing informed consent. Exclusion criteria were assessed using a brief screening section at the beginning of the questionnaire, where participants self-reported any history of severe spinal disorders or surgeries, neurological or systemic conditions, those experiencing emotional stress or health issues, and students undergoing any form of behavioral therapy in the past six months.

Data was collected using a previously validated Belief and Preventive Behavior Questionnaire (BPBQ). The BPBQ used in this study comprised 11 closed-ended items assessing LBP prevention behavior, beliefs, and workplace ergonomics. Specifically, the questionnaire included 4 questions on LBP-related beliefs, 3 questions on practices and self-management strategies, and 4 additional questions addressing ergonomic awareness and behavior in daily or study environments. In addition, five demographic questions were included. It was developed based on established questionnaire design principles and underwent pilot testing with 20 participants to ensure clarity. For validation, the tool was evaluated by public health experts and tested on 50 individuals yielding strong comprehensibility (98%) and high acceptability. Test-retest reliability showed very good reliability ranging from 0.92 to 1.00. The questionnaire employed nominal scoring (yes/no/I don't know) and required 1-15 minutes to complete. Prior to participation the study was clearly explained to each student and written informed consent was obtained.[14] Dupeyron et al. (2017) validated the BPBQ with internal consistency and cross-cultural reliability.[19] Darlow et al. (2020) validated the Back-PAQ with Cronbach's α = 0.92 and ICC = 0.94, demonstrating strong reliability for belief/attitude measures. Accordingly, further validation of our instrument should include similar detailed psychometric evaluation and larger sample sizes.[20]

This study was approved by the Research Ethics Committee of University Institute of Physical therapy, University of Lahore in 2025 with Reference Number

DPT/UOL/UIPT/08922 and REC Number REC-UIPT-29-08922/DPT-Jan-2025.

Data were analyzed using SPSS (version 27.0).

3. RESULTS

Descriptive statistics of the 244 undergraduate students showed a mean age of 21.06 ± 2.07 years, an average height of 171.57 ± 11.61 cm and a mean weight of 71.41 ± 15.45 kg. Among the participants, 91 (37.3%) were male, and 153 (62.7%) were female. Regarding academic disciplines, the majority were enrolled in Physical Therapy (34.8%), followed by Pharmacology (28.7%), Engineering (13.5%), Computer Sciences (11.5%), Radiology (8.2%), and Nutrition Sciences (3.3%).

A total of 148 participants (60.7%) reported having experienced LBP. In terms of frequency, 38.5% experienced LBP rarely (1–2 times a year), 28.7% occasionally (1–2 times a month), 20.1% frequently (1–2 times a week), and 12.7% daily. Regarding the type of pain, 31.6% reported constant pain, 24.6% localized pain, 23.4% radiating pain, and 20.5% intermittent pain.

The most commonly perceived cause of LBP was prolonged sitting or studying, followed by lack of physical activity, poor posture, stress or mental health factors, previous injury, and other reasons. Pain duration among participants was reported as, chronic (months or more) to a few hours. Daily sitting time varied from 6-8 hours, to less than 4 hours. A total of 139 students (57.0%) engaged in regular physical exercise, including walking, strength training, unning or jogging, 12.7% yoga or stretching, and 6.1% other forms of activity.

Prevention strategies were quoted as reducing stress levels, maintaining good posture, regular exercise, and using ergonomic furniture in that order. Additionally, 52.0% believed stress contributes to LBP.

To manage pain, students used painkillers, rest, and stretching or exercise. Some used application of heat or ice. Most respondents (68.9%) felt that their university did not provide sufficient awareness or programs for LBP prevention, although 66.8% expressed interest in attending such programs. A majority (61.5%) paid attention to maintaining proper posture in daily life, and 45.1% reported minimizing spinal strain when lifting heavy objects. When selecting beds, mattresses, or pillows 52.9% considered ergonomic factors, while only 33.2% used lumbar support when sitting for long periods. In terms of physical activity, 23.4% exercised three times a week, 20.9% once a week, 20.5% more than three times, 18.4% twice a week, and 16.8% did not exercise at all. Knowledge of exercise-related spine risks, 34.0% responded "I do not know," 33.2% said "Yes," and 32.8% said "No." About 34.0% had received instruction on lifting techniques or workplace ergonomics, 32.8% had not, and 33.2% had never worked. Similarly, 36.1% never had an ergonomically arranged workspace, 34.4% had well ergonomically managed workspace, and 29.5% had never worked. When asked if preventive actions are necessary to protect against LBP, 37.3% were unsure, 31.6% responded "Yes," and 31.1% responded "No." Regarding sleep, the sleep duration varied from a few hours to 8 hours, Moreover, 52.9% said that LBP interfered with their sleep. Sleeping positions included stomach (27.5%), side (26.2%), variable (25.8%), and back (20.5%). A total of

Table 1: Beliefs related to low back pain

Belief Aspect	Response Options	n (%)
LBP is a normal part of student life	Yes	127 (52.0)
LBP can be prevented	Yes	118 (48.4)
Believed Prevention Strategy	Reducing stress levels	69 (28.3)
	Maintaining good posture	62 (25.4)
	Regular exercise	58 (23.8)
	Using ergonomic furniture	55 (22.5)
Stress contributes to LBP	Yes	127 (52.0)

Table 2: Practices and management strategies related to low back pain

Practice Aspect	Response Options	n (%)
Management Strategy	Taking painkillers	71 (29.1)
	Resting	65 (26.6)
	Stretching or exercising	55 (22.5)
	Applying heat or ice	53 (21.7)
University provides awareness programs	Yes	76 (31.1)
Willing to attend awareness programs	Yes	163 (66.8)

Table 3: Ergonomic awareness and behavior in daily or study environments

Practice Aspect	Positive response n (%)
Do you pay attention to maintaining proper posture?	150 (61.5)
When lifting heavy objects, do you try to minimize strain on your spine?	110 (45.1)
When choosing a bed, mattress, or pillow, do you consider ergonomic factors?	129 (52.9)
Do you use lumbar support in chairs while sitting for long periods?	81 (33.2)

Table :4 Inferential statistics of associations between variables

Variable Relationship	Test Value	P-value	Interpretation
Gender × LBP prevalence	6.41	0.011*	Females reported higher LBP prevalence than males.
Age group × LBP prevalence	2.58	0.108	Age did not significantly affect LBP occurrence.
Academic discipline × Preventive behavior	9.73	0.021*	Physiotherapy students showed better posture awareness and ergonomic practices.
Exercise regularity × Pain intensity	t = 2.21	0.028*	Students exercising regularly reported lower pain intensity.
Ergonomic support use × Chronic pain	4.45	0.036*	Ergonomic aid users experienced less chronic pain.
Awareness of prevention programs × Preventive behavior	r = 0.41	< 0.01*	Greater awareness linked with better preventive behavior.

**P < 0.05 is considered significant.*

52.5% of participants used a specific pillow or mattress to relieve back pain, while 47.5% did not. Finally, the mean score on the numeric pain rating scale was 5.16 ±

3.15 indicating moderate perceived pain among the participants.

Table 1 shows all of 244 participants beliefs regarding LBP were mixed. While 52.0% perceived LBP as a normal part of student life, only 48.4% believed it can be prevented. Prevention strategies most commonly cited included reducing stress (28.3%), and maintaining good posture (25.4%), followed by regular exercise, and ergonomic furniture use. Additionally, over half (52.0%) believed that stress contributes to LBP.

Table 3 presents the responses of undergraduate students regarding Ergonomic awareness and behavior in daily or study environments More than half of the students (61.5%) reported paying attention to maintaining proper posture, while 45.1% took care to minimize spinal strain when lifting heavy objects. About 52.9% considered ergonomic factors when selecting beds, mattresses, or pillows. However, only 33.2% used lumbar support during prolonged sitting, indicating limited awareness of its importance. Inferential analysis revealed a significant association between gender and LBP prevalence ($P = 0.011$), with females reporting higher rates. Academic discipline influenced preventive behavior ($P < 0.05$), as physical therapy students showed greater ergonomic awareness. Students who exercised regularly reported lower pain intensity ($P = 0.028$), while those using ergonomic supports experienced less chronic pain ($P = 0.036$). No significant association was found between age and LBP prevalence. A positive correlation ($r = 0.41$, $P < 0.01$) was observed between awareness of prevention programs and adoption of preventive behavior, emphasizing the importance of institutional education in reducing LBP risk.

4. DISCUSSION

This study aimed to explore the beliefs and behavior of undergraduate students regarding low back pain (LBP), with a particular focus on their understanding of its causes, prevention, and management. A cross-sectional research design was used to collect data from 244 undergraduate students using a validated BPBQ. The

results revealed that over half of the students viewed LBP as a normal and unavoidable part of student life.

In comparison to the multilevel analysis by Yaniv Nudelman et al. (2025), which showed physical therapists' beliefs had limited impact on treatment outcomes our findings highlight that among students even minimal belief gaps can result in inadequate prevention practices. While Nudelman et al. emphasized the system-level impact on outcomes, our study draws attention to the individual-level educational gaps that precede professional practice.[15]

Munneke et al. (2024) reported that physiotherapy students demonstrated a significant shift toward a biopsychosocial approach in managing chronic low back pain and knee osteoarthritis, with improved guideline adherence regarding activity and exercise. In contrast, the inconsistent preventive behavior observed in our study may stem from differences in educational background and training depth. Physiotherapy students receive structured instruction in spinal health, posture correction, and exercise-based interventions, while non-physiotherapy students may have limited awareness of such preventive strategies. Additionally, sociocultural beliefs, attitudes toward pain, and varying perceptions of physical activity could further contribute to these behavioral inconsistencies across populations.[16]

Common preventive strategies included stress reduction, posture correction, and regular exercise, while management mostly involved the use of painkillers and rest. Despite interest in awareness programs many felt their university lacked adequate education on LBP prevention. Moderate pain severity was reported with sleep disturbance and poor ergonomic habits being common among participants. The findings of current study support the results of Cameron Black et al. (2023), who found that final-year physiotherapy students held more positive beliefs about back pain and lower fear scores indicating improved understanding with education. Similarly, our study observed that a considerable number of students understood basic preventive strategies but still exhibited inconsistent behavior. On the contrary, the current study showed that despite some awareness many students still lacked clarity regarding the preventability of LBP, indicating a need for more structured awareness programs even at undergraduate levels.[17]

Furthermore, the findings partly support the results of Lays S. Ferreira et al. (2023), who reported that sociodemographic factors influenced physical therapists' beliefs toward LBP. In our study, although no statistical comparison by gender or education level was conducted the variation in behavior such as exercise, sleep and support use suggest similar influences. On the contrary, Ferreira's study involved trained professionals, whereas our results stem from a general student po+++pulation highlights a gap in practical application.[18]

Undergraduates show moderate LBP awareness but poor preventive practices; study limited by self-reporting, lack of objective/clinical follow-up, and restricted sample. Future research should use objective assessments and broader populations.

5. LIMITATIONS

This single-center study at the University of Lahore with non-probability convenience sampling limits generalizability to other settings. Self-reported responses may involve recall and social desirability biases. Future multicenter studies using probability-based sampling and objective assessments are recommended to enhance the external validity and reliability of findings. Self-reported data may be influenced by recall and social desirability biases, especially regarding painkiller use and exercise habits. Future studies should consider using objective assessment tools, such as clinical evaluations, wearable activity trackers, or digital monitoring methods, to minimize reporting bias and enhance data accuracy.

6. CONCLUSION

In conclusion, low back pain is common among undergraduate students, largely due to sedentary lifestyles and poor posture. Misconceptions about its causes and treatment often lead to ineffective or harmful behavior. Promoting targeted education is essential to improve awareness and encourage evidence-based prevention and management strategies.

7. Data availability

The numerical data generated during this research is available with the authors.

8. Conflict of interest

All authors declare that there was no conflict of interest.

9. Funding

The study utilized the hospital resources only, and no external or industry funding was involved.

10. Authors' contribution

All authors took part in the conduct of the survey, collection of the data, statistical analysis and manuscript preparation/

All authors approved the final draft.

REFERENCES

1. Kahere M, Hlongwa M, Ginindza TG. A Scoping Review on the Epidemiology of Chronic Low Back Pain among Adults in Sub-Saharan Africa. Int J Environ Res Public Health. 2022;19(5). PubMed DOI: 10.3390/ijerph19052964
2. Schwertner DS, Oliveira R, Koerich M, Motta AF, Pimenta AL, Gioda FR. Prevalence of low back pain in young Brazilians and associated factors: Sex, physical activity, sedentary behavior, sleep and body mass index. J Back Musculoskelet Rehabil. 2020;33(2):233-44. PubMed DOI: 10.3233/BMR-170821
3. Alshehri MM, Alqhtani AM, Gharawi SH, Sharahily RA, Fathi WA, Alnamy SG, et al. Prevalence of lower back pain and its associations with lifestyle behavior among college students in Saudi Arabia. BMC Musculoskelet Disord. 2023;24(1):646. PubMed DOI: 10.1186/s12891-023-06683-5
4. Yu K, Roy T-A, Yu J. Exploring the Influence of Sitting Posture and Duration on Low Back Pain Among Adolescents. Natl High Sch J Sci. 2024. FreeText
5. Macías-Toronjo I, Rojas-Ocaña MJ, Sánchez-Ramos JL, García-Navarro EB. Pain catastrophizing, kinesiophobia and fear-avoidance in non-specific work-related low-back pain as predictors of sickness absence. PLoS One. 2020;15(12):e0242994. PubMed DOI: 10.1371/journal.pone.0242994
6. Christe G, Darlow B, Pichonnaz C. Changes in physiotherapy students' beliefs and attitudes about low back pain through pre-registration training. Arch Physiother. 2021;11(1):13. PubMed DOI: 10.1186/s40945-021-00106-1
7. Gurbinder K, Rosnita H, Nurul Shafina M, Nur AA, Ahmad Farhan S, Mohd ZZ. The Incidence of Low Back Pain among Healthcare Students and Their Beliefs on Its Association with Physical Function. Med Health J. 2021;16(1):76-91. DOI: 10.17576/MH.2021.1601.08
8. Christe G, Pizzolato V, Meyer M, Nzamba J, Pichonnaz C. Unhelpful beliefs and attitudes about low back pain in the general population: A cross-sectional survey. Musculoskelet Sci Pract. 2021;52:102342. PubMed DOI: 10.1016/j.msksp.2021.102342
9. Mankelow J, Ryan CG, Morris H, Lauchlan D, Seenan C, Taylor P, et al. Charting physiotherapy students' attitudes toward people with chronic pain as they progress through their undergraduate programme: An observational study. Physiother Theory Pract. 2022;38(13):2658-64. PubMed DOI: 10.1080/09593985.2021.1976890
10. Ilic I, Milicic V, Grujicic S, Zivanovic Macuzic I, Kocic S, Ilic MD. Prevalence and correlates of low back pain among undergraduate medical students in Serbia, a cross-sectional study. PeerJ. 2021;9:e11055. PubMed DOI: 10.7717/peerj.11055
11. Abbas J, Hamoud K, Jubran R, Daher A. Has the COVID-19 outbreak altered the prevalence of low back pain among physiotherapy students? J Am Coll Health. 2023;71(7):2038-43. PubMed DOI: 10.1080/07448481.2021.1953505
12. Roggio F, Trovato B, Ravalli S, Di Rosa M, Maugeri G, Bianco A, et al. One Year of COVID-19 Pandemic in Italy: Effect of Sedentary Behavior on Physical Activity Levels and Musculoskeletal Pain among University Students. Int J Environ Res Public Health. 2021;18(16):8369. PubMed DOI: 10.3390/ijerph18168680
13. Nkhata LA, Brink Y, Ernstzen D, Louw QA. Nurses back pain beliefs, coping strategies and factors associated with participant activation for self-management of back pain. J Adv Nurs. 2021;77(9):3772-83. PubMed DOI: 10.1111/jan.14890
14. Kuśmierek P, Mikołajczyk M, Złotkowska D, Łowczak A, Mikołajczyk A. Low back pain prevention behavior and beliefs among the Polish population in a cross-sectional survey. Front Public Health. 2024;12:1396558. PubMed DOI: 10.3389/fpubh.2024.1396558
15. Nudelman Y, Pincus T, Ami NB. Association Between Physical Therapists' Attitudes and Beliefs and the Functional Outcomes of Patients With Low Back Pain: A Multilevel Analysis Study. Phys Ther. 2025;105(4):pzae148. PubMed DOI: 10.1093/ptj/pzaf007
16. Munneke W, Demoulin C, Roussel N, Leysen M, Van Wilgen CP, Pitance L, et al. Comparing physical therapy students' attitudes and beliefs regarding chronic low back pain and knee osteoarthritis: an international multi-institutional comparison between 2013 and 2020 academic years. Braz J Phys Ther. 2024;28(1):100592. PubMed DOI: 10.1016/j.bjpt.2024.100592
17. Black C, Mallows A, Waterworth S, Freeman P, Hope E, Liew BXW. A cross-sectional investigation of back pain beliefs and fear in physiotherapy and sport undergraduate students. PLoS One.

2023;18(4):e0284754. PubMed
DOI: 10.1371/journal.pone.0284754

18. Ferreira LS, Silva MPE, Saragiotto BT, Magalhães MO. Attitudes and beliefs of Brazilian physical therapists about chronic nonspecific low back pain and its impact on clinical decision-making: An Online Survey Study. Musculoskelet Sci Pract. 2023;67:102832. PubMed
DOI: 10.1016/j.msksp.2023.102832

19. Dupeyron A, Lanhers C, Bastide S, Alonso S, Toulotte M, Jourdan C, et al. The Back Belief Questionnaire is efficient to assess false beliefs and related fear in low back pain populations: A transcultural adaptation and validation study. PLoS One. 2017;12(12):e0186753. PubMed
DOI: 10.1371/journal.pone.0186753

20. Krug RC, Caneiro JP, Ribeiro DC, Darlow B, Silva MF, Loss JF. Back pain attitudes questionnaire: Cross-cultural adaptation to brazilian-portuguese and measurement properties. Braz J Phys Ther. 2021;25(3):271-80. PubMed
DOI: 10.1016/j.bjpt.2020.07.001

