

# COVID-19 Pandemic: Psychological Stress and Coping Strategies among Doctors

AQSA NAHEED<sup>1</sup>, AASHI AHMED<sup>2</sup>, ZAIDAN IDREES CHOUDHARY<sup>3</sup>, SUNDUS FATIMA<sup>3</sup>, SAJID NASEEM<sup>5</sup>, MAMOONA GHIAS<sup>6</sup>

<sup>1</sup>Associate Professor, Department of Dermatology, HITEC Institute of Medical Sciences, Taxila

<sup>2</sup>Associate Professor, Department of Community Medicine, HITEC Institute of Medical Sciences, Taxila

<sup>3</sup>Assistant Professor of Psychiatry, HBS Medical & Dental College, Islamabad

<sup>4</sup>Assistant Professor & Head, Department of Psychiatry and Behavioral Sciences, HITEC Institute of Medical Sciences, Taxila

<sup>5</sup>Assistant Professor of Medicine, Fazaia Medical College Islamabad

<sup>6</sup>Assistant Professor of Medicine, King Edward Medical University Lahore

Correspondence to: Dr Sundus Fatima, E-mail: [dr.sundus.f@gmail.com](mailto:dr.sundus.f@gmail.com), Cell: 0334-8774347

## ABSTRACT

**Objective:** To determine the prevalence of psychological distress among medical doctors during the covid-19 pandemic and identify the coping mechanisms being employed by them.

**Study Design:** Descriptive cross-sectional study.

**Place and Duration of Study:** Department of Community Medicine, HITEC Institute of Medical Sciences, Taxila from 1<sup>st</sup> February 2020 to 31<sup>st</sup> July 2020

**Methodology:** Three hundred and ninety eight doctors (non-specialists, interns, junior consultants and senior consultants) from emergency services, medicine and allied and surgery and allied departments.

**Results:** There were 224 (56.3%) females, 174 (43.7%) were males. Mean age was 35.2±8.6. Majority of participants were from medicine department (n=266,66.8%). Health professionals who worked at frontline during Covid pandemic were 186 (46.7%). One hundred and ninety four (48.7%) participants had no psychological distress, 62 (15.6%) had mild, 30 (7.5%) had moderate and 112 (28.1%) had severe psychological distress. BREIF-COPE questionnaire was found to have high reliability (Cronbach alpha=0.82). High mean scores were observed for Problem focused (4.7±1.4) and Emotional focused coping (4.7±1.1). Relatively low mean score was found for dysfunctional coping (3.3±1.0). A statistically significant low positive correlation of IES-R scores was observed with Problem focused coping (r=.47, p=.001) and with emotional focused coping (r=.42, p=.001). However, moderately positive correlation was observed between IES-R scores and dysfunctional coping (r=.64, p=.001).

**Conclusion:** Psychological distress was significantly higher among Covid-19 frontline health workers, particularly among postgraduate trainees working in Medicine and Emergency departments.

## INTRODUCTION

In China, end of the year 2019 was marked by an evolving health crisis which was a cause of concern locally and internationally. The coronavirus (COVID-19) which first appeared in Wuhan, resulted in a rapid rate of transmission.<sup>1</sup> On January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organization declared the outbreak as a public health emergency of international concern (PHEIC).<sup>2</sup> On 11<sup>th</sup> March 2020, this new corona virus disease was labelled by the World Health Organization as COVID-19 and reported as a pandemic. In 2 to 3 months, this disease proliferated across the globe so much so that by 8<sup>th</sup> June, 2020, the data from 213 countries and regions showed greater than 7 million confirmed cases and more than 400 thousand deaths.<sup>3</sup> The pandemic caused an economic crackdown on a global level because of unexpected human and health emergency. Health systems were besieged, and even the most developed countries struggled. United States of America, Brazil, European countries, India, Russia, Iran and others were the most affected regions. In low and middle income countries, thousands of patients were left without access to health facilities and supplies.<sup>3</sup> Worldwide, the current death rate because of this disease is 6.5%. Pakistan has not been immune from the effects of this pandemic. It was the second most affected country in South Asia at the time of

writing and after Iran, it was ranked third as far as cases were concerned in the WHO categorized EMRO region and had the 18<sup>th</sup> highest case count worldwide.<sup>2</sup> The total number of cases on 29<sup>th</sup> May, 2020 was 66,457 in Pakistan whereas Punjab and Sindh were the most affected provinces.<sup>4</sup>

The pandemic has demanded extraordinary physical and mental effort from healthcare workers who have been at the forefront in the battle against this pandemic. They have been directly involved in the diagnosis, treatment and care of patients suffering from covid-19 infection. Researchers have shown that, even under normal circumstances, medical doctors experience high levels of work stress. During the covid-19 pandemic the number of patients requiring treatment has increased manifolds, placing further psychological strain on medical doctors. Compounding this stress is the high risk of being infected themselves as well as transferring the infection to their family members and a perceived lack of support from local administration and institutions. Media reports served as the Main source of raising anxiety.<sup>4</sup> The absence of quality work guidelines on a local level and a weak healthcare framework for pandemic and disaster management stretched the health resources to their ultimate capacity.<sup>5</sup>

Previous studies which evaluated the psychological wellness of health professionals during times of epidemics are unanimous in their adverse findings. A range of

psychological morbidities have been reported in doctors during times of pandemics from symptoms of anxiety and depression to acute and long-term psychological trauma. Studies have also shown that many doctors find it difficult to share their mental health issues with colleagues and employers. Stigma and anticipated damage to career prospects are the most frequently cited reasons.<sup>6</sup>

Studies which evaluated the psychological wellness of health professionals and different reasons for psychological stress during this pandemic in Pakistan were almost unanimous in their adverse findings.<sup>7</sup> The most common reasons assessed by these studies were excessive workload, deficient personal protective equipment and negative media coverage.<sup>8</sup> In addition, moral uncertainty, high social and emotional expectations, rapidly changing treatment guidelines and lack of facilities for mental and emotional ventilation also augmented stress level among healthcare workers and a range of psychological morbidities from symptoms of anxiety and depression to acute and long-term psychological trauma. Studies have also shown that many doctors find it difficult to share their mental health issues with colleagues and employers. Stigma and anticipated damage to career prospects are the most frequently cited reasons.<sup>9</sup>

Coping means to consciously making an effort to master, buffer and tolerate stress and conflict through adaptive strategies. Coping mechanisms may be adaptive or maladaptive and depend on the nature of stressor as well as personality of the individual. While the psychological strain on healthcare professionals is often cited, relatively less work has been done on the coping strategies employed by these individuals. The different coping mechanisms used by doctors to deal with stress needs to be identified so that they can be facilitated through effective interventions<sup>10</sup>

This study aimed to establish the prevalence of psychological distress among healthcare professionals during the covid-19 pandemic and to find out the coping mechanisms being used by them. This information will assist hospital administration and healthcare professionals in protecting the mental health of the community during covid-19 outbreak.

## MATERIALS AND METHODS

This cross-sectional survey was conducted from 1<sup>st</sup> February 2020 to 31<sup>st</sup> July, 2020 in 3 tertiary care hospitals; PAF hospital, Islamabad, Hazrat Bari Sarkar Hospital, Islamabad and HITEC Hospital, Taxila. All of the hospitals were managing COVID-19 patients and two hospitals had designated COVID-19 and comprised 390 participants. All doctors (non-specialists, interns, junior consultants and senior consultants) of emergency services, medicine and allied and surgery & allied departments, selected through convenience sampling were invited to participate in study. Questionnaires were distributed among doctors to be filled by themselves after informed consent and assurance of anonymity and confidentiality of responses. Questionnaire comprised of 3 sections. In first section, demographic profile, history of self-infection with COVID-19, Infection among first degree relatives and frontline working status (actively involved in managing COVID patients) was recorded.

The Impact of Events Scale-Revised (IES-R) was used to assess the psychological distress among the study participants in 2<sup>nd</sup> section. The IES-R, developed by Weiss and Marmar, is a 22-item, 5-point scale that has been previously validated in determining the extent of psychological impact after exposure to a public health crisis. The IES-R yields a total score ranging from 0 to 88. The total IES-R score was into 0–23 (normal), 24–32 (mild psychological impact), 33–36 (moderate psychological impact), and >37 (severe psychological impact). To determine use of stress coping strategies among doctors, 28-item Brief COPE questionnaire was administered in section 3. The questionnaire measures 14 sub-sets of coping strategies. Scores for each coping strategy range from 2 to 8, with higher scores reflecting greater use of that specific strategy. The strategies were grouped into emotions-focused, problem-focused and dysfunctional coping categories.

SPSS-26 was used to analyze the data. Chi square test and one way ANOVA was used to determine the associations between socio-demographic characteristics, frontline working status and other independent variables and the IES-S and COPE scores. A  $p < 0.05$  was considered significant.

## RESULTS

The mean age of respondents was  $35.2 \pm 8.6$ . There were 224 (56.3%) females and 174 (43.7%) were males. Two hundred and ten (52.8%) respondents belonged to age group 25-34 years, 132 (33.2%) belonged to age group 35-44 and 32 (8%) belonged to age group 45-54 years. Two hundred and sixty six (66.8%) participants were from medicine department followed by 84 (21.1%) surgery department and 48 (12.1%) from emergency department. Mean duration of work experience was 9.45 years. Health professions who worked at frontline during Covid pandemic were 186 (46.7%). Postgraduate trainees were most represented 122 (30.7%) followed by medical officers 100 (25.1%), then junior consultants 98 (24.6%) and senior consultants 78 (19.6%). Covid infection was reported by only 84 (21.1%) respondents. Regarding infection among family 126 (31.7%) said that their families were infected with Covid, whereas 272 (68.3%) participants reported no history of Covid among family members (Fig. 1).

Mean Impact of Events Scale-Revised (IES-R) score was  $26.46 \pm 17.41$ . 194 (48.7%) participants had no psychological distress. 62 (15.6%) had mild, 30 (7.5%) had moderate and 112 (28.1%) had severe psychological distress. Statistically insignificant association was observed between gender ( $p = .10$ ), self-infection ( $p = .13$ ), history of family infection (.83) with psychological distress. A statistically significant negative correlation was observed between duration of experience and IES-R stress scores. ( $r = -0.211$ ,  $n = 398$ ,  $p = 0.001$ ) [Table 1].

BREIF-COPE questionnaire used to determine strategies and styles to cope psychological stress among health care professionals was found to have high reliability (Cronbach  $\alpha = .82$ ). High mean scores were observed for problem focused ( $4.7 \pm 1.4$ ) and Emotional focused coping ( $4.7 \pm 1.1$ ). Relatively low mean score was found for dysfunctional coping ( $3.3 \pm 1.0$ ) [Table 2].

A statistically significant low positive correlation of

IES-R scores was observed with problem focused coping ( $r=.47, p=.001$ ) and with emotional focused coping ( $r=.42, p=.001$ ).

Table 1: IES-R scores with frontline status, department and designation

Variable	IES-R Score				P value
	Normal	Mild	Moderate	Severe	
Frontline workers					
Yes	76	20	18	72	.001
No	118	42	12	40	
Department					
Emergency	18	4	4	22	.000
Medicine	142	36	26	62	
Surgery	34	22	0	28	
Designation					
Medical Officer	44	16	6	34	.000
Postgraduate Trainee	46	18	10	48	
Junior Consultant	52	22	14	10	
Senior Consultant	52	6	0	20	

However, moderately positive correlation was observed between IES-R scores and Dysfunctional coping ( $r=.64, p=.001$ ). One-way ANOVA was conducted to compare the effect of psychological distress on use of stress coping

strategies. There was a significant effect of psychological stress on coping style at the  $p<.05$  level for the three condition [ $F(3,394) = 23.27, p<.001$ ]. However, effect of general or frontline covid-19 health professional status on psychological stress coping strategy was not significant (Table 3).

Tab.2. BREIF-COPE Questionnaire Scores

Subscale (Coping styles)	Items	Mean±SD
Problem focused coping	4.7±1.4	
	Active Coping	4.9±1.6
	Planning	4.9±1.7
	Informational support	4.3±1.6
Emotional Focused coping	4.7±1.1	
	Emotional support	4.2±1.7
	Positive reframing	4.6±1.7
	Acceptance	5.7±1.7
	Religion	5.6±1.9
	Humor	3.1±1.5
Dysfunctional (avoidant) coping	3.3±1.0	
	Venting	3.6±1.4
	Denial	2.8±1.2
	Substance Abuse	2.2±1.0
	Behavioral disengagement	3.2±1.6
	Self-distraction	4.6±1.7
	Self-blame	3.1±1.6

Table 3: ANOVA to determine difference between Coping strategy adopted according to IES-R scores category

		Sum of Squares	Df	Mean Square	F	Sig
Emotion Focused Coping	Between groups	84.918	3	28.306	23.273	.000
	Within groups	479.205	394	1.216		
	Total	564.123	397			
Problem Focused Coping	Between groups	162.847	3	54.282	33.27	.000
	Within groups	642.815	394	1.632		
	Total	805.662	397			
Dysfunctional Coping	Between groups	154.637	3	51.546	76.22	.000
	Within groups	266.429	394	.676		
	Total	421.066	397			

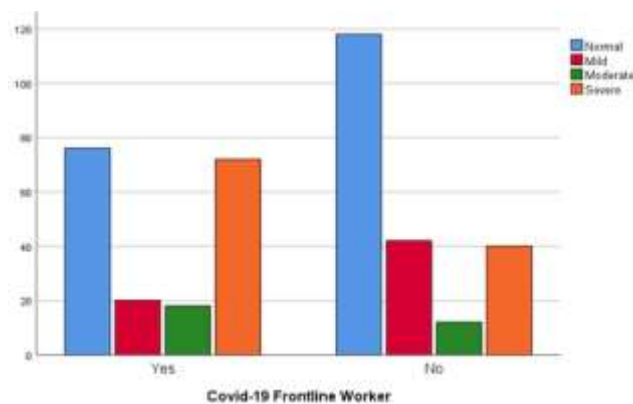


Fig.1. Level of stress among Covid-19 Frontline workers

**DISCUSSION**

This study was aimed to assess psychological distress among doctors during Covid-19 pandemic. Results of current study showed that 194 (48.7%) participants had no psychological distress. 62 (15.6%) had mild, 30 (7.5%) had moderate and 112 (28.1%) had severe psychological

distress. These findings are not supported by another study carried out by Saleem et al<sup>8</sup> among doctors, nurses, pharmacists and dentists, which reported 253 (62.6%) had high anxiety, 69 (17%) severe anxiety, 71 (17.5%) moderate anxiety and only 10 (2.4%) had mild anxiety. Only 14 (3.4%) participants were infected with Covid compared to 84 (21.1%) participants in current study. The variability of sample included in study and prior Covid experience can be the reason of contradiction with findings of current study.<sup>11,12</sup>

Results of our study showed that mean Impact of Events Scale- Revised (IES-R) score was 26.46 (SD= 17.41) and 194 (48.7%) health care professionals had no psychological distress. Out of 186 frontline Covid-19 workers, 72 (38.7%) had severe psychological distress, 18 (9.6%) had moderate distress, 20 (10.7%), whereas 76 (40.8%) had no distress. Psychological distress was found to be associated with gender ( $p=.001$ ), department ( $p=.001$ ) and designation. Findings of present study are consistent with Saudi study conducted by Alqutub et al<sup>13</sup> among frontline health workers, showing mean psychological distress score of 23.1. Severe psychological

distress was reported by 570 (27.3%) of the participants while mild and moderate psychological distress was reported by 328 (15.7 %) and 277 (13.2%) physicians respectively.<sup>8</sup>

In the current study, psychological distress was found to be associated with Covid-19 frontline working status, department and designation. Gender was found to have no association with stress ( $p=.10$ ). These findings contradict with the results of study carried out by Babore et al<sup>12</sup>, according to which higher levels of perceived stress were significantly high ( $p<.001$ ) among females ( $19.56\pm 7.06$ ) than males ( $15.38\pm 6.65$ ). This finding might be due to higher proportion of females (80.3%) as compared to (56.3%) in present study. Working or not working with covid-19 patients was significantly associated with stress among health professional which is consistent with findings of present study.<sup>13</sup>

Results of present study revealed existence of positive correlation of IES-R psychological distress scores with problem focused ( $r=.47$ ), emotional focused coping ( $r=.42$ ) and dysfunctional coping ( $r=.64$ ). This finding was consistent with results of a study conducted at Turkey, that showed stress levels to be positively correlated with the emotion-focused approach ( $r = 0.303$ ). Whereas stress was found to be negatively correlated with the problem-focused approach ( $r = -0.366$ ) which contradicts the findings of current study. This contradiction might be due to difference in study sample. Nurses constituted 75.9% in Turkish study, whereas our study assessed stress and coping strategies exclusively among doctors.<sup>13</sup>

Gender and Covid-19 frontline working status of doctors were associated with the occurrence of high psychological distress scores ( $p=.001$ ) in this study. These findings were supported by another conducted in Egypt that showed being a female and being involved in direct COVID-19 patient care predicted severe psychological distress among physicians. According to present study, 194 (48.7%) participants had no psychological distress. 62 (15.6%) had mild, 30 (7.5%) had moderate and 112 (28.1%) had severe psychological distress. These statistics contradict findings of Egyptian study that revealed 48.3% physician had severe psychological distress. Whereas no, mild, and moderate psychological distress were reported by 19.3%, 15.7%, and 16.7%, respectively and most effective stress coping strategies reported by Egyptian physicians was relying on their religious faith.<sup>14</sup>

Sehsah et al<sup>15</sup> conducted a study in Ethiopia that showed 58% health care professionals had no psychological distress. Among those having psychological distress, 18%, 11%, and 13% had mild, moderate, and severe levels respectively. These findings are incomparable with findings of present study. Same study revealed that working in emergency department (AOR = 2.360, 95% CI: 1.108, 7.730) was significantly linked with psychological distress among health professionals. In current study, 62% physicians working in emergency department had psychological distress. Out of these, 16.5% had mild to moderate and 48% had severe psychological distress.

## CONCLUSION

Psychological distress was significantly higher among Covid-19 frontline health workers, particularly those working in Medicine and Emergency departments. Moderately positive correlation was found between IES-R scores and dysfunctional coping strategies highlighting the need of stress coping skills trainings and management of the factors causing stress among Covid-19 frontline workers.

## REFERENCES

1. Carlos WG, Dela Cruz CS, Cao B, Pasnick S, Jamil S. Novel Wuhan (2019-nCoV) coronavirus. *Am J Respir Crit Care Med* 2020;201(4):P7-8.
2. WHO World Health Organization: coronavirus disease (COVID-19) outbreak situation. World Health Organization 2020.
3. Wang Y, Li Y, Jiang J, et al. COVID-19 outbreak-related psychological distress among healthcare trainees: a cross-sectional study in China. *BMJ Open* 2020;10(10):e041671.
4. Alqutub S, Mahmoud M, Baksh T. Psychological Impact of COVID-19 on Frontline Healthcare Workers in Saudi Arabia. *Cureus* 2021;13(5).
5. Amin F, Sharif S, Saeed R, et al. COVID-19 pandemic-knowledge, perception, anxiety and depression among frontline doctors of Pakistan. *BMC Psychiatry* 2020; 20: 459.
6. Sandesh R, Shahid W, Dev K, Mandhan N, Shankar P, Shaikh A, et al. Impact of COVID-19 on the Mental Health of Healthcare Professionals in Pakistan 2020;12(7):10-3.
7. Munawar K, Riaz F. *American Journal of Infection Control* Exploring stress coping strategies of frontline emergency health workers dealing Covid-19 in Pakistan: A qualitative inquiry. 2021;49:286-92.
8. Saleem Z, Majeed MM, Rafique S, Siqqiqi Z, Ghandhi D, Tariq H, et al. COVID-19 pandemic fear and anxiety among healthcare professionals in Pakistan. 2020;1-17.
9. Mohan BS, Nambiar V. COVID-19: An Insight into SARS-CoV-2 Pandemic Originated at Wuhan City in Hubei Province of China. *J Infect Dis Epidemiol* 2020; 6:146.
10. Alqutub S, Mahmoud M, Baksh T. Psychological Impact of COVID-19 on Frontline Healthcare Workers in Saudi Arabia. *Cureus*. 2021;13(5).
11. Carver CS. You want to measure coping but your protocol's too long: consider the brief COPE. *Int J Behav Med* 1997;4(1):92-100.
12. Babore A, Lombardi L, Viceconti ML, Pignataro S, Marino V, Crudele M, Candelori C, Bramanti SM, Trumello C. Psychological effects of the COVID-2019 pandemic: Perceived stress and coping strategies among healthcare professionals. *Psychiatry Res* 2020;293:113366.
13. Alqutub S, Mahmoud M, Baksh T. Psychological Impact of COVID-19 on Frontline Healthcare Workers in Saudi Arabia. *Cureus*. 2021;13(5).
14. Özçevik Subaşı D, Akça Sümengen A, Şimşek E, Ocakçı AF. Healthcare workers' anxieties and coping strategies during the COVID-19 pandemic in Turkey. *Perspect Psychiatr Care*. 2021;2020:1-9.
15. Sehsah R, Gaballah MH, El-Gilany AH, Albady AA. Psychological distress among Egyptian physicians during COVID-19 pandemic. *Int Arch Occup Environ Health* 2021;94(4):731-40.