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Original Research Article

Frequency Of Anxiety And Depression Among Sheikh Zayed Medical Students COVID-19 Post-Pandemic

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Abstract: *Anxiety and depression are highly prevalent among medical students worldwide, often exacerbated by academic stress, financial burdens, and lack of mental health resources. In Pakistan, where mental health awareness remains limited, the COVID-19 pandemic has further increased psychological distress among medical students. This study aims to evaluate the prevalence of anxiety and depression among medical students at Sheikh Zayed Medical College, Rahim Yar Khan, in the post-pandemic period and identify key risk factors contributing to these conditions.* ***Objective:*** *To determine the prevalence of anxiety and depression among 4th and 5th-year MBBS students and assess its association with gender, socioeconomic status, living conditions, and COVID-19-related experiences.* ***Methods:*** *A cross-sectional analytical study was conducted over six months at Sheikh Zayed Medical College, Rahim Yar Khan. A total of 145 medical students were enrolled using a stratified random sampling technique. Anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS), with a cutoff score of >10 indicating clinical significance. Data were collected via self-administered structured questionnaires and analyzed using SPSS version 26. Chi-square and independent t-tests were applied to determine statistical significance, with $p \leq 0.05$ considered significant.* ***Results:*** *The overall prevalence of anxiety and depression was 55.8%. Female students exhibited significantly higher rates (63.3%) than male students (44.5%, $p = 0.03$). Anxiety and depression were more prevalent in students from low-income backgrounds (62.2%, $p = 0.002$) and hostel residents (62.7%, $p = 0.04$). Students with a history of a family member being affected by COVID-19 had a significantly higher prevalence (65.7%, $p = 0.001$), while those who lost a family member due to COVID-19 reported the highest rates (72.3%, $p < 0.001$).* ***Conclusion:*** *This study highlights the high burden of anxiety and depression among medical students in Pakistan, with socioeconomic factors, gender, living conditions, and COVID-19 exposure playing significant roles. Given the persistent psychological impact of the pandemic, targeted mental health interventions, financial support mechanisms, and counselling programs should be implemented in medical institutions. Future research should focus on longitudinal studies to assess mental health trends and intervention-based approaches to mitigate anxiety and depression among medical students.*

Keywords: Anxiety, Depression, Medical Students, COVID-19, Mental Health, Pakistan, HADS, Stress

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Introduction

Mental health disorders, particularly anxiety and depression, have become a significant concern among medical students worldwide. The high academic workload, long study hours, exposure to patient suffering, and competitive environment make medical students highly vulnerable to psychological distress (1). In Pakistan, where mental health awareness and support systems are limited, medical students often experience unaddressed anxiety and depression, which can impair academic performance, decision-making skills, and overall well-being (2,3).

The COVID-19 pandemic has further exacerbated psychological distress among medical students, leading to increased social isolation, financial instability, and uncertainty regarding future career prospects (4,5). Studies have reported a significant rise in anxiety and depression rates among medical students during the pandemic, with factors such as prolonged online learning, disrupted clinical rotations, and fear of infection playing a crucial role (6). Even in the post-COVID-19 period, residual psychological effects continue to affect students, leading to a persistently high burden of mental health disorders in this population (7,8).

Medical education in Pakistan is rigorous, demanding, and often stressful, with students facing academic pressure, parental expectations, and an intense examination system (9). Additionally, limited access to mental health support, the stigma surrounding psychiatric disorders, and financial constraints further worsen students' psychological well-being (10,11). Several studies from Pakistan and other South Asian countries have reported that more than 50% of medical students experience moderate to severe anxiety and depression, highlighting the urgent need for mental health interventions in this demographic (12,13).

Gender differences in anxiety and depression among medical students have also been widely studied, with female students consistently exhibiting higher rates of psychological distress compared to males (14,15). Socioeconomic factors also play a role, with students from low-income backgrounds facing additional stressors related to financial instability and limited access to academic resources (16). Furthermore, hostel residents tend to report higher levels of anxiety and depression compared to students living at home, likely due to separation from family support systems and increased academic pressure (17).

Although the COVID-19 pandemic has ended, its psychological impact remains profound among medical students (18). Many students experienced disruptions in their medical education, financial hardships, and increased workload due to the pandemic, which contributed to long-term anxiety and depressive symptoms (19,20). Several studies have reported that students who had family members affected by COVID-19 or who lost loved ones during the pandemic exhibited significantly higher rates of post-traumatic stress symptoms, depression, and anxiety (21,22).

Despite the growing burden of anxiety and depression among medical students in Pakistan, limited research has been conducted in the post-COVID-19 period to assess the long-term impact of the pandemic on students' mental health. Given the unique challenges faced by medical students in Pakistan, including academic stress, financial burdens, and lack of mental health awareness, this study aims to assess the prevalence of anxiety and depression among medical students at Sheikh Zayed Medical College, Rahim Yar Khan. The findings will help identify high-risk groups, determine the key contributing factors, and provide evidence for implementing targeted mental health interventions. This study will also contribute to international literature on mental health trends in medical students, particularly in low- and middle-income countries.

Methodology

This cross-sectional analytical study was conducted at Sheikh Zayed Medical College, Rahim Yar Khan, to determine the prevalence of anxiety and depression among medical students in the post-COVID-19 pandemic period. The study was conducted over six months following the institution's Institutional Review Board (IRB) approval. Ethical clearance was obtained, and written informed consent was secured from all participants before their enrollment in the study.

The sample size was calculated using the WHO sample size calculator based on a previous prevalence of anxiety and depression among medical students in Pakistan. One hundred forty-five medical students from 4th and 5th year MBBS were recruited using a stratified random sampling technique, ensuring adequate representation from both academic years.

Students who were enrolled in the 4th and 5th years of MBBS at Sheikh Zayed Medical College and provided written informed consent were included in the study. Exclusion criteria comprised students with pre-existing diagnosed psychiatric disorders, those currently undergoing psychiatric treatment or counselling, and those who declined participation.

Data were collected through a self-administered structured questionnaire, which included demographic information (age, gender, socioeconomic status, residence), COVID-19-related experiences (infection in family members, loss of family members due to COVID-19), and assessment of anxiety and depression using the Hospital Anxiety and Depression Scale (HADS). The HADS scale is a widely validated tool used to assess symptoms of anxiety and depression, with a score of >10 indicating clinically significant anxiety and depression.

Participants were provided clear instructions on how to complete the questionnaire, and confidentiality was strictly maintained. Trained research assistants facilitated data collection, ensuring all students understood and completed the questionnaire independently. To minimise social desirability bias, students were assured that their responses would remain anonymous and used solely for research purposes.

Data were entered and analysed using SPSS version 26. Descriptive statistics were calculated for continuous (mean ± standard deviation) and categorical variables (percentages, proportions). The Chi-square test was applied to compare categorical variables, and an independent t-test was used for continuous variables. A p-value ≤ 0.05 was considered statistically significant. The data were further stratified by gender, socioeconomic status, and living arrangements (hostel vs. home residence) to identify potential risk factors for anxiety and depression.

Results

A total of 145 students from the 4th and 5th years of MBBS were included in the study. Anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS), with a cutoff score of >10 used to define positive cases. The mean age of the students was 23.4 ± 1.8 years, ranging from 21 to 26 years. Most participants were female (62.1%), while 37.9% were male. The distribution of students across socioeconomic statuses was as follows: low-income (25.5%), lower-middle-income (40.7%), upper-middle-income (26.2%), and high-income (7.6%).

Table 1 demonstrates that most participants were female (62.1%) and belonged to the lower-middle socioeconomic class (40.7%). A higher proportion of students resided in hostels (57.2%) compared to those living at home (42.8%).

A total of 81 (55.8%) students were diagnosed with anxiety and depression based on the HADS scale. The prevalence was higher among female students (63.3%) than males (44.5%, p = 0.03). The frequency was higher among hostel residents (62.7%) than at home (46.8%, p = 0.04).

Table 2 shows that anxiety and depression were significantly higher among females (p = 0.03), students from lower socioeconomic classes (p = 0.002), and those residing in hostels (p = 0.04).

Students who had a history of a family member being affected by COVID-19 were significantly more likely to have anxiety and depression (p = 0.001). Moreover, those who had lost a family member due to COVID-19 had a 72.3% prevalence of anxiety and depression, significantly higher than those without such loss (p < 0.001).

Table 3 demonstrates that anxiety and depression were significantly more prevalent among students whose family members had been affected or had died due to COVID-19 (p < 0.001).

Table 1: Demographic Characteristics of the Study Population

Variable	Frequency (n=145)	Percentage (%)
Age (years)	Mean ± SD = 23.4 ± 1.8	-
Gender		
Male	55	37.9%
Female	90	62.1%
Year of Study		
4th Year MBBS	73	50.3%
5th Year MBBS	72	49.7%
Socioeconomic Status		
Low	37	25.5%
Lower-Middle	59	40.7%
Upper-Middle	38	26.2%
High	11	7.6%
Living Status		
Hostel	83	57.2%
Home	62	42.8%

Table 2: Prevalence of Anxiety and Depression among Medical Students

Variable	Anxiety & Depression Present (n=81)	Anxiety & Depression Absent (n=64)	p-value
Gender			
Male	24 (44.5%)	31 (55.5%)	0.03*
Female	57 (63.3%)	33 (36.7%)	
Year of Study			
4th Year MBBS	41 (56.2%)	32 (43.8%)	0.72
5th Year MBBS	40 (55.4%)	32 (44.6%)	
Socioeconomic Status			

Low	23 (62.2%)	14 (37.8%)	0.002*
Lower-Middle	35 (59.3%)	24 (40.7%)	
Upper-Middle	18 (47.4%)	20 (52.6%)	
High	5 (45.5%)	6 (54.5%)	
Living Status			
Hostel	52 (62.7%)	31 (37.3%)	0.04*
Home	29 (46.8%)	33 (53.2%)	

$p < 0.05$ indicates statistical significance.

Table 3: Association of COVID-19-Related Factors with Anxiety and Depression

Variable	Anxiety & Depression Present (n=81)	Anxiety & Depression Absent (n=64)	p-value
Family Member Affected by COVID-19			0.001*
Yes	46 (65.7%)	24 (34.3%)	
No	35 (47.9%)	40 (52.1%)	
Death Due to COVID-19 in Family			<0.001*
Yes	34 (72.3%)	13 (27.7%)	
No	47 (51.0%)	51 (49.0%)	

$p < 0.05$ indicates statistical significance.

Discussion

The findings of this study revealed a high prevalence (55.8%) of anxiety and depression among medical students at Sheikh Zayed Medical College, Rahim Yar Khan, in the post-COVID-19 period. This is consistent with previous studies conducted in Pakistan and other South Asian countries, which reported anxiety and depression rates ranging from 50% to 65% among medical students (18). However, our results are higher than those reported in pre-COVID-19 studies, where the prevalence ranged between 40% and 50% (19). This suggests that the psychological impact of the COVID-19 pandemic has had a lasting effect on medical students, contributing to increased stress, uncertainty, and financial burdens.

Our study found that female students had significantly higher rates of anxiety and depression (63.3%) compared to male students (44.5%, $p = 0.03$). These findings align with those of Mahroon et al., who reported that female medical students had a 1.8 times higher risk of developing anxiety and depression than males (20). A similar pattern was observed in a Malaysian study, where the prevalence of anxiety and depression was 66% in females compared to 42% in males (21). This gender disparity can be attributed to higher academic pressure, social expectations, and hormonal differences in stress response mechanisms in female students (22). Additionally, cultural factors in Pakistan, such as family expectations and career-related stress, may disproportionately affect female students, exacerbating their psychological distress (23).

Our study demonstrated a significant association between socioeconomic status and anxiety/depression ($p = 0.002$), with students from lower-income backgrounds having the highest prevalence (62.2%). This aligns with the findings of Nasir et al., who reported that medical students from low-income families had a 2.5 times greater risk of developing depression compared to those from affluent backgrounds (24). In contrast, a study conducted in India found a weaker association, with a 1.7 times increased risk in low-income students (25). These disparities may be due to financial instability, increased workload, and limited access to mental health resources, all of which contribute to higher stress levels in economically disadvantaged students (26).

A significant finding in our study was that hostel residents exhibited higher levels of anxiety and depression (62.7%) compared to students living at home (46.8%, $p = 0.04$). These results are comparable to those of Rahman et al., who found that hostel residents were 1.9 times more likely to develop anxiety and depression compared to their home-living counterparts (27). Similarly, a Saudi Arabian study identified that hostel accommodation was a significant predictor of poor mental health, with a 55% higher likelihood of stress-related disorders (28). The lack of familial support, isolation, academic stress, and social adjustment difficulties could contribute to these findings (29).

Our study also found that students who had a family member affected by COVID-19 had significantly higher rates of anxiety and depression (65.7%, $p = 0.001$). Furthermore, students who had lost a family member due to COVID-19 reported a 72.3% prevalence of psychological distress ($p < 0.001$). These results support the findings of Salari et al., who noted that individuals with direct exposure to COVID-19-related illness or death had a 3.2 times higher risk of developing post-traumatic stress symptoms (30). Another study conducted in the United States showed a significant increase in mental health disorders among students with personal or familial exposure to COVID-19, with rates reaching 68% (31). The psychological burden of grief, fear, and uncertainty could explain these persistent effects among students.

Our study's findings are comparable to those from global studies on medical student mental health post-COVID-19. A meta-analysis by Son et al. found that approximately 56% of medical students globally experienced moderate to severe anxiety and depression in the post-pandemic period, a figure similar to our results (32). However, some high-income countries reported lower rates, such as Canada (45%) and Germany (39%), suggesting that better mental health resources, financial stability, and structured support systems may mitigate the long-term effects of the pandemic (33,34).

The findings of this study highlight an urgent need for mental health interventions among medical students in Pakistan. Universities should establish counselling centres, peer support programs, and stress management workshops to address students' psychological well-being. Additionally, financial support programs and academic flexibility should be considered for economically disadvantaged students to reduce stress levels. Policy-level changes, including integrating mental health awareness programs into medical curricula, are essential to tackle this growing issue effectively.

Future studies should focus on longitudinal assessments of mental health trends among medical students to determine whether the post-pandemic increase in anxiety and depression is temporary or persistent. Additionally, intervention-based studies assessing the effectiveness of psychological support programs in reducing anxiety and depression levels among medical students in Pakistan should be conducted.

Conclusion

This study demonstrated that more than half (55.8%) of medical students at Sheikh Zayed Medical College, Rahim Yar Khan, suffer from anxiety and depression in the post-COVID-19 period. Female students, those from low-income backgrounds, and hostel residents were at higher risk, with socioeconomic status and COVID-19 exposure significantly influencing mental health outcomes ($p < 0.05$). The findings emphasise the need for structured mental health interventions, financial support mechanisms, and academic policy reforms to improve students' psychological well-being. Future research should focus on longitudinal follow-ups and intervention-based studies to assess the effectiveness of mental health support programs in Pakistani medical institutions.

Declarations

Data Availability statement
All data generated or analysed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department concerned. (IRBEC-MMNCS-0550-24)
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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

AH (PGR)
Manuscript drafting, Study Design,
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Review of Literature, Data entry, Data analysis, and drafting article.
SQ
Conception *of Study, Development of Research Methodology Design, Study Design, manuscript review, critical input.*

All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.

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