

Original Research Article

Psychological impact of COVID-19 on doctors and medical undergraduate students in a government medical college in Uttar Pradesh, India

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ABSTRACT

Background: COVID-19 wrath has influenced the socio economic, physical and mental health well-being of all the citizens. Doctors being at the frontline has been affected substantially by it. The paucity of literature on mental health impact of medical health professionals directed the present study to explore the Psychological Impact of COVID-19 on doctors and medical undergraduates.

Methods: A cross section online survey was used for data collection. Socio demographic, COVID 19 related preventive practice, Oslo social support scale-3 (OSSS-3) for social support and impact of events scale-revised (IES-R) scale for assessment of psychological Impact was used. Data was analyzed using SPSS 23.

Results: Overall 56 (36.36%) of the participants reported having psychological Impact of whom 25 (43.86%) doctors and 31 (31.96%) students were affected. The predictor variables as derived by the regression model were presence of comorbidity, poor social support and postings in isolation wards.

Conclusions: Large scale longitudinal multicentric studies can provide a better picture of the actual magnitude of the mental health impact. The predictive factors should be taken into account for policy making decisions. Coping skills and mental health preparedness for the frontline warriors can be lifesaving and will uplift their morale for better delivery of healthcare services in a resource constrained setting.

Keywords: COVID-19, Psychological impact, IES-R

INTRODUCTION

The world was taken up by the novel corona virus COVID-19 progressively since its spread from China and which affected the global socio-economic political scene. The world health organization (WHO) declared it as public health emergency of international concern (PHEIC) on 30 January, 2020.¹ On February 11, 2020, the WHO has officially declared the COVID-19 as “pandemic” from the previous status of global health emergency.¹

The prime minister of India has declared a three-week nationwide lock-down starting from midnight of the 25th of March 2020 followed by two more lockdowns, explaining that it was an essential and effective measure for breaking the COVID-19 infection cycle. Social distancing is a critical means to break the cycle of infection. There is a significant decrease in growth rate and increased doubling time of cases because of the lock-down.²

The WHO has also expressed its concern over the pandemic's mental health and psycho-social consequences which is devastating not only for the individual but for the nation as well (WHO, 2020).³ It speculates that new measures such as self-isolation and quarantine have affected usual activities, routines, and livelihoods of people that may lead to an increase in loneliness, anxiety, depression, insomnia, harmful alcohol, and drug use, and self-harm or suicidal behavior (WHO, 2020). The problems of anxiety, fear, depression, insomnia, low self-esteem, excessive use of substances is leading to frequent interpersonal issues among the healthcare workers (HCWs), between the first-line workers and the administrators; HCWs, and human resource administrators.⁴

The paucity of literature on mental health impact of such stressful events on the frontline warriors' paves way for research in this area. Healthcare providers are continuously working in fearful, stressful, unprepared and resource constrained healthcare settings where they are under the continuous threat of getting exposed and infected. The psychosocial and mental health well-being of these warriors is even more crucial than managing health of the disease affected population as they are the health care delivery agents without who's well-being the nation can be at a verge of collapse. In a recent study in India, out of 152 doctors, 34.9% were depressed and 39.5 and 32.9% were having anxiety and stress, respectively.⁵ Overall, doctors have a high prevalence of mental health morbidities, but the topic is very less researched.

The undergraduate medical students who all are not only the budding healthcare professionals but also at the transition from student life to healthcare delivery providers' life. Along with the other stressful settings they are also more prone to psychological impact due to their fresh entry into this profession and facing a challenging wrath of the COVID-19.

The objective of the present study is to assess the incidence of psychological impact of COVID-19 on doctors and medical undergraduate students at a COVID-19 dedicated hospital.

METHODS

Study design and study area

A cross sectional, observational study was carried on medical professionals (faculty and residents) and first year medical undergraduate students at a government medical college in Ayodhya, Uttar Pradesh.

Sample size and data collection

Ethical clearance was obtained from the institutional ethical committee of the government medical college, Ayodhya. Purposive The questionnaire was shared online with the participants of the study over a time period of

one week from 5th to 11th April, 2020. Voluntary response sampling technique was used for data collection. The online form consisted of a brief introduction and purpose of the study and the informed consent of the participants. The participants who gave consent were directed to a set of questions comprising of socio demographic details, COVID-19 related practices and the IES-R (impact of events scale-revised) questionnaire. The reminders were sent after 2 days twice. The participants whose responses were not complete were excluded from the study.

Tools used

A semi open-ended, pre-tested questionnaire was used. The questionnaire consisted of socio-demographic details of the subjects and COVID-19 related practices. OSSS-3 scale was used to describe the level of social support among the participants.⁶ This scale incorporates three components covering different fields of social support giving a total score ranging from 3-14. A score of 3-8 was graded as 'poor support,' 9-11 'moderate support,' and 12-14 'strong support.'

IES-R questionnaire

This tool comprised of 22-items questionnaire which measure the effect of routine life stress, everyday traumas and acute stress. For all questions, scores could range from 0 through 4 on Likert scale.⁷ Categorization of the score ranges from 24 to 32, 33 to 36 and more than 37 which signify mild, moderate and severe psychological impact respectively.⁷ Among this scale, the Intrusion subscale is mean item response of items 1, 2, 3, 6, 9, 14, 16, 20. The avoidance subscale is the mean item response of items 5, 7, 8, 11, 12, 13, 17, 22. The hyper arousal subscale is the mean item response of items 4, 10, 15, 18, 19, 21.⁸ The information collected was kept confidential and anonymity of the participants was maintained.

Statistical analysis

Statistical analysis was performed using SPSS statistic 23.0 (IBM SPSS statistics, New York, United States). Appropriate simple descriptive tabulations and tests of significance like chi-square test were used. For identifying determinants, univariate odds-ratio estimation was followed by derivation of models, through logistic regression to find out the predictors of psychological impact of COVID-19. Independent variables were selected by univariate method (chi square test) having p value <0.25. Variables which were found to be collinear and variables having small frequencies were not entered in the regression model. Backward stepwise likelihood ratio (LR) was used to find the significant predictors of psychological impact among the participants. The criteria for entering and removing the independent variables from the backward stepwise model was p<0.05. In the final model, all possible interactions having biological plausibility were checked. Hosmer-Lemeshow goodness of fit test was applied to test the model fitting.

RESULTS

Socio demographic and preventive practices of the participants

In this study 57 medical professionals (junior residents, senior residents and faculty members) and 97 first year medical students participated. The mean age of the study participants was 26.07 years (Mean±SD=26.07±8.34 years). Almost two thirds of the participants were male (male-61.7% and female-38.3%). Nearly three fourths were single (single-72.1%, married-27.3% and divorced-0.6%) Out of the 57 medical professionals, 35 (61.4%), were postgraduates, 17 (29.8%) were graduates and 5

(8.7%) had super specialty (DM/Mch/MDS) degree. Nearly one out of 5 belonged to joint family 27 (17.5%) and rest of the participants belonged to nuclear family 127 (82.5%). Travel history within fourteen days prior to commencement of lockdown was present in 8 (5.2%) of the participants. Among the doctors 39 (68.4%) were posted in non COVID areas (flu OPD, quarantine ward, emergency) and 18 (31.5%) were posted in isolation wards or sampling areas. Most of them 134 (87%) were aware about infection prevention measures. 8 (5.2%) of the participants felt they have been ostracized by society. Social support was poor/moderate among 27 (17.54%) of the respondents. Comorbidity was present in 13 (8.44%) of the participants (Table 1).

Table 1: Socio demographic and preventive practices of the participants (n=154).

Variables		Percentage (%)
Age (years)	Mean±SD=6.07±8.34	
Gender	Male	95 (61.68)
	Female	59 (38.32)
Marital status	Married	42 (27.27)
	Unmarried	111 (72.07)
	Divorced/ widowed	1 (0.64)
Type of family	Nuclear	127 (82.46)
	Joint	27 (17.54)
Education	Undergraduate	97 (62.99)
	Graduate	17 (11.04)
	Postgraduate (MD/MS/MDS/Mch/DM)	40 (25.97)
Profession	Doctor	57 (37.01)
	Student	97 (62.99)
Travel history	Within country	6 (3.90)
	Outside country	2 (1.30)
Place of posting	COVID-19	18 (11.69)
	Non COVID-19	39 (25.32)
	Not applicable	97 (62.99)
Social support	Strong	127 (82.46)
	Poor/moderate	27 (17.54)
Are you aware about infection control practices?	Yes	134 (87.01)
	No	6 (3.90)
	May be	14 (9.09)
How often do you forget using infection prevention measures?	Never	5 (3.25)
	Sometimes	82 (53.25)
	Most of the time	5 (3.25)
Comorbidity	Present	13 (8.44)
	Absent	141 (91.56)

Psychological impact as measured on the IES-R is depicted in chart no. 1 and 2

The psychological impact as measured on the IES-R was present among 56 (36.36%) of the participants. Among those who had psychological impact, 25 (44.64%), 14 (25%), 17 (30.36%) respondents had mild, moderate and severe psychological impact. The subscales scores are mentioned in (Table 2).

Table 2: Scoring on the subscales-mean (SD).

Subscale	Scoring
Intrusivity subscale (0-32)	7.11 (7.00)
Avoidance subscale (0-32)	8.51 (5.63)
Hyper-arousal subscale (0-24)	4.76 (4.00)

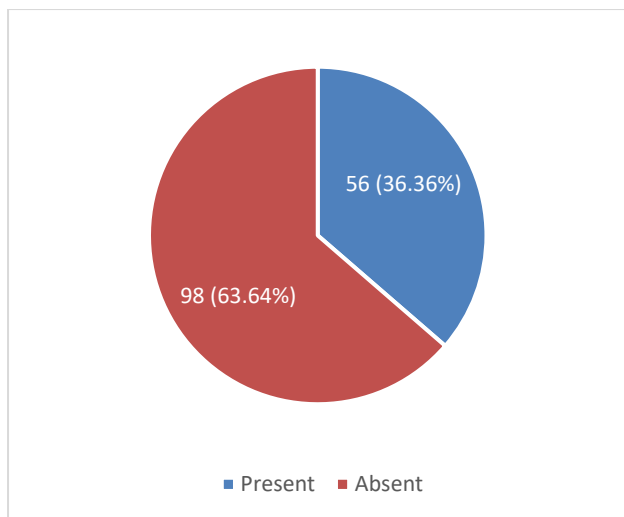


Figure 1: Magnitude of psychological impact in study subjects (n=154).

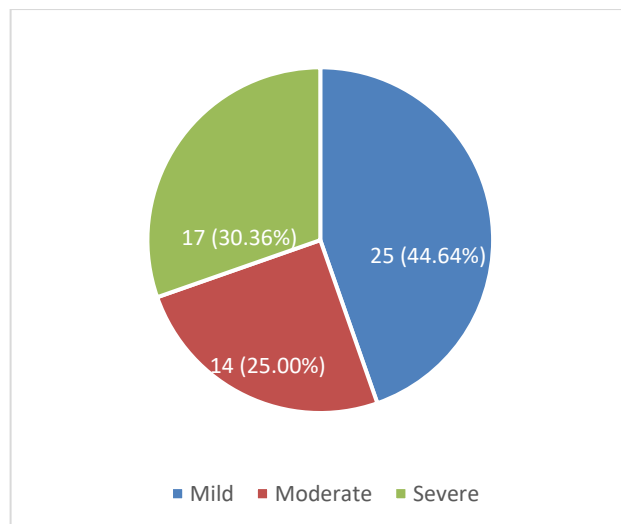


Figure 2: Severity of psychological impact in study subjects.

Table 3: Predictor variables for psychological impact as derived from the regression model.

Predictor variables	B	SE	Adjusted OR (95% CI)	P value
Comorbidity	Present	2.215	7.16 (2.24-9.46)	0.049**
	Absent [#]			
Social support	Poor	2.396	3.84(1.72-5.38)	0.021**
	Strong [#]			
Place of posting	Isolation ward	1.806	6.084 (1.368- 27.059)	0.018**
	Others [#]			

Reference category, Nagelkerke R²=0.335. **Statistically significant (p<0.05).

Association of psychological impact with various factors/variables

Independent variables were selected by univariate method (chi square test) having p<0.25. Backward stepwise LR was used to find the significant predictors. For the purpose of finding out association psychological impact (assessed by using IES-R) was dichotomized into two groups-participants with IES score 0-22 and those with scores ≥23. In the final model all possible interactions having biological plausibility were checked. Hosmer-Lemeshow goodness of fit test was applied (p=0.289). Nagelkerke R-square was 0.335 implying that 33.5% of psychological impact could be explained by this model. This model could correctly classify 77.2% of the cases.

DISCUSSION

In this study the psychological impact as measured on IES-R was present among 36.36% of the participants which was similar to a recent study in India in which among the 653 respondents 33.2% had significant (mild/moderate/severe) psychological impact regarding COVID-19.⁹ In another study carried out in Italy it was found that medical professionals more often presented

with relevant psychopathological symptoms (GHQ-28 (general health questionnaire-28) total score >24) than the non-medical group (60.8 vs. 48.0%, respectively) such as anxiety, insomnia and somatic symptoms even after adjustment for potential confounding factors.¹⁰

The psychological impact was present among 25 (43.86%) doctors and 31 (31.96%) medical students ranging from mild to severe. The fact that respondents who were having preexisting comorbidities (self-reported) had a greater probability of having psychological impact of this crisis (Adjusted OR -7.16) is in itself a concern for the physical and mental health well-being of an individual. The footprints of negative mental health are a longer lasting traitor when compared to physical health. The need of the hour is to put mental health warriors (psychiatrists and psychologists) to safeguard the mental health of other health warriors to save the individual and the nation from long lasting mental health consequences of the pandemic. The study surely emphasizes that the mental health impact needs to be monitored on a large scale and effective strategies to be developed. Social support of the doctors and medical students as estimated in the study was not good enough (17.54% had moderate to poor social support) to warrant better interpersonal communication and friendly work

culture for a better yield from them. The social support found in our study was comparable to a study done on call center workers in Delhi.¹¹ The doctors who were posted in Isolation wards were the worst affected (adjusted OR -6.08) probably due to the fear of acquiring the infection, spreading the infection to other colleagues and family members, the quarantine period to be followed after the isolation ward duties, staying away from family for an extended period, the herculean task of donning and doffing and so on. This finding was similar. The limitation of the present study is that it could not tell per say that the psychological impact was the result of COVID-19 fear or the strict protocols of the lockdown and it has no baseline data to compare the mental health status of the study subjects before the onset of the pandemic. Moreover, the case load of COVID-19 patients of the district was much less at the time of the study so a prospective study on the same subjects can be done in present times with a greater case load.

CONCLUSION

The present study can provide some scoping base to further studies that is needed at this hour to guide the policy makers for provision of adequate mental health well-being of the doctors and other healthcare workers. This pandemic's wrath on mental health cannot be underscored be it the public in general or the doctors in particular and for that matter any frontline worker. The guidelines for positive mental health during COVID-19 outbreak should be emphasized and implemented with full zeal to combat its negative impact on mental health well-being. The lessons learnt from this pandemic can be used for policies and mental health task force for the general public and specific policies and preparedness for the frontline workers to save them from the present crisis and any unforeseen future mental health crisis.

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