



A STUDY OF PREVALENCE OF DEPRESSION AND ASSOCIATED FACTORS IN RESIDENT DOCTORS OF TERTIARY CARE TEACHING HOSPITAL:

Psychiatry

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ABSTRACT

BACKGROUND: Depression is one of the major public health problems and common psychiatric disorder among adults. Depression is reported to be common among doctors.

OBJECTIVES: The aim of this study is to estimate the prevalence of depression and identify the associated risk factors of depression among resident doctors.

METHODS: A cross-sectional study was conducted in department of Psychiatry, Government Medical College, Kota. Data was analysed by using SPSS version 21 software. Statistical analysis included χ^2 -test, correlation, multivariate analysis, unpaired t test.

RESULTS: Overall prevalence of depression in resident doctors was 28.0%, out of them 22.5% were suffering from mild depression & 5.5% were suffering from moderate depression. Mean depressive score was more in anesthetic resident doctors, clinical speciality, surgical speciality, first year resident doctors and resident doctors who reported less sleeping hours and more working hours.

CONCLUSION: This study throws some light on the psychological problems among resident doctors like depression. The associated factors with depression were female gender, younger age, unmarried marital status, living single, sleep deprivation and prolonged working hours or work load in first year of residency.

KEYWORDS

Depression, resident doctors, tertiary care hospital.

INTRODUCTION:

According to the WHO depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (Marina Marcus et al¹, 2014). The term depression has been used variously to describe an emotional state, a syndrome, and a group of specific diseases. When seen as a part of a syndrome or disorder, depression has autonomic, visceral, emotional, perceptual, cognitive, and behavioral manifestations. The Global Burden of Disease (GBD) study by Murray CJ et al² showed that depression will be the single leading cause of Disability Adjusted Life Years (DALY) by 2020 in the developing world. The GBD 2000 estimated the point prevalence of unipolar depressive episodes as 1.9% in men and 3.2% in women. According to National Mental Health Survey³ of India 2015-16 (NMHS) estimated that weighted prevalence of depression for both current and life time was 2.7% and 5.2% respectively. Depression was reported to be higher in females & in the age-group of 40-49 years and among those residing in urban metros according to NMHS.

Depression is also reported to be common among resident doctors; higher rates of depression may seriously affect resident doctors' professional life and may lead to serious impacts on their mental health, physical health and behavior. It not only affects their own professional and family lives, but also may have serious impact on health of the community. Resident doctors are backbone of any tertiary care hospitals. During post-graduation, resident's doctors are expected to study text books, journals etc. to gain theoretical knowledge as well as clinical skills in their specialties to provide quality care for their patients. They have to work day and night in OPD, indoor and in casualty to take care of patients. They are overburden, have prolonged duty hours, little time for sleep, rest, social interaction, physical activity and recreation. Sometime they have sleep deprivation, inadequate hostel facilities, lack of security, lack of hygienic food and water and health-related problems. Many other stressors like work pressure, living away from home, different culture, difficulty in language, etc. affect mental health of resident doctors and lead to number of psychiatric disorders like, depressive disorders, anxiety disorders, adjustment disorders, stress related disorders, burnout and substance abuse.

MATERIAL & METHOD:

Study design

Cross-sectional study.

Study period

15 months (from October 2017 to December 2018).

Study participants

The study participants consisted of consenting 200 resident doctors.

The present study was conducted in department of Psychiatry, New Medical College Hospital, Kota. Before starting the study, permission & approval from ethical committee was taken.

INCLUSION CRITERIA: Resident doctors who are doing 3 year post-graduate course in clinical, non-clinical, surgical departments in government medical college and ready to give their consent.

EXCLUSION CRITERIA: resident doctors who are suffering from any major medical, surgical and psychiatric illness, resident doctors who are working on urgent temporary basis, resident doctors who are doing super-specialization and diploma.

All the resident doctors were evaluated on especially designed proforma that includes identification data, socio demographic details and factors associated with depression. Severity of depression was assessed by using depression anxiety stress scale (DASS).

RESULTS & DISCUSSION:

The age of resident doctors was found between 24 years to 42 years and majority (55.5 %) of residents were below 30 years of age. The mean age of resident doctors was 30.40 years. Among them, 72.5% respondents were male and 27.5% were female. Majority of residents (59.5%) were married and out of them 52.94% had children, 40.5% were unmarried. Majority of resident doctors (68.0%) were living single and only 32% were living with spouse or family. Majority of resident doctors (95%) were from Hindu community whereas 4.5% belonged to Muslim community & only one (0.5%) resident doctor was from Sikh community. It was found that majority of resident doctors (77.0%) belonged to urban area and only 23 % belonged to

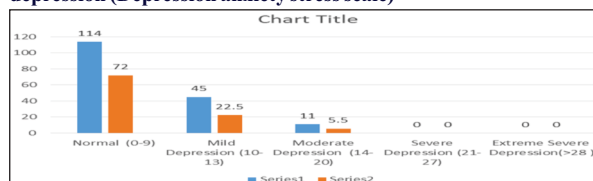
rural area (Table 1).

Table 1. Distribution of residents according to sociodemographic profile.

Variable		N	%
Age	≤ 30	111	55.5
	>30	89	44.5
Sex	Male	143	72.5
	Female	55	27.5
Domicile	Urban	154	77.0
	Rural	46	23.0
Marital status	Married	119	59.5
	Unmarried	81	40.5
Having children	Yes	63	52.94
	No	56	47.06
Religion	Hindu	190	95.0
	Muslim	9	4.5
	Other	1	0.5
Living with spouse/ Family	YES	32	32
	NO	136	68

Resident doctors were evaluated on depression anxiety stress scale (DASS). It was found that prevalence of depression in resident doctors was 28%. If we further classify, it was found that 22.5% resident doctors were suffering from mild depression & 5.5% were suffering from moderate depression. Severe or very severe depression was not found in any resident doctor (Figure 1). The prevalence of depression in resident doctors was significantly higher than the normal prevalence in India, which was reported 18.5% by Sahoo S et al (2010). Likewise Demiret al (2007) and Aguocha G u et al (2015) reported that the prevalence of depression in resident doctor was 16.0% and 17.3 respectively. Jayant D Deshpande et al (2013) conducted a study in Pravara Institute of Medical Sciences, Loni, Maharashtra, India and revealed that 30% resident doctors were depressed, out of them 26% were mildly depressed and 4% were under moderate category which is similar to our finding. However, Goebert et al (2009) reported variable prevalence rates for depression among medical students and residents to range from 2% to 35%, with the highest rates among residents doctors.

Figure 1. Distribution of resident doctors according to Severity of depression (Depression anxiety stress scale)



If we correlate the depression with age it was found that depression was negatively correlated with age that means as per age increase, score of depression decrease and this correlation was statistically significant ($r = 0.293^{**}$). It was found that resident doctors of age group 30 years and more were having less depressive score than the resident doctors of age group less than 30 year (7.66 vs 8.83) and this difference was statistically significant (Table 2a). This finding can be explained by fact that older resident doctors had less chances of depression because of more emotional maturity, better coping abilities & more working experience. It may also be possible that resident doctors who were older than 30 years, were usually married, or living with family, which may also act as protective factors against depression.

Table 2a. Correlation between various factors with depression.

Factors		N=200	%	Mean depression $\pm$ SD	Correlation
Age	≤ 30	111	55.50	8.83 $\pm$ 2.94	-0.293**
	> 30	89	45.50	7.66 $\pm$ 2.92	
Sex	Male	145	72.50	7.95 $\pm$ 2.99	0.196**
	Female	55	27.50	9.25 $\pm$ 2.72	
Marital status.	Married	119	59.50	7.56 $\pm$ 2.99	0.305**
	Unmarried	81	40.50	9.40 $\pm$ 2.62	
With family	YES	64	32.00	7.94 $\pm$ 3.22	0.086
	NO	136	68.00	8.48 $\pm$ 2.86	

Speciality	Clinical	180	90.0	8.44 $\pm$ 2.98	0.130*
	Non-clinical	20	10.0	7.15 $\pm$ 2.78	
speciality	Medical	136	68.0	8.24 $\pm$ 3.20	0.036
	Surgical	64	32.0	8.45 $\pm$ 2.46	
Alcohol intake	YES	53	26.5	8.58 $\pm$ 3.21	0.056
	NO	147	73.5	8.21 $\pm$ 2.89	
Smoking Habit	YES	21	10.5	8.76 $\pm$ 2.21	0.052
	NO	179	89.5	8.25 $\pm$ 3.06	
Sleeping hours	< 6	54	27.0	8.70 $\pm$ 2.93	-0.144*
	6 – 8	112	56.0	8.38 $\pm$ 2.80	
	> 8	34	17.0	7.44 $\pm$ 3.48	
Working hours	< 8	36	18.0	6.94 $\pm$ 2.21	0.081
	8 – 12	106	53.0	8.42 $\pm$ 3.13	
	> 12	58	29.0	8.95 $\pm$ 2.88	
Year or residency	1st yr.	80	40.0	8.70 $\pm$ 3.30	0.075
	2nd yr.	58	29.0	7.87 $\pm$ 2.41	
	3rd yr.	62	31.0	8.21 $\pm$ 3.01	

If we compare mean depression score of male & female resident doctors, it was found higher in female than male residents (9.25 vs 7.95) and this difference was statistically significant ($r = 0.196^{**}$) (Tables 2a). Likewise the prevalence of depression was more in female resident doctors (30.90%) than male (26.89%) but this difference was not statistically significant (Tables 2b).

Table 2b. Distribution of resident doctors according to various factors.

		Depressed		Non-depressed		
		N=200	%	N	%	
Age	≤ 30	111	36	21.87	75	79.13
	> 30	89	20	30.88	69	49.00
Sex	Male	145	39	26.89	106	73.11
	Female	55	17	30.90	38	69.10
Marital status.	Married	119	23	19.32	96	80.68
	Unmarried	81	33	40.74	48	59.25
With family	YES	64	14	21.87	50	78.13
	NO	136	42	30.88	94	69.12
Speciality	Clinical	180	53	29.44	127	61.56
	Non-clinical	20	3	15.00	17	85.00
speciality	Medical	136	36	26.47	100	73.53
	Surgical	64	20	31.25	44	69.75
Alcohol intake	YES	53	18	33.96	35	66.04
	NO	147	38	25.85	109	74.15
Smoking Habit	YES	21	8	21.73	18	78.27
	NO	179	48	28.81	126	71.19
Sleeping hours	< 6	54	19	35.18	35	64.62
	6 – 8	112	31	27.68	81	72.22
	> 8	34	6	17.64	28	82.36
Working hours	< 8	36	5	13.88	31	86.12
	8 - 12	106	31	29.24	75	61.66
	> 12	58	20	34.48	38	65.52
Year or residency	1st yr.	80	26	32.50	54	67.75
	2nd yr.	58	12	20.69	46	79.31
	3rd yr.	62	18	29.03	44	61.67

Our findings are also supported by Aguocha GU et al (2015) who conducted a study in Nigeria and found that the prevalence of depression higher (19.6%) in female resident doctors than male (15.3%).

If we compare mean depression score of married and unmarried resident doctors, it was found that unmarried had higher mean depression score than married (9.40 vs 7.56) and this correlation was found statistically significant ($r = 0.305^{**}$) (Table 2a). Likewise in our study the prevalence of depression in unmarried was 40.74% while in married 19.32% and this difference was also statistically significant ($X^2 = 10.96$, $p = 0.001$) (Table 2b). Similar to our findings Aguocha Gu et al (2015) revealed that prevalence of depression was higher (20.4%) in single/ unmarried resident doctors than married (15.9%).

If we compare mean depression score, our study revealed that resident doctors who were living with family reported less depressive score

than those who were living single (7.94 vs 8.48) but this correlation was not statistically significant ($r = 0.086$) (Table 2a). Similarly resident doctors who were living with family members reported less prevalence (21.87%) of depression than those who were living single (30.88%) and this difference was not statistically significant ($X^2 = 1.751, p > 0.05$) (Table 2b). This finding indicates that the family support may be a protective factor against depression.

In this study, 10% resident doctors were from non-clinical specialties & other 90% belong to clinical specialties (Table 2a). When we compared mean depressive score among clinical and non-clinical specialties, clinical specialties had more depressive score (clinical: 8.44 vs non-clinical 7.15) and this correlation ($r = 0.130$) was statistically significant (Tables 2a). Likewise the prevalence of depression was higher (29.44%) among clinical specialties than non-clinical (15.00%) & this difference was not statistically significant ($X^2 = 1.86, p > 0.05$) (Tables 2b). This finding is supported by Sarthak dave et al⁸ (2018) who conducted a study at B.J. Medical College and Civil Hospital, Ahmedabad by using depression anxiety stress scale (DASS) and revealed that prevalence of depression was higher among clinical specialties. (Clinical: 29.8%; non-clinical: 20.4%).

In this study, majority (68%) of resident doctors were from medical specialty and 32% of all resident doctors were from surgical specialty (Table 3a). When we compared mean score of depression between surgical & medical specialties, although surgical specialty had higher score (surgical: 8.45 vs medical 8.24), this correlation was not found to be statistically significant ($r = 0.036$) (Tables 3a). Similarly the prevalence of depression was found higher among surgical specialties (31.25%) than medical-specialties (26.47%), & this difference was not statistically significant ($X^2 = 0.493, p > 0.05$) (Tables 3b).

If we compare mean depressive score according to specialty, maximum mean depressive score was observed among resident doctors of Anesthesia (9.75) followed by medicine (9.36) & obstetrics-gynecology (9.09). Minimum mean depression score was reported in microbiology (4.80) specialty (Tables 4).

If we classify resident doctors according to habit of substance abuse, 26% of resident doctors had occasional habit of alcohol intake, and only 12.5 % resident doctors had occasional habit of smoking (Table 2a). When we compared mean score of depression among resident doctors according to substance abuse, study revealed that resident doctors who had habit of occasional alcohol intake, reported higher depressive score, than who did not have habit of alcohol abuse (8.58 vs 8.21) and this correlation was not statistically significant ($r = 0.056$) (Table 2a). Similarly, resident doctors who had habit of occasional alcohol intake reported higher (33.96%) prevalence of depression than who did not have habit of alcohol abuse (25.85%) and this difference was not statistically significant ($X^2 = 1.272, p > 0.05$) (Table 2b).

Resident doctors who had habit of occasional smoking, reported higher mean score depression than those who didn't have habit of smoking (8.76 vs 8.25), and this correlation ($r = 0.052$) was not statistically significant (Table 2a). Likewise, resident doctors who had habit of occasional smoking reported higher prevalence of depression and then who did not have habit of smoking (28.81% vs 21.73%) and this correlation was not significant ($X^2 = 1.186, p > 0.05$) (Table 2b).

When we classify resident doctors according to sleeping hours, majority (56.0%) of resident doctors reported sleep duration between 6 to 8 hours/day where as 22.0% less than 6 hours/day & 17.0 % of resident doctors had sleep duration more than 8 hours/day (Table 2a). The average duration of sleep was 6.70 hours per day. If we compare mean depressive score according to sleeping hours, it was maximum (8.70) in those who reported sleeping hours < 6 hr. /day followed by 6 to 8 hr. /day (8.38) & least (7.44) in those with sleeping hours > 8 hr. /day (Table 2a). If we correlate the depression with sleeping hour, it was found that depression was negatively correlated ($r = -0.144$) with sleeping hour that means as sleeping hours decrease, depressive score increases and this correlation was statistically significant (Table 2a). Likewise prevalence of depression was highest in those with sleeping hour < 6 hr (35.18%) followed by 6 to 8 hrs /day (27.68%) & least in those with > 8 hrs/day (17.64%) (Table 2b).

If we classify resident doctors according to working hours, most (53%) of the resident doctors reported working hours between 8 to 12

hours/day followed by 29% with more than 12 hours & only 18 % reported with less than 8 hours per day (Table 2a). The average working duration was 11.15 hours per day. If we compare mean depressive score, it was seen maximum in those with working hours > 12 hr. /day (8.95) followed by 8 to 12 hr. /day (8.42) & least was in resident doctors who reported working less than 8 hr. /day (6.94). If we correlate the depression with working hour, it was found that depression was positively correlated ($r = 0.181$) with working hours that means as working hours increase, depressive score also increases but this correlation was not statistically significant (Table 2a). Similarly prevalence of depression was maximum in those with working hours > 12 hrs /day (34.48%) followed by 8 to 12 hrs /day (29.24%) & least was in resident doctors who reported working less than 8 hrs /day (13.88%) (Table 2b). Depression was found to be lower with a lower number of hours worked per week reported by Govardhan LM et al⁹ (2012) who conducted a study among Obs.-gynecology resident doctors and reported prevalence of depression was 37.5% and depression was found to be increased as per working hours increased.

If we classify resident doctors according to year of residency, majority (40%) of respondents were from 1st year, whereas 29.0% & 31.0% were from 2nd year & 3rd year respectively. If we compare mean depressive score according to year of residency, it was maximum (8.70) in first year resident doctors followed by 3rd year (8.21) & 2nd year (7.87) resident doctors. (Tables 2a). Likewise, prevalence of depression was seen maximum in 1st year (32.50%) followed by 3rd year resident (29.03%) then 2nd year (20.69%) resident doctors (Table 3b). It may be explained by the fact that 1st year students have less experience and ability to handle the work while third year have pressure of examination and other academic work. Contrary to our study Sarthak dave et al⁸ (2018) found that the prevalence of depression was the highest among the 2nd years followed by the 1st and then the 3rd-year residents. The probable reason could be unequal work distribution, and also the fact that most of the 1st -year residents have to face adjustment problems and higher work load compare to 2nd and third year.

If we classify resident doctors according to their specialization, maximum respondents (16.5%) were from General Medicine department followed by 14% from Anaesthesia and 11% from Orthopaedic department. Biochemistry had least (1.5%) number of respondents (Table 4). In our study, maximum mean depressive score was observed among resident doctors of Anesthesia (9.75) followed by medicine (9.36) & obstetrics-gynecology (9.09). Minimum mean depression score was reported in resident doctors of microbiology (4.80) (Tables 4).

Table 4. Comparison of mean depression score according to speciality.

BRANCH	N=200	%	Mean depression
ANESTHESIA	28	14.0	9.75
BIOCHEMISTRY	3	1.5	5.66
GENERAL –MEDICINE	33	16.5	9.36
GENERAL – SURGERY	18	9	8.31
MICROBIOLOGY	5	2.5	4.80
OBS.&GYANECOLOGY	11	5.5	9.09
OPHTHALMOLOGY	6	3	7.67
ORTHOPAEDIC	22	11	8.57
OTORINO-LARINGOLOGY	7	3.5	8.23
PAEDIATRICS	10	5	8.30
PATHOLOGY	12	6	8.67
PSYCHIATRY	12	6	5.67
RADIOLOGY	12	6.0	7.17
RESPIRATORY MEDICINE	11	5.5	7.81
SKIN & VD	10	5	7.10

CONCLUSION:

Factors associated with more depression were younger age, female gender, unmarried, living single, first year, less sleeping hours, more working hours, specialties like anesthesia, Obs.-gynecology which have more work load.

Limitations:

Sample size was small enough and from a single medical collage giving questionable generalization of the study. Other influencing factors for depression were not suitable for multicentre study.

Longitudinal design and educational intervention, if possible would have been better future option.

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REFERENCE:

1. Murray CJ, Lopez AD. Alternative projections of mortality and disability by cause 1990-2020: Global Burden of Disease Study. *Lancet* 1997;349:1498-50
2. World Health Organization (WHO). The World Health Report 2001 - Mental Health: New Understanding, New Hope. Geneva: World Health Organization; 2001. p.30.
3. National Mental Health Survey of India (NMHS), 2015-16, G. Gururaj, Mathew Varghese.
4. Sahoo S, Khess CR. Prevalence of depression, anxiety, and stress among young male adults in India: A dimensional and categorical diagnoses-based study. *J NervMent Dis* 2010; 198: 901-4.
5. Demir F, Pinar AY, ErbasM, Özdil M, Yaşar E. The Prevalence of depression and its associated factors among resident doctors working in a training hospital in Istanbul. *Turk J Psychiatry* 2007; 18:31-7.
6. AguochaGu, Onyeama GM, Bakare MO, Igwe MN. Prevalence of depression among resident doctors in teaching Hospital, South East Nigeria. *International Journal of Clinical Psychiatry* 2015, 3(1): 1-5.
7. Goebert D, Thompson D, Takeshita J, Beach C, Bryson P, Ephgrave K, Kent A, Kunkel M, Schechter J, Tate T. Depressive symptoms in medical students and Residents: A multischool study. *Academic Medicine*, 2009; 84 (2): 236-241.
8. Jayant D Deshpande, Deepak B Phalke, Piyush Kalakoti. Stress Levels and Depression amongst Interns and Resident Doctors Working in a Tertiary Care Teaching Hospital in Rural Area. *International Journal of Health and Rehabilitation Sciences: Volume 2*, January 2013.
9. Sarthak Dave, Minakshi Parikh, Ganpat Vankar. Depression, Anxiety, and Stress among Resident Doctors of a Teaching Hospital. *Indian Journal of Social Psychiatry*, September 9, 2018, IP: 14.139.120.41.
10. Govardhan LM, Pinelli V, Schnatz PF. Burnout, depression and job satisfaction in obstetrics and gynecology residents. *Conn Med*. 2012; 76(7): 389-395. [PubMed] [Google Scholar]
11. Collier VU, McCue JD, Markus A, Smith L. Stress in medical residency: Status quo after a decade of reform? *Ann Intern Med*. 2002; 136(5): 384-90.