



A Need to Change Resident Training Curriculum: Impact on Mental Health- A lesson learned from COVID-19

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Abstract

Introduction

Doctors have been the frontline warriors in the fight against COVID-19. Residents are especially vulnerable to the mental health impact of COVID-19 because of various factors like: fear of contracting COVID-19 from patients, loss of medical training in their respective fields, insomnia, social discrimination, fear of transmission to family members and lack of training to handle such wide scale health crisis.

Materials and Methods

The residents posted in COVID-19 patient care wards during the peak of COVID-19 in 2021 were asked questions related to their mental health using the DASS questionnaire. The residents were divided into two groups: 1) Residents from specialities that routinely encounter high emergency inflow of patients or/and high mortality rates. 2) Residents from specialities with low emergency patient inflow or/and low mortality rates. Their responses were recorded and subsequently scored according to the scale suggested by the DASS questionnaire. SPSS 21 was used to analyse the data and formulate the results.

Results

Residents in group 2 showed significantly higher levels of symptoms related to depression, anxiety and stress ($p = 0.000$) in comparison to group 1.

Conclusions

With respect to the training of the healthcare workers, it is especially important to include a basic mandatory curriculum pertaining to patient care in the emergency setup for all the residents, especially those that do not have routine exposure to high inflow of emergency patients. There is also a need for proper psychological support for the residents working in high-demand conditions.

Abbreviations

DASS, Depression Anxiety Stress Scale; MERS, Middle East Respiratory Syndrome; OB/GYN, Obstetrics and Gynaecology; SARS, Severe Acute Respiratory Syndrome.

Keywords: Psychological health, COVID-19, Medical training, Medical residents

Introduction

Doctors have been the frontline warriors in the fight against COVID-19. In India, the first case of COVID-19 was detected on 30 January 2020. After that, the number of cases rose dramatically, claiming

severe thousand lives over a span of 2 years. Residents enrolled in various specialities were recruited for the care of COVID-19 positive patients admitted in various hospitals all across the country. The toll of COVID-19 pandemic on the mental health

of the healthcare workers was alarming and of greater concern as these are the first line of defense in the fight against COVID-19 [1,2]. An earlier study from Iran showed that around one-third of the health care workers in the COVID-19 specialised hospitals had some level of psychological problem [3].

Outbreaks of other respiratory viruses in the past like SARS and MERS revealed that the occurrence of psychological problems is more common in medical professionals as compared to general population [4,5]. Residents are especially vulnerable to the mental health impact of COVID-19 because of various factors like: fear of contracting COVID-19 from patients, loss of medical training in their respective fields, insomnia, social discrimination, fear of transmission to family members and lack of training to handle such wide scale health crisis [6].

Objectives

1. To study the impact of COVID-19 on mental health of residents from various specialities employed in the care of patients admitted due of COVID-19 pneumonia.
2. To determine if there is a difference in the degree of severity of mental health impact among residents from different specialities.
3. To determine the need of psychological support as well as adequate training of residents in advent of such pandemics prior to enrollment in patient care.

Materials and Methods

Study Design: A total of approximately 200 medical residents were employed in the care of COVID-19 positive patients admitted in a tertiary care hospital. The present study was done on medical residents of the tertiary care institute catering to COVID-19 patients during the peak of COVID-19 cases (3-month period) in the region in the year 2021. The residents were posted for one-week shifts each in various COVID-19 wards with one week quarantine afterwards and the cycle was repeated. All the residents that were recently posted, within one month, were approached for inclusion in the study after they matched the inclusion and exclusion criteria. Out of all the residents, only 132 agreed as well as matched the criteria and hence, included in the study. Each of these residents were given a self-

reporting DASS 21 questionnaire to fill up. Responses of the residents were recorded and scored accordingly and the severity of impact on mental health was noted down. The residents from specialities that encounter comparatively lesser mortality rates and lesser emergencies in routine practice (Physiology, Anatomy, Dermatology, Ophthalmology and Pathology) were later grouped together and compared with those residents who encounter higher mortality rates and emergencies (Medicine, Surgery, Anaesthesiology, Orthopaedics, Otorhinolaryngology, Paediatrics, and OB/GYN) in their respective specialities, to compare if there is significant difference in the degree of severity of impact on mental health due to COVID-19 pandemic among these residents. This division was made arbitrarily based on experience and general consensus as seen in routine practice rather than a predetermined objective cut-off value. Their responses were noted and the scores were categorised according to the rules of the questionnaire and the results were drawn and analysed.

Selection Criteria And Sample Size: Residents, who recently finished their one-week duty in the COVID wards as well as those with no comorbidity and with no family member currently suffering from COVID-19 were asked questions regarding their mental health. Also, the residents with any ongoing health issues were excluded from the study. The residents included in the study had a minimum of 10 hours of duty per day per posting cycle in the COVID-19 wards. All the residents included in the study were asked for consent (verbal) before inclusion in the study and the entire process was discussed with them.

For the sample size calculation, a prevalence of 50% was considered, however, only 132 residents matched the criteria for selection (mentioned above) in the study.

Data Collection And Analysis Tools:

DASS 21 questionnaire: DASS 21 stands for Depression, Anxiety, Stress Scale with contains 21 questions, seven each for depression, anxiety and stress. Each question is numbered from 0 to 3 based on the participants experience about the question asked. The total score for each of the three categories of DASS scale is calculated by simple summation and then categorised into 5 categories as suggested

by the rules for interpretation of the scale. The five categories are 'normal', 'mild', 'moderate', 'severe' and 'extremely severe'. This questionnaire is easy to use and understand, takes less time to fill, records responses experienced within a month, reliable and validated [7-9].

SPSS IBM software: SPSS version 22 was used to record the responses of the medical residents after initial categorisation of the responses on the basis of DASS 21 questionnaire. The frequency of responses according to the particular specialities of the residents was calculated. Also, the Chi-square test was performed on the results based on the type of speciality (low mortality and emergency rates vs high mortality and emergency rates) as mentioned above. Lastly, the inferences were drawn based on the final results.

Ethical Considerations: There was no violation of any ethical code. The study did not involve any intervention or collection of any sample from the participants. Consent was taken from each participant. The study was labelled as category C by the institutional ethical committee which means that the study does not involve any intervention or sample collection.

Results

A total of 132 post-graduate students were enrolled in the study (Table 1). Each one of them was given a DASS questionnaire to fill.

Depressive Symptoms:

Among the postgraduates from the department of medicine, only 25.6% showed some degree of depressive symptoms. Of these, 4.7% showed mild, 14% showed moderate, 2.3% showed severe and 4.7% showed extremely severe degree of depressive symptoms.

Among surgery residents, only 2 residents (6.1%) showed some degree of depressive symptoms and these scored mild on the scale. None of the residents showed more severe depressive symptoms.

Among ophthalmology residents, 77.8% showed some degree of depressive symptoms while among dermatology residents, 83.3% showed some degree of depressive symptoms (Table 2).

Anxiety Symptoms:

Among medicine residents, 32.6% showed some degree of anxiety symptoms. Of these, 7% showed mild, 14% showed moderate, 4.7% showed severe and 7% showed extremely severe symptoms of anxiety.

Among surgery residents, only 15.2% of these showed some degree of anxiety related symptoms with 6.1% showing mild and moderate degree of symptoms each while 3% showing severe degree of symptoms. None of the residents showed extremely severe degree of symptoms.

88.9% of the ophthalmological residents showed some degree of anxiety symptoms while 83.3% of the dermatology residents showed anxiety related symptoms (Table 3).

Stress Related Symptoms:

Among medicine residents, 16.3% showed some degree of stress related symptoms. Of these, 9.3% showed moderate and 7% showed severe degree of symptoms.

Among surgery residents, only 1 (3%) resident showed some degree (mild) of stress related symptoms.

77.8% of the ophthalmology residents showed some degree of stress related symptoms. Of these, 33.3% showed mild, 11.1% each showed moderate and severe degree of symptoms and 22.2% showed extremely severe degree of stress related symptoms.

Among dermatology residents, 66.7% showed some degree of stress related symptoms (Table 4).

This study found out that residents from the departments that witness high mortality and emergency rates routinely (Medicine, Surgery, Paediatrics, Orthopaedics, OB/GYN, Anaesthesia and Otorhinolaryngology) had significantly lower proportion of residents demonstrating depressive symptoms as compared to residents from departments with lesser mortality rates and emergencies (Physiology, Anatomy, Ophthalmology, Dermatology and Pathology) i.e., $\chi^2 (1, N=132) = 32.784, p = 0.000$.

This study also found out that residents from the departments that witness high mortality and emergency rates routinely (Medicine, Surgery, Paediatrics, Orthopaedics, OB/GYN, Anaesthesia and Otorhinolaryngology) had significantly lower

proportion of residents demonstrating anxiety symptoms as compared to residents from departments with lesser mortality rates and emergencies (Physiology, Anatomy, Ophthalmology, Dermatology and Pathology) i.e., $\chi^2 (1, N=132) = 24.572, p = 0.000$.

This study also found out that residents from the departments that witness high mortality and emergency rates routinely (Medicine, Surgery,

Paediatrics, Orthopaedics, OB/GYN, Anaesthesia and Otorhinolaryngology) had significantly lower proportion of residents demonstrating stress related symptoms as compared to residents from departments with lesser mortality rates and emergencies (Physiology, Anatomy, Ophthalmology, Dermatology and Pathology) i.e., $\chi^2 (1, N=132) = 35.681, p = 0.000$.

Table 1: Distribution of postgraduates among various specialities in the study

Frequency		Percent
Physiology	6	4.5
Medicine	43	32.6
Anatomy	4	3.0
Surgery	33	25.0
Pediatrics	10	7.6
Orthopedics	7	5.3
OB/GYN	8	6.1
Ophthalmology	9	6.8
Anesthesia	4	3.0
Otorhinolaryngology	1	.8
Dermatology	6	4.5
Pathology	1	.8
Total	132	100.0

Table 2: Percentages of postgraduates showing depressive symptoms among various specialities

		Depression					Total
		Normal	Mild	Mode rate	Severe	Extremely Severe	
Physiology	Count	0	2	2	1	1	6
	% within Department	0.0%	33.3%	33.3%	16.7%	16.7%	100.0%
Medicine	Count	32	2	6	1	2	43
	% within Department	74.4%	4.7%	14.0%	2.3%	4.7%	100.0%

Anatomy	Count	2	0	2	0	0	4
	% within Department	50.0%	0.0%	50.0%	0.0%	0.0%	100.0%
Surgery	Count	31	2	0	0	0	33
	% within Department	93.9%	6.1%	0.0%	0.0%	0.0%	100.0%
Pediatrics	Count	7	1	1	0	1	10
	% within Department	70.0%	10.0%	10.0%	0.0%	10.0%	100.0%
Orthopedics	Count	6	1	0	0	0	7
	% within Department	85.7%	14.3%	0.0%	0.0%	0.0%	100.0%
OB/GYN	Count	4	4	0	0	0	8
	% within Department	50.0%	50.0%	0.0%	0.0%	0.0%	100.0%
Ophthalmology	Count	2	2	2	3	0	9
	% within Department	22.2%	22.2%	22.2%	33.3%	0.0%	100.0%
Anesthesia	Count	2	0	1	0	1	4
	% within Department	50.0%	0.0%	25.0%	0.0%	25.0%	100.0%
Otorhinolaryngology	Count	1	0	0	0	0	1
	% within Department	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Dermatology	Count	1	2	2	1	0	6
	% within Department	16.7%	33.3%	33.3%	16.7%	0.0%	100.0%
Pathology	Count	0	1	0	0	0	1
	% within Department	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%

Table 3: Percentages of postgraduates showing anxiety symptoms among various specialities

	Anxiety					Total
	Normal	Mild	Moderate	Severe	Extremely Severe	

Physiology	Count	1	0	0	2	3	6
	% within Department	16.7%	0.0%	0.0%	33.3%	50.0%	100.0%
Medicine	Count	29	3	6	2	3	43
	% within Department	67.4%	7.0%	14.0%	4.7%	7.0%	100.0%
Anatomy	Count	1	0	2	1	0	4
	% within Department	25.0%	0.0%	50.0%	25.0%	0.0%	100.0%
Surgery	Count	28	2	2	1	0	33
	% within Department	84.8%	6.1%	6.1%	3.0%	0.0%	100.0%
Pediatrics	Count	6	0	2	1	1	10
	% within Department	60.0%	0.0%	20.0%	10.0%	10.0%	100.0%
Orthopedics	Count	7	0	0	0	0	7
	% within Department	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
OB/GYN	Count	1	2	2	2	1	8
	% within Department	12.5%	25.0%	25.0%	25.0%	12.5%	100.0%
Ophthalmology	Count	1	2	3	3	0	9
	% within Department	11.1%	22.2%	33.3%	33.3%	0.0%	100.0%
Anesthesia	Count	1	0	2	0	1	4
	% within Department	25.0%	0.0%	50.0%	0.0%	25.0%	100.0%
Otorhinolaryngology	Count	1	0	0	0	0	1
	% within Department	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Dermatology	Count	1	0	2	3	0	6
	% within Department	16.7%	0.0%	33.3%	50.0%	0.0%	100.0%
Pathology	Count	0	0	0	1	0	1

% within Department	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
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Table 4: Percentages of postgraduates showing stress related symptoms among various specialities

		Stress					Total
		Normal	Mild	Moderate	Severe	Extremely severe	
Physiology	Count	2	1	2	0	1	6
	% within Department	33.3%	16.7%	33.3%	0.0%	16.7%	100.0%
Medicine	Count	36	0	4	3	0	43
	% within Department	83.7%	0.0%	9.3%	7.0%	0.0%	100.0%
Anatomy	Count	2	0	2	0	0	4
	% within Department	50.0%	0.0%	50.0%	0.0%	0.0%	100.0%
Surgery	Count	32	1	0	0	0	33
	% within Department	97.0%	3.0%	0.0%	0.0%	0.0%	100.0%
Pediatrics	Count	9	0	0	1	0	10
	% within Department	90.0%	0.0%	0.0%	10.0%	0.0%	100.0%
Orthopedics	Count	6	1	0	0	0	7
	% within Department	85.7%	14.3%	0.0%	0.0%	0.0%	100.0%
OB/GYN	Count	5	3	0	0	0	8
	% within Department	62.5%	37.5%	0.0%	0.0%	0.0%	100.0%
Ophthalmology	Count	2	3	1	1	2	9
	% within Department	22.2%	33.3%	11.1%	11.1%	22.2%	100.0%
Anesthesia	Count	3	0	1	0	0	4
	% within Department	75.0%	0.0%	25.0%	0.0%	0.0%	100.0%

Otorhinolaryngology	Count	1	0	0	0	0	1
	% within Department	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Dermatology	Count	2	1	1	1	1	6
	% within Department	33.3%	16.7%	16.7%	16.7%	16.7%	100.0%
Pathology	Count	0	1	0	0	0	1
	% within Department	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%

Discussion

The present study demonstrates that a significant proportion of residents from various fields working in the care of COVID-19 patients suffered from psychological distress during this period. This was especially true for the residents from specialities that have comparatively lesser mortality rates and emergency inflow. The differences between these two groups were significant in terms of symptoms related to depression, anxiety and stress.

A cross-sectional study done in China reported that there was high level of psychological distress among medical trainees, especially postgraduate students and those involved in active patient care during COVID-19 [10]. Another study from China reported that one of the factors for high level of psychological distress among primary care physicians was lack of preparedness for the care of patients suffering from COVID-19 pandemic [11]. This was in accordance to the present study.

One of the major roles of medical institutions as well as governing bodies is to protect its working force. Factors like lack of social support, loneliness, stigma, fear of transmission, long working hours etc. are some of the predictors of mental health issues faced by health care workers [12,13]. The pandemic of the corona virus 2019 has still not subsided which necessitates the allocation of resources as well as formation of necessary infrastructure as well as optimum training of the healthcare workers for tackling with the pandemic. Such strategies will also secure the stance of the medical world in fighting with any such pandemics in the future. With respect to the training of the healthcare workers, it is

especially important to include some basic curriculum pertaining to patient care in the emergency setup for all the residents, especially those that do not have routine exposure to high inflow of emergency patients. There is also a need for proper psychological support for the residents working in high-demand conditions. Coping strategies like yoga, exercise, meditation might help [14].

Conclusion

Impact on mental health of residents during the pandemic is a matter of concern. There is a need to strengthen the psychological support to young residents. The world around us is constantly changing and newer organisms and diseases are being discovered. COVID-19 pandemic has taught us some important lessons. Lack of preparedness, lack of exposure to such overwhelming patient inflow, longer exhaustive shifts, social stigma and fear for the family may be some of the reasons for increased mental distress among many residents. This is especially true for specialities that don't witness massive patient inflows regularly as well as those with less mortality rates among patients.

This study concludes that there is a need for inclusion of some basic training curriculum focussing on emergency patient care as well as improvement of psychological support for all residents.

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This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethical issue:

The institutional ethics committee labelled the study as category C which means there were no ethical issues involving the study. Hence, there is no ethical issue involved in the present study.

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