

# Mental Health Consequences of Covid-19 among Health Care Workers in Abbottabad

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## ABSTRACT

**Objective:** To compare the mental health impact and Post Traumatic Stress Disorder between medical and paramedical staff using DASS-21 and IES scale respectively and to find association of mental impact of COVID-19 with socio-demographic variables.

**Study Design:** Analytical cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Ayub Teaching Hospital Abbottabad for 16 months from June, 2020 to October, 2021.

**Materials and Methods:** Carried out on 150 health care workers of Ayub Teaching Hospital. Data was collected by using two validated questionnaires DASS and IES scales. Analysis was conducted by SPSS version 20. Independent sample t test was used for comparison of scores between medical and paramedical staff while chi square test of association was used to find association of mental impact with socio-demographic variables. P value of  $\leq 0.05$  was considered significant.

**Results:** The mean age of the health care workers was  $30.01 \pm 6.62$  years. Out of 150 participants, 105 (70%) were doctors, 45 (30%) were paramedics. Male to female ratio was 1:1. Overall mean depression score accounted for  $8.81 \pm 8.26$ ; anxiety score was  $7.94 \pm 7.86$ ; stress score was  $12.60 \pm 9.02$  and mean PTSD score was  $24.76 \pm 16.40$ . A statistically significant difference was observed between medical and paramedical staff for stress ( $p=0.002$ ) and PTSD ( $p=0.05$ ). Stress was found to be significantly associated with category of health workers ( $p<0.001$ ) while anxiety with gender ( $p=0.04$ ).

**Conclusion:** Substantial impact of COVID-19 on mental health of healthcare workers was found during Covid-19.

**Key Words:** Mental health association, Post-traumatic stress disorder, COVID-19, Stress

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## INTRODUCTION

Healthcare workers have shown an astounding sturdiness and professional commitment in spite of numerous challenges faced during the pandemic of Corona Virus disease-19 (COVID-19).<sup>1</sup> The disease posed many challenges to the health care workers like personal risk of infection, fear of disease transmission to their family members, friends and colleagues, death of many patients and burnout due to the overwhelmed hospitals and intensive care units during the pandemic.<sup>2</sup> The impact of the disease was more on them as compared to the general public due to various reasons like unavoidable exposure to the COVID cases, long

duty hours, insufficient resources and inefficient health system.<sup>3</sup>

Mental health statistics of pandemics occurring in the past are witness to their long lasting mental impact on the health care workers. Severe acute respiratory syndrome (SARS) outbreak in 2003 affected almost 18-57% of health care workers psychologically while Middle East respiratory syndrome (MERS) caused post-traumatic stress disorder (PTSD) in about 54.5% healthcare workers.<sup>3-6</sup> In Karachi, a similar study, revealed moderate to extreme mental impact<sup>3</sup> while in Lahore mental impact was found to be mild<sup>7</sup>. Thus during the pandemics, healthcare workers are at higher risk of developing anxiety and depression due to extreme stressful conditions which adversely affects their work performance.<sup>8</sup>

Although studies on mental health impact of Covid-19 have been conducted both worldwide and at the national level but evidence regarding its impact is unavailable at the regional level, an issue that needs to be addressed. Therefore this research was conducted to determine the impact of COVID-19 pandemic on the mental health of health care staff. This assessment will be helpful to the managerial staff to recognize and respond to the mental health issues faced by the

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healthcare workers during future epidemics and pandemics.

**MATERIALS AND METHODS**

This study was carried out in Medicine ward of Ayub Teaching Hospital in Abbottabad for 16 months duration from June 10, 2020 to Oct 31, 2021 after obtaining Ethical approval. The sample size was 150 health care workers including both medical (Physicians) and paramedical staff (nurses, technicians, administration and clerical support staff). Staff members who did not give consent and those with pre-existing mental health issues were excluded. Sample size was calculated to be 138 by Openepi software with 95% CI, precision of 0.05 and prevalence of stress equal to 90.1%<sup>3</sup>, however figure was rounded off to 150. Selection was done by convenience sampling. After obtaining fully informed verbal consent and history about previously existing mental illness, data was collected on two validated self-administered questionnaires namely Depression Anxiety Stress Scale 21(DASS 21)<sup>9</sup> for measuring three negative emotional states i.e depression, anxiety and stress and Impact of Event Scale- Revised (IES-R)<sup>10</sup> for measuring subjective acute distress within past 7 days. In case of DASS-21, first the scores for each of the three mental states were added separately and then the final score was derived by multiplying the added score of each state by two and then classified on the basis of severity. A proforma for information on socio-demographic variables was also attached with the scales.

Descriptive and inferential statistical analysis of the data was done by SPSS version 20. Means and standard deviation were calculated for continuous variables (age, DASS and IES scores). Frequencies and percentages were calculated for the demographic variables, depression, anxiety, stress and PTSD categories. Independent sample t test was used for comparison of means of scores between medical and paramedical staff while Chi square test of association was employed to determine the association of socio-demographic variables and grades of depression, anxiety, stress and PTSD. P-value below and equal to 0.05 was considered as statistically significant for both types of significance tests.

**RESULTS**

Regarding socio-demographic variables of the total 150 participants, male to female ratio was almost 1:1 with 72 (48%) men and 78 (52%) women. The overall mean

age of the health care workers was 30.01±6.62 years. The mean age of the doctors was 29.18±6.04 years while the mean age of the paramedics was 31.95±7.52 years. Out of the total 150 participants, 105 (70%) were doctors and 45 (30%) were paramedics. Majority of the health care workers were single 79(52.7%) whereas 71(47.3%) were married. Most of the participants 140(93.3%) were healthy while 10(6.7%) had other comorbidities like hypertension, diabetes and Asthma. Only 26(16%) health care workers were smokers and 126(84%) were non-smokers.

Overall mean depression score accounted for 8.81±8.26; anxiety score was 7.94±7.86; stress score was 12.60±9.02 and mean PTSD score was 24.76±16.40. Majority of the participants had moderate depression 30(20%), anxiety 32(21.3%) and stress 34(22.7%). A statistically significant difference was observed in medical and paramedical healthcare workers for stress (p=0.002\*) and PTSD (p=0.05\*) while no significant difference was seen for anxiety and depression (Table 1). Stress and PTSD were found to be significantly associated with category of health workers (p<0.001\*) as illustrated in Table 2 while only anxiety was significantly associated with gender (p=0.04\*) (Table 3).

**Table No.1: Comparison of mental health impact and PTSD between medical and paramedical staff (n=150)**

Mental health impact Scores	Category of health care workers	Mean	Std. Deviation	P-value
DASS-21 Stress score	Medical	11.1048	8.60224	0.002*
	Para-Medical	16.0889	9.10500	
DASS-21 Anxiety score	Medical	8.3619	8.33796	0.32
	Para-Medical	6.9778	6.62807	
DASS-21 Depression score	Medical	9.4286	8.97738	0.16
	Para-Medical	7.3778	6.13221	
PTSD score	Medical	23.0762	16.89885	0.05*
	Para-Medical	28.7111	14.61727	

\*: significant

DASS: Depression, Anxiety, Stress Scale

PTSD: Post Traumatic Stress Disorder

**Table No.2: Association of mental health impact with category of Health care workers**

Mental health impact variables	Grades	Medical staff	Paramedical staff	P value
Depression	Normal	57	27	0.31
	Mild	17	09	
	Moderate	21	09	

	Severe	07	0	
	Extremely severe	03	0	
Anxiety	Normal	57	26	0.52
	Mild	05	05	
	Moderate	23	09	
	Severe	08	02	
	Extremely severe	12	03	
Stress	Normal	75	18	<0.001*
	Mild	14	03	
	Moderate	10	24	
	Severe	05	0	
	Extremely severe	01	0	
PTSD	Not a clinical concern	60	13	<0.001*
	Of clinical concern	16	04	
	Mild to moderate PTSD	10	15	
	Severe PTSD	19	13	
Total (n=150)		105	45	

\*: significant

PTSD: Post Traumatic Stress Disorder

**Table No.3: Association of mental health impact with gender**

Mental health impact variables	Grades	Males	Females	P value
Depression	Normal	46	38	0.19
	Mild	08	18	
	Moderate	15	15	
	Severe	02	0	
	Extremely severe	01	02	
Anxiety	Normal	43	40	0.04*
	Mild	07	03	
	Moderate	09	23	
	Severe	07	03	
	Extremely severe	06	09	
Stress	Normal	51	42	0.14
	Mild	05	12	
	Moderate	15	19	
	Severe	01	04	
	Extremely severe	0	01	
PTSD	Not a clinical concern	40	33	0.20
	Of clinical concern	06	14	
	Mild to moderate PTSD	10	15	
	Severe PTSD	16	16	
Total (n=150)		105	45	

\*: Significant

PTSD: Post Traumatic Stress Disorder

## DISCUSSION

This study was conducted on 150 medical and paramedical health care workers to assess the impact of COVID-19 on their mental health taking into account three negative psychological states (depression, anxiety, stress) and Post traumatic stress disorder PTSD.

The results clearly demonstrate a significant negative psychological impact of COVID-19 on these healthcare workers in terms of stress and PTSD. It has also shown association of stress and anxiety with category of health care workers and gender respectively. Many studies conducted previously on the same subject have also reported higher prevalence of depression, anxiety and stress among the healthcare workers.<sup>3,7,11</sup> Some have

also reported the impact to be higher among the non-medical staff as compared to the medical staff.<sup>12</sup> Many factors have been reported to be involved for the mental health impact of COVID-19 on health care workers in our country like illiteracy and lack of understanding in the general population, inadequate use of safety measures could warrant to such incremented frequency of anxiety, depression and stress in Pakistan.<sup>3,11</sup> Majority of the participants in our study had moderate depression 30(20%), anxiety 32(21.3%) and stress 34(22.7%). Overall mean depression score accounted for  $8.81 \pm 8.26$ ; anxiety score was  $7.94 \pm 7.86$ ; stress score was  $12.60 \pm 9.02$  and mean PTSD score was  $24.76 \pm 16.40$ . The mean scores for depression and anxiety were consistent with the results of similar study

conducted in Lahore by Riaz et al however the mean stress score in our study was a bit higher.<sup>7</sup> Another difference was occurrence of moderate stress among the majority of health care workers in comparison to mild stress in Riaz et al study.<sup>7</sup> The reason for this inconsistency in stress scores may be that Abbottabad is a small city with fewer resources, inadequate infrastructure as compared to the big cities of Pakistan and the awareness plus use of safety measures may be less in the population.

Our study showed a statistically significant difference among healthcare workers for stress. Stress and PTSD were also found to be significantly associated with category of health workers ( $p < 0.001$ ). Our results are similar to international COVISTRESS survey in which Paramedical staff risk for very-high levels of stress was found to be higher.<sup>12</sup> Paramedical staff is at more risk to be exposed than the doctors as they faced more lack of equipments and human resources than the doctors.<sup>13</sup> High levels of work-related stress among paramedics especially nurses during COVID-19 have led to higher burnout levels.<sup>14</sup> Statistically significant difference between medical and paramedical healthcare workers was also observed in regard to PTSD scores and the results are consistent with the study of Iranmanesh et al in south east Iran.<sup>15</sup>

In our research, only anxiety was significantly associated with gender ( $p = 0.04$ ) and women had the highest levels of work-related moderate anxiety. Our results concord with the literature revealing that women suffer more from the negative psychological impact of the COVID-19 outbreak.<sup>16</sup> Women often have a double life combining work and family life.<sup>17</sup> Even if women have less severe forms of COVID, they were frightened of contracting COVID-19.<sup>18</sup>

Some strengths of our study are that it was conducted using two validated scales for measuring mental health impact simultaneously and the participants were representative in terms of age and gender for health professionals. However it was carried out in only one tertiary care centre, sample size was small, convenience sampling technique was employed and it was undertaken when first wave of COVID-19 was at its end. This could be the reason of relatively reduced severity of mental health impact among healthcare workers. Longitudinal studies have to be undertaken in the future to estimate the causal relationship between work-related stress risk and mental health needs.

## CONCLUSION

This study concludes significant difference in work related stress levels and post-traumatic stress disorder between medical and paramedical healthcare professionals with more impact on paramedical staff as compared to other workers. It is suggested that for the upcoming epidemics or pandemics, concrete interventions must be applied and adequate resources

should be invested to augment the mental wellbeing of healthcare workers.

### Author's Contribution:

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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

1. Karlsson U, Fraenkel C. Covid-19: risks to healthcare workers and their families. *BMJ* 2020;371:m3944.
2. Mehta S, Machado F, Kwizera A, Papazian L, Moss M, Azoulay E. Covid-19: a heavy toll on health care workers. *Lancet* 2021;9(3):226-8
3. 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. *Cureus* 2020;12(7):e8974.
4. Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *Can J Psychiatr* 2009;54(5):302-11.
5. Khanal P, Devkota N, Dahal M, et al. Mental health impacts among health workers during COVID-19 in a low resource setting: a cross-sectional survey from Nepal. *Global Health* 2020;16:89.
6. Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Compr Psychiatr* 2018;87:123-7.
7. Riaz B, Rafai WA, Ussaid A, Masood A, Anwar S, Baig FA, et al. The psychological impact of COVID-19 on healthcare workers in Pakistan. *Future Healthc J* 2021;8(2):e293-8.
8. Naser AY, Dahmash EZ, Al-Rousan R, Alwafi H, Alrawashdeh HM, Ghoul I, et al. Mental health status of the general population, healthcare professionals, and university students during 2019 coronavirus disease outbreak in Jordan: a cross-sectional study. *Med Rxiv* 2020;10(8):e01730.
9. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety & Stress Scales. 2<sup>nd</sup> ed. Sydney: Psychology Foundation;1995.

10. Weiss DS. The Impact of Event Scale-Revised. In: Wilson JP, Keane TM Eds. Assessing psychological trauma and PTSD: a practitioner's handbook. 2nd ed. New York: Guilford Press;2007. p.168-89.
11. Braquehais MD, Vargas-Cáceres S, Gómez-Durán E, Nieva G, Valero S, Casas M, et al. The impact of the COVID-19 pandemic on the mental health of healthcare professionals. QJM 2020: HCAA 207. <https://doi.org/10.1093/qjmed/hcaa207>.
12. Couarraze S, Delamarre L, Marhar F, Quach B, Jiao J, Avilés Dorlhiac R, et al. The major worldwide stress of healthcare professionals during the first wave of the COVID-19 pandemic - the international COVISTRESS survey. PloS one 2021;16(10): e0257840.
13. Shen X, Zou X, Zhong X, Yan J, Li L. Psychological stress of ICU nurses in the time of COVID-19. Crit Care 2020;24.
14. Ross J. The Exacerbation of Burnout During COVID-19: A Major Concern for Nurse Safety. J Perianesthesia Nurs Off J Am Soc Peri Anesthesia Nurses 2020;35:439-40.
15. Iranmanesh S, Tirgari B, Bardsiri HS. Post-traumatic stress disorder among paramedic and hospital emergency personnel in south-east Iran. World J Emerg Med 2013;4(1):26-31.
16. Broche-Pérez Y, Fernández-Fleites Z, Jiménez-Puig E, Fernández-Castillo E, Rodríguez-Martin BC. Gender and Fear of COVID-19 in a Cuban Population Sample. Int J Ment Health Addict 2020; 1-9.
17. Dutheil F, Aubert C, Pereira B, Dambrun M, Moustafa F, Mermillod M, et al. Suicide among physicians and health-care workers: A systematic review and meta-analysis. PloS One 2019;14: e0226361.
18. Gebhard C, Regitz-Zagrosek V, Neuhauser HK, Morgan R, Klein SL. Impact of sex and gender on COVID-19 outcomes in Europe. Biol Sex Differ 2020;11.