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PREVALENCE OF DEPRESSION, ANXIETY, AND STRESS IN POSTGRADUATE RESIDENTS: A STUDY FROM MARATHWADA, MAHARASHTRA

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Abstract

Background: Mental health issues among medical postgraduate residents are increasingly recognized due to their impact on well-being and professional performance. This study investigates the prevalence of depression, anxiety, and stress among postgraduate medical residents in Marathwada, Maharashtra, and examines associated factors.

Methods: A cross-sectional study was conducted from January to March 2024, involving 120 postgraduate medical residents selected via simple random sampling. The Depression Anxiety Stress Scales (DASS-21) were used to assess mental health, while additional demographic and socio-economic data were collected. Statistical analysis was performed using SPSS version 25.0, with significance set at $p < 0.05$.

Results: The prevalence of depression, anxiety, and stress among the residents was 30.83%, 40.83%, and 40%, respectively. Paraclinical residents reported higher levels of mental health issues compared to clinical residents. Significant associations were found between mental health issues and socio-economic status, parental education, and physical activity levels. Residents from higher socio-economic classes and those with more educated parents had lower levels of depression and anxiety. Physical activity showed mixed effects, with moderate/vigorous activity linked to higher anxiety.

Conclusion: The study highlights a substantial mental health burden among postgraduate medical residents, particularly among paraclinical residents. Socio-economic status, parental education, and physical activity are significant factors influencing mental health. Targeted interventions, stress reduction programs, and supportive environments are essential to improve the mental well-being of medical residents.

Keywords: Depression, Anxiety, Stress, Postgraduate Medical Residents, Marathwada, Socio-Economic Status, Parental Education, Physical Activity.

Introduction

Mental health issues among medical postgraduate residents have garnered increasing attention due to their significant implications on personal well-being and professional performance. The prevalence of depression, anxiety, and stress in this population is notably higher compared to the general public, indicating a unique set of challenges faced by these individuals. Medical training is inherently

stressful, often exacerbated by long working hours, high expectations, and a demanding work environment. A study conducted in Bangladesh found that 11.5% of postgraduate medical residents experienced depressive disorders, 11% had anxiety disorders, and 10.5% suffered from stress disorders. Severe to extremely severe depression, anxiety, and stress were present in 6%, 3.5%, and 6.5% of the residents, respectively[1].

Similarly, research from India reported a high prevalence of depression (27.71%), anxiety (36.58%), and stress (24.24%) among resident doctors, highlighting significant associations with factors such as junior residency status, long duty hours, and lack of job satisfaction[2]. Moreover, a study in Pakistan revealed that 26.9% of medical trainees had extremely severe depression, 34.6% had extremely severe anxiety, and 12.5% experienced severe stress, suggesting the pervasive nature of these issues across different regions and training systems[3]. The correlation between mental health disorders and academic performance is also evident. Research involving medical trainees in Saudi Arabia showed that factors like failing promotion exams and being in specific specialties significantly increased the risk of depression and anxiety[4].

This study aims to investigate the prevalence of depression, anxiety, and stress among postgraduate medical residents in Marathwada, Maharashtra. Understanding the extent of these mental health issues and identifying associated factors can help in developing targeted interventions to support the mental well-being of these healthcare professionals.

Methods

This cross-sectional study was conducted to assess the prevalence of depression, anxiety, and stress among postgraduate medical residents at a tertiary care institute in Marathwada, Maharashtra. The study was carried out over a three-month period, from January to March 2024. A total of 120 postgraduate medical residents participated in the study. The sample consisted of 60 clinical residents and 60 residents from clinical and paraclinical specialties. Participants were selected using simple random sampling to ensure a representative sample of the resident population.

Data were collected through a structured, self-administered questionnaire, which included the Depression Anxiety Stress Scales (DASS-21) to measure the levels of depression, anxiety, and stress. The DASS-21 is a well-validated instrument consisting of 21 items, with 7 items each for assessing depression, anxiety, and stress. The responses were recorded on a 4-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). In addition to the DASS-21, the questionnaire also gathered demographic information, including age, gender, academic year, and residence status (urban or rural). Socio-economic status was determined based on the modified Kuppuswamy scale, and educational background information was collected for both parents to explore any potential correlations. The collected data were entered into a database and analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics were used to summarize the demographic characteristics of the participants. The chi-square test was applied to determine the association between categorical variables, and p-values less than 0.05 were considered statistically significant.

Results

A total of 120 postgraduate medical residents participated in the study, comprising 60 clinical residents and 60 paraclinical residents. The mean age of the participants was 21.20 years (SD ± 0.10). The distribution of residents across academic years was as follows: 39 residents in their 1st year, 39 in their 2nd year, and 42 in their 3rd year. The majority of the residents (83) were from urban areas, while 37 were from rural areas.

The overall prevalence rates of depression, anxiety, and stress among the residents were found to be 30.83%, 40.83%, and 40% respectively. Specifically, 20% of clinical residents and 41.67% of paraclinical residents reported symptoms of depression, 31.67% of clinical residents and 50% of paraclinical residents experienced anxiety, and 21.67% of clinical residents and 58.33% of paraclinical residents reported stress.

There was a significant association between socio-economic status and the prevalence of mental health issues. Residents from Class 1 socio-economic status had a higher prevalence of depression ($\chi^2 = 29.0083$, $p < 0.00001$). The education level of residents' mothers showed a significant correlation with depression rates. Residents whose mothers had education up to postgraduate levels had a lower prevalence of depression compared to those whose mothers had education up to high school ($\chi^2 = 5.0764$, $p = 0.0242$). Similarly, the father's education level also showed a significant association with depression ($\chi^2 = 4.91$, $p = 0.0267$).

Table 1: Demographic Characteristics of Postgraduate Medical Residents

VARIABLE		**Clinical**	**Non/ para clinical**	**TOTAL**	χ^2	**p value**
Age(years)		21.24	21.16		0.27206	0.78616
Academic year	1st year	21	18	39	0.967	0.6166
	2nd year	17	22	39		
	3rd year	22	20	42		
Residence	urban	43	40	83	0.3517	0.5531
	rural	17	20	37		
socio-economic status	Class 1	50	21	71	29.0083	**0.00001**
	below class1	10	39	49		
Mother's education	Up to high school	17	29	46	5.0764	0.0242
	Up to post graduate	43	31	74		
Father's education	Up to high school	18	8	26	4.91	0.0267
	Up to post graduate	42	52	94		

There was a significant association between MET minutes and the prevalence of mental health issues. Residents engaged in light intensity activities had a lower prevalence of stress compared to those engaged in moderate/vigorous activities ($\chi^2 = 5$, $p = 0.0253$).

Table 2: Association Between MET Minutes and Mental Health Issues

MET Minutes	**Clinical**	**%**	**Non/ para clinical**	%	χ^2	**p value**
Light intensity	42	70.00%	30	50.00%	5	**0.0253**
moderate /vigorous	18	30.00%	30	50.00%		

The prevalence of underweight, normal weight, and overweight residents was 20%, 31.7%, and 48.3% among clinical residents, and 18.3%, 56.7%, and 25% among paraclinical residents respectively. A significant association was observed between BMI and anxiety levels ($\chi^2 = 8.7433$, $p = 0.0126$). WHR did not show a significant association with depression, anxiety, or stress levels. However, a trend towards higher stress levels was observed in residents with an abnormal WHR ($\chi^2 = 2.9813$, $p = 0.0842$).

Table 3: Comparison of Physical Measurements and Mental Health Status

VARIABLES		**Clinical residents**	**%**	**Non/ para clinical**	**%**	χ^2	**p value**
Height		1.590(±0.060)		1.575(±0.065)		0.8	0.4
Weight		56.00(±10.50)		53.00(±9.20)		1.3	0.21

BMI	Underweight	12	20.0	11	18.3	8.7433	0.0126
	Normal	19	31.7	34	56.7		
	Overweight	29	48.3	15	25		
Waist Circumference		78.00(±9.00)		74.80(±9.10)		0.9946	0.3224
Hip Circumference		97.00(±9.10)		92.50(±9.00)		1.4179	0.15944
WHR	Normal	42	70	50	83.3	2.9813	0.0842
	Obese	18	30	10	16.7		

Comparing clinical and paraclinical residents, paraclinical residents had significantly higher levels of depression ($\chi^2 = 6.6037$, $p = 0.0101$), anxiety ($\chi^2 = 4.1736$, $p = 0.041$), and stress ($\chi^2 = 16.8056$, $p < 0.000041$).

Table 4: Prevalence of Depression, Anxiety, and Stress Among Clinical and Non-Clinical Residents

DASS CATEGORY		**Clinical**	**%**	**Non/ para clinical**	%	χ^2	**p value**
Depression	Yes	12	20.00%	25	41.67%	6.6037	0.0101
	No	48	80.00%	35	58.33%		
Anxiety	Yes	19	31.67%	30	50.00%	4.1736	0.041
	No	41	68.33%	30	50.00%		
Stress	Yes	13	21.67%	35	58.33%	16.8056	0.000041
	No	47	78.33%	25	41.67%		

The findings indicate a high prevalence of mental health issues among postgraduate medical residents, with paraclinical residents experiencing higher levels of depression, anxiety, and stress compared to their clinical counterparts. Socio-economic status, parental education, and physical activity levels were significant factors influencing the mental health of the residents.

Discussion

The results of our study indicate significant levels of depression, anxiety, and stress among postgraduate medical residents, aligning with previous research conducted in India. In our study, 30.83% of the residents experienced depression, 40.83% experienced anxiety, and 40% experienced stress. These findings are consistent with a study conducted in Gujarat, where 27.71% of resident doctors experienced depression, 36.58% experienced anxiety, and 24.24% experienced stress[2]. Similarly, a study in Hyderabad reported mild and moderate levels of anxiety in 10.8% and 5.4% of postgraduates, respectively, and moderate levels of stress in 1.35% of the participants[5].

Our study revealed that non-clinical residents reported higher levels of depression (41.67%), anxiety (50%), and stress (58.33%) compared to their clinical counterparts. This trend was also observed in a study from Karnataka, which found that non-clinical residents experienced higher stress levels than clinical residents[6]. Additionally, our findings showed a significant association between socio-economic status and mental health, with residents from higher socio-economic classes experiencing lower levels of depression, anxiety, and stress. This observation is supported by research in Puducherry, which demonstrated that socio-economic factors significantly influenced stress and anxiety levels among medical students[7].

The education level of residents' parents was also significantly associated with their mental health. Residents whose parents had higher education levels reported lower levels of depression and anxiety, similar to findings from a study in Delhi, which noted that students with better-educated parents had lower levels of depression and anxiety [8]. Furthermore, our study found that residents engaged in moderate to vigorous physical activity had higher levels of anxiety, and a significant association was observed between BMI and anxiety levels. This is consistent with findings from a study in Central

India, which reported that physical activity levels significantly influenced stress and anxiety among medical residents[9].

The prevalence of depression, anxiety, and stress among postgraduate medical residents in our study reflects a significant mental health burden, consistent with findings from other regions in India. Factors such as socio-economic status, parental education, and physical activity levels play crucial roles in influencing these mental health outcomes. The higher prevalence of mental health issues among non-clinical residents highlights the need for targeted interventions to address their unique challenges. Implementing stress reduction programs, providing mental health support, and fostering a supportive training environment are essential steps to mitigate these issues and promote the well-being of medical residents.

Conclusion

Our study highlights a significant prevalence of depression, anxiety, and stress among postgraduate medical residents in Marathwada, Maharashtra. The findings reveal that 30.83% of the residents experienced depression, 40.83% experienced anxiety, and 40% experienced stress. Non-clinical residents reported higher levels of these mental health issues compared to their clinical counterparts. Factors such as socio-economic status, parental education, and physical activity levels were found to have a substantial impact on the mental health of the residents.

The higher prevalence of mental health issues among non-clinical residents suggests the need for targeted interventions to address their specific challenges. Strategies to mitigate stress, promote mental well-being, and provide robust support systems are crucial for improving the mental health of medical residents. This includes implementing stress reduction programs, offering mental health support, and creating a supportive training environment.

Despite these important findings, our study has several limitations. First, the cross-sectional design limits the ability to establish causality between the identified factors and mental health outcomes. Second, the reliance on self-reported data may introduce bias, as participants might underreport or overreport their symptoms. Third, the study was conducted in a single tertiary care institute in Marathwada, which may limit the generalizability of the results to other regions or institutions. Future research should consider longitudinal designs, include multiple institutions, and utilize objective measures to validate the findings.

Conflict of interest

The authors declare no conflict of interest.

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