

Psychological Health of Doctors during Pandemic: A tertiary hospital study

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Abstract

Background: The onset of COVID-19 pandemic gave concerns for the mental health of healthcare providers facing challenges from a novel pathogen. Doctors are at higher risk to experience burnout generally. There is little information on the added stress on doctors' well-being to help prevent burnout.

Methods: An online survey was conducted among health care professionals in a tertiary hospital in India from April 1st-31st 2020. We present findings of doctors, including trainees. The questions looked at the overall mental status, participant concerns regarding personal safety and of their family. We explored their perceptions to the protective gear availability and other logistical support. Perceived family, community, and institution support and stigma were evaluated. The concerns and worries were grouped under five themes 1) attitude towards illness, 2) physical health concerns, 3) resource availability 4) mental health status, and 5) perception of the support systems. These themes were then compared across groups based on age, gender, designation/years of experience, training received, and active involvement in COVID care.

Results: Active involvement in COVID care and adequate training was associated with lesser worries and lower negative attitudes towards the crisis. Our study did not reveal any significant differences based on age, gender, and designation.

Conclusions: Training and exposure to fieldwork may have reduced concerns and worries among doctors and increased the individual's confidence in the organization and its processes. Early training for healthcare staff may enhance their sense of control over the situation, reduce stress and burnout.

Key words: COVID, healthcare professionals, psychosocial, mental health, Burnout

Introduction

Since early 2020, the world has been witnessing an unprecedented crisis unfold in the area of public health. Communities and governments struggle to grapple with a calamity of multiple economic, logistical, and administrative problems that have arisen in this context.

The swift spread of the contagion globally has overwhelmed healthcare systems across countries. An infrastructure shortage including that of personal protective equipment, and other medical supplies needed to combat the outbreak, increased the challenges involved.

Healthcare services, in general, rank high on occupational stress with rates of burnout in physicians estimated to be about 50% in cross sectional

assessments^[1]. The ongoing pandemic added to the job demands on clinicians, particularly doctors. Comprehending the impact of the pandemic on health care staff is important to plan future response strategies and mitigating the ongoing distress.

PubMed was searched for relevant literature on the mental health of healthcare workers during the current pandemic. Relevant articles that explored the mental health of health care providers, during the previous epidemics of Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS,) and Ebola were also reviewed for a broader understanding of the subject.

Epidemics and pandemics, especially when involving a novel and virulent pathogen, cause substantial psychological distress, anxiety, depression, and long-

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term sequelae in the form of persisting traumatic stress.

Studies from Canada during the SARS outbreak and one study from the Middle East during the MERS outbreak were the only ones we came across which looked at factors influencing the mental health of doctors in epidemics. Primary themes reported were social isolation and stigmatization, personal safety, job stress, the efficacy of protective gear and measures, and adequacy of systemic supports^[2,3,4,5,6,7,8]. Sociocultural context played a role in risk perception and consequent stress response among the healthcare workers, during times of crisis.

The healthcare worker's response to this situation can be analyzed using Karasek's Job Demand-Control model^[9]. The nature of stress response to job demand increase is associated with offered control and background skill.

We aimed to look at the concerns, challenges, and responses to the COVID-19 crisis among all healthcare professionals. We also looked at the principal factors underlying their stress to provide an insight into the effective remediation of the same.

Materials and Methods:

Study design and participants:

In a cross-sectional online survey, conducted in April 2020, during the first wave of the COVID 19 pandemic in India, doctors from a tertiary care medical college hospital in the south of India were surveyed to assess their understanding, preparedness, and psychosocial needs. This group consisted of faculty, postgraduates, and interns.

Approval from the head of the institute was taken to collect the data and consent from the participants were taken during the online survey. All data was anonymized.

Methodology

A questionnaire was created to assess the specific psychosocial needs of healthcare professionals specific to the local sociocultural context. The survey questionnaire was intended to be short to collect essential information given the pandemic context. The time required to complete the survey was less than 10 mins. The questionnaire had necessary demographic information and 30 questions to capture the psychosocial aspects during the initial times of the pandemic. Twenty-eight questions were on a Likert scale, and two questions were open-ended for broader responses. The questions were framed by a group of three psychiatrists and a clinical psychologist working in the institute. All questions were reviewed by experts comprising of Psychiatrists, Psychologists,

Physicians, Community Medicine faculty, Dean, and the Registrar of the institute. The questions were then grouped into five themes 1) Attitude towards illness, 2) Concerns about physical health, 3) Availability of the resources, 4) Mental health status, and 5) Perception of the support system. The thematic grouping was done to group responses and enable data analysis. The qualitative data obtained in the two questions will be discussed elsewhere.

The study population of doctors was sent an email with the link to the questionnaire, and the participation was voluntary. The responses were collected online and compiled without any personally identifiable factors.

Statistical analysis:

IBM SPSS® 17.0, was used for statistical analysis. A descriptive statistical analysis was done to describe demographic data. Inferential statistics were used to assess the statistical significance of the differences between the respondents.

A sub-group of doctors involved in handling potential COVID 19 patients in flu clinics and isolation wards were identified and compared with others who were not actively involved in handling potential cases. Responses from these two groups were compared using the independent sample t-test and Levene's Test for equality of variance to look at the differences. A similar analysis was done to compare groups of doctors who were trained or not in handling/dealing with COVID 19. Statistical significance was determined at $P < 0.05$ and results were tabulated.

Results

A total of 254 responses were received from the targeted population of 750 with a response rate of 33.8% (Table 1).

Table 1: Demographic details of the study population

Demographic details			
		N (254)	Percentage
Designation	Faculty	126	49.6
	Postgraduates	71	28.0
	Interns	57	22.4
Gender	Male	120	47.2
	Female	134	52.8
Age Groups in years	Under 25	62	24.4
	26-35	97	38.2
	36-45	52	20.5
	46-55	26	10.2
	above 55	17	6.7
Actively involved in handling COVID 19 patients	Yes	110 (M: F,46:64)	43.3
	No	144 (M: F,74/70)	56.7
Received training regarding COVID 19 care	Yes	72	28.3
	No	182	71.7

The respondents in the survey consisted predominantly of faculty accounting for 49.6% of the surveyed sample and almost equal representation (52.8% females and 47.2% males) from both the gender. The predominant age group being 26-35 yrs of age (38.2%).

Of all our respondents, 43.3% were actively involved in COVID-19 related healthcare, and 28.8% of the total had received training for the same (Table 2).

Table 2: Comparison effect of training on themes of worries between faculty, postgraduate and intern group

Themes	Status	Mean Square	F	p*
Attitude towards illness	Trained	.267	.486	.617
	Not trained	1.076	3.255	.041
Concerns about physical safety	Trained	.175	.452	.638
	Not trained	.394	.833	.436
Availability of resources	Trained	.552	.505	.606
	Not trained	4.202	5.103	.007
Mental health status	Trained	.008	.171	.843
	Not trained	.029	.824	.440
Perception of the support system	Trained	.703	2.858	.064
	Not trained	1.251	5.703	.004

Independent test; *p <0.05

We analyzed the differences between doctors who were trained or not, to specifically handle the COVID 19 crisis. This training had been conducted primarily through videos and other online resources and health with the proper usage of personal protective gear and the existing knowledge and guidelines on treatment.

We found that doctors who had not received the training showed a negative attitude towards the illness. They also perceived inadequacies in terms of

human and material resources available. The same group also felt the need for a better support system within the institution, which included support from the superiors and the institute.

No statistical differences in the themes were identified when analyzed for gender, clinical roles, and age groups.

We found that the group which was not actively involved in COVID 19 related clinical services had a negative attitude towards the illness and also had the perception that the resources to handle the pandemic were inadequate (Table 3).

The concerns about physical safety, mental health status, and perception of the support system did not show any group differences.

Discussion

Our study found a significant association between training and the attitude towards the illness. We also found that the doctors who were not actively involved in the care of cases had significantly more negative attitudes towards the illness. They were also found to be more concerned about the availability of protective equipment and thus personal safety as compared to the frontline doctors.

Our findings are in contrast to previous studies conducted during other outbreaks, where the psychological distress was higher in frontline staff^[10,11] or was reported to be the same across all healthcare workers regardless of exposure^[12].

We posit that training, as well as first-hand experience in the field, leads to greater offered control^[9]. There may also be a reevaluation of the perceived risk with a movement from direct risk perception which is more affect-driven, to rational risk perception which is a more cognitive approach to risk estimation.

Table 3: Comparison of Actively involved vs not actively involved in COVID 19 care

Involvement in COVID care and themes of worries						
Themes	Involvement in COVID care	Levene's Test		t-test		
		F	Sig.	t	df	p*
Attitude towards illness	Actively involved	4.344	0.04	-1.575	108	0.118
	Not actively involved	0.605	0.44	-2.234	142	0.027
Concerns about physical safety	Actively involved	0.481	0.49	-.710	108	0.479
	Not actively involved	1.316	0.25	1.301	142	0.195
Availability of resources	Actively involved	0.428	0.51	-0.705	108	0.483
	Not actively involved	0.034	0.85	-2.417	142	0.017
Mental health status	Actively involved	3.706	0.06	1.218	108	0.226
	Not actively involved	0.765	0.38	.383	142	0.702
Perception of the support system	Actively involved	5.567	0.02	1.089	108	0.279
	Not actively involved	2.590	0.11	-0.572	142	0.568

Levene's Test for Equality of Variances

Several other studies from the Ebola, MERS, H1N1 outbreaks also report similar findings^[5,13,11]. Formal training leading to decreased distress has also been discussed in a study from China^[11] and recommended by another study from Taiwan^[14]. Continuous updating of knowledge base and skills in tackling the novel pathogen should have a definite ameliorating influence on worries and concerns^[4,5].

On the other hand, some studies report findings to the contrary^[8,10,15]. Risk perception estimation is a multifaceted process. Perhaps sociocultural and other contextual factors modulating the risk perception lead to the differences among these studies^[16].

In contrast to most other studies, our survey findings did not reveal a significant difference between men and women across the various themes of worry explored. The same can be said of the various age groups when compared for worries. This is in variance with preexisting literature on epidemics as well as workplace stress in general where women and certain age groups are found to experience higher levels of stress^[2,3,4,6,7,17]. Perhaps the social structure and cultural nuances in our context may explain this difference. Grandparents assisting in child-rearing and domestic chores may help in decreasing the overall stress and anxiety experienced by female doctors.

The overall findings on the themes of worries are in keeping with our existing understanding of the various factors underlying the work-related stress of doctors during disease outbreaks and factors contributing to it. Previous studies during epidemics like SARS have revealed similar factors or themes of concerns and worries among healthcare staff^[8,16,18].

Our study had the limitation of being cross-sectional. Thus it gave us insight into the concerns of doctors during the initial stages of the outbreak in India. Since this is an evolving scenario, a longitudinal assessment of the concerns and worries of the healthcare staff would be more informative, especially considering the contrarian possibilities of deleterious long-term effects of persistent stress versus stress inoculation.

Conclusion:

In conclusion, our survey findings highlight the importance of training/ re-training the doctors in context-specific clinical skills and knowledge required. This may go a long way in boosting confidence and countering the anxiety generated. Also, the first-hand experience of handling suspected cases seems to have had a recalibrating effect on the risk perceived. The differences with training were significant in the domains of preparedness and comfort in handling the suspected cases. It also seemed to increase the confidence of the individual in the organizational

processes and resources available. In keeping with existing literature on disease outbreaks, we recommend early initiation of training for healthcare staff during a disease outbreak to enhance their sense of control over the situation.

Though our study was limited to one centre, at this point, we believe that the concerns reported are not unique to our centre. We feel that majority of doctors, and health care settings in most parts of the world are in a similar situation, and thus the impact of the pandemic has been felt more or less in a similar way in large parts of the world.

References

- West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med* [Internet]. 2018 Jun [cited 2023 Jul 10];283(6):516–29. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/joim.12752>.
- Abolfotouh, M.A., AlQarni, A.A., Al-Ghamdi, S.M., Salam, M., Al-Assiri, M.H. and Balkhy, H.H. (2017). An assessment of the level of concern among hospital-based healthcare workers regarding MERS outbreaks in Saudi Arabia. *BMC Infectious Diseases*, [online] 17(1). Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5210292/> [Accessed 19 Jun. 2019].
- Al Sulais E, Mosli M, AlAmeel T. The psychological impact of COVID-19 pandemic on physicians in Saudi Arabia: A cross-sectional study. *Saudi J Gastroenterol*. 2020;26(5):249–55.
- Alsubaie S, Hani Temsah M, Al-Eyadhy AA, Gossady I, Hasan GM, Al-rabiaah A, et al. Middle East Respiratory Syndrome Coronavirus epidemic impact on healthcare workers' risk perceptions, work and personal lives. *J Infect Dev Ctries* [Internet]. 2019 Oct 31 [cited 2023 Jul 10];13(10):920–6. Available from: <https://jidc.org/index.php/journal/article/view/11753>
- Goulia, P., Mantas, C., Dimitroula, D., Mantis, D. and Hyphantis, T. (2010). General hospital staff worries, perceived sufficiency of information and associated psychological distress during the A/H1N1 influenza pandemic. *BMC Infectious Diseases*, 10(1).
- Imai, H., Matsuishi, K., Ito, A., Mouri, K., Kitamura, N., Akimoto, K., Mino, K., Kawazoe, A., Isobe, M., Takamiya, S. and Mita, T. (2010). Factors associated with motivation and hesitation to work among health professionals during a public crisis: a cross sectional study of hospital workers in Japan during the pandemic (H1N1) 2009. *BMC Public Health*, 10(1).
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z. and Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA Network Open*, [online] 3(3), pp.e203976–e203976. Available at: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2763229>.
- Maunder R. The experience of the 2003 SARS outbreak as a traumatic stress among frontline healthcare workers in Toronto: lessons learned. May RM, McLean AR, Pattison J, Weiss RA, editors. *Phil Trans R Soc Lond B* [Internet]. 2004 Jul 29 [cited 2023 Jul 10];359(1447):1117–25. Available from: <https://royalsocietypublishing.org/doi/10.1098/rstb.2004.1483>
- Karasek R, Theorell T. Linking productivity and health. *Healthy Work: Stress, Productivity, and the Reconstruction of Working Life* Robert Karasek and Tores Theorell New York: Basic Books, Inc. 1990. *Natl Prod Rev* [Internet]. 1990 [cited 2023 Jul 10];9(4):475–8. Available from: <https://onlinelibrary.wiley.com/doi/10.1002/npr.4040090411>
- Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Comprehensive Psychiatry* [Internet]. 2018 Nov [cited 2023 Jul 10];87:123–7. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0010440X18301664>
- Liu CY, Yang Y zhi, Zhang XM, Xu X, Dou QL, Zhang WW, et al. The prevalence and influencing factors in anxiety in medical workers

- fighting COVID-19 in China: a cross-sectional survey. *Epidemiol Infect* [Internet]. 2020 [cited 2023 Jul 10];148:e98. Available from: https://www.cambridge.org/core/product/identifier/S0950268820001107/type/journal_article
12. Chan AOM. Psychological impact of the 2003 severe acute respiratory syndrome outbreak on health care workers in a medium size regional general hospital in Singapore. *Occupational Medicine* [Internet]. 2004 May 1 [cited 2023 Jul 10];54(3):190–6. Available from: <https://academic.oup.com/occmed/article-lookup/doi/10.1093/occmed/kqh027>
 13. Khalid, I., Khalid, T.J., Qabajah, M.R., Barnard, A.G. and Qushmaq, I.A. (2016). Healthcare Workers Emotions, Perceived Stressors and Coping Strategies During a MERS-CoV Outbreak. *Clinical Medicine & Research*, 14(1), pp.7–14.
 14. Feng MC, Wu HC, Lin HT, Lei L, Chao CL, Lu CM, et al. [Exploring the Stress, Psychological Distress, and Stress-relief Strategies of Taiwan Nursing Staffs Facing the Global Outbreak of COVID-19] - PubMed [Internet]. [cited 2023 Jul 10]. Available from: <https://pubmed.ncbi.nlm.nih.gov/32495331/>
 15. Maunder, R., Hunter, J., Vincent, L., Bennett, J., Peladeau, N., Leszcz, M., Sadavoy, J., Verhaeghe, L., Steinberg, R. and Mazzulli, T. (2003). The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *Canadian Medical Association Journal*, 168(19), pp.1245–51.
 16. Slovic P, Peters E. Risk Perception and Affect - Paul Slovic, Ellen Peters, 2006 [Internet]. [cited 2023 Jul 10]. Available from: <https://journals.sagepub.com/doi/abs/10.1111/j.1467-8721.2006.00461.x?journalCode=cdpa>
 17. Nickell LA, Crighton EJ, Tracy CS, Hadi AE, Bolaji Y, Hanjrah S, et al. Psychosocial effects of SARS on hospital staff: survey of a large tertiary care institution - PMC [Internet]. [cited 2023 Jul 10]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC343853/>
 18. Maunder, R.G., Lancee, W.J., Rourke, S., Hunter, J.J., Goldbloom, D., Balderson, K., Petryshen, P., Steinberg, R., Wasylenki, D., Koh, D. and Fones, C.S.L. (2004). Factors Associated With the Psychological Impact of Severe Acute Respiratory Syndrome on Nurses and Other Hospital Workers in Toronto. *Psychosomatic Medicine*, 66(6), pp.938–942.

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