

Original Research Article

Psychological impact of COVID-19 among health care workers working in a tertiary care hospital of South India: a cross-sectional study

Vincy Nelson^{1*}, Jomon Joy², Sabu Stephen³

¹Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India

²Department of Psychiatry, SUT Academy of Medical Sciences, Vattapara, Kerala, India

³Department of Medicine, ESIC Model Hospital, Kollam, Kerala, India

Received: 17 February 2022

Revised: 11 March 2022

Accepted: 14 March 2022

*Correspondence:

Dr. Vincy Nelson,

E-mail: drvincy13@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: This study aimed to find out the psychological impact faced by the health care workers in a tertiary care hospital of India which will help in generalizing it to other states of the country as well other countries.

Methods: A cross-sectional study was conducted in a tertiary care hospital of South Kerala. Study period was from July 2020 to August 2020 during the post lockdown period. Study participants included the staff nurses, interns, post graduate students, doctors, pharmacists, supporting staff. A pre-designed, semi-structured questionnaire was administered to the study subjects. The general health questionnaire (GHQ 12) questionnaire was used to find out the mental health of the participants.

Results: A total of 200 subjects were included in the study among them 81 (40.5%) were males and 119 (59.5%) were females. Out of 200, doctors 148 (74%), nurses 36 (18%), pharmacist 6 (3%), supporting staff 10 (5%). Mean age of the population was 30.63±7.32 years. A GHQ-12 model questionnaire was used to assess the psychological distress among health care workers. In our study, the average GHQ-12 was 3.48 which was higher than the cut-off.

Conclusions: COVID-19 has led to lot of mental health problems and the impact is very huge among health care workers. Main concerns were anxiety, burnout, depression, stress-related disorders, over work, concern about family members and so on. Policies should be made in the international and national levels to help health care workers manage pandemic in the coming days with less stress and anxiety.

Keywords: COVID-19, Psychological impact, Health care workers, GHQ

INTRODUCTION

By the end of 2019, the COVID-19 emerged in Wuhan city, Hubei province, China. The rapid escalation of COVID-19 epidemic has resulted in a WHO-declared public health emergency of international concern. The global total number of COVID-19 cases has been several times that of SARS and the death toll has also exceeded that of SARS.¹ The WHO had announced COVID-19 a Global public health crisis.² This has lead the health-care systems entire world with a catastrophic risk for which

the world was stand still leading to further anxiety and fear of this never ending uncertainty. Doctors and nurses who are considered as the frontline warriors in leading the world faced so much stress and pressures across world. Frontline health workers were saving lives while encountering an increasing workload and risk of infection. In the early stage of COVID-19 epidemic, it was reported that infected health workers accounted for 29 percent of all hospitalized COVID-19 patient.² Health care workers worried about bringing the virus home and passing it on to their loved ones and family members-

elderly parents, newborns and immune compromised relatives. The use of protective equipment for long periods causes difficulties in breathing and limited access to toilet and water, resulting in subsequent physical and mental fatigue which itself result in the bad health.³ Also, non-quarantined frontline health ministers might be facing potential social isolation and quarantined health workers experiencing social discrimination. Therefore, they are susceptible to complex emotional reactions and psychological distress.

Various other factors directly and indirectly affect the psychological health including the stigma faced by medical fraternity, excommunication by the society, balancing between personal and professional lives, experiencing burnout due to increased work pressure and job insecurity, lack of safety equipment such as PPE and masks and trauma of watching large number of patients struggling with COVID-19 and seeing persons die may aggravate the condition.⁴ Even though vaccine came and many are vaccinated there is still stress among health care workers is still present and it is been a year since they are working for COVID-healthcare workers are not getting tested due to cost incurred and difficulty to do the procedure.⁵ As of 10 August 2020, in India average of 18.36 COVID-19 tests were performed per 1 million population.³ Health-care workers in India and the whole world was facing physical as well as psychological pressure, which added to the existing psychological pathology.⁶

Furthermore, the mental health problems of HWs would impair their attention, cognitive functioning and clinical decision-making, consequently increase the occurrence of medical errors and incidents and ultimately put patients at risk. It was also well known that acute stress in disasters could have a lasting effect on the overall wellbeing. Hence, the mental health problems of HWs in COVID-19 epidemic have become an urgent public health

concern. This psychological pandemic at the global level needs particular attention. We aimed to assess the presence of psychological distress, depression, anxiety, stress, and insomnia experienced by the healthcare workers in India related to COVID-19 pandemic.

METHODS

It was a cross-sectional study conducted in a tertiary care hospital of Kollam district of South Kerala. Study was done during the period July 2020 to August 2020 during the post lockdown period. Study participants included the staff nurses, interns, post graduate students, doctors, pharmacists, supporting staff of the institution. Institutional ethical clearance was taken before the conduct of the study. Informed consent was taken from all the participants before the conduct of the study. A pre-designed, semi-structured questionnaire was administered to the study subjects wherein objectives were explained respectively. The questions were prepared in the format

of Google forms which was sent across through social media platforms such as WhatsApp, e-mail following the restrictions and protocols of COVID-19. The GHQ 12 questionnaire was used to find out the mental health of the participants. Informed consent was taken from the respondents before the conduct of the study. Complete confidentiality of the respondents was ensured and no personal details were recorded for the purpose of the study such as name, address and contact details. All data collected were entered into Microsoft excel and analysed using statistical package for social sciences (SPSS) version 20. All qualitative variables are expressed in percentage and all quantitative variables in mean and standard deviation. Chi square test and t test were done to find association.

Instrument used

The GHQ is a measure of current mental health found by Goldberg in the 1970s and its development has been extensively used in different settings and different cultures.⁷⁻¹³ The questionnaire was originally developed as a 60-item instrument but at present a range of shortened versions of the questionnaire including the GHQ-30, the GHQ-28, the GHQ-20 and the GHQ-12 was available. The scale asked whether the respondent had experienced a particular symptom or behaviour recently. Each item was rated on a four-point scale (less than usual, no more than usual, rather more than usual or much more than usual) and for example when using the GHQ-12 it gave a total score of 36 or 12 based on the selected scoring methods. The most common scoring methods were bi-modal (0-0-1-1) and Likert scoring styles (0-1-2-3). Since the GHQ-12 was a brief, simple, easy to complete and its application in research settings as a screening tool was well documented. There is evidence that the GHQ-12 was a consistent and reliable instrument when used in general population samples.⁷

A GHQ-12 model questionnaire was used. GHQ was a widely used measure of non-psychotic psychological distress. There were 12 questions about respondents' depressive, anxiety symptoms, confidence and overall happiness, which were measured on a four point scale (1-less than usual, 2-no more than usual, 3-rather more than usual, 4-much more than usual). Next 1 and 2 are recorded to 0, 3 and 4 recorded to 1 James et al 2013. Finally, the values of the 12 questions were then summed, resulting in a scale ranging from 0 (the least severe affected) to 12 (the most severe affected). In our study, the average GHQ-12 was 3.48 which was higher than the cut-off.⁹

RESULTS

A total of 200 subjects were included in the study among them 81 (40.5%) were males and 119 (59.5%) were females. Out of 200, doctors 148 (74%) nurses 36 (18%), pharmacist 6 (3%), supporting staff 10 (5%). Mean age of

the population was 30.63 ± 7.32 years. 127 (63.5%) of population belonging in 20 to 30 years of age group and 56 (28%) belonged to the age group of 40-50 years. 148 (74%) of study population were doctors, 36 (18%) were nurses, pharmacist 6 (3%) and supporting staff 10 (5%). 121 (60.5%) were directly engaged in diagnosing, treating or providing care to suspected or confirmed COVID-19 patients. 28 (14%) were working in fever clinic, 11 (5.5%) in ICU, isolation 10 (5%), IP ward 21 (10.5%) and others in pharmacy and all around the hospital in shifting of patients and care takers 56 (26.5%). 68 (34%) of the study participants were taking HCQs as prophylaxis against COVID. 28 (14%) of the staff had old parents, 60 years at home and 25 (12.5%) had children less than 10 years at home. 23 (11.5%) were sent for quarantine due to exposure to COVID cases. Only 3.5% of the population suffered from co-morbidities like hypertension and one person suffered from diabetes mellitus. 127 (63%) were coming from home daily for work and it was a concern for majority of the staff and 37 stayed in hostel or with friends. 79 (39.5%) of study population experienced stigma and 47 (23%) went through unpleasant situations during the pandemic. Day to day lives of 170 (85%) study population were affected due to

the pandemic and 109 (54.5%) were concerned about being exposed to the illness, 19 (9.5%) had concerns about exposure to PPEs. 16 (8%) had concerns about uncertainty of life and 12 (6%) worried about the pay cuts which affected their normal life. 20 (10%) had a fear of getting infection 12 (6%) were anxious, 5 (2.5%) were depressed and 9 (4.5%) of study population experienced burn out. 26.5% were distressed. 183 (91.5%) received emotional support from family members. 127 (63.5%) were updating information about COVID through social media and guidelines by the government. 83% were anxious while interacting with patients without adequate PPE and masks, 77 (35.5%) were worried about the inavailability of PPE kits. 73 (66.5%) relaxed themselves by praying and meditation. 66 (33.5%) were always monitoring symptoms on oneself and family members. 35% were 6 (3%) panicked on developing flu-like symptoms and 22.5% were able to concentrate on activities less than usual. 16.5% experienced rather more than usual loss of sleep over worry due to pandemic. 58% experienced loss of confidence no more than usual and 31% were feeling unhappy and distressed rather more than usual. 52% have been able to face problems no more than usual and 17% less than usual.

Table 1: Epidemiological profile of the study population.

Parameters	Frequency	Percentage
Age group (in years)		
20-30	127	63.5
30-40	56	28.0
40-50	13	6.5
50-60	1	.5
>60	3	1.5
Gender		
Male	81	40.5
Female	119	59.5
Profession		
Doctor	148	74.0
Nurse	36	18.0
Pharmacist	6	3.0
Others	10	5.0
Category of experience		
Senior	44	22.0
Intermediate	47	23.5
Junior	109	54.5
Directly engaged in diagnosing		
Yes	121	60.5
No	79	39.5
Place of work		
Fever clinic	28	14.0
ICU	11	5.5
Isolation	10	5.0
COVID ward	21	10.5
All of the above	53	26.5
IP ward	77	38.5
HCQ prophylaxis		
Yes	68	34.0

Continued.

Parameters	Frequency	Percentage
No	132	66.0
Medical illness		
HTN	7	3.5
DM	1	.5
RESP	13	6.5
CAD	1	.5
None	175	87.5
Others	3	1.5
Place of stay		
At home	127	63.5
Colleagues	73	36.5
High risk members at home		
>60	28	14.0
<12	25	12.5
Pregnant	3	1.5
Chronic illness	7	3.5
More than 1	38	19.0
None	48	24.0
NA	51	25.5
Quarantined/isolated		
Yes	23	11.5
No	177	88.5
Unpleasant situation due to COVID		
Yes	47	23.5
No	153	76.5
Stigma faced from society		
Yes	79	39.5
No	121	60.5
COVID has affected day to day life		
Strongly agree	80	40.0
Agree	90	45.0
Neither agree/disagree	21	10.5
Disagree	8	4.0
Strongly disagree	1	.5
Important concern faced by staff		
Being exposed	109	54.5
Access to PPI	19	9.5
Uncertainty	16	8.0
Pay cut	12	6.0
None	17	8.5
Other	3	1.5
All	24	12.0
Emotions felt by the staff due to COVID		
Greater good	92	46.0
Confident	46	23.0
Anxiety	12	6.0
Depression	6	3
Burn out	9	4.5
Fear of getting infected	20	10.0
None	11	5.0
All	4	2.0
Emotional support from family		
Strongly agree	110	55.0
Agree	73	36.5

Continued.

Parameters	Frequency	Percentage
Neither agree/disagree	16	8.0
Strongly disagree	1	.5
Feeling stress at work		
Yes	53	26.5
No	106	53.0
Maybe	41	20.5
Monitoring symptoms of COVID		
Never	48	24.0
Always	67	33.5
Sometimes	85	42.5
Anxiety due to inadequate PPE		
Never	35	17.5
Always	71	35.5
Sometimes	94	47.0
Relaxation measures to overcome stress		
Pray	66	33.0
Meditate	7	3.5
Exercise	12	6.0
Eat a good meal	70	35.0
Talk	45	22.5

Table 2: General health questionnaire.

GHQ	Mean
GHQ	3.77

Table 3: General health questionnaire means of different variables.

GHQ	Mean
Able to concentrate	0.27
Lost sleep	0.19
Playing useful part	0.53
Capable of making decisions	0.49
Constantly at strain	0.36
Could not overcome difficulties	0.26
Enjoy your normal activities	0.19
Face up problems	0.31
Unhappy and depressed	0.40
Losing confidence	0.21
Worthless person	0.12
Reasonably happy	0.17
Overcome the pandemic	0.29

Table 4: GHQ score.

GHQ	Frequency	Percentage
<3	127	63.5
>3	73	36.5
Total	200	100.0

A GHQ-12 model questionnaire was used to assess the psychological distress among health care workers. There were 12 questions about respondents' depressive, anxiety symptoms, confidence and overall happiness, which were measured on a four point scale (1-less than usual, 2-no

more than usual, 3-rather more than usual, 4-much more than usual). Next 1 and 2 were recorded to 0, 3 and 4 recorded to 1 James et al 2013. Finally the values of the 12 questions were then summed, resulting in a scale ranging from 0 (the least severe affected) to 12 (the most severe affected). In our study, the average GHQ-12 was 3.48 which was higher than the cut-off 38. Of all the respondents 127 (63.5%) scored more than or equal to 3 which can be taken as psychologically impacted cases. This indicated that the mental health of respondents was in poor condition. Females showed higher score of GHQ-12 when compared to males. Of all the professionals in a tertiary care setup, nurses showed higher GHQ score which indicates they had more chances of psychological impact. This may be due to the fact that nurses had more close contact with the patients directly and they do spend more time with the patients rather than the other health care workers. The highest score was for items 4, 5, 9. Of these the average score of item 4 was 0.485 and highest which indicated majority of respondents were capable of making decision. The next highest average score was for item 9 of 0.395, majority scored 2 or 3 (74%), only 16% scored 0 showing that respondents felt unhappy and depressed.

DISCUSSION

COVID-19 had a huge impact over the daily life of every human being on earth, especially the freedom of movement, travel restrictions would have resulted in an anxious behaviour during the lock down period followed by restricted lockdown across the country. Unfamiliarity with this type of restriction of a personal and social freedom coupled with massive financial losses and social responsibility as health care workers would have affected them psychologically. In a study by Tan et al the

prevalence for depression and anxiety and stress in medical health-care personnel was 8.1%, 10.8% and 6.4%.¹⁴ In a study conducted in Singapore among health care workers, sixty-eight (14.5%) participants screened positive for anxiety, 42 (8.9%) for depression, 31 (6.6%) for stress.¹⁵ In another study done in Tamil Nadu the results were anxiety was observed in 55.65% of the participants whereas depression was reported from 32.1%, 53.72%, 42.7% and 35% of physicians, nursing staff, technicians and non-healthcare study population, respectively.¹⁶ The studied sample reported insomnia in 47%, 38.2%, 39.4% and 43% of doctors, nurses, technical staff and non-healthcare people, whereas overall psychological issues were found to affect 43.51%, 41.9%, 28.3% and 45% of the physicians, nurses, technical persons and non-healthcare general population where as in our study anxiety was seen in 12 (6%) and depression 9 (4.5%). In our study the prevalence of depression was more among females when compared to males and the same was found in a study conducted by Lai et al.^{17,18}

Limitations

We could not incorporate the whole staff who worked during pandemic due to various reasons. It would have been better if we could incorporate all the hospitals in our district so that the sample size was bigger and generalisability also better.

CONCLUSION

COVID-19 had led to lot of mental health problems and the impact is very huge among health care workers. Main concerns were anxiety, burnout, depression, stress-related disorders, over work, concern about family members and so on. The problems are aggravated by various biological, psychological and socio environmental factors. Salary cuts, tangible support from the higher authority, misinformation, unavailability of PPEs, stigma and job-related stress are some of the major contributory factors for the development of the mental health problems among the health care workers.

Very few studies have been done to know about the psychological impact of COVID-19 among health care workers across world. Lessons learnt from various countries should be incorporated so that more care can be given for the health care workers. Counselling and psychiatric consultations can be given for health care workers who are in need. Policies should be made in the international and national levels to help health care workers manage pandemic in the coming days with less stress and anxiety.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. WHO. Coronavirus. World Health Organization; 2020. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. Accessed on 1 February 2022.
2. WHO characterizes COVID-19 as a pandemic. PAHO. Available at: <https://www.paho.org/en/news/11-3-2020-who-characterizes-covid-19-pandemic/11/3/2020/> Accessed on 19 March 2020.
3. The Lancet. India under COVID-19 lockdown. Lancet. 2020;395(10233):1315.
4. WHO. Fact sheet: Coronavirus disease (COVID-19) pandemic. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. Accessed on 1 February 2022.
5. Docea AO, Tsatsakis A, Albulescu D, Cristea O, Zlatian O, Vinceti M, et al. A new threat from an old enemy: Re-emergence of coronavirus (review). Int J Mol Med. 2020;45(6):1631-4.
6. Liu S, Yang L, Zhang C, Xiang YT, Liu Z, Hu S, et al. Online mental health services in China during the COVID-19 outbreak. Lancet Psychiat. 2020;7(4):17-8.
7. Imo UO. Burnout and psychiatric morbidity among doctors in the UK: a systematic literature review of prevalence and associated factors. BJ Psych Bull. 2017;41(4):197-204.
8. Goldberg DP, Blackwell B. Psychiatric illness in general practice. A detailed study using a new method of case identification. Br Med J. 1970;1(5707):439-43.
9. Golderberg D, Williams P. A user's guide to the general health questionnaire. Windsor, UK: NFER-Nelson; 1988.
10. Schmitz N, Kruse J, Tress W. Psychometric properties of the general health questionnaire (GHQ-12) in a German primary care. Acta Psychiatr Scand. 1999;100(6):462-8.
11. Jacob KS, Bhugra D, Mann AH. The validation of the 12-item general health questionnaire in ethnic Indian women living in the United Kingdom. Psychol Med. 1997;27(5):1215-7.
12. Donath S. The validity of the 12-item general health questionnaire in Australia: a comparison between three scoring methods. Aust N Z J Psychiatry. 2001;35(2):231-5.
13. Pevalin DJ. Multiple applications of the GHQ-12 in a general population sample: an investigation of long-term retest effects. Soc Psychiatry Psychiatr Epidemiol. 2000;35(11):508-12.
14. Chen B, Li QX, Zhang H, Zhu JY, Yang X, Wu YH, et al. The psychological impact of COVID-19 outbreak on medical staff and the general public. Curr Psychol. 2020;1-9.
15. Tan BY, Chew NW, Lee GK, Jing M, Goh Y, Yeo LL, et al. Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore. Ann Intern Med. 2020;173(4):317-20.

16. Chew NW, Lee GK, Tan BY, Jing M, Goh Y, Ngiam NJ, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun*. 2020;88:559-65.
17. Chatterjee SS, Bhattacharyya R, Bhattacharyya S, Gupta S, Das S, Banerjee BB. Attitude, practice, behavior, and mental health impact of COVID-19 on doctors. *Indian J Psychiatry*. 2020;62(3):257-65.
18. 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. *JAMA Netw Open*. 2020;3(3):203976.
19. Wang W, Song W, Xia Z, He Y, Tang L, Hou J, et al. Sleep disturbance and psychological profiles of medical staff and non-medical staff during the early outbreak of COVID-19 in Hubei Province, China. *Front Psychiatry*. 2020;11:733.

Cite this article as: Nelson V, Joy J, Stephen S. Psychological impact of COVID -19 among health care workers working in a tertiary care hospital of South India: a cross-sectional study. *Int J Community Med Public Health* 2022;9:1865-71.