



PSYCHOLOGICAL IMPACT OF THE COVID-19 PANDEMIC ON HEALTHCARE WORKERS IN RAJASTHAN (INDIA): AN OBSERVATIONAL STUDY

Psychiatry

Dr. Sanwar Mal Swami*	Senior Resident, Department of Psychiatry, Govt. Medical College, Bharatpur, Rajasthan, India *Corresponding Author
Dr. Kaptan Singh	Senior Resident, Department of Psychiatry, Govt. Medical College, Bharatpur, Rajasthan, India
Dr. Sunil Suthar	Assistant Professor, Department of Psychiatry, Govt. Medical College, Bharatpur, Rajasthan, India
Dr. Vinod Daria	Associate Professor, Dept. of Psychiatry, Govt. Medical College, Kota, Rajasthan, India
Dr. Devendra Kumar Vijayvergia	Senior Professor, Dept. of Psychiatry, Govt. Medical College, Kota, Rajasthan, India

KEYWORDS

INTRODUCTION

The World Health Organization (WHO) in January 2020 announced the outbreak of corona virus, COVID-19, a global public health emergency. Covid-19 epidemic crisis is causing various mental health problems around the world. Health professionals are also affected by severe physical and mental stress. Frontline health workers were among the most affected. The novel corona virus- 19 (COVID-19) originated in Wuhan, China. The disease was declared a public health emergency by the World Health Organization followed by a declaration of a pandemic in March, 2020. They suffered serious psychological consequences that could have been caused by overworked hours, overwork, and inadequacies. Sleep deprivation and inadequate access to personal protective equipment (PPE), in addition to television reporting and communication platforms, as well as various news channels and high levels of infection among staff members¹. According to the WHO, mental health problems are a major cause of disability worldwide. Stress is a process in which external or natural demands exceed the ability to adapt to any organism that results in biological and psychological changes that may put those people at risk for disease. Anxiety can be defined as "a state of mental and emotional well-being characterized by a variety of somatic, mental, behavioral, and emotional factors." All of these components together can lead to the formation of an unpleasant feeling associated with fear, anxiety, and feelings of discomfort. It is a common attitude that occurs without any trigger or stimulus. Symptoms of depression are: feelings of anxiety, sadness and emptiness, hopelessness, guilt and may be a sense of helplessness, a sense of restlessness, irritability, and a lack of interest in various activities and activities and have been considered liberated and used for pleasure². Ongoing epidemic of corona virus (COVID-19) has a profound impact on the mental health of health care professionals and non-health professionals. There is a growing need to address these impacts on the human mind by protecting and promoting overall well-being during and after the outbreak³. The onset of this global epidemic has left people with increasingly debilitating depression, stress and anxiety.

Previous epidemics such as H1N1 influenza in 2009 and SARS (Severe Acute Respiratory Syndrome in 2003) have clearly shown great panic and fear following the spread of so many diseases. Affected people, that is, those who suffer from depression and anxiety have reported relapses that may appear as panic attacks or recurrence of symptoms of these mental illnesses. In particular, people with medical conditions such as cardiovascular disease have reported clinical manifestations of angina and even cardiac arrest. Similarly, the effects have been felt in children as a result of school closures and restrictions on outdoor activities, especially due to the closure of playgrounds. The main manifestation of these psychological disorders is in the form of various psychosomatic presentations including the onset of panic attacks and depression⁴. Negative symptoms of a psychological nature - confusion, anger, and post-traumatic stress disorder. There are many stressors such as fear of contracting a viral infection, insufficient information, boredom, and frustration⁵.

Sahuakat et al. in their systematic review the most common early symptoms such as pyrexia (85%), cough (70%) and weakness (70%). High levels of anxiety, depression, stress, fear, anger, and insomnia were observed among health workers⁶. Therefore, keeping in mind the above facts, the aim of the study was to determine the psychological impact and associated factors during the ongoing COVID-19 pandemic among health workers in Rajasthan, India.

MATERIALS AND METHODS

AIM:-

To assess the psychological impact during the development of COVID-19 status among health workers in Rajasthan, India.

SAMPLE:-

It was an observational cross-sectional online study conducted for health care professionals (doctors and nurses), who were working in the health care of covid-19 patients. Prior approval was taken from the ethical committee. A semi structured proforma for socio-demographic characteristics and Depression, Anxiety, and Stress Scale-21 (DASS-21) has been posted online via electronic media (WhatsApp and emails). The information provided to the participants is kept confidential and the completion of the survey means implied consent of participate in the study. Participants whose were already diagnosed case of psychiatric illness were not included in the study.

STUDY TOOLS

1. A semi structured proforma for socio-demographic characteristics i.e. age, gender, employment, marital status, physician or nursing staff, exposure to Covid-19 patients, and associated diseases.

2. Depression, Anxiety, and Depression Scale (DASS-21) were used to measure emotional states of stress, anxiety, and depression.

Depression, Anxiety and Stress Scale - 21 Items (DASS-21) is a set of three reporting scales designed to measure emotional states of depression, anxiety and stress. Each item is given a self-rated Likert scale from 0 (did not apply to me at all) to 3 (much or mostly applied for me) for last one week. Each of the three DASS-21 scales consists of seven items, divided into sub-scales with the same content. Depression scores assess dysphoria, hopelessness, helplessness, low self-esteem, lack of interest / involvement, anhedonia and inertia. Scale of anxiety assesses autonomic arousal, skeletal muscle effects, and physical awareness of the impact of anxiety. Scale of anxiety assess difficulty in relaxing, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient. Scores of stress, anxiety and stress are calculated by summing the scores for the relevant sub-scale items. The scoring of DASS-21 sub-items such as depression, stress and anxiety can be rated as normal, mild, moderate, and extremely severe. It will not be used as a diagnostic tool as the scale does not include a number of stress factors such as sleep, appetite, and sexual activity but can be used as an aid in diagnostic and therapeutic tools¹¹.

Statistical analysis was performed using version SPSS 25. For

comparisons between groups, the t- test was used for continuous variables and the Chi-square test was used for categorical variables. The value of $P < 0.05$ was considered statistically significant.

RESULTS

Out of the 100 respondents, 70 (70%) were doctors and 30(30%) nursing staff. The mean $\pm$ sd values for age were found to be 37.61 ± 7.53 ; 36.84 ± 7.87 for doctors and nurses respectively. The percentages of male study participants was found to be 54%, 09% and female study participants was 46%, 91% for the doctors and nurses respectively.

The majority of participants 76 (76%) were working in the government hospitals, 74 (74%) were living in their homes with families, and 80 (80%) were married.

Out of all 100 respondents, 41 (41%) had worked in the COVID-19 wards or had been in contact with corona virus-19 positive patient. [Table 1].

A significant number of respondents were found to be suffering from acute stress (11%), depression (18%), and anxiety (19%) which they attributed to the negative professional and personal impact of this ongoing epidemic.

Of the 100 respondents, 18 respondents (18%) developed new-onset depression, 8 had mild, 5 moderate, 3 had severe and 2 had extremely severe depression respectively. The mean $\pm$ sd score of depression subscale was 6.16 ± 4.8 .

Out of 100 participants 19 (19%) participants developed anxiety; 9 had mild, 5 had moderate, 2 had severe, and 3 had extremely severe anxiety on anxiety subscale. The mean $\pm$ sd score on anxiety subscale was 5.81 ± 3.62 .

Also, 11 (11%) participants suffered from acute stress, of which 5 were mild and 3, 2, 1 were moderate, severe, and extremely severe, respectively. The mean $\pm$ sd score of acute stress subscale was 8.43 ± 5.5 . [Table 2].

The mean stress and anxiety perceived by females during this period was slightly higher compared to males without any statistically significant difference. [Table 3].

Acute stress ($P=0.023$) and anxiety ($P=0.034$) were significantly higher in government-employed personnel as compared to private hospital health care workers. New onset depression was also higher in government-employed personnel as compared to private hospital health care workers without any statistically significant difference. [Table 4].

Depression, anxiety and acute stress was slightly high in nursing staff as compared to doctors without any statistically significant difference. [Table 5].

Depression ($P=0.04$), anxiety ($P=0.023$) and acute stress ($P=0.008$) were significantly higher in covid-19 duty health care workers as compared to without covid-19 duty health care workers. [Table 6].

Table 1: Socio-demographic profile of study participant

Parameters	Subgroup	Number of study participant			P value
		Doctors n (%)	Nurse n (%)	Total n (%) (n=100)	
Age	<30	16 (16)	09 (9)	25 (25)	0.459
	>30	54 (54)	21 (21)	75 (75)	
Sex	M	54 (54)	09 (9)	63 (63)	<0.0001
	F	16 (16)	21 (21)	37 (37)	
Residence	Home	49 (49)	25 (25)	74 (74)	0.216
	Hostel	21 (21)	05 (5)	26 (26)	
	Others				
Marital status	Married	53 (53)	27 (27)	80 (80)	0.170
	Unmarried	17 (17)	03 (3)	20 (20)	
Employment	Govt.	51 (51)	25 (25)	76 (76)	0.315

	PVT.	19 (19)	05 (5)	24 (24)	
Co-morbidity	Present	50 (50)	22 (22)	72 (72)	0.845
	Absent	20 (20)	08 (8)	28 (28)	
Covid duty	Yes	23 (23)	18 (18)	41 (41)	0.015
	No	47 (47)	12 (12)	59 (59)	

Table 2: Prevalence of stress disorder, depression, and anxiety disorders with their severity among study group participant

Type of Disorder	Subgroup	DASS-21 [as per scale] Number of participants				
		Normal	Mild	Moderate	Severe	Very severe
Depression	Covid Duty (n=29)	23 (79.31%)	02 (6.90%)	01 (3.45%)	02 (6.90%)	01 (3.45%)
	No duty (n=71)	59 (83.10%)	06 (8.45%)	04 (5.63%)	01 (1.41%)	01 (1.41%)
Anxiety	Covid Duty (n=29)	21 (72.41%)	03 (10.34%)	03 (10.34%)	01 (3.45%)	01 (3.45%)
	No duty (n=71)	60 (84.51%)	06 (8.45%)	02 (2.82%)	01 (1.41%)	02 (6.90%)
Stress	Covid Duty (n=29)	24 (82.76%)	02 (6.90%)	01 (3.45%)	01 (3.45%)	01 (3.45%)
	No duty (n=71)	65 (91.55%)	03 (4.23%)	02 (2.82%)	01 (1.41%)	00 (0.00%)

Table 3: Comparison of psychiatric disorders (DASS score) with gender distribution

Parameters	Subgroup	DASS score [mean $\pm$ SD]		
		Depression	Anxiety	Stress
Sex	Male	6.04 $\pm$ 4.81	5.91 $\pm$ 4.03	7.38 $\pm$ 5.95
	Female	6.38 $\pm$ 4.93	6.62 $\pm$ 3.96	8.16 $\pm$ 6.15
P value		0.368	0.196	0.268

Table 4: Comparison of psychiatric disorders (DASS score) with employment status of health-care workers

Parameters	Sector	DASS score [mean $\pm$ SD]		
		Depression	Anxiety	Stress
Type of employment	Govt.	6.44 $\pm$ 4.58	6.36 $\pm$ 3.35	8.53 $\pm$ 5.70
	PVT.	5.28 $\pm$ 5.57	4.56 $\pm$ 4.50	7.21 $\pm$ 6.07
P value		0.180	0.034	0.023

Table 5: Comparison of psychiatric disorders with profession of health-care workers

Parameters	DASS score [mean $\pm$ SD]		
	Depression	Anxiety	Stress
Doctor	4.98 $\pm$ 5.57	4.28 $\pm$ 4.93	6.83 $\pm$ 6.70
Nurse	6.44 $\pm$ 4.58	6.36 $\pm$ 6.67	8.53 $\pm$ 7.70
P value	0.083	0.065	0.149

Table 6: Comparison of psychiatric disorders in health-care workers during and without corona virus disease-2019 duty

Covid duty	DASS score [mean $\pm$ SD]		
	Depression	Anxiety	Stress
Yes	6.35 $\pm$ 6.19	5.88 $\pm$ 4.48	7.82 $\pm$ 4.76
No	4.29 $\pm$ 3.25	3.98 $\pm$ 3.41	5.16 $\pm$ 5.35
P value	0.04	0.023	0.008

DISCUSSION

Health workers had high prevalence rates of depression, anxiety and stress symptoms during the corona virus -19 pandemic.

In our study, out of the 100 participants, 70 (70%) were doctors while in study by mathur et al 87% were physicians doctors and a study by Lai et al., 1257 health workers were assessed in 34 hospitals, with 60.8% being nurses, 493 doctors, and 522 frontline health care workers.

In our study, the mean age of participants was 37.61 ± 7.53 years while the percentages of male participants was found to be 54%, 09% and female study participants was 46%, 91% for the doctors and nurses respectively, 76 (76%), 74 were working in government hospitals

setup, (74%) were residing in own homes with family, and 80 (80%) were married, while in study by mathur et al mean age of 42.05 (± 12.19) years. Most of the participants were male ($n = 132$, 62%), 138 were residing in own home (68%), and 151 (75%) were married. A review by M. S. Spoorthy of six articles, the mean age of health care workers was between 26-40 years, with the main participants being women¹³.

In our study, 11% of the participants were found to suffer from acute stress, 18% of participants from depression, and 19% of respondents suffered from anxiety. While in a study by mathur et al prevalence of 9.5% for acute stress, 17% for depression, and 19.5% for anxiety. Lai et al, observed prevalence of 50.4% for depression, 44.6% for anxiety, and 71.5% for acute stress in their study.

In our study, acute stress and anxiety were significantly higher in government-employed personnel as compared to private hospital health care workers that is supported by study of mathur et al. Similar to mathur et al our study also found that depression, anxiety and acute stress were significantly higher in covid-19 duty health care workers as compared to without covid-19 duty health care workers.

CONCLUSION

1. In the present study, an effort has been made to determine the impact of this pandemic on the mental health of health workers.
2. Current research has shown a significant psychological impact from this problem.

LIMITATIONS

Our research has the following limitations:

1. The current study is a web-based survey method to prevent covid infection, therefore, it may not represent a sample of the health care workers community.
2. The sample size may be considered small so generalization of our finding is not possible

FINANCIAL SUPPORT AND FUNDING

Nothing.

CONFLICT OF INTEREST

There is no conflict of interest

REFERENCES

1. Raj R, Koyalada S, Kumar A, Kumari S, Pani P, Nishant, et al. The psychological impact of the COVID-19 epidemic on health care workers in India: A prospective study. *J Family Med Prim Care* 2020; 9: 5921-6.
2. Mathur S, Sharma D, Solanki RK, Goyal MK. Stress related riots to health workers in the COVID 19 epidemic: A separate study from India. *Indian J Med Spec* 2020; 4: 180-4.
3. U-Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Matters related to mental health outcomes among health care workers exposed to coronavirus 2019. *JAMA Netw Open* 2020; 3: e203976.
4. Day M. Covid-19: The escalation of conditions in Italy and South Korea makes the epidemic seem highly probable. *BMJ* 2020; 368: m751.
5. Spoorthy MS. Mental health problems faced by health workers as a result of the COVID 19 epidemic - Review. *Asian J Psychiatr* 2020; 51: 102119. doi: 10.1016 / j.ajp. 2020.102119.
6. Maund R. The experience of the 2003 SARS outbreak as a traumatic event among the leading health workers in Toronto: Lessons learned. *Philos Trans R Soc Lond B Biol Sci* 2004; 359: 1117-25.
7. Day M. Covid 19: The escalation of conditions in Italy and South Korea makes the epidemic even more noticeable. *BMJ* 2020; 368: m751.
8. Walton M, Murray E, Christian MD. Mental health care for medical staff and their associated health workers during the COVID epidemic 19. *Eur Heart J Acute Cardiovasc Care* 2020; 9: 241.
9. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the outbreak of the 2019 coronavirus novel is urgently needed. *Lancet Psychiatry* 2020; 7: 228-9.
10. Lovibond PF, Lovibond SH. Formation of Negative Feelings: Comparison of Depression Anxiety Scales (DASS) with beck depression and a list of concerns. *Behav Res Ther* 1995; 33: 335-43.
11. U-Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Matters related to mental health outcomes among health care workers exposed to coronavirus 2019. *JAMA Netw Open* 2020; 3: e203976.
12. Spoorthy MS, Pratapa SK, Mahant S. Mental health problems health workers face as a result of the COVID-19 epidemic review. *Asian J Psychiatr*. 2020 Jun; 51: 102119.
13. Pappa S, Ntella V, Giannakakis T, Giannakoulis VG, Papoutsi E, Katsaounou P. Frequency of depression, anxiety, and insomnia among health workers during the COVID-19 epidemic: A systematic review and meta-analysis-. *Brain Behav Immun* 2020; 88: 901-7.
14. Tan BY, Chew NW, Lee GK, Jing M, Goh Y, Yeo LL, et al. Psychological impact of COVID-19 on health workers in Singapore. *Ann Intern Med* 2020; 173: 317-20.
15. Chatterjee SS, Bhattacharyya R, Bhattacharyya S, Gupta S, Das S, Banerjee BB. Attitude, behavior, behavior, and psychological impact of COVID-19 on physicians. *Indian J Psychiatry* 2020; 62: 257-65.
16. Cheung T, Fong TKH, Bressington D. COVID-19 under SARS Cloud: Mental Health Nursing during the Hong Kong epidemic. *J Mental Health Nurses*. 2020 April 20: 10.1111 / jpm.12639.
17. Huang Y, Zhao N. General anxiety disorders, depressive symptoms and sleep quality during the COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Res*. 2020 Jun; 288: 112954.

18. Bohlken J, Schömig F, Lemke MR, Pumberger M, Riedel - Heller SG. COVID-19 Epidemic: Stressful experiences of health workers - A brief current review. *Psychiatr Prax* 2020; 47: 190-7.