ORIGINAL ARTICLE

Psychological Impact of COVID–19 Pandemic on Health Care Workers: A Cross Sectional Study

Zaina Jabeen[1], Aysha Rani[2], Sohaib Ahmed[3], Sadaf Ghaffar[4], Tazaeen Hina Kazmi[5], Wasim-ud-Din[6]

ABSTRACT

Background and Objective: The Coronavirus disease 2019 (COVID-19) pandemic has affected more than four million people in 213 countries. Health care workers (HCWs) who deal with COVID-19 patients have a high chance of getting infected. They have got valid concerns regarding their own health as well as the impact it can have on the wellbeing of their family and acquaintances. The current study aims to assess the prevalence of psychological problems among HCWs during the COVID-19 pandemic.

Methods: A cross-sectional study was conducted among HCWs of Wah Medical College and Pakistan Ordnance Factories (POF) Hospital Wah Cantt from 1st May 2020 to 7th May 2020 after an ethical approval by ethical review board. A total of 340 HCWs participated by filling an online questionairre; questions on demographic profile and validated Depression, Anxiety and Stress Scale–21 (DASS-21) score were included. Frequency of depression, anxiety and stress and mean DASS-21 scores between house officers and all other healthcare workers and between Medicine and allied department and other departments was assessed. Data was analysed using Statistical Package for the Social Sciences (SPSS)-23. P-value ≤ 0.05 was considered statistically significant.

Results: Among 340 HCWs majority i.e. 66.8% were less than 35 years of age and the mean age of participants was 40.65 ± 11.64 years. There was a female proponderance with a F:M ratio of 1.7:1. Most (55.3%) of the participants were single and there was a high percentage of house officers with 45% among all. The overall prevalence of depressiom, anxiety and stress among all HCWs was 32.9%, 25% and 23.5% respectively. The depression, anxiety and stress among house officers than other HCWs and higher prevalence in Medicine and Allied Departments than other departments.

Conclusion: As the global threat of COVID-19 continues to emerge, it is important not to underestimate the psychological impact of this pandemic on HCWs. Interventions and support to especially vulnerable groups of HCWs will help improve psychological health, which in turn will help improve the quality of patient care.

KEYWORDS: COVID-19, Psychological impact, Depression, Anxiety and Stress Scale–21, Health care workers.

How to Cite This:

Jabeen Z, Rani A, Ahmed S, Ghaffar S, Kazmi TH, Uddin W. Psychological impact of COVID – 19 pandemic on health care workers: A cross sectional study. Biomedica. 2020; 36 (COVID19-S2): 223-7.

1. Zaina Jabeen
2. Aysha Rani
3. Sohaib Ahmed
4. Sadaf Ghaffar
5. Tazaeen Hina Kazmi
6. Wasim-ud-Din

1-6 Department of Medicine, Pakistan Ordinance Factories Hospital Wah Medical College, Wah Cantt- Pakistan.

Corresponding Author:
Prof. Wasim-ud-Din
Principal, Wah Medical College
Head, Department of Medicine, Wah Medical College, Wah Cantt - Pakistan.
Email: wasim_uddin@yahoo.com

INTRODUCTION

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the virus causing Coronavirus disease 2019 (COVID-19)is one of the emerging pathogens amongst Coronavirus (CoV) family of respiratory viruses which are known to cause illness ranging from common cold to Severe Acute Respiratory Syndrome (SARS).[1] SARS-CoV-2is a zoonotic pathogen that can be transmitted via animal-to-human and human-to-human interactions.[2] Since the first reported case in Wuhan, China in December 2019, COVID-19 has spread rapidly to involve more than 4 million people in 213 countries of the world and has become a major public health problem of unprecedented magnitude.[3]

COVID-19 is spread by human-to-human transmission through direct contact, droplet and feco-oral routes and has an incubation period of 2-14 days.[4] To date, no antiviral drug or vaccine has been explicitly recommended for COVID-19 treatment or prevention. Therefore, applying preventive measures to control spread of COVID-19 is the only effective and most critical intervention. Health care workers (HCWs) being the frontline personal, are exposed to COVID-19 patients in health care settings and are at a high risk of getting infected. By the end of January 2020, World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) had published recommendations for the prevention and control of COVID-19 for HCWs.[5,6]

SARS-CoV-2 is a new virus in humans, about which very littleis known. There isno definitive treatment or vaccine available for it. Its ability to be a highly contagious disease, asymptomatic infective state and relatively higher mortality has made it a highly feared infection in the present times. The first case was reported in December 2019 at Wuhan China, and on 11th March 2020 WHO declared this infection a pandemic. HCWs who deal with patients have a high incidence of infection and naturally have valid concerns regarding their own health as well as the impact it can have on the wellbeing of their family and acquaintances.

This is the first health related situation of unprecedented proportions to affect Pakistan since its creation in 1947. The first case in Pakistan was reported in late February 2020. A health emergency was declared in March 2020 in Pakistan and todate the number of cases in Pakistan has crossed 35000 with more than 750 deaths. Because of rapid spread in the world, effecting more than 4 million people and causingmore than 0.28 million deaths worldwide, it naturally has psychological impact for public in general and HCWs in particular.

In the wake of COVID-19 pandemic, Pakistan Ordnance Factories (POF) Hospital has earmarked a 70-bed dedicated ward with Intensive Care Unit (ICU) facility – COVID-19 ward. A Corona desk at reception is used for triage of patients. All other clinical departments continue to work. Medicine and Allied departments are looking after the COVID-19 ward, Medical ICU, Emergency and Acute Medical wards. A 300-bed quarantine facility was developed in two student hostels of the college. The Quarantine facility was primarily manned by faculty and staff of Basic Science Departments of the College.

METHODS

A cross sectional study was conducted at Wah Medical College and POF Hospital, Wah Cantt from 1st May to 7th May, 2020. Formal approval was taken from the ethical committee of the hospital. Total 500 participants including doctors and nurses working at Wah Medical College and POF Hospital, its affiliated teaching Hospital and HCWs, who were trained to look after hostels-turned COVID-19 quarantine centres, were invited and 340 HCWs participated through convenience sampling method. Data was collected using an online questionnaire which included questions on demographic profile as well as validated Depression, anxiety and stress scale (DASS-21). Thus, all HCWs including doctors and nurses participating in the study were directly or indirectly involved in patient care.

STATISTICAL ANALYSIS

Data was analysed using Statistical Package for the Social Sciences (SPSS)-23, qualitative data was expressed as percentages; quantitative as mean ± SD. Pearson's Chi Square test was used to assess association between variables and depression, anxiety and stress. Independent sample *t* test was

used to compare mean DASS-21 scores. P-value ≤ 0.05 was considered statistically significant.

RESULTS

Out of 500 invited HCWs, 340 participated in the study (response rate 68%). Characteristics of demographic profile are shown in Table-1.

Table-1: *Demographic characteristics of participants (n = 340).*

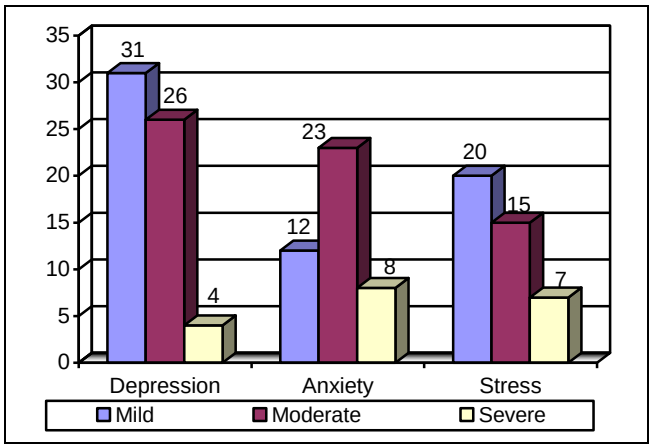
Characteristic	Number (n)	Percentage (%)
Age		
<35years	227	66.8
35-50years	87	25.6
>50 years	26	7.6
Gender		
Male	122	35.9
Female	218	64.1
Marital status		
Single	188	55.3
Married	144	42.4
Divorced/ widowed	8	2.3
Occupation		
Nurse		
House officers	35	10.3
Medical Officer/Post graduate	153	45
residents	74	21.7
Senior Registrar/ Asst./ Associate	77	22.6
Professor/ Professor		
Department		
Medicine and Allied	173	50.8
Surgery and Allied	121	35.5
Basics and Pre-Clinical Sciences	28	8.2
Primary care physician	9	2.6
Diagnostics and radiology	8	2.3

The overall prevalence of depression, anxiety and stress among HCWs was 32.9% (n = 112), 25% (n = 85) and 23.5% (n = 80) respectively. The prevalence of depression, anxiety and stress in house officers compared to other HCWs and Medicine and Allied departments compared to other departments is shown in Table-2. Results showed a higher prevalence of depression, anxiety and stress among house officers than other HCWs as shown in Fig.1.

Table-2: *Prevalence of depression, anxiety and stress among HCWs.*

Outcome	Overall Prevalence	Working Status		Department	
		House Officers	Others Healthcare Workers	Medicine and Allied	Other
Depression	112 (32.9%)	61 (39.9%)	51 (27.3%)	61(35.3%)	51 (30.5%)
Anxiety	85 (25.0%)	43 (28.1%)	42 (22.5%)	54 (31.2%)	31 (18.6%)
Stress	80 (23.5%)	42 (27.5%)	38 (20.3%)	44 (25.4%)	36 (21.6%)

While comparing mean DASS-21 scores among house officers versus other HCWs, there were statistically significant higher P-value of 0.004 with mean DASS-21 scores for depression i.e. 8.15 ± 6.42 and mean for stress was 9.96 ± 7.9 with a *P-value of 0.008* among house officers than mean of depression i.e. 6.1 ± 6.1 and stress 7.6 ± 7.9 in all other HCWs, whereas no statistically significant difference in DASS-21 score for anxiety among the two groups *(P = 0.083)* was observed. There is also no statistically significant difference in mean DASS-21 scores for depression *(P = 0.134)*, anxiety *(P = 0.051)* and stress *(P = 0.351)* between Medicine and Allied Department and all other departments.



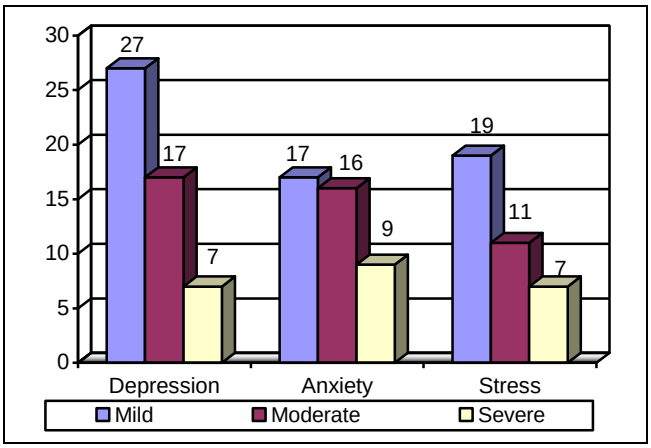


Fig.1: Level of Depression, anxiety and stress among house officers vs. other healthcare workers.

DISCUSSION

At present COVID-19 is a global topic of discussion in the media and among the public, especially among HCWs. With the current mounting numbers of COVID-19 patients coming into hospitals, and rising mortality in many parts of the world, it was only natural to impact psychological health of HCWs. This is the first pandemic to hit Pakistan and that too of unprecedented magnitude. The health care system in a developing country like Pakistan was not ready to cope with this health care problem. Similarly, HCWs were not mentally and psychologically prepared to deal with this pandemic. The present study was designed to assess the prevalence of Depression, Anxiety and Stress among HCWs using a validated scoring system – DASS-21.[7] The prevalence of Depression, Anxiety and Stress was much higher among HCWs during this pandemic than that seen in tertiary care hospital in Pakistan in normal times.[8,9]

While using the same DASS-21 score and adjusting for confounders, further analysis showed higher incidence of Depression, Anxiety and Stress among house officers - our junior most professional doctors, as compared to other HCWs. One batch of house officers joined training on 1st April, 2020 in the midst of the pandemic. Many house officers were living in hostels, away from the family. Reason for this high incidence was probably the first interaction with patients in the setting of this pandemic, reduced access to formal psychological support, less first-hand information on the outbreak, less intensive training on use of Personal Protective Equipments (PPEs) and infection control measures.Since Medicine and Allied Departments were frontline in dealing with COVID-19, the incidence of depression, anxiety and stress in HCWs in these departments werecompared with that of HCWs in all other departments combined. No major difference was seen in the two groups. This was possibly due to better preparation, training, drills and education provided to HCWs in these departments in preparationfor COVID-19. This point has been validated in a recent study as well.[10]

As the pandemic continues, important clinical and policy strategies are needed to support HCWs. Some of these have already been initiated. The current study identified a vulnerable group highly susceptible to psychological distress. Further support could include counselling services and development of systems among colleagues.

CONCLUSION

The present study highlights a significantly higher incidence of psychological problems among HCWs in the setting of COVID 19 pandemic. Junior doctor's wereobserved asmore vulnerable group of HCWs and early intervention targeting this vulnerable group may be beneficial.

LIMITATIONS OF STUDY

This study has limitations. First, data obtained from self-reported questionnaires was not verified with medical records. Secondly the study did not assess socioeconomic status of different HCWs groups. Finally, this study was done in one medical college and its attached teaching hospital. The results obtained cannot be generalised. For this purpose, a larger, multicentre study would be required.

ACKNOWLEDGEMENT

The authors would like to thank all health care workers of POF Hospital, Wah Cantt, who participated in the study.

CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

REFERENCES

1. Yin Y, Wunderink RG. MERS, SARS and other coronaviruses as causes of pneumonia. Respirology. 2018; 23 (2): 130-7.
2. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia. N Engl J Med. 2020; 382 (3): 1199-1207.

3. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges. Int J Antimicrob Agents. 2020; 55 (3): 105924.
4. Backer JA, Klinkenberg D, Wallinga J. Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travellers from Wuhan, China, 20-28 January 2020. Euro Surveill. 2020; 25 (5): 2000062-7.
5. World Health Organization. 2020. Infection prevention and control during health care when novel corona virus 2019-nCoV) infection is suspected: interim guidance. 2020. Available online at: https://tinyurl.com/r7w9key. [Last accessed on May 16, 2020].
6. Centers for disease control and prevention. 2019. Update and interim guidelines on outbreak of 2019 novel coronavirus (2019-nCoV). Available online at: https://emergency.cdc.gov/han/han00427.asp. [Last accessed on April 30, 2020].
7. Lee D. The convergent, discriminant, and nomological validity of the Depression Anxiety Stress Scales-21 (DASS-21). J Affect Disord. 2019; 259 (2): 136-42.
8. Ayub Y, Anjum R, Margrat S, Ashraf A, & Qayyum S. Prevalence of depression, anxiety and stress among healthcare professionals at tertiary care hospitals, Karachi – Pakistan. Ann Psychophysiology. 2020; 6(1): 23-9.
9. Atif K, Khan HU, Ullah MZ, Shah FS, Latif A. Prevalence of anxiety and depression among doctors; the unscreened and undiagnosed clientele in Lahore, Pakistan. Pak J Med Sci. 2016; 32 (2): 294-8.
10. Tan BYQ, Chew NWS, Lee GKH, Jing M, Goh Y, Yeo LLL, et al. Psychological impact of the COVID-19 pandemic on health care workers in Singapore. Ann Intern Med. 2020: M20-1083.

Author's Contribution

ZJ: Conception and design of published data.

AR: Acquisition of published data.

SA: Conception and design of published data.

SG: Articledrafting.

THK: Final approval of the version to be published.

WU: Critical revision for intellectual content, final approval of the manuscript.