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Job stress, anxiety, depression, and coping among professionals and non-professionals during COVID 2nd wave in a tertiary care hospital

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ABSTRACT

Objectives: Being a health-care worker is in additional psychological impact than the general population. Due to their active involvement in the battle against a bewildering virus outbreak. This creates added stress in fear of spreading the disease to their loved ones. Furthermore, more worried about the stigma feeling and working under extreme pressure. We aimed to assess the job stress, anxiety depression, and coping among health-care workers during COVID 2nd wave pandemic.

Material and Methods: It is a hospital–based, cross-sectional study conducted in SMVMCH, Puducherry. 364 participants of frontline workers, who worked during the COVID 2nd wave were taken into study after informed consent. The symptoms of anxiety, depression, and stress are assessed using Depression Anxiety Stress Scale-21 scale, Perceived Stress Scale, and the coping measures using Brief Resilient Coping Scale.

Results: In our study, 94.1% of participants had depression, 95.8% of participants had anxiety, and 81% of participants had stress. Factors that are associated with stress, anxiety, and depression among the health-care workers were the presence of medical comorbidities in family members of health-care workers, vaccination against COVID virus, health-care workers infected with COVID-19, and family members of health-care workers who have demised due to COVID infection.

Conclusion: Frontline employees were found to be working in stressful situations with varying degrees of psychiatric morbidities. COVID hospitals need to build a better psychological support system.

Keywords: Stress, Anxiety, Coping, COVID

INTRODUCTION

Health-care workers play a pivotal role on day to day basis in combating many hazardous hurdles by risking their valuable life. The recent new threat is COVID-19 virus for the people and also for the health-care workers. The outbreak of this SARS-CoV-2 virus began on December 2019 in a place called Wuhan, China. Later, COVID was declared a pandemic on March 11th, 2020 by the World Health Organization. To overcome this pandemic, enormous efforts being put forth by health-care workers psychically and mentally apart from external factors such as socio-political and economical concerns during the first wave.[1]

Being a health-care worker has an additional psychological impact than the general population. Considering that they were actively engaged in the battle against a perplexing virus outbreak. This

create added stress in fear of spreading the disease to their loved ones apart from the fear of being infected. They were also more worried about the experience in the first wave of stigma feeling, rejected and working under extreme pressure.[2]

Health-care workers are involved in various levels from the field to a tertiary care hospital. This pandemic recorded more deaths among health-care workers in various hospitals worldwide. These factors alleviate the stress reactions symptoms such as anxiety, depression, somatization, and hostility among physicians, staff nurses, and auxiliary workers involved in isolation wards and also those working in a tertiary care hospital during this pandemic.[3] Therefore, we are in a need of systemic evaluation of the psychological impact of this recent COVID-19 pandemic among professional and non-professional warriors involved in the challenges in controlling this dangerous disease.

MATERIAL AND METHODS

Study design

It was a cross-sectional study, conducted for a period of 4 months and included all doctors, staff nurses, and auxiliary workers from the tertiary care hospital who worked during the period of the COVID-19 pandemic - 2nd wave as study participants. Convenient sampling technique was done and every person filling the inclusion and exclusion criteria and willing to participate in the study was recruited.

Sample size

The sample size of 207 was calculated using OpenEpi software, Version 3.01, using the proportion of depression (34.9%) in the previous study with 95% confidence interval and 6.5 % absolute precision.[4]

Inclusion criteria

All doctors, staff nurses, and auxiliary workers from the tertiary care hospital worked during the period of COVID-19 pandemic and who willing to participate.

Exclusion criteria

1. Those not worked during the COVID-19 pandemic and not willing to take part in the study
2. Participants having pre-existing psychiatric comorbidities were excluded from the study.

Data collection

All the doctors, staff nurse, and auxiliary workers who were willing to participate in this study was assessed with a pro forma which contains the sociodemographic characteristics, Depression Anxiety Stress Scale-21 (DASS-21) scale, perceived Stress Scale, and Brief Resilient Coping Scale.

DASS-21 is a tool to evaluate depression, anxiety, and stress. It is a 21-item scale, which had three subscales with each subscale having seven questions. Every question with a score of zero results in the lowest score, while three is the highest. The questions 2, 4, 7, 9, 15, 19, and 20 on this test are about anxiety, the questions 3, 5, 10, 13, 16, and 21 are about depression, and the questions 1, 6, 8, 11, 12, and 14 and 18 are about stress. These are the established cut-off points: stress: scores of 0–7 are normal, 8–9 is mild, 10–12 is moderate, 13–16 is severe, and higher than 17 is very severe. Anxiety: 0–3 is considered normal, 4–5 is mild, 6–7 is moderate, 8–9 is severe, and higher than 10 is very severe. Depression: 0–9 is normal, 10–13 is mild, 14–20 is moderate, 21–27 is severe, and higher than 28 is very severe.

The perceived stress scale is a tool for assessing overall perceived stress. It is a 10 item scale. The four positively phrased things are scored in reverse, and all of the scale items are then added up to produce a final score that ranges from 0 to 40. Scores 0–13 indicate low stress, 14–26 indicate moderate stress, and 27–40 indicate high perceived stress.

Brief resilient coping scale is to identify inclinations to handle stress in a highly adaptive way. It is 4 item Likert scale. Total scores range from 0 to 20. Low resilient copers Score 4–13 points, medium resilient copers score 14–16 points, and high resilient copers score 17–20 points.

Analysis plan

The data was analyzed using the software SPSS version 16. Microsoft excel will be used to generate graphs, charts, and tables. Fisher *t*-test was used to find out the association between variables. As per statistical design, 95% confidence interval was set with associated $P < 0.05$ is significant.

RESULTS

Among our study population, 38.6% are doctors, 39.7% are staff nurses, and 21.7% are attenders. 64.7% of the study participants belong to 21–30 years of age group, 27.3% belong to 31–40 years of age group, and 7.5% belongs to 41–50 years of age group. 22.6% of study participants are males and 77.4% are females. Around 73.3% belong to the nuclear family and 22.6% belongs to extended family. 50.7% are married and 48.8% are unmarried. 21.5% of study participants have medical comorbidities. Around 98.6% were vaccination against COVID-19. 12.9% of study participants have been infected with COVID-19 and 20.9% of study participants family members have been infected with COVID-19. 4.7% of study participants reported COVID-19-related death in family. The sociodemographic details of the study participants were given in [Table 1].

Table 1: Primary outcomes of the study.

Variables	*n* (%)
Distribution of study population	
Doctors	140 (38.6)
Staff Nurses	144 (39.7)
Attenders	79 (21.7)
Age of the participants	
21–30 years	235 (64.7)
31–40 years	99 (27.3)
41–50 years	27 (7.5)
51–60 years	2 (0.5)
Sex	
Male	82 (22.6)
Female	281 (77.4)
Type of family	
Extended	82 (22.6)
Joint	15 (4.1)
Nuclear	266 (73.3)
Marital status	
Married	184 (50.7)
Unmarried	177 (48.8)
Widow	2 (0.5)
Co-morbidity	
Yes	26 (7.2)
No	337 (92.8)
No of days worked in Covid ward	
<50 days	355 (97.8)
50–100 days	5 (1.3)
>100 days	3 (0.9)
Caregiver Comorbidity	
Yes	78 (21.5)
No	285 (78.5)
Vaccinated	
Yes	358 (98.6)
No	5 (1.4)
Covid positive	
Yes	47 (12.9)
No	316 (87.1)
Family members Covid positive	
Yes	76 (20.9)
No	287 (79.1)
Covid related death in family	
Yes	17 (4.7)
No	346 (95.3)
Stress – DASS 21	
Normal	69 (19)
Mild	195 (53.7)
Moderate	77 (21.2)
Severe	16 (4.4)
Extremely severe	6 (1.7)
Anxiety – DASS 21	
Normal	19 (5.2)
Mild	219 (60.3)
Moderate	83 (22.9)
Severe	12 (3.3)
Extremely severe	30 (8.3)
Depression – DASS 21	
Normal	25 (6.9)
Mild	220 (60.6)
Moderate	88 (24.2)
Severe	12 (3.4)
Extremely severe	18 (4.9)
Perceived stress scale	
Low	226 (62.3)
Medium	133 (36.6)
High	4 (1.1)
Coping scale	
Low resilient coping	188 (51.8)
Medium resilient coping	170 (46.8)
High resilient coping	5 (1.4)

DASS-21: Depression Anxiety Stress Scale-21

Based on designation, around 59.3% of doctors and 60.4% of staff nurses have mild stress. Attenders have more level of stress compared to doctors and staff nurses. Around 49.4% of attenders experience a moderate level of stress. Mild level of anxiety is more prevalent among staff nurses compared to doctors and attenders. Around 82.6% of staff nurses and 57.1% of doctors experience mild level of anxiety. Around 20.3% of attenders experience extremely severe level of anxiety, which is high compared to doctors and staff nurses. Around 77.8% of staff nurses and 60% of doctors experience mild level of depression. Around 49.4% of attenders experience moderate level of depression, which is high compared to doctors and staff nurses. Low resilient coping skill is seen more in staff nurses followed by attenders. Around 58.3% of staff nurse and 49.4% of attenders have low coping skills. Psychiatric comorbidities among health-care professional were given in [Table 2].

An association has been established between stress among study participants and factors such as the presence of caregiver comorbidities, vaccination status, family members infected with COVID-19, and COVID-19-related death in family. The associations are statistically significant ($P < 0.05$). Association of stress with various factors was given in [Table 3].

An association has been established between anxiety among study participants and factors such as vaccination status, family members infected with COVID-19, and COVID-19-related death in family. The associations are statistically significant ($P < 0.05$). Association of anxiety with various factors was given in [Table 4].

An association has been established between depression among study participants and factors such as vaccination status, family members infected with COVID-19, and COVID-19-related death in family. The associations are

Table 2: Psychiatric morbidities among health care professionals.

	Doctors (140) (%)	Staff nurses (144) (%)	Attenders (79) (%)
Stress DASS-21			
Normal	31 (22.1)	38 (26.4)	-
Mild	83 (59.3)	87 (60.4)	25 (31.6)
Moderate	21 (15)	17 (11.8)	39 (49.4)
Severe	1 (0.7)	2 (1.4)	13 (16.5)
Extremely severe	4 (2.9)	-	2 (2.5)
Anxiety DASS-21			
Normal	18 (12.9)	1 (0.7)	-
Mild	80 (57.1)	119 (82.6)	20 (25.3)
Moderate	29 (20.7)	17 (11.8)	37 (46.8)
Severe	5 (3.6)	1 (0.7)	6 (7.6)
Extremely severe	8 (5.7)	6 (4.2)	16 (20.3)
Depression DASS-21			
Normal	24 (17.1)	1 (0.7)	-
Mild	84 (60)	112 (77.8)	24 (30.4)
Moderate	22 (15.7)	27 (18.8)	39 (49.4)
Severe	4 (2.9)	-	8 (10.1)
Extremely severe	6 (4.3)	4 (2.8)	8 (10.1)
Perceived stress scale			
Low stress	77 (55)	112 (77.8)	37 (46.8)
Moderate stress	59 (42.1)	32 (22.2)	42 (53.2)
High stress	4 (0.9)	-	-
Coping scale			
Low resilient	65 (46.2)	84 (58.3)	39 (49.4)
Moderate resilient	70 (50)	60 (41.7)	40 (50.6)
High resilient	5 (3.8)	-	-

DASS-21: Depression Anxiety Stress Scale-21

Table 3: Association of stress with various factors.

	Stress -DASS- 21					Fisher's test	
	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely severe (%)	*t*	*P*
Care giver comorbidities							
Yes	9 (11.5)	34 (43.6)	25 (32.1)	9 (11.5)	1 (1.3)	39.800	0.005
No	60 (21.1)	161 (56.5)	52 (18.2)	7 (2.5)	5 (1.8)		
Vaccination status							
Yes	64 (17.9)	195 (54.5)	77 (21.5)	16 (4.5)	6 (1.7)	14.167	0.003
No	5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		
Family members with COVID-19							
Yes	26 (34.2)	15 (19.7)	27 (35.5)	5 (6.6)	3 (3.9)	48.015	0.001
No	43 (15.0)	180 (62.7)	50 (17.4)	11 (3.8)	3 (1.0)		
COVID-19 related deaths in family							
Yes	8 (47.1)	1 (5.9)	6 (35.3)	0 (0.0)	2 (11.8)	24.979	0.001
No	61 (17.6)	194 (56.1)	71 (20.5)	16 (4.6)	4 (1.2)		

DASS-21: Depression Anxiety Stress Scale-21

statistically significant ($P < 0.05$). Association of depression with various factors was given in [Table 5].

DISCUSSION

The present study aimed to identify the prevalence of psychiatric comorbidities among health-care professionals during the pandemic. In our study, 94.1% of participants had certain degree of depression, 95.8% participants had certain degree of anxiety, and 81% participants had certain degree of stress. This is in accordance with a study by Elbay *et al.*, where among 442 participants 64.7% had symptoms of depression, 51.6% anxiety, and 41.2% stress.[3] A study done

Table 4: Association of anxiety with various factors.

	Anxiety DASS-21					Fisher's test	
	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely severe (%)	*t*	*P*
Vaccination status							
Yes	16 (4.5)	219 (61.2)	83 (23.2)	11 (3.1)	29 (8.1)	20.889	0.005
No	3 (60.0)	0 (0.0)	0 (0.0)	1 (20.0)	1 (20.0)		
Have been COVID-19 Positive?							
Yes	8 (17.0)	10 (21.3)	20 (42.6)	4 (8.5)	5 (10.6)	40.015	0.001
No	11 (3.5)	209 (66.1)	63 (19.9)	8 (2.5)	25 (7.9)		
COVID-19 related deaths in family							
Yes	1 (5.9)	2 (11.8)	8 (47.1)	3 (17.6)	3 (17.6)	22.729	0.001
No	18 (5.2)	217 (62.7)	75 (21.7)	9 (2.6)	27 (7.8)		

DASS-21: Depression Anxiety Stress Scale-21

Table 5: Association of depression with various factors.

	Depression-DASS-21					Fisher's test	
	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely severe (%)	*t*	*P*
Vaccination status							
Yes	22 (6.1)	220 (61.5)	87 (24.3)	12 (3.4)	17 (4.7)	16.370	0.001
No	3 (60.0)	0 (0.0)	1 (20.0)	0 (0.0)	1 (20.0)		
Have been COVID-19 positive?							
Yes	7 (14.9)	13 (27.7)	19 (40.4)	2 (4.3)	6 (12.8)	27.172	0.001
No	18 (5.7)	207 (65.5)	69 (21.8)	10 (3.2)	12 (3.8)		
COVID-19 related deaths in family							
Yes	2 (11.8)	4 (23.5)	7 (41.2)	1 (5.9)	3 (17.6)	13.486	0.005
No	23 (6.6)	216 (62.4)	81 (23.4)	11 (3.2)	15 (4.3)		

DASS-21: Depression Anxiety Stress Scale-21

by Zhao *et al*. found prevalence rate of depressive, anxiety, and stress among medical staffs were 60.2%, 49.6%, and 43.1%, respectively.[5]

The prevalence of stress is 81%, which is distributed as mild (53.7%), moderate (21.2%), severe (4.4%), and extremely severe (1.7%) level of stress among the study population. Similar findings were found in a study done by Hummel *et al*., where assessed mental health among medical professionals (189 doctors and 165 nurses) and 255 non-medical professionals using DASS-21 scale and found 58% had mild and 14% had moderate level of stress.[6] Based on designation, all the attenders reported some degree of stress while working in COVID ward. The study revealed 31.6%, 49.4%, 16.5%, and 2.5% of attenders had mild, moderate, severe, and extremely severe level of stress, respectively.

The prevalence of anxiety is 95.8%, which is distributed as mild (60.3%), moderate (22.9%), severe (3.3%), and extremely severe (8.3%) level of anxiety among the study population. Based on designation, all the attenders reported some degree of anxiety while working in COVID ward. The study revealed 25.3%, 46.8%, 7.6%, and 20.3% of attenders had mild, moderate, severe, and extremely severe level of anxiety respectively. Benjamin T tan *et al* study found prevalence of anxiety and stress is more among non-medical health-care professional than medical professional.[7]

The prevalence of depression is 94.1%, which is distributed as mild (60.6%), moderate (24.2%), severe (3.4%), and extremely severe (4.9%) level of depression among the study population. Based on designation, all the attenders reported some degree of stress while working in COVID ward. The study revealed 30.4%, 49.4%, 10.1%, and 10.1% of attenders had mild, moderate, severe, and extremely severe level of depression, respectively. Hummel *et al*. conducted a study to assess mental health among medical professionals (189 doctors and 165 nurses) and 255 nonmedical professionals using DASS-21 scale and found non-professionals has more severity of depression (18% moderate depression and 22% severe and very severe depression) compared to medical professionals (16% moderate depression and 13% severe and very severe depression). These findings are in accordance with our study.[6]

The study revealed various factors that are associated with stress, anxiety and depression among the health care workers. The factors were presence of medical comorbidities

in family members of health-care workers, vaccination against COVID virus, health-care workers infected with COVID-19, and family members of health-care workers who have demised due to COVID infection. Similar findings was found in a study conducted by Kuo *et al*. where he conducted survey on factors having impact on health-care workers during pandemic and found fear of getting infected, fear of transmitting COVID to family members, fluid and food restriction during duty, and difficulty in using toilet during work.[8]

The study revealed that doctors had better coping skills to overcome their stress, anxiety, and depression while working in the COVID ward. On the other hand, staff nurses (58.3%) and attenders (49.4%) had poor coping skills (i.e., low resilient) that exposed them to more levels of stress, anxiety, and depression compared to doctors. The reason for low coping in due to low educational status compared to doctors.

CONCLUSION

Frontline employees were found to be working in stressful situations with varying degrees of psychiatric morbidities. The study provided better understanding of working environment during crisis times across various levels of health care workers. Therefore, it is important to develop relevant regulations to offer a comfortable working environment, effective logistics management, and suitable technical assistance, all of which will indirectly improve patient care and a better mental health support system.

Strengths and limitations

The strength of our study is inclusion of all level of health professionals who were exposed to COVID ward duty. The limitations of the study are inclusion of a single center, a study on larger scale involving multiple centers could have projected a more accurate data about the prevalence of psychiatric comorbidities.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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