

journal homepage: <https://www.pjcm.net/>

Pakistan Journal of Chest Medicine

Official journal of Pakistan Chest Society



Mental Health problems among Healthcare workers in a tertiary care hospital designated for COVID-19, in Peshawar, Pakistan

Muhammad Imran¹, Mohammad Jawad², Azhar Uddin^{1✉}, Adul Jalil Khan², Sana Hussain²,
Rahmanullah Jan³, Zabihullah Afridi¹, Usama Fahad⁴, Shumaila Javaid⁴, Zafar Iqbal⁴

¹COVID-19 Hospital, Peshawar, Pakistan ²Khyber Medical University, Peshawar, Pakistan ³Hayatabad Medical Complex, Peshawar, Pakistan ⁴MTI, Lady Reading Hospital, Peshawar, Pakistan

Corresponding Author**Azhar Uddin**COVID-19 Hospital, Peshawar
Pakistan

E-mail:

azherafriidi@yahoo.com

Article History:

Received: June 24, 2021

Revised: Aug 12, 2021

Accepted: Aug 28, 2021

Available Online: Sep 02, 2021

Author Contributions:

MI AU ZI MJ conceived idea, ZI AU SJ drafted the study, SJ AU RJ ZA UF collected data, MI AU ZA AJK did statistical analysis and interpretation of data, ZI SH critical review manuscript, all approved final version to be published.

Declaration of conflicting interests

The authors declare that there is no conflict of interest.

How to cite this article:

Imran M, Jawad M, Uddin A, Khan AJ, Hussain S, Jan R, Afridi Z, Fahad U, Javaid S, Iqbal Z. Mental Health problems among Healthcare workers in a tertiary care hospital designated for COVID-19, in Peshawar, Pakistan. Pak J Chest Med 2021; 27 (3):146-151

A B S T R A C T

Background: The coronavirus disease has substantially impacted the health and well-being of everyone around the world, especially the frontline health care workers.

Objective: This study aimed to evaluate Covid-19's psychological effects on frontline health care workers (HCWs), including anxiety and depression.

Methodology: Healthcare workers (HCWs) in COVID-19 Hospital, Nishterabad, were surveyed in a cross-sectional study. A 14-item hospital anxiety and depression scale (HADS Score) and self-reported demographic information was used to collect data. The impact of various independent variables on the development of anxiety and depression was estimated using multinomial logistic regression in SPSS version 28.

Results: In 139 individuals, 72% (n=100) were male. 62% (n=86) were below 30 years of age. The minimum age was 20 years and maximum 48 years with a standard deviation of 5.2 and a median of 29. 58.3% (n=80) had a HADS score of less than or equal to 7 and were categorized as normal; 27.3% (n=38) had a HADS score between 7 and 11 and were declared borderline depressed. Furthermore, 14.4% (n=21) had a HADS score of more than 11. 31.7% (n=44) of the study participants were abnormal (borderline abnormal and abnormal). Among the participants 55.4% (n=77) were normal, 36.7% (n=51) were borderline abnormal while 7.9% (n=11) were abnormal for anxiety. In total, 44.6% (n=62) had a HADS score of more than seven and were categorized as diseased (both borderline and abnormal). Participants working in the ICUs were positively associated with the development of new-onset depression and anxiety (p=0.000, aOR=2.9 CI 1.2-7.1) and (p=0.006, aOR=3.5 CI 1.4-8.9). Similarly, participants satisfied with their current job had fewer odds of developing depression and anxiety (p-value=0.000, aOR 0.16 CI 0.06-0.44) and (p=0.000, aOR=0.148 CI 0.06-0.40). On the other hand, gender, monthly income, education, and address have no significant association with the development of depression and anxiety.

Conclusion: Frontline healthcare workers are more prone to developing anxiety and depression during the Covid-19 pandemic. Psychological support should be provided to young healthcare workers and nurses. HCWs' physical and mental well-being depends on measures to protect them from work-related exposure.

Key words: COVID-19; SARS-CoV-2; Anxiety; Depression; Healthcare Workers

Copyright:© 2021 by author(s) and PJCM 2021. This is an open access article distributed under the terms of the Creative Commons Attribution License, (<http://creativecommons.org/licenses/by-nc-nd/4.0/>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Introduction

In December 2019, the world saw an upsurge in the number of pneumonia cases that started initially in Wuhan, China.¹ It was labeled as Coronavirus disease (Covid-19) by the WHO in February 2020.² Later on, The World Health Organization declared the disease a pandemic due to its rapid spread since its origin in Wuhan.³ At the time of writing this paper, there were 273.67 million confirmed cases of COVID-19 and 5.34 million confirmed deaths globally.⁴ The disease's rapid spread and the high mortality rate have impacted the whole world.

As a result of this contagious severe public health problem, health care workers (HCWs) face both physical

and psychological strain.⁵ Healthcare workers (HCWs) have previously experienced feelings of concern, despair, fear, and dissatisfaction during SARS and H1N1 outbreaks, among other things.^{6,7} Healthcare workers who come into contact with patients who have a proven or suspected Covid-19 infection may face a considerable risk of disease as well as mental health concerns (HCWs).⁸ They may be afraid of transmitting the infection to other family members, employees, or even strangers, so they immediately seek medical attention. Patients who refuse to be segregated at the hospital or who do not cooperate with medical procedures because of panic or a lack of information about the condition may also be a source of concern.⁹ In a study by Rafia Tasneem¹⁰ et al., anxiety and depression were assessed to be 69.5 and 41.2 percent for

Table 1. Study Population Summary

Variables	Characteristics	N	Percentage
Anxiety	Normal	77	55.3%
	Diseased	62	44.6%
Depression	Normal	80	57.6%
	Diseased	59	42.4%
Age groups	≤30 years	86	61.9%
	>30 years	53	38.1%
Education	Others	42	30.2%
	Health-related degree	97	69.8%
Designation	Others	39	28.1%
	Frontline workers	100	71.9%
Duty Place	Others	71	51.1%
	ICU/HDU	68	48.9%
Gender	Male	100	71.9%
	Female	39	28.1%
Marital Status	Unmarried	49	35.3%
	Married	90	64.7%
Address	Urban	69	49.6%
	Rural	70	50.4%
Experience (years)	<5	73	52.5%
	5 to 10	53	38.1%
	>10	13	9.4%
Income	<30 thousand	26	18.7%
	30 thousand to 1 lac	88	63.3%
	1 to 2 lacs	20	14.4%
	> 2 lacs	5	3.6%
Chronic Disease	No	127	91.4%
	Yes	12	8.6%
Job Satisfaction	No	32	23.0%
	Yes	107	77.0%

moderate symptoms (borderline abnormal), respectively. Furthermore, the total HADS score was associated with female gender, average and poor health status, infrequent physical activity, smoking, having regrets about one's profession due to the pandemic, and social problems due to working in a lab or hospital during the pandemic.

In the aftermath of the Covid-19 outbreak, there has been a shortage of attention paid to the mental health needs of patients and healthcare workers whom the pandemic has directly impacted. In this study, we estimate the incidence of depression and anxiety in front line health care workers prone to the infection.

Methodology

Health care workers (HCWs) were surveyed in COVID-19 Hospital, Peshawar, Pakistan. Data was collected using a 14 items Hospital anxiety and depression score with demographic information like age, gender, address, marital status, job designation, monthly income, and underlying chronic diseases. Those with underlying mental health conditions were excluded from the study. Non-probability/convenience sampling was used for sample collection. The data was analyzed using SPSS version 28. Frequencies, means, modes, and standard deviation were recorded for variables like age, gender, and monthly income. Multinomial logistic regression was performed to study the impact of independent variables on the development of anxiety and depression to calculate p-values and adjusted odds ratios with 95% Confidence Interval. Data was presented in the form of tables and charts. A P-value of less than 0.05 was taken as significant.

Results

In 139 individuals, 72% (n=100) were male. 62% (n=86) were below 30 years of age (Table 1). The minimum age was 20 years and maximum 48 years with a standard deviation of 5.2 and a median of 29. 49.6% (n=69) belonged to urban areas while 50.4 % (n=70) were from the rural areas. 18.7% n=? of the participants' monthly income was below thirty thousand per month. On the other hand, only 3.6% (n=5) had more than two hundred thousand monthly income per month.

Looking at the development of depression among study participants (Table 2), 58.3% (n=80) had a HADS score of less than or equal to 7 and were categorized as normal, 27.3% (n=38) had a HADS score between 7 and 11, and were declared as borderline depressed. In comparison, 14.4% (n=21) had a HADS score of more than 11. 31.7% (n=44) of the study participants were abnormal (borderline abnormal and abnormal). Various characteristics were studied affecting the development of new-onset depression with a HADS score of more than 7. Participants working in the ICUs were positively associated with the development of new-onset depression, with a p-value of 0.000, aOR of 2.9 (CI 1.2-7.1). Similarly, participants satisfied with their current job were had fewer odds of developing depression, with a p-value of 0.000, aOR 0.16 (CI 0.06-0.44). On the other hand, gender, monthly income, education, and address have no significant association with the development of depression.

Anxiety also behaved the same way as depression (Table 3). Among the participants 55.4 % (n=77) were normal,

Table 2. Logistic regression for Depression

	95% Confidence Interval			
	p-value*	aOR	Lower Bound	Upper Bound
Age groups	0.979	0.985	0.33	2.94
Education	0.803	0.809	0.15	4.26
Designation	0.608	1.712	0.22	13.33
Duty Place	0.016	2.953	1.22	7.13
Gender	0.205	0.524	0.19	1.43
Marital Status	0.130	0.435	0.15	1.28
Address	0.149	1.936	0.79	4.75
Experience	0.255	0.311	0.04	2.33
Income	0.937	0.888	0.05	16.90
Chronic Disease	0.505	1.828	0.31	10.78
Job Satisfaction	0.000	0.161	0.06	0.44

*P-value of less than 0.05 is taken as significant

36.7 (n=51) were borderline abnormal while 7.9 (n=11) were abnormal. In total, 44.6% (n=62) had a HADS score of more than seven and were diseased abnormal. Various characteristics were studied affecting the development of new-onset anxiety with a HADS score of more than 7. Participants working in the ICUs/HDUs were positively associated with the development of anxiety, with a p-value of 0.006, aOR of 3.5 (CI 1.4-8.9). Moreover, working at the frontline has a protective effect on the development of anxiety, with a p-value of 0.02, aOR of 0.09 (CI 0.01-0.07). Similarly, participants satisfied with their jobs were least likely to develop anxiety; they had a protective effect with a p-value of 0.000, aOR of 0.148 (CI 0.06-0.40). On the other hand, gender, monthly income, education, and address have no significant association with the development of new-onset anxiety.

Discussion

Healthcare workers (HCWs) in COVID-19 Hospital, Peshawar, were studied for their levels of depression and anxiety during the outbreak. Covid-19 HCWs exhibited anxiety or depression at a substantially greater rate than the general population or other medical staff (44.6% anxiety and 41.7% depression respectively), which is consistent with earlier studies in frontline medical staff Covid-19 nationally and internationally.^{11,12,13} Working in COVID-19 designated wards interferes with the daily routines of healthcare workers,¹⁴ which necessitates that mental health risk factors must be identified in health care workers and immediate care provided.

Almost half of the participants in this study reported feeling more anxious at work, especially those working in

the ICUs, administration, and other areas with no direct contact with patients. The staff had to contact infected patients and manage the newly emergent infectious illness without access to effective therapy. HCWs were mainly concerned for their health and the well-being of their loved ones and coworkers, who may have been exposed to Covid-19 due to their work, lack of disinfection in hospitals, and lack of personal protective equipment.¹⁵ As a result of the family's concern and lack of social understanding and support, there was much stress borne by the HCW.¹⁵ In certain situations, HCWs who worked in COVID-19 designated hospitals may have been stigmatized by family members, coworkers, and neighbors because they were viewed as a possible source of Covid-19 infection.¹⁶ In our study, participants working in areas of direct contact with patients (Frontline HCWs) other than ICUs have a sort of protective effect, and the incidence of anxiety and depression was less as compared to those working in the ICUs and non-patient areas, e.g., Administration and Pharmacy, etc. The reason may be more vigilance in terms of the use of personal protective equipment and proper infection prevention and control measures. High incidence of anxiety in ICU workers may be attributed to poor outcomes and the critical condition of the patients admitted in the ICUs.

Depression was found in 41.7 percent of the 139 frontline healthcare workers. Individuals with depression were more concerned about the lack of satisfaction in their current position for various reasons. Another independent risk factor for depression was working in the ICUs and HDUs. In a study conducted by Beatriz Olaya¹⁷ et al., the pooled prevalence of depression among COVID-19

Table 3. Logistic regression for Anxiety

	95 % Confidence Interval			
	sig	aOR	Lower Bound	Upper Bound
Age groups	0.152	2.195	0.749	6.435
Education	0.475	1.858	0.340	10.167
Designation	0.023	0.099	0.014	0.729
Duty Place	0.006	3.576	1.435	8.914
Gender	0.703	1.216	0.444	3.333
Marital Status	0.790	1.151	0.409	3.234
Address	0.373	0.667	0.274	1.625
Experience	0.464	0.522	0.091	2.981
Income	0.099	12.836	0.619	266.270
Chronic Disease	0.378	2.219	0.377	13.067
Job Satisfaction	0.000	0.148	0.06	0.40

*P-value of less than 0.05 is taken as significant

frontline HCWs was 24%. In another study conducted by Aly HM¹⁸ et al., 9.5 percent did not have generalized anxiety. In comparison, the other 90.5 percent experienced varying degrees of anxiety, with mild anxiety impacting about 40 percent of individuals, moderate anxiety affecting roughly 32 percent, and severe anxiety affecting 18.5 percent. In terms of depression, 94 percent of subjects had mild to severe depression.

There are no proper diagnostic measures for anxiety or depression.¹⁹ Therefore HCWs in our study were just expressing their feelings of anxiety or depressiveness. It is also common to feel anxious when confronted with dangerous or stressful conditions. A typical reaction to danger is to feel anxious, but if the fear or worry becomes excessive or persistent, it might be considered a persistent problem.²⁰ During the COVID-19 pandemic, modest concern among healthcare workers may be helpful because it leads to more care, strict observance of infection prevention and control measures, and a fall in the spread of infection. On the other hand, constant fear and stress lead to anxiety and depression.

There are a few limitations to this study. First, the sample size is small, sampled through non-probability, convenience sampling. Second is the small female sample size of only 39 individuals, which cannot be generalized. Studies with random sampling and large sample sizes are needed in the future for the proper estimation of the problem.

Conclusion

The prevalence of anxiety and depression was high among HCWs during COVID-19. More attention should be paid to young workers and nurses to overcome the problem of rising mental health problems. HCWs' physical and emotional well-being depends on proper infection education, effective protective measures, and adequate isolation ward disinfection to prevent professional exposure.

References

1. She J, Jiang J, Ye L, Hu L, Bai C, Song Y. 2019 novel coronavirus of pneumonia in Wuhan, China: emerging attack and management strategies. *Clinical and translational medicine*. 2020 Dec;9(1):1-7
2. World Health Organization (WHO). Coronavirus disease (COVID-19). Events as they happen [Internet]. Geneva: WHO; 2020
3. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. *Acta Bio Medica: Atenei Parmensis*. 2020;91(1):157
4. Ritchie H, Mathieu E, Rodés-Guirao L, Appel C, Giattino C, Ortiz-Ospina E, Hasell J, Macdonald B, Beltekian D, Roser M. Coronavirus pandemic (COVID-19). *Our world in data*; 2020 Mar 5.
5. Olaya B, Pérez-Moreno M, Bueno-Notivol J, Gracia-García P, Lasheras I, Santabárbara J. Prevalence of Depression among Healthcare Workers during the COVID-19 Outbreak: A Systematic Review and Meta-Analysis. *2021 Journal of Clinical Medicine*
6. Goulia P, Mantas C, Dimitroula D, Mantis D, Hyphantis T. 2010. General hospital staff worries, perceived sufficiency of information and associated psychological distress during the A/H1N1 influenza pandemic. *BMC Infectious Diseases*. 2;18;10(1).
7. Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. 2020. The Psychological Impact of the SARS Epidemic on Hospital Employees in China: Exposure, Risk Perception, and Altruistic Acceptance of Risk. *The Canadian Journal of Psychiatry*.54(5):302–11.
8. Aly HM, Nemr NA, Kishk RM, Elsaid NMA bakr. 2021. Stress, anxiety and depression among healthcare workers facing COVID-19 pandemic in Egypt: a cross-sectional online-based study. *BMJ Open*. 11(4): e045281.
9. Nicomedes CJC, Avila RMA. 2021. An analysis on the panic during COVID-19 pandemic through an online form. *Journal of Affective Disorders*;276:14–22.
10. Tasnim R, Sujan MdSH, Islam MdS, Ritu AH, Siddique MdAB, Toma TY, et al. 2021. Prevalence and correlates of anxiety and depression in frontline healthcare workers treating people with COVID-19 in Bangladesh. *BMC Psychiatry* ;21(1). A
11. De Kock JH, Latham HA, Leslie SJ, Grindle M, Munoz S-A, Ellis L, et al. 2021. A rapid review of the impact of COVID-19 on the mental health of healthcare workers: implications for supporting psychological well-being. *BMC Public Health*;21(1).
12. Shaukat N, Ali DM, Razzak J. Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International Journal of Emergency Medicine*:13(1).
13. Hayat K, Arshed M, Fiaz I, Afreen U, Khan FU, Khan TA, et al. Impact of COVID-19 on the Mental Health of Healthcare Workers: A Cross-Sectional Study From Pakistan. *Frontiers in Public Health*1:8;9.
14. Razu SR, Yasmin T, Arif TB, Islam MdS, Islam SMS, Gesesew HA, et al. Challenges Faced by Healthcare Professionals During the COVID-19 Pandemic: A

- Qualitative Inquiry From Bangladesh. *Frontiers in Public Health* [Internet]. 2021 Aug 10 [cited 2021 Dec 18];9. Available from: <https://www.frontiersin.org/articles/10.3389/fpubh.2021.647315/full>
15. Ying Y, Ruan L, Kong F, Zhu B, Ji Y, Lou Z. Mental health status among family members of health care workers in Ningbo, China, during the coronavirus disease 2019 (COVID-19) outbreak: a cross-sectional study. *BMC psychiatry*. 2020 Dec;20(1):1-0.
 16. Schubert M, Ludwig J, Freiberg A, Hahne TM, Romero Starke K, Girbig M, Faller G, Apfelbacher C, von dem Knesebeck O, Seidler A. Stigmatization from work-related COVID-19 exposure: a systematic review with meta-analysis. *International journal of environmental research and public health*. 2021 Jan;18(12):6183.
 17. Olaya B, Pérez-Moreno M, Bueno-Notivol J, Gracia-García P, Lasheras I, Santabárbara J. Prevalence of depression among healthcare workers during the COVID-19 outbreak: a systematic review and meta-analysis. *Journal of clinical medicine*. 2021 Jan;10(15):3406.
 18. Aly HM, Nemr NA, Kishk RM, bakr Elsaid NM. Stress, anxiety and depression among healthcare workers facing COVID-19 pandemic in Egypt: a cross-sectional online-based study. *BMJ open*. 2021 Apr 1;11(4):e045281.
 19. Dunstan DA, Scott N, Todd AK. Screening for anxiety and depression: reassessing the utility of the Zung scales. *BMC psychiatry*. 2017 Dec;17(1):1-8.
 20. Fulghum D. How Worrying Affects the Body [Internet]. WebMD. WebMD; 2008 [cited 2021 Dec 18]. Available from: <https://www.webmd.com/balance/guide/how-worrying-affects-your-body>