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PREVALENCE OF LOW BACK PAIN AND ITS ASSOCIATION WITH QUALITY OF SLEEP AMONG STUDENTS OF ALLIED HEALTH SCIENCE OF IQRA NATIONAL UNIVERSITY PESHAWAR

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ABSTRACT
Background: Low Back Pain (LBP) Is A Prevalent Global Health Issue, Affecting Individuals of All Ages. It Is Defined by The Location of Pain Typically Between the Lower Ribs' Margins and Buttocks Creases. Among University Students, It Is Alarmingly Common Due to Factors Such as Sedentary Behavior, Poor Posture, And Academic Stress. LBP Has a Significant Impact on Students of Life Sleep. This Study Aims to Explore the Prevalence of LBP and Its Association with Sleep Quality Among University Students.
Objective: The Primary Objective of This Study Was to Estimate the Prevalence of LBP And Examine Its Relationship with Sleep Quality Among Undergraduate Students in The Allied Health Sciences Department at Iqra National University, Peshawar.
Methods: A Cross-Sectional Study Was Conducted With 330 Participants Aged 18-30 Years. The Sample Was Selected Using a Convenience Sampling Technique. Participants Completed a Demographic Questionnaire, The Pittsburgh Sleep Quality Index (PSQI), And Other Relevant Measures. Data Were Collected and Analyzed Using SPSS Software, With Both Quantitative and Qualitative Analyses Performed.
Results: The Study Found That 88.4% Of Students Reported Experiencing LBP, With Males Experiencing Higher Rates. A Significant Proportion (70.6%) Of Students

Reported Minimal to Moderate Sleep Disturbances. Sleep Quality Was Poor for Many, with 38.5% Rating Their Sleep as Fairly Good And 17.9% Rating It as Very Bad. A Strong Correlation Was Found Between Poor Sleep Quality and The Prevalence Of LBP
Conclusion: *This Study Highlights a High Prevalence of LBP Among University Students, With Poor Sleep Quality Significantly Contributing to The Condition. The Findings Suggest That Sedentary Behavior, Poor Posture, And Stress Are Key Factors. Interventions Targeting Ergonomic Improvements, Physical Activity, And Better Sleep Quality Could Help Reduce the Burden of LBP In Academic Settings.*
Keywords: *Low Back Pain (LBP), Lifestyle Behaviors, Sedentary Lifestyle, Stress, Diet and Nutrition, Posture, Preventive Measures*

INTRODUCTION

Low back pain (LBP) is a widespread health issue affecting individuals of all ages and backgrounds globally. It is one of the leading causes of disability and a significant contributor to the global burden of disease (Hartvigsen et al., 2018). Among university students, the prevalence of LBP is alarmingly high, with approximately 40% of students in the United States reporting episodes of LBP within a year (Brown, 2018). Globally, the prevalence of LBP among adolescents is estimated to be around 18%, with higher rates observed in developing countries (Lee, 2020). LBP among university students is influenced by multiple factors, including sedentary behaviors, poor posture, and psychosocial stressors. Prolonged sitting during lectures, studying, and computer use is common in academic settings, leading to weakened core muscles and increased strain on the lumbar spine (Sundstrup et al., 2020). Poor ergonomic conditions, such as inappropriate desk setups and uncomfortable seating, further exacerbate musculoskeletal strain (Kanchanomai et al., 2021). Moreover, the academic pressure, deadlines, and performance anxiety commonly experienced by university students contribute to heightened stress levels, which may manifest physically as musculoskeletal tension (Smith, 2020).

Psychosocial factors, including stress, anxiety, and depression, have been linked to LBP, although the causal direction of these relationships remains uncertain (van Tulder et al., 2019). Workplace-like academic environments, characterized by monotonous tasks, lack of social support, and high demands, also serve as significant risk factors for LBP (DI, 2022). Furthermore, inadequate physical activity and a sedentary lifestyle are key contributors, as they weaken the muscles supporting the spine, increasing the risk of LBP (Sundstrup et al., 2019). Structural and pathological factors also play a role in LBP among students. Intervertebral disc degeneration, facet joint dysfunction, and spinal abnormalities, such as spondylolisthesis, are common underlying causes (Adams et al., 2006; Manchikanti, 2018). These conditions may be aggravated by prolonged sitting, poor posture, and repetitive spinal stress. Muscle imbalances, such as weakness in the erector spinae and abdominal muscles, further predispose individuals to LBP (Sundstrup et al., 2019).

The impact of LBP on university students is substantial, affecting their academic performance, daily activities, and overall quality of life. Studies indicate that females may be more likely to report LBP compared to males, and the prevalence of LBP varies across age groups (Smith, 2020; Sundstrup et al., 2019). While some students experience acute episodes of LBP that resolve within weeks, others develop chronic conditions that persist for months or recur frequently (Foster et al., 2018). Effective management of LBP among university students requires a multifaceted approach. Educational campaigns to promote awareness of risk factors, ergonomic interventions to improve study environments, and physical therapy to strengthen core muscles have shown promise in preventing and alleviating LBP (Hestbaek et al., 2021; Kilbom et al., 2017). Exercise therapy, manual therapy, and cognitive-behavioral interventions have also demonstrated effectiveness in reducing pain and improving function in individuals with chronic LBP (Hayden et al., 2022; Williams et al., 2019). This study aims to explore the prevalence, associated risk factors, and impact of LBP among university students, highlighting the need for targeted interventions to address this growing health concern.

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Methods and materials:

This study cross-sectional study was conducted over period of six month in the Allied Health Sciences Department of Iqra national university Peshawar. institutional review board approved the study, and data collection commenced following this approval, adhering to the ethical principles outlined in the declaration of Helsinki. Participants provided informed consent before inclusion in the study. the sample size, was calculated using the Rao soft sample size calculator, ensured a confidence level of 95%, a desired precision of 0.05, and expected true proportion of 0.5, resulting in 330 students of age 18 to 30 years. These participants were selected using a convenient sampling technique. The target population consisted of male and female undergraduate students aged 18 to 30 years who reported experiencing back pain. Participants were required to be currently enrolled in the Allied Health Sciences Department, while students from other departments or postgraduate programs were excluded from the study. The survey utilized an adopted questionnaire consisting of three sections: a demographic questionnaire, the Pittsburgh Sleep Quality Index (PSQI), and other relevant measures.

Data collection was conducted in three phases. Initially, permissions and informed consents were obtained from the participants. Following this, the questionnaire was administered to eligible students. The process was designed to ensure accuracy and minimize bias during data collection. Once all responses were collected, the data were analyzed using SPSS software version 25. Both quantitative and qualitative analyses were performed, with results presented through descriptive statistics and graphical representations.

Results:

A total of 330 participants were included in the study, with 86.9% males and 13.0% females. The age distribution revealed that 83.9% of participants were between 18-24 years, while 16% were aged 25-30 years.

Table1: Sleep Disturbance Score

Table.4.3	Sleep Disturbance Score	Frequency	Percent	Cumulative Percent
Valid	0	12	3.6	3.6
	1-9	233	70.6	74.2
	10-18	36	10.9	85.2
	19-27	49	14.8	100.0
	Total	330	100.0	

Sleep disturbance scores showed that the majority (70.6%) of respondents experienced minimal to moderate disturbances (scores of 1-9), while 10.9% reported moderate disturbances (10-18), and 14.8% reported severe disturbances (19-27).

Table 2: Sleep Quality

Table.4	Sleep Quality	Frequency	Percent	Cumulative Percent
Valid	Very Good	99	30.0	30.0
	Fairly Good	127	38.5	68.5
	Fairly Bad	45	13.6	82.1
	Very Bad	59	17.9	100.0
	Total	330	100.0	

sleep quality over the past month, 38.5% rated their sleep as "fairly good," 30.0% as "very good," 13.6% as "fairly bad," and 17.9% as "very bad."

Table 3: Day-Time Dysfunction

Table.4.5	Day-Time Dysfunction	Frequency	Valid Percent	Cumulative Percent

Valid	Not During The Past Month	252	76.4	76.4
	Less Than Once A Week	69	20.9	97.3
	Once Or Twice A Week	9	2.7	100.0
	Total	330	100.0	

Daytime dysfunction was uncommon, with 76.4% of respondents reporting no dysfunction in the past month, 20.9% experiencing dysfunction less than once a week, and 2.7% reporting dysfunction once or twice a week.

Table 4: Sleep latency

Table.4.6		Sleep Latency		
		Frequency	Percent	Cumulative Percent
Valid	Less Than 15 Minutes	61	18.5	18.5
	16-30 Minutes	73	22.1	40.6
	31-60 Minutes	50	15.2	55.8
	Over 60 Minutes	146	44.2	100.0
	Total	330	100.0	

Sleep duration

Sleep duration analysis revealed that 31.8% of participants spent 85% of their time in bed asleep, 28.8% spent 65-74%, and 39.4% spent less than 65%.

Medication uses for sleep

Medication use for sleep was relatively low, with 79.1% reporting no use of sleep aids in the past month and 20.9% using medications less than once a week. Sleep efficiency showed that 43.3% of participants reported getting 7 or more hours of sleep per night, 13.9% reported 6-7 hours, 29.4% reported 5-6 hours, and 13.3% reported less than 5 hours. These findings highlight various factors influencing sleep patterns and disturbances among the participants, providing valuable insights into their sleep behaviors and potential associations with low back pain.

Table 4: Pearson Correlation

Pearson Correlation[a]

		Sleep Quality	Sleep Latency	Sleep Disturbance Score	Sleep Efficiancy	Sleep Duration
Sleep Quality	Pearson Correlation	1	.812	.852	.880	.878
	Bayes Factor		.000	.000	.000	.000
	N	330	330	330	330	330
Sleep Latency	Pearson Correlation	.812	1	.585	.893	.920
	Bayes Factor	.000		.000	.000	.000
	N	330	330	330	330	330
Sleep Disturbance Score	Pearson Correlation	.852	.585	1	.764	.635
	Bayes Factor	.000	.000		.000	.000
	N	330	330	330	330	330
Sleep Efficiancy	Pearson Correlation	.880	.893	.764	1	.891
	Bayes Factor	.000	.000	.000		.000
	N	330	330	330	330	330
Sleep Duration	Pearson Correlation	.878	.920	.635	.891	1
	Bayes Factor	.000	.000	.000	.000	
	N	330	330	330	330	330

a. Bayes factor: Null versus alternative hypothesis.

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DISCUSSION

The main objectives of this cross-sectional study were to estimate the prevalence of LBP and examine the relationship between quality of sleep and LBP among students in Sarhad University. The current study showed a high prevalence of LBP among students (88.4%). Most of the current sample had facing the stressful situation 54.4%. The prevalence of LBP was higher in male students, students with poor sleep quality.

Our study results shows prevalence of low back pain and its association with quality of sleep among Sarhad university students is 84.4% which was nearly similar to the findings of Mohammad M Alshehri *et al* conducted a cross sectional study on prevalence of low back pain and its association with quality of sleep results showed that 66% of the students had low back pain this was further divided on the marital status, single involved 68.56%, married involved 29.46% and divorced involved 2.3% (Mohammed M Alshehri, 2023) Our study results shows prevalence of low back pain and its association with quality of sleep among Sarhad university students is 84.4% which was nearly similar to the findings of study among university students in Malaysia investigated the prevalence and factors associated with low back pain. It found that the prevalence of LBP was high with about 42% of students experiencing LBP in the previous year. Our study outcomes were in contrast to the study of cross-sectional study on both academic and non-academic professional staff at Qatar University. This study showed that better sleep was only a protective variable for those who experienced lower back pain.

Conclusion:

In conclusion, this study highlights the high prevalence of low back pain (LBP) among university students, with a significant association between LBP and poor sleep quality. With a prevalence of 88.4%, the findings underscore the impact of sedentary behavior, poor posture, and psychosocial stressors on students' musculoskeletal health. The results are consistent with other global studies, suggesting that LBP is a common issue in academic environments. Additionally, the study revealed that students with poor sleep quality were more likely to report LBP,

REFERENCES:

Hartvigsen J, H. M. (2018). What low back pain is and why we need to pay attention. The Lancet, 2356-2367.

Brown, C. &. (2019). Lifestyle behaviors and low back pain among university students. International Journal of Environmental Research and Public Health.

Lee J, L. J. (2020). Prevalence of adolescent LBP and its relationship to socioeconomic and physical activity status. Spine.

Sundstrup E, J. M. (2020). Association between occupational lifting and day-to-day change in low-back pain intensity based on company records and text messages. Environment & Health, 467-476.

Kanchanomai S, J. P. (2021). Prevalence of and factors associated with musculoskeletal symptoms in the spine attributed to computer use in undergraduate students. work, 631-638.

Smith, A. &. (2020). Prevalence of low back pain among university students. Back and Musculoskeletal Rehabilitation, 587-595.

Van Tulder M, K. B. (2019). Low back pain. Clinical Rheumatology, 761–75.

DI, R. (2022). Epidemiology and risk factors for spine pain. Neurologic Clinics, 353–71.

Foster, N. E. (2018). Prevention and treatment of low back pain. The Lancet.

Hestbaek L, L.-Y. C. (2021). Low back pain: what is the long-term course? Eur Spine J.

Kilbom Å, A. T. (2017). Musculoskeletal disorders: work-related risk factors and prevention. Int J Occup Environ Health.

Hayden JA, v. T. (2022). Exercise therapy for treatment of non-specific low back pain.

Williams CM, M. C. (2019). Efficacy of paracetamol for acute low-back pain. Lancet, 1586-96.

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Wong, E. (2021). Effects of an exercise intervention on low back pain among university students. Medicine and Science in Sports and Exercise, 623-1630.

Yang, S. Y. (2017). Association between smartphone use and musculoskeletal discomfort in adolescent students. Journal of community health.

Fahad Hanna, R. N.-S.-M. (2019). The Relationship Between Sedentary Behavior, Back Pain, and Psychosocial Correlates Among University students. Frontiers.

Markeyllanne Leocadio Morais, V. K. (sep 2018). Prevalence of low back pain and associated factors among physiotherapy students. SCIELO Brazil.

Mazyad A Alotaibi, R. M. (2021). The key determinants of low back pain among lifestyle behaviors in adolescents: A cross-sectional study from Saudi Arabia. PUB MED.

Mohammed M Alshehri, A. M. (2023). Prevalence of lower back pain and its associations with lifestyle behaviors among college students in Saudi Arabia. National library of medicine (PubMed).

Nur Fatehah Basri, M. G. (2021). Prevalence of low back pain with its associated risk factors among health. RESEARCH ARTICLE, 51-59.

Sany SA, T. T. (2022). Low back pain and associated risk factors among medical students in Bangladesh. F1000Research.