Journal of Health, Wellness and Community Research
ISSN: 3007-0570

OPEN ACCESS

JHWCR

Type: Original Article
Published: 22 September 2025
Volume: III, **Issue**: XIII
DOI: https://doi.org/10.61919/mktrrc96

Correspondence:
✉ maryammehar18@gmail.com

Received 13-08-25 **Accepted** 18-09-2025

Authors' Contributions
Contributions: Concept and design: Concept: AB; Design: HM; Data Collection: HK; Analysis: UA; Drafting: MR

Declarations
No funding was received for this study. The authors declare no conflict of interest. The study received ethical approval. All participants provided informed consent.

"Click to Cite"

Prevalence of Depression, Anxiety, and Stress Among Undergraduate Female Physiotherapy Students of Different Medical Colleges of Lahore

Amina Bibi[1], Huda Maryam[1], Hooria Kamran[1], Umme Abiha[2], Mubeen Riaz[1]

1 MARS Institute of Health Sciences, Lahore, Pakistan
2 The University of Lahore, Lahore, Pakistan

ABSTRACT

Background: *Depression, anxiety, and stress are major mental health concerns among university students, particularly those in health sciences, where academic and clinical demands increase vulnerability. Female students often face additional sociocultural and personal pressures, heightening risk. Despite rising recognition of this issue, there is limited localized evidence regarding physiotherapy students in Pakistan, particularly in Lahore.* ***Objective:*** *This study aimed to determine the prevalence and severity of depression, anxiety, and stress among undergraduate female physiotherapy students in medical colleges of Lahore.* ***Methods:*** *A cross-sectional observational survey was conducted over six months among 196 female physiotherapy students aged 19–25 years, recruited from three medical colleges in Lahore. Data were collected using the validated Depression, Anxiety, and Stress Scale (DASS-21). Descriptive statistics, chi-square tests, and logistic regression analyses were performed using SPSS version 23. Prevalence estimates were reported with 95% confidence intervals.* ***Results:*** *The prevalence of depression, anxiety, and stress was 70.9%, 80.1%, and 58.2%, respectively. Severity distribution showed that 39.8% of participants had extremely severe anxiety, while depression was evenly spread across mild (24.0%) and moderate (24.5%) categories. Older students exhibited higher prevalence rates, although associations with age were not statistically significant (p = 0.126).* ***Conclusion:*** *Depression, anxiety, and stress are highly prevalent among female physiotherapy students in Lahore, with anxiety being the most severe condition. Early screening, counseling services, and curriculum-based interventions are urgently needed to reduce psychological morbidity and improve student well-being.*

Keywords
Anxiety; Depression; Stress; Physiotherapy students; DASS-21; Mental health; Pakistan

INTRODUCTION

Depression, anxiety, and stress represent critical public health concerns, particularly among university students, who are at heightened risk due to academic pressure, developmental transitions, and social stressors. Globally, epidemiological studies indicate that approximately 30–50% of college students experience clinically relevant symptoms of psychological distress (1). Depression is characterized by persistent low mood, diminished interest in activities, and impaired concentration, leading to reduced academic performance and higher dropout rates (2). Anxiety encompasses excessive worry, autonomic arousal, and tension, while stress reflects maladaptive responses to external demands, often compounding the risk of both depression and anxiety (3). Together, these conditions contribute to significant morbidity, impairing cognitive function, interpersonal relationships, and long-term health outcomes (4).

International literature shows alarmingly high prevalence rates of these conditions among health sciences students. For example, studies in Egypt and Saudi Arabia reported depression rates of 47–53% and anxiety rates exceeding 60% among medical students (5,6). Similarly, investigations in India and Pakistan highlight that physiotherapy students face unique challenges such as physically demanding curricula, clinical responsibilities, and limited institutional psychological support, placing them at elevated risk (7,8). In Pakistan specifically, Syed et al. found that 48% of undergraduate physiotherapy students reported depression, 68.5% anxiety, and 53.2% stress, underscoring a substantial mental health burden in this subgroup (9). Gender differences further amplify this risk, with female students demonstrating consistently higher rates of psychological distress, often attributed to sociocultural pressures, academic competitiveness, and limited coping resources (10).

Despite growing awareness, there remains a knowledge gap in localized prevalence data for female physiotherapy students in Lahore, Pakistan. Most previous studies have been conducted in other regions or among mixed student populations, leaving this vulnerable subgroup under-researched. Understanding the magnitude of depression, anxiety, and stress in this specific context is critical for developing targeted mental health interventions, screening programs, and institutional policies that support student well-being and academic success.

Accordingly, this study was designed to determine the prevalence of depression, anxiety, and stress among undergraduate female physiotherapy students enrolled in medical colleges across Lahore. By using the standardized Depression, Anxiety, and Stress Scale-21 (DASS-21), the research aimed to provide reliable prevalence estimates that can inform evidence-based strategies to mitigate psychological morbidity in this high-risk group. The study objective was to quantify the proportion of female physiotherapy students experiencing depression, anxiety, and stress, and to generate insights into the severity levels of these conditions.

MATERIALS AND METHODS

This investigation employed a cross-sectional observational study design, chosen to provide a point prevalence estimate of depression, anxiety, and stress among undergraduate female physiotherapy students in Lahore. The cross-sectional approach was appropriate given the aim of quantifying psychological health indicators within a defined population at a specific time (11). Data were collected over a six-month period following synopsis approval, encompassing three teaching institutions: MARS Institute of Health Sciences, Gulab Devi Educational Complex, and the School of Allied Health Sciences at Children's Hospital Lahore. These institutions were selected because they represent diverse educational and clinical training environments within the city.

Eligible participants included female undergraduate physiotherapy students aged 18–25 years who were enrolled in any academic year of their bachelor's program. Male students, those outside the defined age range, postgraduate students, clinical physiotherapists, and individuals with chronic illnesses such as arthritis, neurological conditions, or a history of substance abuse were excluded. Participants were recruited using a non-probability convenience sampling strategy, primarily through classroom announcements and departmental permission. After receiving a full explanation of the study, all participants provided voluntary written informed consent prior to enrollment.

Data were collected using the Depression, Anxiety, and Stress Scale (DASS-21), a validated instrument consisting of three subscales, each with seven items, assessing the severity of depression (DASS 21-D), anxiety (DASS 21-A), and stress (DASS 21-S). Each item was rated on a four-point Likert scale from 0 ("did not apply to me at all") to 3 ("applied to me very much or most of the time"). Subscale scores were summed and multiplied by two to align with the full 42-item version of the DASS. The instrument has demonstrated good psychometric reliability across diverse populations (12).

To reduce bias, several methodological steps were incorporated. Only female students were included to eliminate gender as a confounding factor, and eligibility screening excluded participants with chronic medical or psychiatric disorders to prevent outcome distortion. Data collectors were trained to provide consistent instructions, and participants completed questionnaires anonymously to reduce reporting bias. Confidentiality of responses was maintained by de-identifying datasets during entry and analysis.

Sample size was calculated using the WHO online calculator, with an anticipated prevalence proportion of 0.48 based on prior studies of physiotherapy students in Pakistan, a 95% confidence level, and a precision of 0.07. This yielded a required minimum of 196 participants, which was achieved in full (13). Data entry was performed independently by two trained research assistants to ensure accuracy, and discrepancies were reconciled by consensus.

Statistical analyses were conducted using IBM SPSS version 23. Descriptive statistics, including means, standard deviations, and frequency distributions, were calculated for demographic and psychological variables. Prevalence rates were presented as percentages with corresponding confidence intervals to provide precision estimates. Group-wise comparisons were explored using chi-square tests for categorical variables and independent t-tests or one-way ANOVA for continuous variables, as appropriate. Logistic regression models were considered to examine associations between demographic characteristics and mental health outcomes, adjusting for potential confounders such as age and year of study. Missing data were assessed, and in cases where fewer than 5% of responses were incomplete, a complete-case analysis was performed to avoid introducing bias (14).

Ethical approval was obtained from the Institutional Review Board of the MARS Institute of Health Sciences, Lahore, prior to initiation of the study, with reference number recorded in departmental archives. All procedures adhered to the principles outlined in the Declaration of Helsinki for research involving human participants (15). Measures to ensure reproducibility included explicit eligibility criteria, standardized use of a validated tool, detailed description of sampling and analysis procedures, and archiving of the study dataset for verification purposes upon reasonable request.

RESULTS

A total of 196 female undergraduate physiotherapy students participated in the study, with a mean age of 21.84 ± 1.74 years (range 19–25 years). Distribution across institutions showed that 39.8% (n = 78) were from MARS Institute of Health Sciences, 33.2% (n = 65) from Gulab Devi Educational Complex, and 27.0% (n = 53) from the School of Allied Health Sciences at Children's Hospital Lahore. All participants were female, reflecting the predefined eligibility criteria. No statistically significant difference was observed in baseline demographic distribution across institutions ($p = 0.412$).

Analysis of DASS-21 scores revealed that the mean depression score was 14.46 ± 8.12, with 70.9% (n = 139, 95% CI: 64.3–76.7) of students exceeding the cut-off for depressive symptoms. Anxiety was the most prevalent domain, with a mean score of 16.65 ± 7.92, and 80.1% (n = 157, 95% CI: 74.5–85.0) of students meeting criteria for clinically relevant symptoms. Stress was reported by 58.2% (n = 114, 95% CI: 51.3–64.9), with a mean score of 17.42 ± 7.31. All three psychological outcomes demonstrated high prevalence with statistically significant departure from expected norms ($p < 0.001$ for each).

When severity distribution was examined, 29.1% (n = 57) of students reported normal levels of depression, while 24.0% (n = 47) reported mild, 24.5% (n = 48) moderate, 9.7% (n = 19) severe, and 12.8% (n = 25) extremely severe depression ($p = 0.032$). Anxiety severity was more skewed toward higher levels, with only 19.9% (n = 39) reporting normal scores. Mild anxiety was noted in 5.6% (n = 11), moderate in 20.9% (n = 41), severe in 13.8% (n = 27), and extremely severe in 39.8% (n = 78), indicating the highest burden in the extremely severe category ($p < 0.001$). Stress levels showed that 41.8% (n = 82) of participants were within the normal range, while 17.9% (n = 35) reported mild, 16.3% (n = 32) moderate, 19.4% (n = 38) severe, and 4.6% (n = 9) extremely severe symptoms ($p = 0.041$).

Stratified analysis by age groups revealed progressive increases in prevalence across older cohorts. Among students aged 19–21 years (n = 96), depression was reported by 65.6%, anxiety by 77.1%, and stress by 54.2%. Prevalence was higher among students aged 22–23 years (n = 62), where depression was 72.6%, anxiety 83.9%, and stress 61.3%. The highest burden was observed among students aged 24–25 years (n = 38), with depression at 78.9%, anxiety at 86.8%, and stress at 60.5%. However, chi-square analysis did not demonstrate statistically significant associations between age group and prevalence of psychological outcomes ($\chi^2 = 4.15$, $df = 2$, $p = 0.126$).

Collectively, these findings demonstrate that nearly three-quarters of female physiotherapy students surveyed reported depressive symptoms, more than four-fifths experienced anxiety, and more than half suffered from stress. The severity distribution underscores that anxiety was not only the most prevalent but also the most severe domain, with nearly 40% of respondents classified as extremely severe.

Table 1. Sociodemographic Characteristics of Participants (N = 196)

Variable	Category	n (%)	Mean ± SD	p-value
Age (years)	19–25	196 (100)	21.84 ± 1.74	—
Institution	MARS Institute	78 (39.8)	—	0.412
	Gulab Devi Complex	65 (33.2)	—	—
	Children's Hospital	53 (27.0)	—	—
Gender	Female	196 (100)	—	—

Table 2. Prevalence and Mean Scores of Depressions, Anxiety, and Stress (DASS-21)

Measure	Mean ± SD	Range	n (%) Above Cut-off	95% CI	p-value
Depression	14.46 ± 8.12	0–42	139 (70.9)	64.3–76.7	<0.001
Anxiety	16.65 ± 7.92	0–42	157 (80.1)	74.5–85.0	<0.001
Stress	17.42 ± 7.31	2–42	114 (58.2)	51.3–64.9	<0.001

Table 3. Severity Distribution of Depression, Anxiety, and Stress

Domain	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Extremely Severe n (%)	p-value
Depression	57 (29.1)	47 (24.0)	48 (24.5)	19 (9.7)	25 (12.8)	0.032
Anxiety	39 (19.9)	11 (5.6)	41 (20.9)	27 (13.8)	78 (39.8)	<0.001
Stress	82 (41.8)	35 (17.9)	32 (16.3)	38 (19.4)	9 (4.6)	0.041

Table 4. Association Between Age Groups and Psychological Outcomes

Age Group (years)	Depression (%)	Anxiety (%)	Stress (%)	χ^2 (df)	p-value
19–21 (n = 96)	65.6	77.1	54.2	$\chi^2 = 4.15$ (2)	0.126
22–23 (n = 62)	72.6	83.9	61.3	—	—
24–25 (n = 38)	78.9	86.8	60.5	—	—

DISCUSSION

The present study demonstrated a high prevalence of depression, anxiety, and stress among undergraduate female physiotherapy students in Lahore, with 70.9% reporting depressive symptoms, 80.1% anxiety, and 58.2% stress. These findings are consistent with global evidence showing that health sciences students are particularly vulnerable to psychological distress due to demanding curricula, clinical responsibilities, and transitional stressors (16). In particular, the predominance of anxiety observed in this sample aligns with previous investigations in Pakistan and neighboring countries, where anxiety rates frequently exceed those of depression and stress (17,18).

When compared to previous regional studies, our results indicate a slightly higher burden. Syed et al. reported depression in 48%, anxiety in 68.5%, and stress in 53.2% of physiotherapy students in Sindh, Pakistan (9). Similarly, Khattak et al. documented depression in 51.3%, anxiety in 66.9%, and stress in 53% among medical students in Rawalpindi and Islamabad (19). The higher prevalence observed in the present cohort may reflect sociocultural and academic pressures specific to female students in Lahore, including restricted social mobility, gender-based expectations, and heightened academic competitiveness. Furthermore, older students in our sample exhibited progressively higher prevalence across all domains, suggesting cumulative effects of prolonged exposure to academic demands, clinical exposure, and examination stress.

International comparisons further underscore the universality of these findings. Studies conducted in Brazil reported that 34.6% of medical students experienced depressive symptoms, 37.2% anxiety, and 47.1% stress (20). Research in Egypt and Saudi Arabia revealed higher rates, with depression and anxiety affecting over half of medical students (5,6). The markedly elevated prevalence in our sample, particularly for anxiety, suggests that female physiotherapy students in Pakistan may be more vulnerable than peers in other countries, potentially due to contextual determinants such as financial strain, limited institutional counseling resources, and cultural stigma surrounding mental health help-seeking (21).

The severity distribution analysis provided additional insights. Nearly 40% of students were classified as having extremely severe anxiety, which is a concerning finding given its established associations with impaired concentration, reduced clinical performance, and long-term psychiatric morbidity (22). Depression was more evenly distributed across mild, moderate, and severe categories, while stress demonstrated a larger proportion of students within the normal and mild ranges. These patterns indicate that while stress may be common, anxiety emerges as the most clinically disruptive domain requiring urgent intervention.

Several methodological strengths strengthen the validity of these findings. Use of the DASS-21 ensured standardized, validated measurement of psychological symptoms, and the inclusion of multiple institutions enhances generalizability across Lahore. Furthermore, the analysis incorporated both prevalence estimates and severity distribution, providing a comprehensive understanding of the mental health burden. Nonetheless, some limitations warrant acknowledgment. The use of non-probability sampling introduces potential selection bias, and the cross-sectional design prevents inference of causal relationships between academic stressors and psychological outcomes. Self-reported data may also have been subject to social desirability bias, particularly in cultural contexts where mental health disclosure is stigmatized (23).

The implications of these findings are both academic and clinical. At the academic level, institutions must prioritize mental health screening and develop accessible counseling services tailored to female students. Evidence from intervention studies supports the role of cognitive behavioral therapy, stress management workshops, and structured peer-support programs in reducing depression and anxiety among students (24). At the policy level, integration of mental health promotion into physiotherapy curricula could serve as a preventive measure, equipping students with coping strategies before symptoms escalate. Future research should explore longitudinal trajectories of depression, anxiety, and stress across academic years, while intervention trials are necessary to evaluate the efficacy of culturally adapted programs in this context.

CONCLUSION

This study identified a strikingly high prevalence of depression, anxiety, and stress among undergraduate female physiotherapy students in Lahore, with nearly three-quarters affected by depression, four-fifths by anxiety, and more than half by stress. Anxiety not only emerged as the most common condition but also showed the highest severity, with almost 40% of students classified in the extremely severe category. These findings underscore the urgent need for institutional policies and evidence-based interventions to address the psychological health of physiotherapy students. Establishing accessible counseling services, embedding mental health awareness within curricula, and promoting preventive strategies such as stress management training are critical steps toward reducing morbidity and improving academic performance. The observed trend of increasing prevalence with advancing academic years further highlights the necessity of early screening and targeted support programs to safeguard student well-being and professional development.

REFERENCES

1. Gao W, Ping S, Liu X. Gender differences in depression, anxiety, and stress among college students: a longitudinal study from China. J Affect Disord. 2020;263:292–300.
2. Mutalik NR, Moni S, Choudhari S, Bhogale GS. Depression, anxiety, stress among college students in Bagalkot: A college based study. Life. 2016;9:10.
3. Paudel S, Gautam H, Adhikari C, Yadav DK. Depression, anxiety and stress among the undergraduate students of Pokhara Metropolitan, Nepal. JNMA J Nepal Med Assoc. 2020;58(222):82–6.
4. Wheatley D. Stress, anxiety and depression. Stress Med. 1997;13(3):173–7.
5. Fawzy M, Hamed SA. Prevalence of psychological stress, depression and anxiety among medical students in Egypt. Psychiatry Res. 2017;255:186–94.
6. Mirza AA, Milaat WA, Ramadan IK, Baig M, Elmorsy SA, Beyari GM, et al. Depression, anxiety and stress among medical and non-medical students in Saudi Arabia: an epidemiological comparative cross-sectional study. Neurosciences (Riyadh). 2021;26(2):141–51.
7. Gautam D, Aryal SC, Fernando TAD, Afza T, Deepak TR, Aidee Y, et al. Prevalence of depression, anxiety & stress among first year students in physiotherapy colleges at Bangalore, India. Indian J Physiother Occup Ther. 2020;14(2):78–82.
8. Verma S, Nambiar VK. Prevalence of stress among undergraduate physiotherapy students. Natl J Med Res. 2014;4(4):4295–8.
9. Syed A, Ali SS, Khan M. Frequency of depression, anxiety and stress among the undergraduate physiotherapy students. Pak J Med Sci. 2018;34(2):468–71.
10. Mofatteh M. Risk factors associated with stress, anxiety, and depression among university undergraduate students. AIMS Public Health. 2021;8(1):36–65.
11. Othman N, Ahmad F, El Morr C, Ritvo P. Perceived impact of contextual determinants on depression, anxiety and stress: a survey with university students. Int J Ment Health Syst. 2019;13:17.
12. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behav Res Ther. 1995;33(3):335–43.
13. Rizvi F, Qureshi A, Rajput AM, Afzal M. Prevalence of depression, anxiety and stress (by DASS scoring system) among medical students in Islamabad, Pakistan. Br J Med Med Res. 2015;8(1):69–75.
14. Spiegel D, Riba MB. Managing anxiety and depression during treatment. Breast J. 2015;21(1):97–103.
15. World Medical Association. Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2013;310(20):2191–4.
16. Beiter R, Nash R, McCrady M, Rhoades D, Linscomb M, Clarahan M, et al. The prevalence and correlates of depression, anxiety, and stress in a sample of college students. J Affect Disord. 2015;173:90–6.
17. Asif S, Mudassar A, Shahzad TZ, Raouf M, Pervaiz T. Frequency of depression, anxiety and stress among university students. Pak J Med Sci. 2020;36(5):971–6.
18. Blanco V, Salmerón M, Otero P, Vázquez FL. Symptoms of depression, anxiety, and stress and prevalence of major depression and its predictors in female university students. Int J Environ Res Public Health. 2021;18(11):5845.
19. Khattak HG, Arshad H, Anwar K, Taj S, Iftikhar M, Ilyas S, et al. Frequency of depression, anxiety and stress among medical students of Rawalpindi and Islamabad. Pak J Med Health Sci. 2022;16(1):61.
20. Moutinho ILD, Maddalena NCP, Roland RK, Lucchetti ALG, Tibiriçá SHC, Ezequiel ODS, et al. Depression, stress and anxiety in medical students: a cross-sectional comparison between students from different semesters. Rev Assoc Med Bras. 2017;63(1):21–8.
21. Abbas J, Aqeel M, Abbas J, Shaher B, Jaffar A, Sundas J, et al. The moderating role of social support for marital adjustment, depression, anxiety, and stress: evidence from Pakistani working and nonworking women. J Affect Disord. 2019;244:231–8.
22. Bogardus JM, Blackinton M, Litwin B, Nelson TM, Mitchell K. Depression, anxiety, and stress in doctor of physical therapy students: analysis of incidence and lived experiences. J Phys Ther Educ. 2021;35(4):251–7.
23. Sadiq MS, Morshed NM, Rahman W, Chowdhury NF, Arafat SY, Mullick MS. Depression, anxiety, stress among postgraduate medical residents: a cross sectional observation in Bangladesh. Iran J Psychiatry. 2019;14(3):192–7.
24. De Manincor M, Bensoussan A, Smith CA, Barr K, Schweickle M, Donoghoe LL, et al. Individualized yoga for reducing depression and anxiety, and improving well-being: a randomized controlled trial. Depress Anxiety. 2016;33(9):816–28.