



DEPRESSION, ANXIETY AND BURNOUT AMONG MEDICAL RESIDENTS – A CROSS SECTIONAL STUDY IN A MEDICAL COLLEGE OF RAJASTHAN, INDIA

Dr. Aditi Mahajan

Junior Resident, Department of Psychiatry, Sardar Patel Medical College, Bikaner, Rajasthan.

Dr. Harful Singh

Professor, Department of Psychiatry, Sardar Patel Medical College, Bikaner, Rajasthan.

Dr. Radheshyam

Medical Officer (Psychiatry), JLN Hospital, Nagaur, Rajasthan.

Dr. Isha Choudhary*

Junior Resident, Department of Psychiatry, Sardar Patel Medical College, Bikaner, Rajasthan. *Corresponding Author

ABSTRACT

Background – The high rates of anxiety, depression and burnout are prevalent globally, especially among medical residents due to academic stressors like information overload and limited leisure time, as consistently reported in numerous studies. **Aim** – To assess the prevalence of depression, anxiety and burnout among medical residents and to find out correlation between depression, anxiety and burnout and factors precipitating them. **Materials and Methods**- This cross-sectional study was carried out at S.P Medical College, Bikaner. A total of 60 residents who were willing to participate were enrolled in the study. Following the acquisition of informed written consent, they were provided semi-structured proforma and self-reporting questionnaires (PHQ-9, GAD-7 and Maslach Burnout Inventory). **Results**- In our study, out of the 60 participants, symptoms of depression were present in 36 (60%), which were statistically significant (p value < 0.05) in unmarried, lacking extracurricular activities, with a history of benzodiazepine/ antidepressant/ psychotropic drug use, gone through recent major life event, suicidal thoughts and anxiety. Similarly, anxiety was present in 38 (63.3%) and was statistically significant (p value < 0.05) in unmarried, those lacking extracurricular activities and with suicidal thoughts. Burnout was present in 24 (40.0%) and was statistically significant (p value < 0.05) among those who had sleep < 6 hours, had suicidal thoughts, with no extracurricular activities and with depersonalization. **Conclusions**- The study found that a significant number of residents were experiencing symptoms of depression, anxiety and burnout, highlighting the pressing need for immediate attention.

KEYWORDS : Depression, Anxiety, Burnout, PHQ-9, GAD-7, Maslach Burnout Inventory

INTRODUCTION

Medical education is an extensive and demanding journey, both physically and emotionally.^[1] Studies suggest that the current educational process may unintentionally impact students' mental well-being, leading to heightened prevalence of depression, anxiety, and stress among medical students.^[2] Post graduate students form a sizeable chunk of the health care professionals and face substantial responsibilities along with challenging working hours, sleep deprivation, and frequent exposure to emotionally charged situations.^[3] Additional stressors include academic pressure, financial concerns and personal life events contributing to suboptimal academic performance, academic dishonesty, cynicism (manifested as an unwillingness to care for the chronically ill and decreased empathy), substance abuse, and serious mental illnesses like depression, anxiety, and burnout.^[1,2] A systematic review of 183 studies from 43 countries revealed crude prevalence of depression among medical students approximately 27.2% with 11.1% prevalence of suicidal ideation.^[4]

Burnout is defined as a psychological syndrome resulting from prolonged exposure to workplace stressors, encompassing emotional exhaustion, depersonalization, and reduced personal accomplishment. Emotional exhaustion entails an overwhelming sense of fatigue and depletion of emotional resources due to repeated encounters with workplace stressors. Depersonalization involves adopting a detached attitude towards one's professional duties, fostering a distance between the healthcare provider and their patients. Reduced personal efficacy reflects a perception of inefficacy in professional responsibilities, accompanied by a sense of low self-esteem.^[1]

Aims and Objectives

To assess the prevalence of depression, anxiety and burnout among medical residents and to find out correlation between

depression, anxiety and burnout and factors precipitating them.

MATERIAL AND METHODS

Study Settings

This study was conducted at Sardar Patel Medical College and Associated Group of Hospitals, Bikaner, Rajasthan between March 2023 and May 2023. The study population included medical Residents.

Study Design

Cross sectional, Observational study.

Inclusion Criteria

Medical Residents who gave written informed consent and were willing to participate in the study.

Exclusion Criteria

Not willing to participate in the study.

Study Tools

- 1) A semi-structured proforma consisting of socio-demographic details, behavioural and clinical factors likely predisposing to depression, anxiety and burnout. Behavioural factors encompassed history of substance use, engagement in extracurricular activities, and sleep duration. Meanwhile, clinical factors comprised personal or family history of any psychiatric disorder or other chronic illness, thoughts of dropping out from profession, satisfaction with chosen post-graduation branch, any thoughts of committing suicide or recently gone through major personal life event.^[1]
- 2) PHQ-9 (Public Health Questionnaire) is a validated questionnaire employed for depression screening. It utilises designated cut-off scores to categorise depression severity: 1-4 for minimal depression, 5-9 for mild depression, 10-14 for moderate depression, 15-19 for moderately severe depression and 20-27 for severe depression.^[5]
- 3) GAD-7 (Generalised Anxiety Disorder 7-item score)

assesses anxiety severity through a total score derived from seven items, ranging from 0 to 21. Cut-off scores for anxiety severity are: 0-4 for minimal anxiety, 5-9 for mild anxiety, 10-14 for moderate anxiety and 15-21 for severe anxiety.^[5]

- 4) Maslach Burnout Inventory (MBI) stands as the prevailing self-completion questionnaire for assessing burnout. It was designed to evaluate the three subdimensions, and consists of 22 items divided into three subscales. The emotional exhaustion (EE) subscale evaluates the complaints about feeling on edge and exhausted by work. The depersonalization (DP) subscale measures impersonal responses and lack of empathy during professional activity, while the reduced personal accomplishment (PA) subscale evaluates the feelings of competence and achievement of success at work.^[6]

METHODOLOGY

To facilitate data collection, the study was briefly introduced and its objectives were explained, and participant queries were addressed. Participants were instructed to select questionnaire items reflecting their recent feelings from the past week to reduce recall bias. Subsequently, they were handed over the semi-structured proforma consisting of socio-demographic details, behavioural and clinical factors and self-reporting questionnaires PHQ-9, GAD-7 and Maslach Burnout Inventory.

Confidentiality was upheld throughout, ensuring the privacy and anonymity of all participants. They were assured that their data would be exclusively utilized for research purposes and would not be disclosed to any external parties.

Ethical Approval

Approval from the ethical committee of the college was taken.

Statistical Analysis

Data was compiled and analysed in Microsoft Excel.

RESULTS

Table 1: Sociodemographic Profile of Study Participants (N=60)

Sociodemographic details (N = 60)		n (%)
Age	25-29 years	42 (70)
	30-34 years	14 (23.3)
	35-39 years	4 (6.7)
Gender	Male	29 (48.3)
	Female	31 (51.7)
Marital status	Married	21 (35)
	Unmarried	39 (65)
Type of family	Nuclear	36 (60)
	Joint	24 (40)
Socioeconomic Status	Upper	8 (13.1)
	Upper middle	32 (53.3)
	Lower middle	19 (31.7)
	Lower	1 (1.7)
PG Branch	Preclinical	8 (13.3)
	Paraclinical	13 (21.7)
	Clinical	39 (65)
Year of residency	1st	38 (63.3)
	2nd	14 (23.3)
	3rd	8 (13.3)
No. of years of entrance into medical profession	5-6 years	11 (18.3)
	7-8 years	29 (48.3)
	>8 years	20 (33.3)

Table 1: The socio-demographic profile of the participants is presented. Most of the participants belonged to the age category 25–29 years (70%). Majority of the participants were females (51.7%), unmarried (65%), belonged to nuclear family (60%), upper-middle socioeconomic class (53.3%). Highest number of participants were from clinical branches (65%), 1st

year Residents (63.3%) and had 7-8 years of experience in medical profession.

Table 2: Clinical and Behavioural Characteristics of Study Participants

Features (N = 60)		n (%)
No. of hours of sleep (average in past 7 days)	6-8 hours (adequate)	37 (61.7)
	<6 hours (inadequate)	23 (38.3)
No. of NEET-PG attempts	1	19 (31.7)
	2	24 (40)
	>2	17 (28.3)
Satisfaction with chosen PG branch		48 (80)
Extracurricular activities		22 (36.7)
History of Substance use (Alcohol/ tobacco/ other)		27 (45)
History of use of benzodiazepines/ antidepressants/ psychotropics for any cause		10 (16.7)
Personal H/O psychiatric disorder		7 (11.7)
Recently gone through major personal life event		19 (31.7)
Suicidal thoughts		13 (21.7)
Thoughts of dropping out		34 (56.7)

Table 2 summarizes the behavioural and clinical characteristics of the participants. Participants usually slept for 6-8 hours. 40% of them had two attempts in clearing NEET-PG exam. Around 80% were satisfied with chosen PG branch. Only 36.7% of participants were involved in extracurricular activities. 45% of participants had history of substance use. The number of participants having suicidal thoughts and thoughts of dropping out were 13 (21.7%) and 34 (56.7%) respectively.

Table 3: Distribution of Study Participants According to Subcategories: Depression, Anxiety and Burnout (N=60)

DEPRESSION (PHQ-9 Score)			
Cut off scores		Frequency (n)	Percentage %
1-4 (Minimal depression)		24	40
5-9 (Mild depression)		21	35
10-14 (Moderate depression)		11	18.3
15-19 (Moderately severe depression)		4	6.7
20-27 (Severe depression)		0	0
ANXIETY (GAD-7 Score)			
0-4 (Minimal anxiety)		22	36.7
5-9 (Mild anxiety)		26	43.3
10-14 (Moderate anxiety)		8	13.3
15-21 (Severe anxiety)		4	6.7
BURNOUT (Maslach Burnout Inventory MBI)			
MBI-A (Emotional exhaustion)	≤17 (Low level burnout)	36	60
	18-29 (Moderate burnout)	17	28.3
	≥30 (High level burnout)	7	11.7
MBI-B (Depersonalisation)	≤5 (Low level burnout)	16	26.7
	6-11 (Moderate burnout)	15	25
	≥12 (High level burnout)	29	48.3
MBI-C (Personal Achievement)	≤33 (High level burnout)	46	76.7
	34-39 (Moderate burnout)	12	20
	≥40 (Low level burnout)	2	3.3

Table 3 summarises distribution of study participants according to scales for depression, anxiety and burnout. PHQ-9 score for depression showed most participants fall under the

mild depression category i.e. n=24 (40%). GAD-7 score for anxiety showed most participants fall under the mild anxiety category i.e. n=26 (43.3%). Around 36 participants (60%) scored ≤ 17 on MBI-A (Emotional exhaustion) indicating low level burnout in this dimension, 29 participants (48.3%) scored ≥ 12 on MBI-B (Depersonalisation) indicating high level burnout in this dimension and 46 participants (76.7%) scored ≤ 33 on MBI-C (Personal Achievement) indicating high level burnout in this dimension.

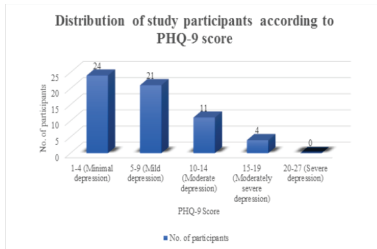


Figure 1: Distribution of Study Participants According to PHQ-9 Score

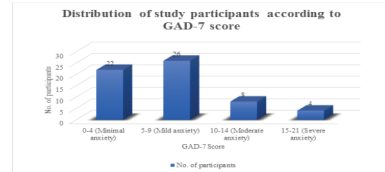


Figure 2: Distribution of Study Participants According to GAD-7 Score

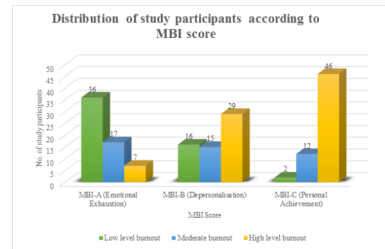


Figure 3: Distribution of Study Participants According to Maslach Burnout Inventory (MBI Score)

Table 4: Association of Depression with Various Factors Among Study Participants

		Depression				X2 value	p-value
		Present		Absent			
		n	%	n	%		
Age	25-29 years	27	75.0%	15	62.5%	1.071	0.585
	30-34 years	7	19.4%	7	29.2%		
	35-39 years	2	5.6%	2	8.3%		
Gender	Male	15	41.7%	14	58.3%	1.602	0.206
	Female	21	58.3%	10	41.7%		
Marital status	Married	7	19.4%	14	58.3%	9.573	0.002
	Unmarried	29	80.6%	10	41.7%		
Type of family	Nuclear	21	58.3%	15	62.5%	0.104	0.747
	Joint	15	41.7%	9	37.5%		
Socioeconomic status	Upper	6	16.7%	2	8.3%	3.442	0.328
	Upper middle	17	47.2%	15	62.5%		
	Lower middle	13	36.1%	6	25.0%		
	Lower	0	0.0%	1	4.2%		
PG Branch	Preclinical	2	5.6%	6	25.0%	4.818	0.090
	Paraclinical	8	22.2%	5	20.8%		
	Clinical	26	72.2%	13	54.2%		
Year of residency	1st	24	66.7%	14	58.3%	0.539	0.764
	2nd	8	22.2%	6	25.0%		
	3rd	4	11.1%	4	16.7%		
No. of years of entrance into medical profession	5-6 years	7	19.4%	4	16.7%	1.262	0.532
	7-8 years	19	52.8%	10	41.7%		
	>8 years	10	27.8%	10	41.7%		
No. of NEET- PG attempts	1	14	38.9%	5	20.8%	2.697	0.260
	2	14	38.9%	10	41.7%		
	>2	8	22.2%	9	37.5%		
Satisfaction with chosen PG branch	Yes	27	75.0%	21	87.5%	1.406	0.236
	No	9	25.0%	3	12.5%		
No. of hours of sleep	6-8 hours (adequate)	20	55.6%	17	70.8%	1.422	0.233
	<6 hours (inadequate)	16	44.4%	7	29.2%		
Extracurricular activities	Yes	8	22.2%	14	58.3%	8.086	0.004
	No	28	77.8%	10	41.7%		
H/O Substance use	Yes	16	44.4%	11	45.8%	0.011	0.916
	No	20	55.6%	13	54.2%		
H/O use of BZDs/ADs/ psychotropics	Yes	9	25.0%	1	4.2%	4.500	0.034
	No	27	75.0%	23	95.8%		
Personal H/O psychiatric disorder	Yes	5	13.9%	2	8.3%	0.431	0.511
	No	31	86.1%	22	91.7%		
Recently gone through major personal life event	Yes	15	41.7%	4	16.7%	4.159	0.041
	No	21	58.3%	20	83.3%		
Suicidal thoughts	Yes	12	33.3%	1	4.2%	7.218	0.007
	No	24	66.7%	23	95.8%		
Thoughts of dropping out	Yes	22	61.1%	12	50.0%	0.724	0.395
	No	14	38.9%	12	50.0%		

GAD score	0-4 (Minimal anxiety)	6	16.7%	16	66.7%	15.817	0.001
	5-9 (Mild anxiety)	20	55.6%	6	25.0%		
	10-14 (Moderate anxiety)	7	19.4%	1	4.2%		
	15-21 (Severe anxiety)	3	8.3%	1	4.2%		
MBI-A	≤17 (Low level burnout)	21	58.3%	15	62.5%	1.693	0.429
	18-29 (Moderate burnout)	12	33.3%	5	20.8%		
	≥30 (High level burnout)	3	8.3%	4	16.7%		
MBI-B	≤5 (Low level burnout)	6	16.7%	10	41.7%	5.237	0.073
	6-11 (Moderate burnout)	9	25.0%	6	25.0%		
	≥12 (High level burnout)	21	58.3%	8	33.3%		
MBI- C	≤33 (High level burnout)	29	80.6%	17	70.8%	3.191	0.203
	34-39 (Moderate burnout)	7	19.4%	5	20.8%		
	≥40 (Low level burnout)	0	0.0%	2	8.3%		

Table 4: In our study, out of the 60 participants, symptoms of depression were present in 36 (60%) and it was found to be statistically significant (p value <0.05) among the unmarried, participants with no extracurricular activities, history of use of benzodiazepines/antidepressants/psychotropics, recently gone through major personal life event, participants with suicidal thoughts and with anxiety.

Table 5: Association of Anxiety with Various Factors Among Study Participants

		Anxiety				X2 value	p-value
		Present		Absent			
		n	%	n	%		
Age	25-29 years	27	71.1%	15	68.2%	0.328	0.849
	30-34 years	9	23.7%	5	22.7%		
	35-39 years	2	5.3%	2	9.1%		
Gender	Male	17	44.7%	12	54.5%	0.537	0.464
	Female	21	55.3%	10	45.5%		
Marital status	Married	9	23.7%	12	54.5%	5.833	0.016
	Unmarried	29	76.3%	10	45.5%		
Type of family	Nuclear	24	63.2%	12	54.5%	0.431	0.512
	Joint	14	36.8%	10	45.5%		
Socioeconomic status	Upper	5	13.2%	3	13.6%	4.416	0.328
	Upper middle	18	47.4%	14	63.6%		
	Lower middle	15	39.5%	4	18.2%		
	Lower	0	0.0%	1	4.5%		
PG Branch	Preclinical	2	5.3%	6	27.3%	6.283	0.043
	Paraclinical	10	26.3%	3	13.6%		
	Clinical	26	68.4%	13	59.1%		
Year of residency	1st	25	65.8%	13	59.1%	0.717	0.699
	2nd	9	23.7%	5	22.7%		
	3rd	4	10.5%	4	18.2%		
No. of years of entrance into medical profession	5-6 years	8	21.1%	3	13.6%	0.534	0.766
	7-8 years	18	47.4%	11	50.0%		
	>8 years	12	31.6%	8	36.4%		
No. of NEET- PG attempts	1	13	34.2%	6	27.3%	1.117	0.572
	2	16	42.1%	8	36.4%		
	>2	9	23.7%	8	36.4%		
Satisfaction with chosen PG branch	Yes	29	76.3%	19	86.4%	0.879	0.348
	No	9	23.7%	3	13.6%		
No of hrs of sleep	6-8 hours (adequate)	22	57.9%	15	68.2%	0.624	0.430
	<6 hours (inadequate)	16	42.1%	7	31.8%		
Extracurricular activities	Yes	10	26.3%	12	54.5%	4.781	0.029
	No	28	73.7%	10	45.5%		
H/O Substance use	Yes	18	47.4%	9	40.9%	0.235	0.628
	No	20	52.6%	13	59.1%		
H/O use of BZDs/ADs/ psychotropics	Yes	9	23.7%	1	4.5%	3.765	0.055
	No	29	76.3%	21	95.5%		
Personal H/O mental illness	Yes	6	15.8%	1	4.5%	1.709	0.191
	No	32	84.2%	21	95.5%		
Recently gone through major personal life event	Yes	15	39.5%	4	18.2%	2.919	0.088
	No	23	60.5%	18	81.8%		
Suicidal thoughts	Yes	12	31.6%	1	4.5%	6.000	0.014
	No	26	68.4%	21	95.5%		
Thoughts of dropping out	Yes	23	60.5%	11	50.0%	0.629	0.428
	No	15	39.5%	11	50.0%		
MBI-A	≤17 (Low level burnout)	20	52.6%	16	72.7%	2.399	0.301
	18-29 (Moderate burnout)	13	34.2%	4	18.2%		
	≥30 (High level burnout)	5	13.2%	2	9.1%		

MBI-B	≤ 5 (Low level burnout)	8	21.1%	8	36.4%	2.236	0.312
	6-11 (Moderate burnout)	9	23.7%	6	27.3%		
	≥ 12 (High level burnout)	21	55.3%	8	36.4%		
MBI- C	≤ 33 (High level burnout)	28	73.7%	18	81.8%	0.977	0.614
	34-39 (Moderate burnout)	9	23.7%	3	13.6%		
	≥ 40 (Low level burnout)	1	2.6%	1	4.5%		

Table 5: Out of the 60 participants, anxiety was present in 38 (63.3%) and it was found to be statistically significant (p value <0.05) among the unmarried, participants with no extracurricular activities and participants with suicidal thoughts.

Table 6: Association of Burnout with Various Factors Among Study Participants

		Burnout				X2 value	p-value
		Present		Absent			
		n	%	n	%		
Age	25-29 years	17	70.8%	25	69.4%	0.427	0.808
	30-34 years	6	25.0%	8	22.2%		
	35-39 years	1	4.2%	3	8.3%		
Gender	Male	13	54.2%	16	44.4%	0.545	0.460
	Female	11	45.8%	20	55.6%		
Marital status	Married	8	33.3%	13	36.1%	0.049	0.825
	Unmarried	16	66.7%	23	63.9%		
Type of family	Nuclear	15	62.5%	21	58.3%	0.104	0.747
	Joint	9	37.5%	15	41.7%		
Socioeconomic status	Upper	2	8.3%	6	16.7%	3.935	0.269
	Upper middle	11	45.8%	21	58.3%		
	Lower middle	10	41.7%	9	25.0%		
	Lower	1	4.2%	0	0.0%		
PG Branch	Preclinical	2	8.3%	6	16.7%	6.100	0.047
	Paraclinical	2	8.3%	11	30.6%		
	Clinical	20	83.3%	19	52.8%		
Year of residency	1st	16	66.7%	22	61.1%	0.974	0.648
	2nd	6	25.0%	8	22.2%		
	3rd	2	8.3%	6	16.7%		
No. of years of entrance into medical profession	5-6 years	3	12.5%	8	22.2%	0.868	0.648
	7-8 years	12	50.0%	17	47.2%		
	> 8 years	9	37.5%	11	30.6%		
No. of NEET- PG attempts	1	9	37.5%	10	27.8%	2.692	0.260
	2	11	45.8%	13	36.1%		
	> 2	4	16.7%	13	36.1%		
Satisfaction with chosen PG branch	Yes	20	83.3%	28	77.8%	0.278	0.598
	No	4	16.7%	8	22.2%		
No of hrs of sleep	6-8 hours (adequate)	10	41.7%	27	75.0%	6.769	0.009
	< 6 hours (inadequate)	14	58.3%	9	25.0%		
Extracurricular activities	Yes	4	16.7%	18	50.0%	6.890	0.009
	No	20	83.3%	18	50.0%		
H/O Substance use	Yes	13	54.2%	14	38.9%	1.358	0.244
	No	11	45.8%	22	61.1%		
H/O use of BZDs/ADs/ psychotropics	Yes	6	25.0%	4	11.1%	2.000	0.157
	No	18	75.0%	32	88.9%		
Personal H/O mental illness	Yes	2	8.3%	5	13.9%	0.431	0.511
	No	22	91.7%	31	86.1%		
Recently gone through major personal life event	Yes	9	37.5%	10	27.8%	0.629	0.428
	No	15	62.5%	26	72.2%		
Suicidal thoughts	Yes	9	37.5%	4	11.1%	5.908	0.015
	No	15	62.5%	32	88.9%		
Thoughts of dropping out	Yes	11	45.8%	23	63.9%	1.912	0.167
	No	13	54.2%	13	36.1%		
MBI-B	≤ 5 (Low level burnout)	3	12.5%	13	36.1%	15.323	0.001
	6-11 (Moderate burnout)	2	8.3%	13	36.1%		
	≥ 12 (High level burnout)	19	79.2%	10	27.8%		
MBI- C	≤ 33 (High level burnout)	17	70.8%	29	80.6%	0.761	0.684
	34-39 (Moderate burnout)	6	25.0%	6	16.7%		
	≥ 40 (Low level burnout)	1	4.2%	1	2.8%		

Table 6: Out of the 60 participants, burnout was present in 24 (40.0%) and it was found to be statistically significant (p value <0.05) among the participants who had sleep <6 hours, participants had suicidal thoughts, with no extracurricular activities and participants with depersonalization (MBI-B Score).

DISCUSSION

Medical college curriculum is such that it is intended to prepare its graduates and post-graduates for the worst medical emergencies and sharpen their skills to the level of excellence. This journey is demanding and takes toll of both physical and mental health. It encompasses the youth and most productive years of one's life. The hardships which the students face, often go un-noticed and under-discussed; which over time somehow lead to development of depression, anxiety and burnout. On professional front, it effects academic performance, quality of patient care and patient safety, decline in empathy and humanitarian attitude.

Numerous studies have been conducted on undergraduate medical students but only a few studies on post-graduate medical students which is a difficult group to target due to different work shifts and schedules and different inter-departmental word load. Studies conducted at different institutes reflect diverse results depending on use of study instruments. In our study, we found out that symptoms of depression were present in 60%, anxiety in 63.3% and burnout in 40% of study participants.

A study conducted by Afzal et al. in Jodhpur on found that 57.98% of undergraduate medical students were depressed (based on PHQ-9 Scale) and 47.41% of them had anxiety (based on GAD-7 scale). This finding is in line with our study.^[5]

Saumik Chakraborty et al. used DASS 21 scale among medical students and junior doctors in Agartala, Tripura inferred that depression, anxiety and stress among the participants were 45.3%, 52.4% and 31.9% respectively.^[3]

Study by Pokhrel et al. in Nepal conducted on medical students and residents using Copenhagen burnout Inventory found out that overall prevalence of burnout was 48.8%, anxiety 45.31% and depression 31.03%. Moreover, residents were more vulnerable to burnout and depression than medical students.^[11]

Predictors and Factors Associated with Depression

In our study, symptoms of depression were present in 60% of participants and it was found to be statistically significant among the unmarried, participants with no extracurricular activities, history of use of benzodiazepines / antidepressants / psychotropic drugs, recently gone through major personal life event, participants with suicidal thoughts and with anxiety.

Talih et al. in their study concluded that stressful personal life event, drug abuse and suicidal ideation were significantly associated with depression.^[8]

Predictors and Factors Associated with Anxiety

In our study, anxiety was present in 63.3% and it was found to be statistically significant among the unmarried, participants with no extracurricular activities and participants with suicidal thoughts.

Studies have shown that individuals involved in extracurricular activities or regular exercises were less likely to develop anxiety. Broman-Fulks et al. found reduction in anxiety sensitivity by both low and high intensity aerobic exercises through exposure to feared physiological sensations.^[9]

Predictors and Factors Associated with Burnout

In our study, burnout was present in 24 (40.0%) and it was found to be statistically significant among the participants who had sleep <6 hours, participants with suicidal thoughts, participants with no extracurricular activities and participants with depersonalization (MBI-B Score).

Study conducted by Venrooij et al. on pre-clinical medical students found an independent correlation of burnout related symptoms in individuals with <6 hours sleep per night.^[11]

Sui et al. in their study found that doctors who were younger in age with median years of practice 8.5 years (range 5-15), worked in shifts, had high burnout rates and reported suicidal thoughts more often. In this context, residents tend to belong to this group.^[10]

Youssef et al. found higher levels of burnout in individuals who had no control over their daily schedule, lacked time for proper relaxation and extracurricular activity.^[12] In study by Pokhrel et al., they inferred that students might have used extracurricular activities as a coping strategy to channelise their aggression and reduce symptoms related to burnout.^[11]

Hugo Rodrigues et al. found that for each increase of one point in depersonalisation score based on Maslach Burnout Inventory, there is 11% increase in likelihood of reporting a medical error.^[6]

CONCLUSION

The study shows that a considerable proportion of residents were suffering from symptoms of depression, anxiety and burnout and identified various predictors associated with these. Difference in proportion was also observed among preclinical, paraclinical and clinical branches. This highlights the pressing need for immediate attention and the provision of support and personalised counselling to address these mental health challenges.

LIMITATIONS

This is a cross sectional study, therefore causal relationship between associations could not be established. Besides this, the study was conducted in single medical college therefore results could not be generalised nationwide. The questionnaires used are designed to cover presence of symptoms in past seven days prior to data collection. Moreover, they are self-reporting which might have led to overestimation of one's symptoms and are screening tools limiting their validity on a syndrome level. All three parameters, depression, anxiety and burnout have significant overlap and correlations. Therefore, a clear-cut demarcation could not be made and it is difficult to say whether they developed in tandem or one thing led to the other.

Acknowledgement

Our sincere gratitude to all the residents who generously contributed to our study, enabling its success. Your invaluable contributions have played a pivotal role in furthering our comprehension of this crucial issue.

Conflict Of Interest-Nil

REFERENCES

1. Pokhrel NB, Khadayat R, Tulachan P. Depression, anxiety, and burnout among medical students and residents of a medical school in Nepal: a cross-sectional study. *BMC Psychiatry*. 2020 Jun 15;20(1):298.
2. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med*. 2006 Apr;81(4):354-73.
3. Chakraborty S, Bhattacharjee S, Mukherjee A, Kaushik I. Depression, Anxiety and Stress among Medical Students and Junior Doctors-a cross-sectional study in a medical college of India'. *International Journal of Current Advanced Research*. 2021;10(07):24691-6.
4. Sachdeva S, Taneja N, Dwivedi N. Assessment of depression, anxiety, and stress among medical students enrolled in a medical college of New Delhi, India. *Indian J Soc Psychiatry*. 2018;34(2):157.
5. Hakim A, Tak H, Nagar S, Bhansali S. Assessment of prevalence of

- depression and anxiety and factors associated with them in undergraduate medical students of Dr. S. N. Medical College, Jodhpur. *Int J Community Med Public Health*. 2017 Aug 23;4(9):3267.
6. Rodrigues H, Cobucci R, Oliveira A, Cabral JV, Medeiros L, Gurgel K, et al. Burnout syndrome among medical residents: A systematic review and meta-analysis. *PLoS One*. 2018;13(11):e0206840.
 7. Shete A, Garkal K. A study of stress, anxiety, and depression among postgraduate medical students. *CHRISMED J Health Res*. 2015;2(2):119.
 8. Talih F, Warakian R, Ajaltouni J, Shehab AA, Tamim H. Correlates of Depression and Burnout Among Residents in a Lebanese Academic Medical Center: a Cross-Sectional Study. *Acad Psychiatry*. 2016 Feb;40(1):38-45.
 9. Broman-Fulks JJ, Berman ME, Rabian BA, Webster MJ. Effects of aerobic exercise on anxiety sensitivity. *Behav Res Ther*. 2004 Feb;42(2):125-36.
 10. Siu C, Yuen SK, Cheung A. Burnout among public doctors in Hong Kong: cross-sectional survey. *Hong Kong Med J*. 2012 Jun;18(3):186-92.
 11. van Venrooij LT, Barnhoorn PC, Giltay EJ, van Noorden MS. Burnout, depression and anxiety in preclinical medical students: a cross-sectional survey. *International Journal of Adolescent Medicine and Health*. 2017 Jun 27;29(3): 20150077.
 12. Youssef FF. Medical Student Stress, Burnout and Depression in Trinidad and Tobago. *Acad Psychiatry*. 2016 Feb;40(1):69-75.