Research article

Impact of overburden due COVID-19 pandemic on psychological health and work efficacy of doctors in Mangalore city, Dakshina Kannada district -A cross-sectional study

Carol Furtado[1], Nitin Joseph[2], Sushantha Perduru[3], Maria Nelliyanil[3], Manjula Anil[4], Shreenidhi Shetty[3]

[1]A J Institute of Medical Sciences and Research Institute, Mangalore, Karnataka, India
[2]Department of Community Medicine, Kasturba Medical College, Mangalore, Manipal Academy of Higher Education, Manipal, India
[3]Department of Community Medicine, A J Institute of Medical Sciences and Research Institute, Mangalore, Karnataka, India
[4]Kasturba Medical College, Manipal, Karnataka, India

(Received: December 2023 Revised: January 2024 Accepted: February 2024)

Corresponding author: **Maria Nelliyanil**. Email: Drmarian@ajims.edu.in

ABSTRACT

Introduction and Aim: One of the greatest pandemics faced by the world was COVID-19 which has added increased strain and psychological impacts on healthcare workers. This study was conducted to find out the impact of overburden due to COVID-19 on the psychological health of doctors and further to know whether it has affected the services provided by them.

Materials and Methods: An information sheet which contained the details regarding purpose and nature of the study, questionnaire and consent form were given to each participant. Data was collected through email, WhatsApp, and physical forms. Depression, anxiety, stress, self-efficacy, and perceived social support were assessed using standard questionnaires.

Results: Out of the 205 participants, 9 (4%) had a mild depression, 6(3%) had mild anxiety and 6(3%) had mild stress. Female doctors, those involved in fever clinics and inpatient care of COVID patients had significantly higher scores for depression, anxiety and stress when compared to others. Those involved in ICU care of COVID patients had higher General Self Efficacy (GSE) scores. General Self Efficacy (GSE) and Multidimensional Scale of Perceived Social Support (MSPSS) scores showed a positive correlation.

Conclusion: Doctors involved in care of COVID-19 patients at fever clinic and inpatient care had several mental health problems. Hence, they along with female doctors need to be periodically screened for these conditions periodically.

Keywords: COVID-19; psychological health; work efficacy; doctors.

INTRODUCTION

COVID-19 has been the one of the greatest pandemics faced by the world so far and it has added increased strain on the healthcare resources worldwide (1). The district of Dakshina Kannada in Karnataka has accounted for 1,37,221 positive cases as on 22/11/2023 (2). There has been immense work done on the impact of COVID-19 on healthcare workers. Studies have found that the pandemic has had a psychological impact like anxiety, depression, stress and burnout among frontline workers (3). The main challenges faced have been fear of infection, social isolation, stigma, guilt, financial hardships, and uncertainty (4,5). The long working hours and excessive workload may lead to negative and detached feelings towards patients (6).

This study was done to find out the impact of the current COVID-19 pandemic on psychological health and work-efficiency of doctors and its association with perceived social support among them. This will in turn help to address these issues to have better well-being among the doctors which is the need of the hour. The primary objectives were to assess the impact of COVID-19 pandemic on the psychological health of doctors and on the work-efficacy of doctors. The secondary objectives were to assess the association between psychological health and perceived social support among doctors, and to assess the association between efficacy and perceived social support among doctors.

MATERIALS AND METHODS

A cross sectional study was conducted in Mangalore city of Dakshina Kannada in the month of year. All doctors who were registered with the Indian Medical Association, Mangalore Branch were invited to participate. Those giving written informed consent for participation were included in this study. Study was conducted for a period of 3 months from June to August 2021

Sample size was calculated based on the findings of a previous study where 50.4% of the doctors were having anxiety and stress Hence, sample size (n) was calculated using the formula $n = 4pq/d^2$, considering 13% as p, with 95% confidence interval, an absolute error (d) of 5% the sample size estimated for the study was 180. Adding10% to make up for non-responses the final sample size was calculated as 200(7).

The list of medical practitioners who were enrolled in Indian Medical Association, Mangalore was obtained. Members, whose email IDs, or phone numbers were available, were included in the study population. 300 participants were randomly selected among them using a random number. The information sheet which contained the details regarding purpose and nature of the study, questionnaire and consent form was created through Google forms, following which it was sent by email to all the selected 300 participants. The same was shared via WhatsApp also. The recipients of the information sheet were requested to share the survey among their network of doctors. Physical copies of the information sheet were also given to consenting doctors to be filled. Reminders were sent to those who did not reply. A total of 205 participants responded giving a response rate of 68.3%. To maintain confidentiality, potential identifiers of doctors were not collected. A pretested semi-structured validated questionnaire was used to collect the data on background characteristics. Psychological well-being was measured by the Depression, Anxiety, and Stress Scale-21 (DASS-21), Efficacy was assessed using general self-efficacy scale (GSE) and perceived social support using Multidimensional Scale of Perceived Social Support (MSPSS).

The data was analyzed using SPSS (Statistical Package for Social Sciences) version 16. Descriptive statistics was applied, and data were presented proportions, median scores, and percentages. Mann Whitney U test was used to find the association of psychological health with demographic factors type of work, self-efficacy, and perceived social support. Spearman's correlation was used to assess the correlation between DASS, MPSS and GSE scores Statistical significance was set at 0.05% level of significance ($p < 0.05$).

RESULTS

The mean age of the study participants was 35.6 years (SD 9.5). Majority of the participants were female 112(56%). Most of the study participants worked in urban areas 179 (87%) Majority of the participants were working in fever clinic 70 (34%) followed by providing inpatient care to COVID 19 patients 64 (31%) (Table 1). Majority of the participants 92 (45%) agreed that they were afraid of getting infected and it used to freak them out. Majority of the participants 90 (44%) strongly agreed that they had the fear of infecting their family members in case they tested positive (Table 1).

Table 1: Characteristics of the study participants

Variable	**Frequency**	**Percentage**
Gender		
Male	93	45
Female	112	56
Place of work		
Rural	3	2
Urban	179	87
Semi urban	23	11
Type of work (multiple responses)		
Screening	57	28
Fever clinic	70	34
In patient care of Covid 19 patients	64	31
ICU care of covid 19	27	13
Triage	24	12
Contact tracing	23	11
I was afraid of getting infected and it used to freak me out		
Strongly agree	38	19
Agree	54	26
Neutral	49	24
Disagree	38	19
Strongly disagree	22	12
I was afraid of exposing my family members in case I tested positive.		
Strongly agree	90	44
Agree	93	46
Neutral	11	5
Disagree	11	5

Table 2: Distribution of study participants with depression, anxiety, and stress according to DASS-21 scores

Variables	Normal	Mild	Moderate	Severe
Depression	188 (92%)	9 (4%)	6 (3%)	2 (1%)
Anxiety	189(92%)	6 (3%)	10(5%)	
Stress	196(96%)	6 (3%)	3(1%)	

Table 3: Association of DASS-21 scores with certain factors

Variable	Depression		Anxiety		Stress	
	Median scores	P value	Median scores	P value	Median scores	P value
Gender						
Male	2.8	0.1	2.5	0.01	3.6	0.2
Female	3.5		3.4		4.1	
Type of Work						
Fever clinic						
Yes	3.9	0.02	3.6	0.01	4.6	0.00
No	2.8		2.6		3.5	
Triage						
Yes	3.6	0.3	3.1	0.5	3.4	0.5
No	3.1		2.7		4.3	
Contact tracing						
Yes	3.1	0.7	2.6	0.9	4.1	0.5
No	3.2		3.9		3.8	
ICU care						
Yes	3.8	0.1	2.9	0.9	3.6	0.04
No	3.1		3		3.9	
Inpatient care						
Yes	3.8	0.03	3.8	0.001	4.7	0.001
No	2.8		2.5		3.3	
Night shifts						
Yes	3.7	0.1	3.2	0.3	3.9	0.8
No	3.0		2.8		3.8	

Table 4: Association of GSE and MSPSS with certain factors

	GSE		MSPSS	
Variable	Median scores	P value	Median scores	P value
Gender				
Male	28.6	0.4	56.7	0.00
Female	29.1		68.6	
Type of Work Fever clinic				
Yes	29.4	0.2	62.9	0.9
No	28.6		62.8	
Triage				
Yes	29.3	0.5	61.3	0.3
No	28.7		63.2	
Contact tracing				
Yes	27.7	0.03	55.2	0.00
No	29.2		64.2	
ICU care				
Yes	30.2	0.04	63.8	0.5
No	28.5		62.6	
Inpatient care				
Yes	29.3	0.3	65.2	0.04
No	28.6		61.5	
Whether the participants they had Night shifts				
Yes	29.3	0.4	63.9	0.4
No	28.7		62.3	

Table 5: Correlation between DASS, MPSS and GSE

Components	Depression	Anxiety	Stress	MPSS	GSE
Depression		0.692*	0.804*	-0.123	-0.123
Anxiety	0.692*		0.759*	-0.113	-0.137
Stress	0.804*	0.759*		-0.021	-0.114
MPSS	-0.123	-0.113	-0.021		0.350*
Self-efficacy	-0.123	-0.137	-0.114	0.350*	

*Spearman's correlation is significant at the 0.01 level (2-tailed).

Most of the study patients were normal, 9(4%)of the study participants had mild depression, 6(3%) had moderate anxiety and 6(3%) had mild stress. On an average 1% suffered from severe depression (Table 2). Those involved in fever clinic and inpatient care of COVID patients had higher scores for depression, anxiety and stress and it was found to be statistically significant (Table 3). Higher scores of stresses were also seen in those involved in ICU care and were found to be statistically significant. Female health care workers had higher scores for anxiety which was found to be statistically significant (Table 3). Females and those involved in providing ICU care for COVID patients had higher MSPSS scores and it was found to be statistically significant. Those involved in providing ICU care for COVID patients had higher GSE scores it was found to be statistically significant (Table 4).

GSE and MPSS scores showed a positive correlation (Spearson's correlation coefficient+ 0.449) and was found to be statistically significant ($p<0.05$). Depression, anxiety, stress scores and MPSS and GSE scores showed a negative correlation (Spearson's correlation coefficient-0.12; Table 5).

DISCUSSION

In the current study 4% of the study participants had mild depression, 3% had moderate anxiety and 3% had mild stress. According to Zhu *et al.,* who surveyed HCWs to measure psychological impact of COVID-19 13.5% were found to have depression, 24.1% had anxiety and 29.8% of respondents were found to have stress (7). Zhan *et al*., (8) reported 27.3% of moderate to severe depression, and 9.4% of moderate to severe anxiety among the participants in their study.

In the current study it was highlighted that majority of the participants (45%) agreed that they were afraid of getting infected and it used to freak them out. Cao *et al.,* (9) also highlighted fear of infection in their qualitative study, and the same theme was also brought up in a cross-sectional survey by Chung and Yeung (10) in a free-text feedback.

Majority of the participants in the current study (41%) strongly agreed that they were afraid of exposing their family members in case they tested positive while another study reported that 79.7% of the participants feared of infecting their family members (11). A qualitative study done by Sun *et al.*, highlighted the same theme (12). Being aware that their family was safe had the highest impact in reducing stress as reported by Cai *et al.*, (13).

In the present study female doctors had higher scores for depression anxiety and stress, anxiety was found to be statistically significant. The study by Wang *et al.,* also reported females experience a higher degree of the psychological impact of the outbreak (14). Another nationwide study done in China, was also reported this to be an independent risk factor for anxiety (15).

Those involved in fever clinic and inpatient care of COVID patients had higher scores for depression, anxiety and stress and it was found to be statistically significant. Similar findings were by Lin *et al*., also reported that working in high-risk areas like emergency departments, intensive care units, and isolation wards have been found to have a greater risk for developing adverse psychological morbidities following outbreak (16).

In our study we found that depression, anxiety and stress was negatively correlated with social support, this emphasizes the importance of social support as a protective factor for mental health similar findings were reported by other studies (8,17,18). We also found positive correlation between self-efficacy and social support. Higher social support scores among people indicates that they receive adequate understanding and support from their family, friends, and colleagues. People with better social support have lower levels of loneliness and this helps to building higher self-efficacy, thus they have more respect, courage and do better professionally (19).

There has been immense work done on the impact of COVID-19 on healthcare workers. Previous studies have found that the pandemic has had a psychological impact like anxiety, depression, stress, and burnout among frontline workers. This study helps to understand the impact of the current COVID-19 pandemic on psychological health and efficiency of doctors in an urban area in Dakshina Kannada district and its association with perceived social support.

Limitations: Since the data was mainly collected using online based portals, it may not be representative of all the doctors in Mangalore city.

CONCLUSION

This study aimed to find out the extent of impact due to COVID-19 on doctors and whether it has affected

the service provided by them. Most of the study patients were normal, 4% of the study participants had mild depression, 3% had mild anxiety and 3 % had mild stress. We found that 90% of the participants were afraid of infecting their family members with COVID-19. We also found that those involved in fever clinic and inpatient care of COVID patients had higher scores for depression, anxiety and stress when compared to those involved in triage, contact tracing and ICU care of COVID patients. General Self Efficacy (GSE) and Multidimensional Scale of Perceived Social Support (MSPSS) scores showed a positive correlation. This study helps us to identify the factors like type of work, fear for the well-being of their family and themselves and perceived social support which interplay to affect the psychological health and efficiency of doctors during a pandemic. This will in turn help to address these issues to have better well-being among our doctors which is the need of the hour.

ACKNOWLEDGEMENT

We would like to express our gratitude to Indian Medical Association, Mangalore branch and all the doctors who participated in the current study. The authors gratefully acknowledge Rajiv Gandhi University of Health Sciences, Bangalore for the funding received to carry out the study under student research project.

CONFLICT OF INTEREST

The authors have no conflicts of interest.

REFERENCES

1. Roychoudhury, S., Das, A., Sengupta, P., Dutta, S., Roychoudhury, S., Choudhury, A.P., *et al.*, Viral pandemics of the last four decades: Pathophysiology, health impacts and perspectives. Int J Environ Res Public Health. 2020;17(24): 9411.
2. Covid.PDF - [Internet]. Available from: https://drive.google.com/file/d/1w8P97-7OFww687oTp581PS9Lytvjg7vU/view
3. Shaukat, N., Mansoor, A., Razzak, J. Physical and mental health impacts of COVID-19 on healthcare workers: A scoping review. Int J Emerg Med. 2020;13(1):1-8.
4. Banerjee, D., Rao, S.T.S., Kallivayalil, R.A., Javed, A. Psychosocial framework of resilience: Navigating needs and adversities during the pandemic, A qualitative exploration in the Indian frontline physicians. Front Psychol. 2021;12: 622132.
5. Shreffler, J., Petrey, J., Huecker, M. The impact of COVID-19 on healthcare worker wellness: A scoping review. West J Emerg Med. 2020;21(5):1059-1066.
6. Patel, R.S., Bachu, R., Adikey, A., Malik, M., Shah, M. Behavioral sciences review factors related to physician burnout and its consequences: A review. Behav Sci. 2018; 8(11): 98.
7. Zhu, Z., Xu, S., Wang, H., Liu, Z., Wu, J., Li, G., et al., COVID-19 in Wuhan: Sociodemographic characteristics and hospital support measures associated with the immediate psychological impact on healthcare workers. E Clinica lMedicine. 2020:24:100443.
8. Zhan, J., Chen, C., Yan, X., Wei, X., Zhan, L., Chen, H., et al., Relationship between social support, anxiety, and depression among frontline healthcare workers in China during COVID-19 pandemic. Front Psychiatry. 2022;13: 947945.
9. Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., et al., The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res. 2020:287:112934.
10. Chung, J.P.Y., Yeung, W.S. Staff mental health self-assessment during the COVID-19 outbreak. East Asian Arch Psychiatry. 2020; 30(2):34.
11. Urooj, U., Ansari, A., Siraj, A., Khan, S., Tariq, H. Expectations, fears and perceptions of doctors during Covid-19 pandemic. Pakistan J Med Sci. 2020;36(COVID19-S4): S37.
12. Sun, N., Wei, L., Shi, S., Jiao, D., Song, R., Ma, L., et al., A qualitative study on the psychological experience of caregivers of COVID-19 patients. Am J Infect Control.2020;48(6):592-598.
13. Cai, H., Tu, B., Ma, J., Chen, L., Fu, L., Jiang, Y., et al., Psychological impact and coping strategies of frontline medical staff in Hunan between January and March 2020 during the outbreak of coronavirus disease 2019 (COVID-19) in Hubei, China. Med Sci Monit. 2020; 26: e924171-1.
14. Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., et al., Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):e203976.
15. Zhang, W.R., Wang, K., Yin L., Zhao, W.F., Xue, Q., Peng M., et al., Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. Psychother Psychosom. 2020;89(4):242-250.
16. Lin, C.Y., Peng, Y.C., Wu, Y.H., Chang, J., Chan, C.H., Yang, D.Y. The psychological effect of severe acute respiratory syndrome on emergency department staff. Emerg Med J. 2007;24(1):12-17.
17. Alnazly, E., Khraisat, O.M., Al-Bashaireh, A.M., Bryant, C.L. Anxiety, depression, stress, fear and social support during COVID-19 pandemic among Jordanian healthcare workers. PLoS One. 2021.https://doi.org/10.1371/journal.pone.0247679
18. Guntzviller, L.M., Williamson, L.D., Ratcliff, C.L. Stress, Social Support, and Mental Health among Young Adult Hispanics. Fam Community Heal. 2020;43(1):82-91.
19. Liu, Y., Yang, C., Zou, G. Self-esteem, job insecurity, and psychological distress among Chinese nurses. BMC Nurs. 2021;20(1):1-7.