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DO BACK PAIN MYTHS EXIST? QUETTA'S INTER-DOMAIN MEDICAL STUDENTS PARTICIPATED IN A CROSS-SECTIONAL STUDY ON LOW BACK PAIN MISCONCEPTIONS

Original Research

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ABSTRACT

Background: Low back pain (LBP) is one of the most prevalent musculoskeletal disorders worldwide and a leading contributor to disability among young and working-age populations. Healthcare providers' beliefs and attitudes toward LBP substantially influence patients' expectations, clinical decision-making, and functional recovery. Persistent misconceptions related to the causes, prognosis, and management of LBP—particularly those concerning imaging, medication, and surgery—continue to be reported among healthcare trainees, potentially undermining evidence-based care.

Objective: To assess baseline knowledge and the prevalence of common myths related to low back pain among final-year MBBS and Doctor of Physical Therapy (DPT) students in Pakistan, and to compare inter-domain differences in evidence-based understanding.

Methods: A cross-sectional study was conducted among final-year MBBS and DPT students from selected medical institutions. Participants completed a self-administered version of Deyo's Myths Questionnaire, which evaluates common misconceptions related to the etiology, prognosis, and management of LBP. Demographic data were collected, and responses were analyzed using descriptive statistics. Inter-domain differences in responses to individual myths were assessed using chi-square tests, with statistical significance set at $p < 0.05$.

Results: A total of 165 students participated, including 90 MBBS and 75 DPT students. The mean age was 23.84 ± 0.94 years, with males comprising 66.7% (n = 110) and females 33.3% (n = 55). Statistically significant differences between domains were observed for several management-related myths. MBBS students demonstrated significantly higher agreement with misconceptions related to surgery, strong medication, and core weakness as primary causes or treatments of LBP ($p < 0.01$). DPT students showed comparatively better alignment with evidence-based principles, although misconceptions were still present in both groups.

Conclusion: Substantial myths and misconceptions regarding low back pain were identified among final-year MBBS and DPT students, with a higher prevalence among medical students. These findings underscore the need for targeted, evidence-based educational interventions and curriculum reforms to improve guideline-concordant understanding of low back pain before entry into independent clinical practice.

Keywords: Education, Medical; Low Back Pain, Musculoskeletal Diseases, Physical Therapy Modalities, Students, Medical; Students, Physical Therapy, Treatment Outcome.

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INTRODUCTION

Musculoskeletal (MSK) disorders represent a major public health challenge worldwide and are a leading cause of disability, work absenteeism, and medically certified sick leave, particularly among economically productive age groups (1,2). Among these conditions, low back pain (LBP) stands out as the most prevalent and disabling. In 2015 alone, LBP accounted for approximately 60.1 million disability-adjusted life-years globally, reflecting a 54% increase since 1990, with the sharpest rise observed in low- and middle-income countries (1). Beyond its health consequences, LBP imposes a substantial economic burden, with estimated annual healthcare costs exceeding US$134.5 billion, driven largely by healthcare utilization, productivity losses, and long-term disability. The clinical management of low back pain is strongly influenced by healthcare providers' knowledge, beliefs, and attitudes. Existing literature demonstrates that physicians' perceptions significantly shape their diagnostic decisions, treatment recommendations, patient counseling, and research priorities (3). These professional beliefs often originate early in training, and it is widely accepted that medical students' assumptions and understanding of LBP influence their future clinical behavior and therapeutic choices (4). Alarmingly, numerous studies have documented persistent misconceptions among medical students regarding the etiology, risk factors, and diagnostic requirements of LBP, such as the belief that imaging modalities like MRI or X-ray are always necessary for diagnosis (4,5). Such misconceptions appear particularly prevalent among final-year students transitioning into clinical roles. To address these misunderstandings, Deyo famously highlighted ten common myths surrounding low back pain, challenging widespread but unsupported beliefs related to its natural history, imaging requirements, and treatment strategies (5). Examples include the assumption that disc herniation inevitably requires surgical intervention or that most back pain results from heavy lifting or acute injury. Despite the availability of evidence-based guidelines emphasizing conservative management, patient education, and judicious use of imaging, these myths continue to influence clinical reasoning. Physiotherapists and physicians are often the first point of contact for patients with low back pain. However, in many low- and middle-income regions, including parts of Central and South Asia, medical students and practitioners continue to demonstrate outdated beliefs and non-evidence-based practices. This gap is frequently attributed to insufficient exposure to contemporary guidelines, limited emphasis on evidence-based medicine, and outdated curricula within educational institutions, particularly in Pakistan.

As a result, knowledge translation from research into routine clinical practice remains suboptimal. Inadequate understanding of appropriate LBP management has serious clinical and psychosocial consequences. Poorly informed treatment approaches can contribute to pain chronicity, increased psychological distress, maladaptive behaviors, reduced self-esteem, and long-term disability. At a systems level, the global rise in unnecessary interventions—including frequent emergency department visits, excessive diagnostic imaging, opioid prescriptions, spinal injections, and surgical procedures—has substantially increased healthcare costs and patient burden. This growing discrepancy between evidence and practice reflects both the overuse of low-value interventions and the underuse of high-value, guideline-recommended care. Notably, recent evidence suggests that the rapid escalation in MRI utilization has been associated with increased rates of spinal fusion and disc replacement surgeries, often without proportional improvements in patient outcomes (6-8). Despite growing awareness of these issues, several studies continue to report persistent misconceptions and reliance on non-evidence-based interventions among final-year medical students entering clinical practice (4,9). These findings suggest that deficiencies in undergraduate education and ineffective integration of evidence-based guidelines into clinical training contribute to suboptimal LBP management, where care pathways frequently fail to align with established standards (10–12). Addressing these gaps during undergraduate training is critical, as early professional beliefs tend to persist into clinical practice. Against this backdrop, the present study seeks to address an important educational and clinical gap by evaluating the baseline knowledge, beliefs, and clinical approach toward low back pain among final-year inter-domain medical students, including MBBS and Doctor of Physical Therapy (DPT) programs, in Pakistan. The primary objective is to assess their adherence to current evidence-based guidelines for LBP management and to determine the prevalence of common myths and misconceptions, thereby providing insight into educational needs and informing future curriculum development and targeted interventions.

METHODS

This cross-sectional study was conducted to evaluate baseline knowledge and beliefs regarding low back pain among final-year medical students enrolled in MBBS and Doctor of Physical Therapy (DPT) programs. Data were collected over a two-month period from August

to September 2023 at three academic institutions in Quetta, Pakistan: Bolan Medical College, Quetta Institute of Medical Sciences, and the University of Balochistan. Ethical approval for the study was obtained from the Ethical Committee for Research, University of Balochistan. Administrative permission was also granted by the respective authorities of Bolan Medical College and Quetta Institute of Medical Sciences. All procedures were conducted in accordance with ethical standards for human research, and participation was voluntary. The study population comprised final-year MBBS students from Bolan Medical College and Quetta Institute of Medical Sciences, and final-year DPT students from the Department of Physical Therapy, University of Balochistan. Inclusion criteria were enrollment in the final academic year, completion of at least one hospital-based clinical rotation, and willingness to participate. DPT students had completed a comprehensive musculoskeletal assessment course as part of their curriculum, while MBBS students had completed their core clinical clerkships. Students who declined consent or returned incomplete questionnaires were excluded from the final analysis. Verbal informed consent was obtained from all participants prior to data collection, and confidentiality of responses was assured. Baseline knowledge and beliefs regarding the evaluation and management of low back pain were assessed using Deyo's Myths Questionnaire, a validated and widely used instrument designed to identify common misconceptions related to low back pain (9,13). The questionnaire consists of ten statements reflecting prevalent myths about the etiology, prognosis, imaging, and treatment of low back pain. Responses were recorded on a three-point Likert scale (agree, disagree, unsure), allowing systematic assessment of participants' perspectives. The instrument has been used in multiple prior studies to rapidly evaluate misconceptions among healthcare students and professionals, supporting its suitability for the present study (14,15).

Participants independently completed a self-administered questionnaire that also collected basic demographic and academic information, including age, gender, field of study, and year of education. To minimize response bias, researchers did not influence or guide participants during questionnaire completion. Completed questionnaires were screened for completeness prior to data entry. Data were entered and managed using Microsoft Excel version 14.4.4, and statistical analysis was performed using SPSS version 20. Descriptive statistics were used to summarize participant characteristics and questionnaire responses. Nominal and ordinal variables were expressed as frequencies and percentages, while continuous variables were summarized using means and standard deviations where appropriate. Comparative analysis between MBBS and DPT students was conducted using chi-square tests to examine differences in response distributions for each myth. Correct responses for individual myths were also compared between the two domains using chi-square analysis, and the results were presented in both tabular and graphical formats. A p-value of less than 0.05 was considered statistically significant.

Table: Common Myths and Evidence-Based Statements Regarding Low Back Pain Deyo, R.A.

S.NO	Myths
1	Low Back Pain (LBP) is often considered a significant medical condition.
2	In later age, low back pain (LBP) is likely to become more severe and persistent.
3	Tissue deterioration is not necessarily the cause of persistent low back pain (LBP).
4	Not everyone with back pain requires a spine radiograph.
5	Exercise-related pain is not usually a sign of injury.
6	Low Back Pain (LBP) is not solely caused by poor posture.
7	LBP is related to weak core muscle
8	Bed rest is not considered the primary treatment for Low Back Pain (LBP).
9	Surgery is not always required for a herniated or slipped disc; many cases can be managed with non-surgical treatments.
10	The main treatment for low back pain (LBP) is not thought to be bed rest.

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RESULTS

A total of 165 final-year medical students participated in the study. The mean age of the cohort was 23.84 years, with participants ranging from 21 to 27 years. Male students constituted 66.7% of the sample (n = 110), while female students accounted for 33.3% (n = 55). With respect to academic domain, a larger proportion of participants were enrolled in the MBBS program, whereas a smaller proportion belonged to the Doctor of Physical Therapy (DPT) program. Both groups had completed their respective clinical rotations at the time of participation, ensuring exposure to patient care settings relevant to low back pain management. Comparative analysis between domains revealed statistically significant differences in beliefs related to treatment-oriented myths. For the statement asserting that bed rest is the main treatment for low back pain, a significant association was observed between academic domain and response pattern ($p < 0.0001$). More than half of MBBS students (55%) agreed with this statement, compared with only 18% of DPT students. In contrast, disagreement was more common among DPT students (44%) than MBBS students (13%). A similar pattern was observed for the myth suggesting that surgery is generally required for herniated or slipped discs. Agreement was reported by 58% of MBBS students and 28% of DPT students, while disagreement was noted in 18% of MBBS students and 44% of DPT students, demonstrating a statistically significant difference between domains ($p < 0.001$). These findings indicated greater acceptance of invasive or passive treatment approaches among MBBS students compared with DPT students. Differences were also observed for the belief that low back pain is primarily caused by weak core muscles and that strengthening the core prevents future episodes. Agreement with this statement was reported by 55% of DPT students and 45% of MBBS students, with the difference reaching statistical significance ($p = 0.001$). This result suggested a higher tendency among DPT students to attribute low back pain to biomechanical factors related to core stability. Analysis of correct responses across both domains showed comparatively low endorsement of certain prognostic and postural myths. Only 4% of MBBS students and 3% of DPT students agreed with the statement that low back pain inevitably becomes persistent and deteriorates with advancing age, with no statistically significant difference between groups ($p = 0.785$). Similarly, the belief that low back pain is caused by poor posture during sitting, standing, or lifting was endorsed by 9% of MBBS students and 10% of DPT students, with no meaningful difference observed between domains ($p = 0.32$). These findings reflected a relatively better understanding of the non-progressive nature of low back pain and the limited role of posture alone as a causative factor.

Table 1: Demographic Characteristics of Study Participants

Variable	Overall (n = 165)
Age (years), mean ± SD	23.84 ± 0.94
Age range (years)	21–27
Gender n (%)	
Male	110 (66.7)
Female	55 (33.3)
Domain	
MBBS students	90 (54.5)
DPT students	75 (45.5)

Table 2: Comparison of Treatment-Related Myths Between MBBS and DPT Students

Myth Statement	Domain	Agree n (%)	Disagree n (%)	p-value
Bed rest is the main treatment for LBP	MBBS	55%	13%	<0.0001
	DPT	18%	44%	
Surgery is generally required for herniated/slipped disc	MBBS	58%	18%	<0.001
	DPT	28%	44%	

Outcome variable: Belief in invasive or passive management strategies

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Table 3: Comparison of Etiological Beliefs Between Domains

Myth Statement	Domain	Agree n (%)	p-value
LBP is caused by weak core muscles	MBBS	45%	0.001
	DPT	55%	

Outcome variable: Attribution of LBP to biomechanical/core stability factors

Table 4: Correct Responses to Prognostic and Postural Myths

Myth Statement	MBBS Correct (%)	DPT Correct (%)	p-value
LBP inevitably worsens with age	96%	97%	0.785
Poor posture is the main cause of LBP	91%	90%	0.32

Outcome variable: Evidence-based understanding of prognosis and posture

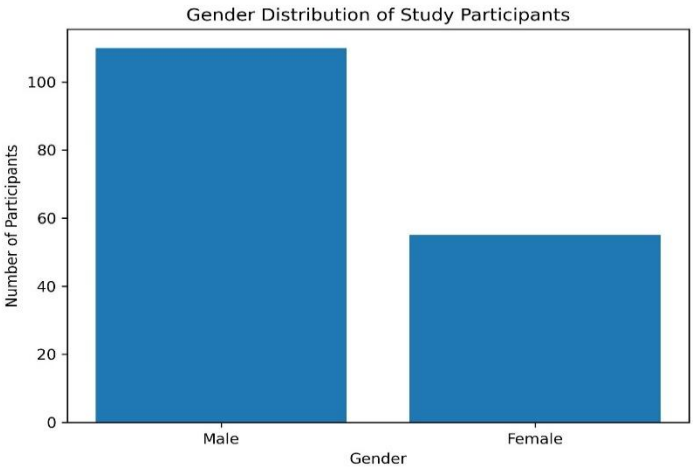

Figure 1 Gender Distribution of Study Participants

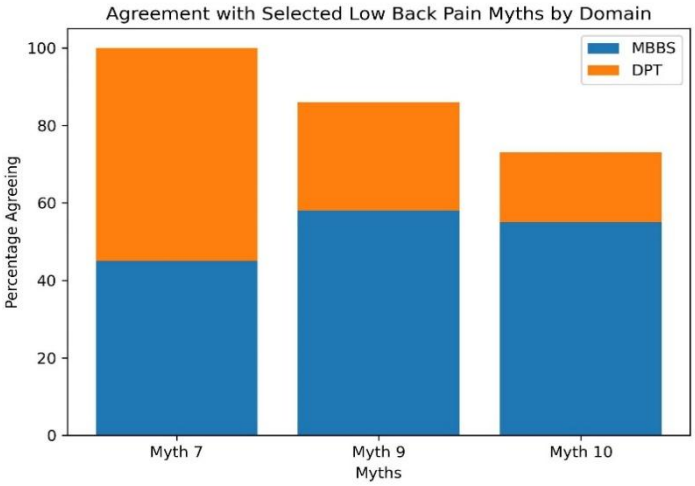

Figure 2 Agreement with Selected Low Back Pain Myths by Domain

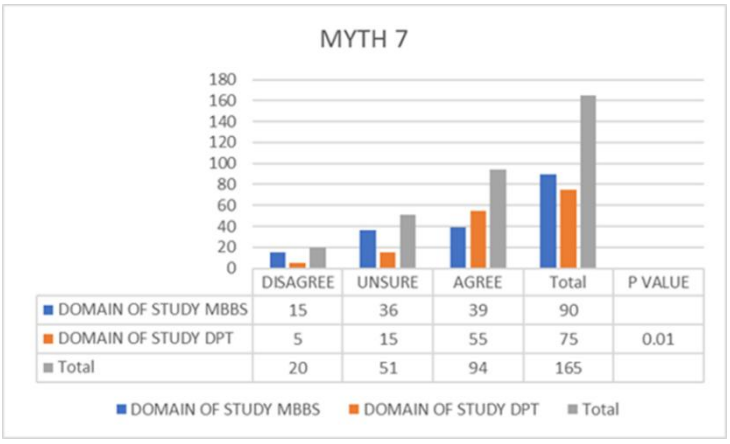

Figure 3 MYTH 7

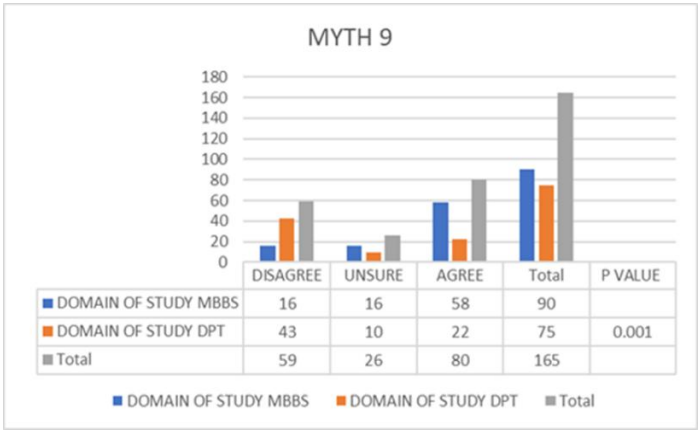

Figure 4 MYTH 9

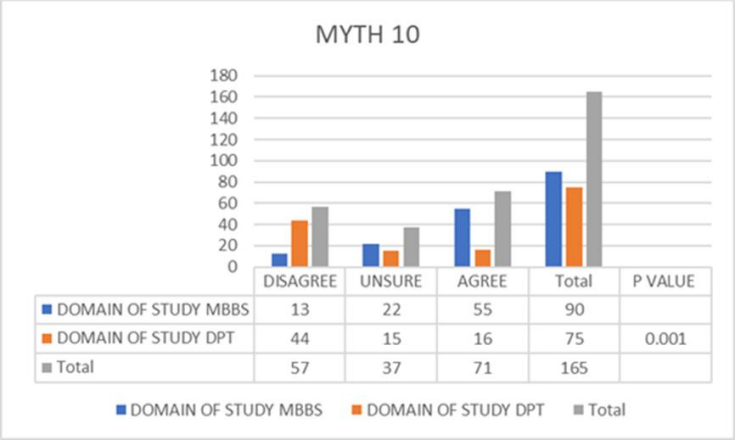

Figure 1 MYTH 10

DISCUSSION

The present findings demonstrated that final-year students from both academic domains exhibited a substantial burden of myths and misconceptions related to the pathophysiology, etiology, investigation, and management of low back pain. Although differences were observed between MBBS and DPT students, neither group demonstrated consistently strong adherence to evidence-based principles. The inter-domain comparison revealed that academic background influenced beliefs and clinical reasoning patterns, supporting the notion that undergraduate training plays a critical role in shaping early professional attitudes toward low back pain management. One of the most striking findings was the marked difference in responses to myths related to invasive treatment strategies. The largest disparity in accurate responses was observed for the belief that a herniated or slipped disc inevitably requires surgery. Incorrect responses were significantly more common among MBBS students compared with DPT students ($p < 0.001$), suggesting a stronger inclination toward biomedical and intervention-focused management within medical training. Similar trends were noted for the belief that strong injections or surgical interventions are necessary and effective for treating low back pain, where inaccurate responses were again more frequent among MBBS students (16). These findings were consistent with earlier studies conducted in undergraduate healthcare populations, which reported persistent overestimation of the role of surgery and pharmacological interventions in low back pain management. Such misconceptions may contribute to unnecessary referrals, overtreatment, and delayed recovery in clinical practice. In contrast, DPT students demonstrated relatively better performance on myths related to conservative management, although important misconceptions persisted (17,18). This difference may reflect greater curricular emphasis on musculoskeletal assessment, movement-based rehabilitation, and non-invasive care within physical therapy education. Nevertheless, the presence of incorrect beliefs in both groups highlights that exposure to clinical rotations alone is insufficient to correct entrenched misconceptions, particularly when curricula are not explicitly aligned with contemporary evidence-based guidelines (19).

Notably, the belief that low back pain inevitably becomes persistent and deteriorates with age was among the most widely endorsed misconceptions across both domains. A substantial majority of students agreed with this statement, indicating a pessimistic view of prognosis. These findings were in line with previous research conducted in undergraduate healthcare cohorts, where a similarly high proportion of participants endorsed this myth. Such beliefs are clinically important, as negative expectations regarding prognosis have been strongly associated with fear-avoidance behaviors, pain catastrophizing, delayed recovery, absenteeism from work, and progression to chronic disability. Current evidence consistently shows that while low back pain can be distressing, it is rarely life-threatening, often resolves spontaneously, and does not inevitably worsen with age. Failure to convey these principles may inadvertently reinforce maladaptive coping strategies in patients. Misconceptions related to posture were also highly prevalent. The majority of students from both domains agreed with the belief that poor posture during sitting, standing, or lifting causes low back pain, despite growing evidence demonstrating a weak or inconsistent association between spinal posture and pain onset or persistence. Contemporary research suggests that posture alone does not predict low back pain and that pain itself may alter posture rather than the reverse. Continued reliance on the postural-structural-biomechanical paradigm may promote excessive movement caution, muscle guarding, and rigid “core bracing,” which can paradoxically perpetuate pain and disability. These findings underscore the need for educational strategies that emphasize graded activity, gradual loading, and reassurance rather than fear-based movement avoidance (20). The clinical implications of these

findings are substantial. Healthcare professionals' beliefs are known to influence patient education, treatment recommendations, and adherence to care. When clinicians hold unsubstantiated beliefs, these may be transmitted to patients, reinforcing fear, dependency on medical interventions, and unrealistic expectations regarding imaging or surgery. Over time, such practices can increase healthcare costs, expose patients to unnecessary risks, and contribute to the global burden of chronic low back pain. The results of this study reinforce the importance of addressing misconceptions early in professional training to promote evidence-based, patient-centered care (21).

This study had several strengths. It was among the first to assess and compare low back pain–related myths between MBBS and DPT final-year students within a Pakistani context, providing novel insight into inter-domain differences. The use of a well-established questionnaire allowed for comparison with international literature and facilitated identification of specific areas of misunderstanding. However, several limitations must be acknowledged. The cross-sectional design precluded assessment of causality or changes in beliefs over time. The sample size was relatively small and limited to a single geographic region, which may restrict generalizability. Additionally, reliance on a questionnaire developed several decades earlier, although widely used, may not fully capture contemporary nuances in guideline-based low back pain management. Future research should involve larger, multicenter samples and consider longitudinal designs to evaluate how beliefs evolve throughout training and into early clinical practice. Incorporation of educational interventions, such as structured evidence-based modules, case-based learning, and time-efficient e-learning programs, may help address persistent misconceptions and should be evaluated for effectiveness. Integrating clinician- and public-focused educational sessions into undergraduate curricula may further facilitate translation of evidence into practice (22). Overall, the findings highlighted a clear need to strengthen evidence-based education on low back pain across healthcare training programs. Addressing these myths during undergraduate education has the potential to improve future clinical decision-making, reduce unnecessary interventions, and ultimately enhance patient outcomes in low back pain management.

CONCLUSION

This study concluded that substantial misconceptions regarding the causes, prognosis, and management of low back pain persist among final-year MBBS and DPT students, with a greater burden observed among medical students, particularly in relation to interventional and invasive treatment beliefs. These findings directly addressed the study objective by highlighting gaps in evidence-based understanding at a critical transition point into clinical practice. The persistence of such misconceptions has important practical implications, as early professional beliefs strongly influence future clinical decision-making, patient counseling, and patterns of care. Strengthening undergraduate curricula through targeted, evidence-based educational strategies is therefore essential to correct these misunderstandings, promote guideline-concordant management, and prevent the ongoing transmission of inaccurate beliefs to patients and the wider community.

AUTHOR CONTRIBUTIONS

Author	Contribution
Syed Anayatullah*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Noor Ul Aqsa	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Nazia Razzaq	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Sadia Khan Nasar	Contributed to Data Collection and Analysis

Author	Contribution
	Has given Final Approval of the version to be published
Muhammad Bakhsh	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Noor Ahmed Khosa	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

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