pISSN:2349-5707 Volume:13,Issue 5, May -2026 eISSN:2349-5715

A CROSS-SECTIONAL STUDY OF ANXIETY AND DEPRESSION AMONG MEDICAL STUDENTS OF MBBS MEDICAL COLLEGE MIRPUR A.K (PAKISTAN)

Rashad Mahmood Mirza
Professor, Department of Physiology
Asia International University, Bukhara, Uzbekistan
Email: rashadphysiology@gmail.com
https://doi.org/10.5281/zenodo.20280031

Abstract: Objective: To determine the frequency of anxiety and depression among medical students and their link to demographic factors. **Study Design:** Cross-sectional study at MBBS Medical College, Mirpur A.K. from October 2024 to July 2025. **Methods:** Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI) were used. Data were analyzed using Excel and SPSS V-23 (descriptive statistics, variance analysis, chi-square tests, $p \leq 0.05$). **Results**: Out of 591 students, 441 (74.6%) responded. Overall, 88.8% had anxiety (low 58.3%, moderate 16.1%, severe 14.3%). Depression (any level) affected 39.9% of students. Moderate to severe anxiety was higher in females (38.7%) than males (21.1%). Depression was slightly higher in females (40.9%) than males (38.9%). Third-year students, rural residents, and hostelites showed the most distress. **Conclusion:** Anxiety and depression are very common among medical students. Routine mental health screening, counselling, and stress management programs are needed in Pakistani medical institutes.

Keywords: Anxiety, Cross-sectional Study, Depression, Medical Students, Mental Health.

Introduction:

Anxiety and depression are growing public health concerns, especially among medical students. Long hours, heavy curriculum, frequent exams, and clinical pressure make students highly vulnerable to psychological distress [1,2]. Globally, about 33.8% of medical students suffer from anxiety, nearly one-third have clinically significant anxiety [2], and depression affects roughly 27–28%—higher than non-medical peers [3,4]. During COVID-19, rates rose to 45% anxiety and 48% depression worldwide [5].

In Pakistan, the situation is worse. Competitive entry and family pressure force many into medicine against their will [6,7]. Once enrolled, students face heavy workloads, frequent tests, grade pressure [7], high parental expectations [8], and financial strain [9,10] . Female students face gender-based discrimination, which may explain their higher anxiety and depression rates [11]. MBBS Medical College, Mirpur A.K. is in Azad Kashmir, Pakistan, with limited regional data. This study (October 2024–July 2025) aimed to determine anxiety and depression frequency among its medical students and associations with gender, locality, study year, age, and hostel status using BAI and BDI. Data were anonymized and analyzed using Excel and SPSS V-23.

Results:

Out of 591 enrolled students (268 males, 323 females), 441 responded (207 males, 234 females). For anxiety, 223 students participated (104 males, 119 females). For depression, 218 participated (103 males, 115 females). Female response rate was higher (53.1% vs. 46.9%). Table-I shows full demographic details.

Most participants were from urban areas (84.8%), with 15.2% rural. Most were hostelites (78.9%), with 21.1%-day scholars. The most common age group was 21–23 years (48.9%), followed by <21 years (33.2%) and 24–26 years (17.9%). Final year (5th) students had the highest participation (25.1%), followed by 2nd year (23.8%), while 4th year had the lowest (14.8%).

For depression responses, 83% were urban, 17% rural; 79.8% hostelites, 20.2% day scholars. The 21–23 years group made up 51.4%, followed by <21 years (30.7%). Fifth year students gave

pISSN:2349-5707 Volume:13,Issue 5, May -2026 eISSN:2349-5715

the most responses (31.2%), followed by 2nd year (21.1%). Third year students gave the fewest responses (15.2% for anxiety, 8.7% for depression).

Anxiety Levels (Table-I)

TABLE-I

Gender wise demographic characteristics of the respondents

Variable	Items	Anxiety Response (N = 223)			Chi-sq. test (χ^2)	Depression Response (N = 218)			Chi-sq. test (χ^2)
		Male f (%)	Female f (%)	Total (%)		Male f (%)	Female f (%)	Total (%)	
Locality	Urban	88(46.6)	101(53.4)	189(84.8)	χ^2=0.003 P=0.957	87(48.1)	94(51.9)	181(83)	χ^2=0.287 P=0.592
	Rural	16(47)	18(53)	34(15.2)		16(43.2)	21(56.8)	37(17)	
Mode of study	Hostelite	67 (38)	109(62)	176(78.9)	χ^2=24.636 P=0.00	73(41.9)	101(58.1)	174(79.8)	χ^2=9.693 P=0.002
	Day scholar	37(78.7)	10(21.3)	47(21.1)		30(68.2)	14(31.8)	44(20.2)	
Age groups	<21 years	32(43.2)	42(56.8)	74(33.2)	χ^2=3.086 P=0.214	33(49.3)	34(50.7)	67(30.7)	χ^2=3.735 P=0.155
	21-23 years	57(52.3)	52(47.7)	109(48.9)		57(50.9)	55(49.1)	112(51.4)	
	24-26 years	15(37.5)	25(62.5)	40(17.9)		13(33.3)	26(66.7)	39(17.9)	
MBBS Study years	1st year	20(42.6)	27(57.4)	47(21.1)	χ^2=50.254 P=0.00	23(50)	23(50)	46(21.1)	χ^2 =50.635 P=0.00
	2nd year	30(56.6)	23(43.4)	53(23.8)		33(71.7)	13(28.3)	46(21.1)	
	3rd year	12(35.3)	22(64.7)	34(15.2)		13(68.4)	6(31.6)	19(8.7)	
	4th year	31(93.9)	29(6.1)	33(14.8)		25(64.1)	14(35.9)	39(17.9)	
	5th year	11(19.6)	45(80.4)	56(25.1)		9(13.2)	59(86.8)	68(31.2)	

Among 223 participants, 58.3% had low anxiety, 16.1% moderate, 14.3% severe, and 11.2% no anxiety. Females had higher overall anxiety (90.8% vs. 86.5%), including more moderate (20.2% vs. 11.5%) and severe anxiety (18.5% vs. 9.6%). Rural students had slightly higher moderate and severe anxiety (20.6% each) than urban students (15.3% and 13.2%). Among hostelites, 56.8% had low anxiety, and 32.4% had moderate to severe anxiety. Day scholars had less moderate anxiety (6.4%) but more severe anxiety (17%).

The 21–23 years age group had the highest anxiety prevalence (38.5% with moderate to severe anxiety). Third year students reported the highest severe anxiety (53%), followed by 5th year (10.7%) and 4th year (9.1%).

Statistical Analysis of Anxiety:

Gender was significantly linked to anxiety ($\chi^2 = 8.165$, $p = 0.043$). Age group ($\chi^2 = 24.757$, $p < 0.001$) and MBBS study year ($\chi^2 = 84.776$, $p < 0.001$) were highly significant. Locality ($p = 0.521$) and mode of study ($p = 0.236$) were not significant.

Depression Levels (Table-II)

TABLE-II

Frequency distribution of demographic characteristics verses different Anxiety Levels (N = 223).

Variables	Items	NA (%)	LA (%)	MA (%)	SA (%)	Total (%)	Chi sq. Test (χ^2)
Gender	Male	14(13.5)	68(65.4)	12(11.5)	10(9.6)	104(46.6)	χ^2=8.165 P=0.043
	Female	11(9.2)	62(52.1)	24(20.2)	22(18.5)	119(53.4)	
Locality	Urban	22(11.6)	113(59.8)	29(15.3)	25(13.2)	189(84.8)	χ^2=2.256 P=0.521
	Rural	3(8.8)	17(50)	7(20.6)	7(20.6)	34(15.2)	
Mode of study	Hostelite	19(10.8)	100(56.8)	33(18.8)	24(13.6)	176(78.9)	χ^2=4.252 P=0.236
	Day scholar	6(12.8)	30(63.8)	3(6.4)	8(17)	47(21.1)	
Age groups	<21 years	5(6.8)	58(78.4)	6(8.1)	5(6.7)	74(33.2)	χ^2=24.757 P=0.00
	21-23 years	18(16.5)	49(45.0)	20(18.3)	22(20.2)	109(48.9)	
	24-26 years	2(5.0)	23(57.5)	10(25)	5(12.5)	40(17.9)	
MBBS Study years	1st year	5(10.6)	39(83)	3(6.4)	0	47(21.1)	χ^2=84.776 P=0.00
	2nd year	7(13.2)	36(68)	5(9.4)	5(9.4)	53(23.8)	
	3rd year	3(8.8)	3(8.8)	10(29.4)	18(53)	34(15.2)	
	4th year	7(21.2)	21(63.6)	2(6.1)	3(9.1)	33(14.8)	
	5th year	3(5.4)	31(55.3)	16(28.6)	6(10.7)	56(25.1)	

pISSN:2349-5707 Volume:13,Issue 5, May -2026 eISSN:2349-5715

Among 218 participants, 40% had some depression: borderline (6.4%), moderate (14.7%), severe (8.7%), and extreme (10.1%). Depression was slightly higher in females (40.9% vs. 38.8%), with females showing more moderate depression (20.9%). Urban students had higher depression (42.5%) than rural students (27%). Extreme depression was seen only in rural students (13.5%).

Hostelites had a higher depression burden (43.6% vs. 25%), with hostelites showing more moderate depression (18.4%). Day scholars had more severe depression (11.4%) but less extreme (4.5%). The 21–23 years age group had the highest depression prevalence (43.7%). Third year students had the highest severe to extreme depression (74%: 37% severe, 37% extreme). Fourth year students also had high rates (56.4%). First year students had the lowest (13%).

Depression Levels (Table-III)

TABLE-III

Frequency distribution of demographic characteristics verses depression levels (N = 218).

Variables	Items	No f(%)	Borderline f(%)	Moderate f(%)	Severe f(%)	Extreme f(%)	Total (%)	Chi sq. Test (χ^2)
Gender	Male	63(61.1)	7(6.8)	8(7.8)	15(14.6)	10(9.7)	103(47.2)	χ^2=14.123 P=0.007
	Female	68(59.1)	7(6.1)	24(20.9)	4(3.5)	12(10.4)	115(52.8)	
Locality	Urban	104(57.5)	14(7.7)	27(14.9)	19(10.5)	17(9.4)	181(83)	χ^2=8.535 P=0.074
	Rural	27(73)	0	5(13.5)	0	5(13.5)	37(17)	
Mode of study	Hostelite	98(56)	10(6)	32(18)	14(8.0)	20(12)	174(79.8)	χ^2=12.866 P=0.012
	Day scholar	33(75)	4(9.1)	0	5(11.4)	2(4.5)	44(20.2)	
Age groups	<21 years	45(67.2)	6(9)	10(15)	4(5.9)	2(2.9)	67(30.7)	χ^2=10.142 P=0.255
	21-23 years	63(56.3)	7(6.2)	15(13.4)	13(11.6)	14(12.5)	112(51.4)	
	24-26 years	23(59)	1(2.6)	7(17.9)	2(5.1)	6(15.4)	39(17.9)	
MBBS Study years	1st year	40(87)	4(8.7)	0	0	2(4.3)	46(21.1)	χ^2=95.043 P=0.00
	2nd year	28(60.9)	4(8.7)	8(17.4)	6(13.0)	0	46(21.1)	
	3rd year	5(26)	0	0	7(37)	7(37)	19(8.7)	
	4th year	17(43.6)	0	6(15.4)	5(12.8)	11(28.2)	39(17.9)	
	5th year	41(60.3)	6(8.8)	18(26.5)	1(1.5)	2(2.9)	68(31.2)	

Statistical Analysis of Depression:

Gender (χ^2 = 14.123, p = 0.007) and mode of study (χ^2 = 12.866, p = 0.012) were significantly linked to depression. MBBS study year was highly significant (χ^2 = 95.043, p < 0.001). Locality (p = 0.074) and age group (p = 0.255) were not significant.

Discussion:

This study found much higher anxiety rates (88.8%, with 14.3% severe) than the global estimate of 33.8% [2]. The depression rate was 39.9%. These findings match other Asian countries where medical students have higher anxiety [12]. During COVID-19, global anxiety rose to 45%, but our rates are higher, possibly due to different screening tools [1].

In Pakistan, many studies report high anxiety and depression in medical colleges [13]. A Lahore study found extremely severe anxiety in 34.6% of students [6], while a Karachi study reported anxiety as high as 92% [14]. Our finding that 3rd year students had the highest severe anxiety (53%) matches a D.G. Khan Medical College study [15]. Rural students had slightly higher moderate and severe anxiety (20.5% each) than urban students (15.3% and 13.2%), but this difference was not significant (p = 0.521). Hostelites showed more overall distress, but day scholars had less moderate anxiety (6.4%) and slightly more severe anxiety (17% vs. 13.6%), suggesting living situation alone does not fully explain anxiety differences. For depression, a Lahore study reported extremely severe depression in 26.9% of students [6] , while a Peshawar study found 19.4% depression with 26.2% borderline cases [14] . Senior students (3rd and 4th years) in our study reported higher depression, reflecting cumulative academic and clinical pressure. The significant link between mode of study and depression highlights living

pISSN:2349-5707 Volume:13,Issue 5, May -2026 eISSN:2349-5715

environment. Hostelites face isolation and lack of family support. A 2024 mixed-methods study found loneliness and feeling unsafe strongly affect mental health [16]. Day scholars benefit from family presence and daily routines.

Gender differences were clear. A 2017 meta-analysis found females had nearly twice the odds of depression (OR = 1.95) [17], with similar trends worldwide [18]. In Pakistan, female medical students face gender-based discrimination from faculty, family, and peers [6]. Statistical analysis showed that gender, age, and MBBS study year were significantly linked to anxiety, while locality and mode of study were not. For depression, gender, mode of study, and MBBS study year were significant, but locality and age group were not. These findings match global trends while providing local insight.

Conclusion:

Nearly 90% of medical students at MBBS Medical College, Mirpur A.K. suffer from anxiety and 40% from depression, with female students, hostelites, and senior years showing the most distress. Significant associations were found with gender, study year, residential status, locality, and age group. These findings highlight the urgent need for routine mental health screening, counselling services, and stress management programs in Pakistani medical colleges.

References:

1. Lin YK, Saragih ID, Lin CJ, Liu HL, Chen CW, Yeh YS. Global prevalence of anxiety and depression among medical students during the COVID-19 pandemic: A systematic review and meta-analysis. BMC Psychol. 2024 Jun 10;12(1):338.

2. Tian-Ci Quek T, Wai-San Tam WX, Tran B, Zhang M, Zhang Z, Su-Hui Ho C, et al. The global prevalence of anxiety among medical students: A meta-analysis. Int J Environ Res Public Health. 2019 Aug;16(15):2735.

3. Li W, Zhao Z, Chen D, Peng Y, Lu Z. Prevalence and associated factors of depression and anxiety symptoms among college students: A systematic review and meta-analysis. J Child Psychol Psychiatry. 2022 Nov;63(11):1222-30.

4. Wang Q, Zhang B, Zhang S, Wei C, Fu D, Zhao H, et al. Anxiety and depression and their interdependent influencing factors among medical students in Inner Mongolia: the cross-sectional survey. BMC Med Educ. 2022 Nov 14;22(1):787.

5. Mirza AA, Baig M, Beyari GM, Halawani MA, Mirza AA. Depression and anxiety among medical students: A brief overview. Adv Med Educ Pract. 2021 Apr 21; 12:393-8.

6. Arif AN, Iram MI, Nofal SA, Sohail AI, Riaz BI, Ahmed SA. Prevalence of depression, anxiety and stress in medical students, interns, and residents in Pakistan. Stress. 2021 Sep 1; 19:25.

7. Zafar R, et al. Prevalence of anxiety and depression in medical students of a public sector medical college in Islamabad and coping mechanisms adopted. J Pak Med Assoc. 2022;72(3):540. doi:10.47391/jpma.2107

8. Kumar B, Shah MA, Kumari R, Kumar A, Kumar J, Tahir A, et al. Depression, anxiety, and stress among final-year medical students. Cureus. 2019 Mar 16;11(3): e4257.

9. Waheed A, Afridi AK, Rana M, Arif M, Barrera T, Patel F, et al. Knowledge and behavior of primary care physicians regarding utilization of standardized tools in screening and assessment of anxiety, depression, and mood disorders at a large integrated health system. J Prim Care Community Health. 2024 Feb; 15:21501319231224711.

10. Khan MN, Akhtar P, Ijaz S, Waqas A. Prevalence of depressive symptoms among university students in Pakistan: A systematic review and meta-analysis. Front Public Health. 2021 Jan 8; 8:603357.

11. Sartorio Filho CI, de Las Villas Rodrigues WC, de Castro RB, Marçal AA, Pimelautides S, Takano L, et al. Impact of COVID-19 pandemic on mental health of medical

pISSN:2349-5707 Volume:13,Issue 5, May -2026 eISSN:2349-5715

students: A cross-sectional study using GAD-7 and PHQ-9 questionnaires. MedRxiv. 2020 Jun 25;2020-06.

12. Patel SV, Hart L, Booth G, Rotunda W, Kugley S, Pilar M, et al. Implementing screening and counseling for adolescent mental health and substance use. Pediatrics. 2025 Jul 1;156(1): e2024070314.

13. Thiemann P, Brimicombe J, Benson J, Quince T. When investigating depression and anxiety in undergraduate medical students timing of assessment is an important factor: a multicentre cross-sectional study. BMC Med Educ. 2020 Apr 23;20(1):125.

14. Kumari U, Dawani N, Devnani J, Qureshi MF, Soleja FK, Mohammad D, et al. Depression among medical students of Karachi: a cross-sectional study. MedEdPublish. 2019 Sep 18; 8:181.