



Original Research Article

Psychological assessment of resident doctors working in Covid-19 wards

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ABSTRACT

Background: The first laboratory-confirmed case of the novel coronavirus (COVID-19) was reported in India on 30 January 2020. Since then, there has been exponential growth in cases, with India now ranking second in the global burden of COVID-19. The novel coronavirus disease (COVID-19) is the greatest burden faced by the healthcare system at present. A major part of this burden is being tackled by the resident doctors working in various teaching hospitals all over the world. This study is aimed at assessment of psychological symptoms in resident doctors posted in COVID 19 wards with respect age, gender and speciality department to which they belong.

Materials and Methods: After the permission from Institutional ethics Committee, about 75 resident doctors from various specialty departments posted in COVID-19 wards were taken for study. Each participant after informed consent has been individually interviewed telephonically along with the special semi-structured proforma prepared for the study. Clinical data was collected. After application of rating scales HAM-A & HAM-D to each individual, result are obtained.

Results: The survey is completed with total 75 resident doctors working in COVID 19 wards in NKPSIMS & LMH, Nagpur. Out of total n= 75, 44 were males (58.66%), and 31 were females (41.33%). The mean age of participants being = 26.82(±SD=2) years and total 7 days of duty done in COVID-19 wards. 75(100%) resident doctors reported anxiety symptoms and 20(26.66%) resident doctors reported mild depressive symptoms. 73 (97.33%) resident doctors had mild severity of anxiety and 2(2.66%) had moderate severity of anxiety. Resident doctors belonging to various speciality departments showed differing severity of symptoms with Obstetrics and Gynaecology department having maximum instance of anxiety and depressive features and Respiratory medicine and Orthopaedics having least instance of anxiety and depressive features.

Conclusion: Resident doctors working in COVID-19 wards are susceptible for anxiety, depressive symptoms and insomnia. Mild form of both anxiety and depression are both prevalent. Psychological symptoms are strongly correlated with female gender as compared to male gender. Type of specialty department also affects the tendency to develop psychological symptoms in resident doctors posted in COVID19 wards. Age or past history of psychiatric illness is not found to be significantly associated with either anxiety or depression.

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1. Introduction

The first laboratory-confirmed case of the novel coronavirus (COVID-19) was reported in India on 30 January 2020. Since then, there has been exponential growth in cases,

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with India now ranking second in the global burden of COVID-19. The novel coronavirus disease (COVID-19) is the greatest burden faced by the healthcare system at present. A major part of this burden is being tackled by the resident doctors working in various teaching hospitals all over the world.¹ Resident doctors have high risk of infection and inadequate protection. There is lack of experience in managing the disease, overwork and negative feedback from patients. Overall, doctors have a high prevalence of mental health morbidities, but the topic is very less researched.² The perceived stigma, less family support and changes in the ways of working of resident doctors make them vulnerable to mental health problems, including fear, anxiety, depression and insomnia. This situation exposed them to higher stress level, anxiety, and apprehension and it affects their work output which, in the pipeline, affects the health-care delivery to the whole nation.³ Immediate interventions to enhance psychological resilience and strengthen the healthcare systems' capacity are needed. Clear communication, limitation of shift hours, provision of rest areas are necessary.⁴

2. Materials and Methods

The study design is an observational cross-sectional study with study duration being 3 months (June, July and August 2020) at LMH, Nagpur. This study is conducted amongst total of 75 resident doctors posted in COVID 19 wards for duration of 7 days and those willing to participate. The study excludes those who have been detected COVID 19 positive and already diagnosed with any major psychiatric illness. Semi-structured proforma is used to collect socio-demographic data, presenting complaints, and which speciality department they belong to. After the permission from Institutional Ethics Committee, about 75 resident doctors who were posted in COVID19 wards were taken for study. Informed consent was taken from all the participants before they answered the questions. Each student has been individually interviewed telephonically along with the special semi – structured proforma prepared for the study. The survey took approximately 10 minutes to complete, and included questions referred to demographical data, speciality department they belonged to, present and/or past psychological/psychiatric treatment, effect of the inexperience in treating the disease and overwork, fears of infection and inadequate protection, also isolation from family members during time of COVID 19 duty. The psychological symptoms were evaluated using two scales: HARS & HDRS. The Hamilton Depression Rating Scale (HDRS) contains 17 items pertaining to symptoms of depression experienced over the past week. A score of 0–7 is generally accepted to be within the normal range, while a score of 20 or higher indicates moderate severity. High levels of reliability ($r = .91$ to $.94$, $rtt = .95$ to $.96$) are present.⁵ and Hamilton Anxiety Rating Scale (HAM-A)

consists of 14 items, which measures both psychic anxiety and somatic anxiety. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56. <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe. With inter rater reliability being 0.92. Scoring internal consistency: Y alpha=0.77 to 0.92.⁶ After application of rating scales HAM-A & HAM-D to each individual results are obtained. Clinical data collected, tabulated and analysed.

3. Results

The survey is completed with total 75 resident doctors working in COVID 19 wards in NKPSIMS & LMH, Nagpur. Out of total $n = 75$, 44 were males (58.66%), and 31 were females (41.33%). The mean age of participants being = 26.82(\pm SD=2) years and total 7 days of duty done in COVID-19 wards. 75(100%) resident doctors reported anxiety symptoms and 20(26.66%) resident doctors reported mild depressive symptoms. 73 (97.33%) resident doctors had mild severity of anxiety and 2(2.66%) had moderate severity of anxiety.

Comparison of Anxiety Items: Average HAM-A score was 7.81.

Respiratory symptoms were reported in 98.66% participants of which 54.66% reported mild symptoms and 44% reported moderate symptoms.

Anxious Mood was reported by 96% participants out of which 40% reported mild, 52% reported moderate and 4% reported severely anxious mood.

Insomnia was reported by 72% participants, of which 34.66% were females and 37.33% were males.

Autonomic and Cardiovascular symptoms both were present in 60% participants of which 30.66% were females and 32% were males.

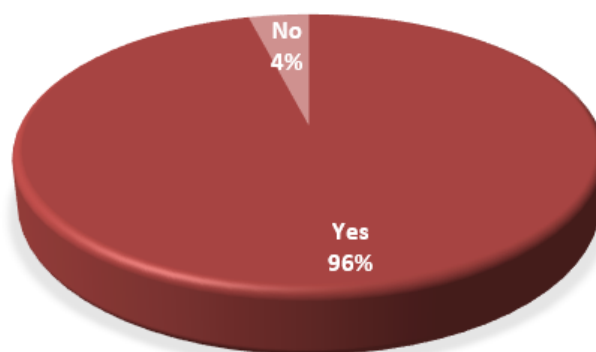


Fig. 1: Anxiety in respondents (Proportion = 96.0%, 95%CI: 88.8 to 99.2%).

Comparison of Depression Items: Average HDRS score was 5.4.

Table 1: Baseline characteristics of the respondents (n= 75)

Characteristics	No.	%
Age		
Mean (years)	26.93 ± 1.09	Range 25 -30
Gender		
Male	44	58.67%
Female	31	41.33%
Specialty Department		
Anaesthesia	8	10.67
Dermatology	4	5.33
ENT	3	4.00
Internal medicine	18	24.00
Obstetrics & Gynaecology	4	5.33
Ophthalmology	5	6.67
Orthopedics	4	5.33
Paediatrics	5	6.67
Psychiatry	6	8.00
Radiology	3	4.00
Respiratory medicine	5	6.67
Surgery	10	13.33
Mean duration of covid duty (days)	7	7
Past history of psychiatric illness		
Yes	1	1.33
No	74	98.67
Past history of psychiatric treatment		
Yes	1	1.33
No	74	98.67
Mean Anxiety score (HAMA) out of total 75 (n=72)	8.03 ± 4.49	Range 2 -18
Mean Depression score (HDRS) out of total 75 (n=33)	7.94 ± 1.48	Range 5-11

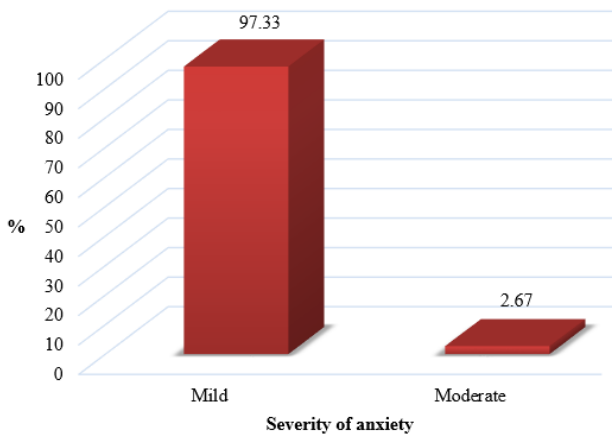


Fig. 2: Severity of anxiety among respondents

Somatic anxiety was present in 100% participants with mild severity present in 52% participants and moderate severity present in 48% participants.

Psychic anxiety was present in 96% participants with 53.33% having mild severity, 40% having moderate severity and 2.66% having severe symptoms.

Insomnia early in night was present in 77.33% participants with 34.66% having mild severity and 42.66% having moderate severity.

Mild depressed mood was present in 44% participants of which 24% being females and 20% being males.

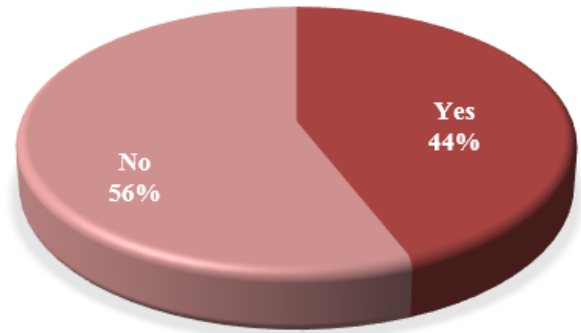


Fig. 3: Depression in respondents (Proportion = 44.0%, 95%CI: 32.5 to 55.9%)

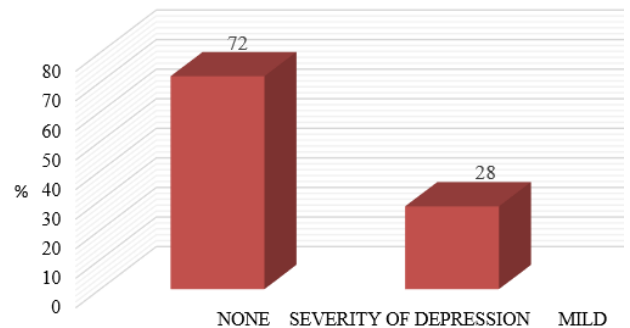


Fig. 4: Severity of depression among respondents

Female participants had significantly higher scores (for both anxiety and depression) in comparison to males with significant findings on P(unpaired t test) on HAM-A d(P=0.0105) and HDRS(P=0.0275).

Scores across the specialty departments did not differ significantly (for both anxiety and depression) but were remarkably high scores were observed in OB/GY and Ophthalmology department and remarkably low in Respiratory Medicine and Orthopaedics depts.

When all 12 specialty departments were ranked by their respective anxiety scores Obstetrics and Gynaecology and Ophthalmology were found at top while Respiratory

Table 2: Association of anxiety and depression with gender, and specialty departments

Factor		n	Anxiety		Depression	
			Mean HAMA score	SD	Mean HDRS score	SD
Gender	Male	44	6.70	4.44	4.80	2.90
	Female	31	9.39	4.24	6.26	2.58
P (Unpaired t-test)			0.0105*, S		0.0275*, S	
Specialty Department	Anaesthesia	8	9.12	5	6.5	2.98
	Dermatology	4	7.5	5.69	5.0	3.37
	ENT	3	8.0	3.0	5.33	2.08
	Internal medicine	18	6.39	4.06	4.5	3.11
	Obstetrics & Gynaecology	4	11.0	5.29	7.75	2.75
	Ophthalmology	5	10.8	2.39	7.2	1.92
	Orthopedics	4	4.5	1.73	3.0	0.82
	Paediatrics	5	8.6	4.39	6.0	2.45
	Psychiatry	6	8.67	5.16	5.17	2.93
	Radiology	3	10.0	6.93	6.33	3.69
	Respiratory medicine	5	4.2	2.77	3.8	2.39
	Surgery	10	8.2	5.01	5.8	2.74
P (ANOVA, F-test)			0.2858, NS		0.2927, NS	

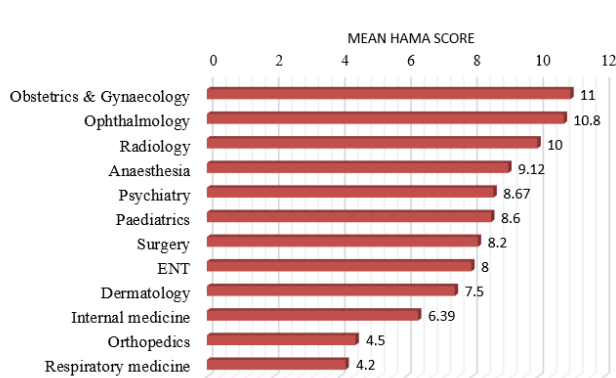


Fig. 5: Ranking of Departments by anxiety scores

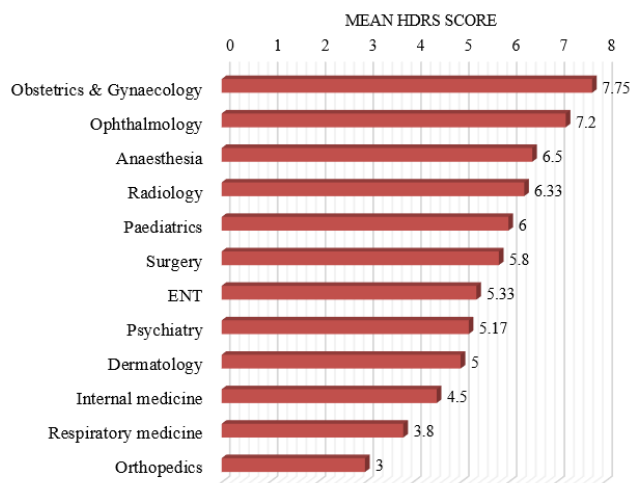


Fig. 6: Ranking of departments by depression scores

medicine and Orthopaedics were found at the bottom position.

When all 12 specialty departments were ranked by their respective depression scores Obstetrics and Gynaecology and Ophthalmology were found at top while Orthopaedics and Respiratory medicine were found at the bottom position.

4. Discussion

In current study, almost all participants reported anxiety, but with mild severity and almost half reported depression but with mild severity. This is because of less family support and changes in the ways of working of resident doctors. Also, there is high risk of infection and perceived stigma of the illness. The physical symptoms of anxiety like respiratory, cardiovascular and autonomic symptoms

were more common resembling the symptoms of COVID 19 infection. This study also highlights the levels of symptomatology in resident doctors, indicating that resident doctors belonging to different speciality departments experience different severity of anxiety and depression. We have also seen the association of gender with the current symptoms, with female gender having significant symptoms of anxiety and depression as compared to males.

Chatterjee SS et al in March 2020 studied attitude, practice, behaviour, and mental health impact of COVID-19 on 152 doctors using Depression, Anxiety, and Stress Scale-21. Results showed 34.9% were depressed and 39.5% and 32.9% were having anxiety and stress, respectively.

Significant predictors for psychiatric morbidities were experience in health sector, duty hours, use of protective measures, and altruistic coping.⁷

S.Gupta et al in March 2020 studied the prevalence of anxiety and depressive symptoms among 769 armed forces doctors in India during the COVID-19 pandemic using the hospital anxiety and depression scale (HADS). Anxiety and depressive symptoms were seen in 35.2% and 28.2% of the doctors, respectively. In doctors with anxiety symptoms, significant associations were observed with age, gender (females > males), duration of service (0–10 years), and clinical versus non-clinical specialties (non-clinical > clinical). In doctors with depressive symptoms, significant associations were observed with age, clinical versus non-clinical specialties, duration of service (0–10 years), and doctoral degree.⁸

Das A. et al in May 2020 to June 2020 conducted a study amongst frontline workers in tertiary care hospitals in 4 major cities in India using Patient Health Questionnaire and Perceived Stress Scale. Among 422 responses, 63.5% and 45% prevalence of symptoms of depression and stress, respectively with moderate and severe depression in 14.2% and 3.8% of the doctors, respectively and Moderate and severe stress was noted in 37.4% and 7.6% of participants, respectively. Working >6 hours/day and unmarried status being significant risk factors.⁹

Selvaraj P et al in April 2020 and May 2020 conducted a cross-sectional study among 777 doctors posted in COVID 19 wards using DASS-21 questionnaire and the Insomnia Severity Index (ISI) to measure depression, stress, anxiety, and insomnia. Around 55% of medical officers in the study reported having moderate levels of depression. 52% men reported severe anxiety and 24% moderate anxiety. 68% females reported moderate anxiety and 48% reported severe anxiety. 30% and 44% male doctors reported mild and moderate level of stress respectively. And 70% and 56% of females reported mild and moderate levels of stress respectively.¹⁰

Chew N et al in April 2020 conducted a survey in 906 health care workers in Singapore and India which showed 5.3% having symptoms of moderate to very-severe depression, 8.7% for moderate to extremely-severe anxiety, 2.2% for moderate to extremely-severe stress, and 3.8% for moderate to severe levels of psychological distress.¹¹

Imran N et al in April 2020 conducted a survey amongst 10,178 post graduate trainees using an e-log system in college in Pakistan which showed prevalence of depressive symptoms 26.4%, generalised anxiety disorder 22.6% and acute stress disorder 4.4%.¹²

Que J et al in February 2020 conducted a web based survey of 2285 healthcare workers which showed the prevalence of symptoms of anxiety, depression, insomnia and the overall psychological problems in healthcare workers during the COVID-19 pandemic in China was

46.04%, 44.37%, 28.75% and 56.59%, respectively.²

Zhang WR et al in March 2020 explored whether medical health workers had more psychological problems than nonmedical workers using 2182 Chinese subjects using Insomnia Severity Index (ISI), the Symptom Check List-revised (SCL-90-R), and the Patient Health Questionnaire-4 (PHQ-4). Comparatively, medical health workers had higher prevalence of insomnia (38.4% vs 30.5%), anxiety (13% vs 8.5%), depression (12.2% vs 8.5%) and somatisation (1.6% vs 0.4%).¹³

Lu W et al in February 2020 assessed depression and anxiety amongst 2042 of the first line health workers. Fear assessment was done using Numeric Rating Scale, anxiety and depression were assessed by HAM-A and HAM-D. Proportion of fear in medical staff was higher than non medical staff (70.6% vs 58.4%) and anxiety was mild to moderate in 22.6% vs 17.1% in non medical staff. There was no significant difference in depression between medical and non-medical staff.¹⁴

Thus, there is an increased risk of development of anxiety and depressive symptoms in the front line workers and thus it is important to recognise and find a solution to these problems. Immediate interventions to enhance psychological resilience and strengthen the healthcare systems' capacity are needed.

Clear communication, limitation of shift hours, provision of rest areas are necessary.

5. Conclusion

Resident doctors working in COVID-19 wards are susceptible for anxiety, depressive symptoms and insomnia. There is 100% prevalence of anxiety with 73 (97.33%) resident doctors had mild severity of anxiety and 2 (2.66%) had moderate severity of anxiety as per HAM-A scale. There is 26.66% prevalence of mild depression as per HDRS scale. Respiratory symptoms of anxiety were the most common symptom followed by anxious mood followed by insomnia. Somatic and psychic anxiety symptoms of depression were most common symptom followed by insomnia followed by depressed mood. Female gender was found to be more susceptible to anxiety and depressive features as compared to males. Residents belonging to Obstetrics and Gynaecology and Ophthalmology showed more anxiety and depressive features and Respiratory Medicine and Orthopaedics showed the least.

6. Limitations

1. Single institution based.
2. Sample size is small.
3. Telephonically interviewed so high chance of variable assessment of symptoms.

7. Source of Funding

None.

8. Conflicts of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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