



Mental Health and Its Association with Perceived Social Support During Covid-19 Pandemic Among Pakistani Doctors: A Comparative Study

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Abstract

Background: The Novel corona virus outbreak was initially reported in Wuhan state of China in December 2019, affecting more than 200 countries. Pakistan reported its first case in late February, Health care workers (HCW's) have been under immense physical as well as mental pressure owing to the current situation rendering feelings such as anxiety, fear, aggression and sleep disturbances, which could lead to depression, stress and even suicidal thoughts.

Methods: Analytical cross-sectional study was conducted on 85 HCW's of PAF hospital to assess the frequency of depression, anxiety, stress and their association with perceived social support among doctors, selected via simple random sampling.

A modified Questionnaire consisting of socio-demographic variables and questions from pre-validated questionnaires including DASS 21 and MSPSS was filled online by the participants of this study. Data was entered and analyzed by using SPSS version 23.0.

Results: The study included HCWs with mean age of 28.3 years & 82.4% of them were female. Majority were medical graduates and belonged to Islamabad. Overall, 29.4%, 31.8% and 38.8% of HCWs had depression, anxiety and stress respectively. Doctors with high social support were less depressed, stressed and showed less anxiety than those who had low social support ($p < 0.05$).

Conclusion: The study concluded that among the mental health issues under consideration, stress was highest among HCWs and high social support positively affects their mental health.

Keywords: Healthcare workers, anxiety, depression, stress, social support, COVID-19 pandemic

Introduction

The outbreak of Novel corona virus (COVID-19) was first reported from the Wuhan state of China in December 2019 and infected 84,629 people, killing more than 4000 patients (1-3). China was able to control the outbreak by March 2020,

but it has since then affected more than 200 countries (2, 4) and has been declared a Pandemic by WHO (5). In June 2020, total reported cases all over the world were 6,799,713 with the total death rate being 3,97,388 (2). Pakistan reported its first corona case in late

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February, with the total count being 98,943 and a death toll of 2002, marking Pakistan on number 15th on the list of countries most affected by COVID-19 by WHO (2). (June 2020)

The pandemic also brought with it a huge mental stress affecting public as well as the Health Care Workers (HCWs) (3, 6-10). As the virus is spreading in Pakistan, medical workers have been under extreme physical and mental pressure due to high risk of exposure owing to inadequate Personal Protective Equipment (PPE), isolation, lack of sleep and contact with family (7, 8, 10). The manifestation of different symptoms in patients i.e. dry cough, sore throat, fever, loss of sense of taste and smell, breathing issues and chest pain (2) and since there is still no vaccine while the hospitals are reaching their maximum patient capacity is responsible for mental pressure the HCW's are facing. (11)

These factors render among doctors the feelings of helplessness, anxiety, fear, aggression and sleep disturbances, which might lead to depression, stress disorders and even suicidal thoughts (10-13). The stressful impact of COVID-19 is due to two main reasons, first is exposure to infectious diseases requiring proper self-isolation to contain the threat and the second is reducing contact and fear of infecting their families and friends (8). Therefore, exposure to virus reduces social and family support that would otherwise be vital for reducing the effects of stress (11). HCW's who get infected with virus during their duties experience feelings of frustration and helplessness because suddenly their roles are reversed (10, 11). Despite these concerns, very few HCW's seek proper psychological help due to the stigma attached with mental health issues (8, 10, 11).

Due to lack of research, this study aims to gather evidence to see the effect of COVID-19 on mental health of doctors (10). Studies conducted in other parts of world showed that these mental health problems are substantially reduced by provision of PPE and effective measures to address mental health issues (4). Paying attention to mental health issues faced by doctors is important for the better prevention of Pandemic (8, 10, 14).

With a hypothesis that mental conditions of HCWs are affected by exposure to COVID-19 patients and an appropriate social support have influence on their mental condition, this study aims to compare the frequency of depression, anxiety and stress among the frontline HCW's who are exposed and non-exposed to

COVID-19 patients and analyze the effect of social support on their mental health. This will help sensitize the Policy Makers to timely mobilize the available scarce resources for control of mental health of HCW's for their efficient working and addressing their apprehensions regarding the situation. This ultimately can help in preventing long-term issues such as prolonged depression and Post Traumatic Stress Disorder (PTSD) (13, 15).

Methodology

Analytical cross-sectional study was carried out to assess the proportion of depression, anxiety, stress and their association with perceived social support among doctors of PAF hospital (Unit I & II), Islamabad.

The sample size was calculated using equation of hypothesis test for a population proportion (two sided test) from WHO sample size software. At 90% power of study & 5% alpha, we kept test value of population proportion of anxiety and depression as 67% (16) and anticipated value as 50%, the calculated sample size is 85¹⁶.

All doctors of PAF hospital Unit I & II, a tertiary care hospital located in Islamabad were included but those with known anxiety and depression and on antidepressant medications were excluded from study. The participants were recruited in the study by simple random sampling, complete list and email ID's of doctors was obtained from Human resource department of PAF hospital. Doctors selected through random table were contacted and asked to participate in study. All of them had filled the questionnaire, rendered the dropout rate of zero.

The Questionnaire was developed as Google Forms in English, consisted of socio-demographic variables and questions from pre-validated questionnaires including Depression, Anxiety Stress Scale (DASS 21) and Multidimensional scale of perceived social support (MSPSS). Depression, Anxiety and Stress Scale 21 has reported to be 74% sensitive and 84% specific to assess the mental health of HCWs focusing on depression, anxiety and stress (17, 18). The internal consistency (Cronbach's alpha) of MSPSS to evaluate the social support was 0.92 (19). The link of the final questionnaire was shared with selected participant on their email ID which took approximately 10 minutes for completion. A pilot testing was conducted on a sample of five doctors, who were not part of actual study results.

Data Analysis

Data was entered and analyzed by using SPSS version 23.0. Mean and standard deviation were computed for continuous variables like age, income, scores of DASS-21 and MSPSS. Percentages were computed for categorical variables like department of serving, gender, exposure to Covid-19 patients and doctors having depression, anxiety, stress and perceived social support. As this was an analytical cross-sectional study, first the HCWs were categorized into those who were exposed and who were not exposed to COVID-19 patients at the time of analysis and then their proportions with depression, anxiety and stress were compared to see any difference among them. The proportions of doctors having depression, anxiety, stress were also cross tabulated with social support. Chi-square test was applied to see their association and p-value less than 0.05 was considered as significant.

Variables of Interest:

DASS-21: DASS 21 had 7 questions to assess each mental health condition named depression, anxiety and stress. Each question was rated on a scale of 0, 1, 2 & 3. Total score of each participant was multiplied by 2 to get the actual score. Hence, the range of computed score was from 0 to 42 for each domain of stress, anxiety and depression. Score of 10, 6 and 9 were taken as cutoff values for stress, anxiety and depression respectively. (20)

MSPSS: The MSPSS contained 12 questions which were judged on a scale of 1 to 7 with options of "Very Strongly Disagree to Very Strongly Agree". The total score of each participant was divided by 12 to get the actual score. (21) The actual score ranging from 1 to 2.9 and 3 to 7 was considered low and high social support respectively.

Ethical consideration:

Permission to conduct the study was taken from institutional review board of Fazaia Medical College (IRB-FMC) and written informed consent was taken from each participant prior to data collection. Ethical approval of written informed consent was also taken by IRB-FMC.

Results

The mean age of participants in present study was 28.3 ± 4.4 years and most of them (82.4%) were female and resided (76.5%) in Islamabad. Only one quarter of the study participants were postgraduates

while majority was fresh graduates with almost equal proportion from each of the department viz medicine, surgery, gynecology, pediatrics and emergency. More than three fourths of individuals reported exposure with covid-19 patients during their duty as shown in Table 1.

Table 1. Socio-demographic characteristics of the participants

Characteristics	Frequency (N = 85)	Percentage (%)
Age in years		
Mean \pm SD	28.3 \pm 4.4	
Gender		
Male	15	17.6
Female	70	82.4
Residence		
Islamabad	65	76.5
Rawalpindi	20	23.5
Qualification		
Graduates	63	74.1
Post-graduates	22	25.9
Hospital		
Unit I	19	22.4
Unit II	49	57.6
Both	17	20.0
Department		
Medicine	18	21.2
Surgery	17	20.0
Gynecology	18	21.2
Pediatrics	14	16.5
Emergency	18	21.2
Designation		
PG trainees	40	47.1
Registrar/Medical Officer	27	31.8
House officer	18	21.2
Monthly income (PKR)		
Mean \pm SD	39,341 \pm 24,444	
Exposure to Covid-19		
Yes	69	81.2
No	16	18.8

Analysis of DASS-21 scores revealed that the proportion of stress (38.8%) was highest among the three mental conditions as shown in Table 2.

Table 2. Frequency of Depression, Anxiety, Stress and Social Support

	Frequency (N=85)	Percentages (%)
Depression		
Yes	25	29.4
No	60	70.6
Anxiety		
Yes	27	31.8
No	58	68.2
Stress		
Yes	33	38.8
No	52	61.2
Social Support		
Low	22	25.9
High	63	74.1

It has been found that two third (74.1%) of the doctors had high social support on MSPSS.

Association of mental health with different variables

Cross-tabulation of mental health with exposure to Covid-19 infection showed that the doctors without exposure to Covid-19 had equal proportion of all the three mental conditions viz depression, anxiety & stress while anxiety and stress was more (30.4%) than depression (27.5%) among those who were exposed but the association was found statistically insignificant as p-value was more than 0.05. The same findings were endorsed when we crosstab mental health with duties in emergency room (ER). No statistically significant difference was noticed in proportion of mental health related variables among those who performed duties in ER than their counterpart (Table 3).

Table 3. Association of Mental Health with Covid-19 Exposure after applying Fisher Exact test as Chi-square was inapplicable

	Exposure with Covid-19 Patients			Perform duties in ER during Covid-19 pandemic		
	Yes (%)	No (%)	P-value	Yes (%)	No (%)	P-value
Depression						
Yes	19(27.5)	6(37.5)	0.54^	13(27.7)	12 (31.6)	0.69
No	50(72.5)	10(62.5)		34(72.3)	26 (68.4)	
Anxiety						
Yes	21(30.4)	6(37.5)	0.58	13(27.7)	14 (26.2)	0.36
No	48(69.9)	10(62.5)		34(72.3)	24 (63.8)	
Stress						
Yes	27(30.4)	6(37.5)	0.90	17 (26.2)	16 (42.1)	0.57
No	42(60.9)	10(62.5)		30 (63.8)	22 (57.9)	

All the three domain of mental conditions were found to be high among female than male but the difference was found insignificant when chi-square test was applied as larger proportion of our study consisted of female.

Association of mental health with social support:

Social support was also cross-tabulated with mental conditions and it was revealed that the doctors with high social support had comparatively less depression, stress and anxiety than those who had low social support and the association found significant (p<0.05) on application of chi-square test. In other word we can say that participants with high social support were able to cope with anxiety and stress in a better manner as compared to those who had low social support as shown in Table 4.

Table 4. Association of Mental Health with Social Support

	Social Support		P-value
	Low	High	
Depression			
Yes	11(50)	14(22.2)	0.02*
No	11(50)	49(77.8)	
Anxiety			
Yes	13(40.9)	14(22.2)	0.002**
No	9(59)	49(77.8)	
Stress			
Yes	13(40.9)	20(31.7)	0.02*
No	9(59)	43(68.3)	

*significant p-value <0.05

**highly significant p-value<0.01

Discussion

Health care workers go through many physical and psychological pressures during the span of their careers which may become overwhelming during challenging times especially in the course of a pandemic. There are many factors which may contribute towards depression, anxiety and stress among health care workers especially medical doctors. Mental health tends to get ignored during such times as the Government and Health ministry have their focus mainly on prevention and treatment of the disease/pandemic itself.

In January 2021, a study carried out by Fang et al observed that health care workers who have better social support showed decreased levels of depression, anxiety and loneliness). These are similar to the findings of the present study which is also

strengthened by the findings of a systematic review carried out in India in April 2020 by Spoorthy et al, where it was concluded that those who had poor social support showed increased stress, anxiety. Moreover, it was also observed that COVID pandemic in itself can be the reason of a rise in stress and anxiety of health care workers (22).

A study conducted in India by Wilson et al, in April 2020, used PHQ9 and GAD7 as the measurement tools. They concluded that during the pandemic prevalence of stress was high among medical doctors, especially more in female doctors as compared with their male counterparts (23). In another study carried out in Wuhan, China, in February, 2020, it was observed that stress was far more prevalent among health care workers as compared to anxiety and depression (24). The findings of present study are comparable to both the above mentioned studies as prevalence of stress and anxiety is high as compared to depression. The unpredictable outcome of COVID-19 infection and the necessity of isolating those who get infected can be major contributors to increased levels of stress among health care workers (25, 26).

A cohort study was carried out by McCullough et al from 2010 till 2017, where high prevalence of anxiety was observed among fresh graduates which was connected to paucity of perceived social support (27). Xiao et al. also found that high level of perceived social support has an association with decreased levels of anxiety and stress (28). Similarly, in this study, the frontline doctors, who actually came in contact with the COVID-19 positive patients, were mostly fresh medical graduates, contrary to the findings of the studies mentioned above, and despite the fact that almost two thirds of the study population had good social support on MSPSS, the proportion of anxiety and stress was found to be high among the study population.

A mental health survey of health care personnel was carried out by Huang et al, which observed that the female health care workers had a greater frequency of anxiety as compared to their male colleagues (25). Similar observations were found in the present study where majority of the study population comprised of female doctors.

Conclusion

Despite having high social support (74.1%) around two third of our participants had mental health problems with highest proportion of stress (38.8%). All

the three mental conditions i.e. depression, anxiety and stress showed statistically significant association with social support ($p < 0.05$) but not with exposure to COVID-19 patients ($p > 0.05$).

Limitations & Recommendations

Special attention with profound focus on social support is required towards the prompt assessment and safeguarding of sound mental health of HCWs in Covid-19 pandemic so that they can accomplish their task efficiently. Due to time constraint our study was confined to single institution, holistic studies from multiple institutions with appropriate sample size and representative sample are required to endorse our findings.

Conflict of Interest

There was no conflict of interest among the researchers and the result were not influenced as research was not funded by any organization.

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