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Original Article

Impact of Covid-19 Pandemic on Psychological Behavior of Dental Health Care Workers in Peshawar

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ABSTRACT

During the hard time of Covid, front line health care workers were directly involved in one way or the other to treat the patients or perform duties in Covid-wards. They were at great risk of catching the infection as well as be affected by the psychological disorders. **Objective:** To determine the effects of Covid pandemic on the psychological health of dental health care professionals in Peshawar. **Methods:** A total of 384 participants both Dentists and Dental paramedical staff and technicians were included in the study. The participants were classified as non-infected and Covid recovered participants. Two validated questionnaires (PHQ-9 scale, Scale for COVID-19 related psychological distress in healthy Dental health care workers) were used for these two types of participants respectively to assess the level of mental distress. The distress scores were analyzed and compared among various groups. **Results:** The results showed that non infected DHCWs generally had mild (48.98%) to moderate (31.43%) psychological distress as a result of the Covid situation. While Covid recovered DCHWs had minimal (30.86%) and moderate depression (30.07%) The particularly vulnerable groups showing more psychological distress were non-infected female DHCWs and non-infected DHCWs working at Lady Reading hospital Peshawar. **Conclusion:** The Covid-19 pandemic affected the mental health of DHCWs in a negative way, and most of the DHCWs had mild to moderate severity of distress or depression.

INTRODUCTION

The first coronavirus outbreaks were first revealed in late December 2019 when clusters of pneumonia cases of unknown etiology were found to be associated with exposure epidemiologically linked to a seafood market and untraced exposures in the Wuhan city of Hubei province [1]. However the disease was found to have a high potential for communicability and also had high morbidity and mortality [2]. There were 3 090 445 cases of coronavirus disease 2019 (COVID-19) and 217 769 death reported worldwide as of April 30, 2020. In China alone, there were reports of more than 84,373 COVID-19 cases with 4,643 death after the rapid spread of the outbreak to many countries in the world, the World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic on March 11, 2020 [3]. Despite several preventive measures the pandemic continued to spread rapidly and On January 30, 2020, WHO Emergency Committee classified this outbreak as a global health emergency based on increasing case notification rates in China and other countries. During this hard time, front line health care workers were directly involved in one way or the other to treat the patients or perform duties in Covid-wards. They were at great risk of catching the infection as well as be affected by the psychological disorders [4]. In the city of China, (Zhang *et al*), studied a team responsible for the management of patients with COVID 19. The team was made up of 230 workers (including doctors and nurses) to determine the existence of anxiety and stress disorders, whose incidence it was 23.1% and 27.4%, respectively. In

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the female population, incidence and severity of symptoms are higher [5]. O'Sullivan *et al* investigated psychological distress, depression, anxiety and the stress experienced by medical staff in Australia during the outbreak of COVID 19 and compared the results of medical staff and non-medical staff medical. Among the 500 health workers, 14.5% suffer from anxiety, the 8.9% depression, 6.6% stress and 7.7% post-traumatic stress disorder (PTSD) [6].The prevalence of anxiety disorders among health workers is higher than among non-medical workers [7]. The primary effect of COVID-19 is pneumonia, which indicates that the virus primarily affects the respiratory system. This indicates that within a distance of around 1-1.5 m, saliva, coughing, and sneezing are the main ways in which human coronaviruses are spread from one infected individual to another. With very few treatment options several measures were thus designed to prevent the human transmission [6]. Various guidelines regarding the proper running of health care centers were developed in order to avoid the transmission of infection in the health care centers the main instructions regarding like Mandatory hand washing and disinfection in the workplace; Social distancing; All health use of Personal protection measures, like simple surgical mask or N95 or FFP2 respirator, disposable waterproof apron, protective glasses with suction cup, mask or face shield, disposable latex gloves [7].During the COVID-19 pandemic, self-care and effective prevention of oral problems continue being of great importance. However ironically the DHCWs are particularly vulnerable because of the nature of their jobs which involves the work inside the oral cavity [8]. Although a few studies had previously been carried out in various counties regarding the psychological effects of Covid-19 pandemic on Dentists and other dental workers, but sadly in our community no such study has been performed regarding the psychological response towards covid-19 pandemic among dental professionals, so for that a community based study is needed [6-13]. Current study aims to find the negative mental impact of Covid-19 on DHCWs of both the non-exposed and the Covid-19 recovered workers. The results of the study will help us better understand the effect of Fear of the unknown among the non-exposed and the persistent stress among the Covid-19.

METHODS

This was a cross sectional study conducted at the OPDs of three hospitals of Peshawar,

1. Peshawar Dental Hospital,
2. Lady Reading Hospital MTI and
3. Sardar begum dental hospital Peshawar.

It was carried out within a period of six month from from January, 2022 till June 2022 after approval from Institutional Review Board (IRB) of Peshawar Medical and Dental College vide number 2021-390. Sample size was calculated by using open-epi software, our total calculated sample size was; 384.(212, 132, and 40 participants were included from Peshawar Dental hospital, Sardar Begum Dental Hospital, and Lady Reading hospital, respectively).

Following were included in the study

Dental health care workers of both genders.

Working in Peshawar Dental hospital, lady reading hospital MTI (Dental Block) and Sardar Begum Dental Hospital Peshawar.

DHCWs that are recruited in the hospital before the start of pandemic.

While Dental health care workers who's severely ill or unable to participate were excluded from the current study. After fulfilling the inclusion criteria and willingness for participation, each participant was asked to fill a questionnaire. We used two validated questionnaires, that is one for previously non-infected (healthy) dental health care workers and the other one is for those who had recovered form covid-19 called the PATIENT HEALTH QUESTIONNAIR-9 scale (PHQ-9) [13]. This questionnaire was used by several studies in order to quantify the level of psychological distress in the individuals. The questionnaires for non-infected population was composed of 14 questions, each question was scored from 1 to 5. Fourteen questions were asked from each participant according to their answers scoring was compiled. "Total score is a sum of all 14 items, ranged from 14-70. The final score was further classified as below:

. Score of 14-24 is likely to be well
. Score from 25-34 likely to be neutral
. Score from 35-44 have a mild psychological distress
. Score from 45-54 have a moderate psychological distress
. Score from 55-70 likely to have severe psychological distress

PHQ-9 scale was composed of 9 questions; each question is scored from0 to 3. Nine questions were asked from each participant according to their answers scoring was compiled. Total score was sum of all 9 items, ranged from 0-27. The responders were further classified as shown:

. A score of 0-4 had non-minimal depression
. A score from 5-9 likely to had mild depression
. A score from 10-14 had a moderate depression
. A score from 15-19 had moderate severe depression
. A score from20-27 had severe depression.

After collection of data, data were entered and analyzed by using IBM-SPPS statistic version 23.0. Mean/median and standard deviation were calculated for age. Frequency and percentages was calculated for gender, designation,

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hospitals, infected/non infected health care worker, PHQ-9 classification, Healthy score category. The 5 scoring categories into which the each Covid recovered and non-infected DHCWs groups were divided were displayed as frequencies and percentages. The mean/median scores (calculated using the respective questionnaires) of various groups of participants like gender groups, designations, hospitals were compared using the Mann-Whitney U test. Both the Covid recovered and non-infected DHCWs were compared with their respective group.

RESULTS

A total of 384 Dental Health care workers took part in the study, their demographic data revealed a mean age of 28.35 ±6.29 with a minimum age of 20 years and maximum age of 65 years. When the participants were split based upon age into two categories that is 18-45 years and above 45 years it was seen that, upon comparing no significant difference was found between the two age groups in either Covid recovered or non-infected DHCWs groups (Table 1).

Category		Age Category	N	Mean/ Median score	p-value
Non infected DHCWs	PHQ-9/Healthy score scale	18-45 years	233	120.97	0.973
		> 45 years	8	121.81	
		Total	241		
Covid Recovered DHCWs	PHQ-9/Healthy score scale	18-45 years	141	72.69	0.093
		> 45 years	2	23.25	
		Total	143		

Table 1: Shows a comparison mean scores of the age groups of participants

Male non infected DHCWs were slightly more (58.1%) than non-infected female counterparts. While the Covid recovered participants had a slightly greater number of female participants (56.6%) (Table 2).

Category		Frequency	Percent
Non infected DHCWs	Male	140	58.1
	Female	101	41.9
	Total	241	100.0
Covid Recovered DHCWs	Male	62	43.4
	Female	81	56.6
	Total	143	100.0

Table 2: Shows the gender make up of Covid recovered and non-infected DHCWS

Table 3 shows the designations of different participants in the study, It can be seen that the number of participants from both the non-infected and Covid recovered categories were mostly House officers, training medical officers, followed by dental technicians and dental assistants, while Associate professors and professors were least in number.

Category		Frequency	Percent
Not infected DHCWs	Professor	2	.8
	Associate Professor	10	4.1
	Assistant Professor	7	2.9
	Dental Surgeon	11	4.6
	House Officer	69	28.6
	Training Medical Officer	64	26.6
	Lab Technician	4	1.7
	Dental Technician	33	13.7
	Dental Assistant	22	9.1
	3rd year Medical Student	8	3.3
	Final year Medical student	11	4.6
	Total	241	100.0
Covid Recovered DHCWs	Associate Professor	3	2.1
	Assistant Professor	2	1.4
	Dental Surgeon	6	4.2
	House Officer	49	34.3
	Training Medical Officer	43	30.1
	Lab Technician	3	2.1
	Dental Technician	13	9.1
	Dental Assistant	12	8.4
	3rd year Medical Student	3	2.1
	Final year Medical student	9	6.3
	Total	143	100.0

Table 3: Shows the Designation make up of Covid recovered and non-infected DHCWs.

Table 4 show the comparison of mean scores of male and female Covid recovered and non-infected DHCWs, according to their respective questionnaires and Mann-Whitney U test was applied to compare the male and female participants. It can be seen that P-value for Covid recovered DHCWs was 0.96 and non-infected DHCWs was 0.041.

Category		Gender	N	Mean/ Median score	Mann-Whitney U (p-value)
Non infected DHCWs	PHQ-9/Healthy score scale	Male	140	113.20	
		Female	101	131.81	0.41
		Total	241		
Covid Recovered DHCWs	PHQ-9/Healthy score scale	Male	62	71.88	
		Female	81	72.09	0.976
		Total	143		

Table 4: Shows the comparison mean scores of male and female participants of both non infected and Covid recovered DHCWs

DISCUSSION

Analyzing the demographics of our studies shows that the mean age of the participants was 28.35±6.29. so most of the participants were relatively young being in their 3rd and 4th decade of life, therefore the anxiety and fear of Covid pandemic was generally expected to be lower than based on young age as studies have shown higher anxiety levels among people in older age groups [12]. However when the participants were divided into groups of above 45 years and below 45 years for comparison, and then there was no significant difference(for non-infected DHCWs p=0.97 and for Covid recovered DHCWs p=0.093) observed between the older and younger participants for either Covid recovered or non-infected DHCWs. A study conducted on general population in the province of KPK revealed that fear of Covid was higher among the younger age groups; however the study could not establish a reason for this [14]. Our study further revealed that, 62.76% of the participants were not infected by Covid whereas 37.24% of the DHCWs had recovered from Covid, giving us a good number of individuals in both these categories to be analyzed. Further the results of our study revealed that most of the non-infected DHCWs had mild psychological distress 48.98%

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(120), while 31.43% (77) of them had moderate psychological distress, 7.7% (19) were found to be neutral while only 6.9% (17) had severe psychological distress. When compared with a previous study done in Pakistan, there was some difference in this regard, as that study revealed that a large number of dentists (75%) were afraid of getting infected in the workplace and even a larger number (92%) were afraid to carry the infection back home [15]. Another study from Turkey reported that 90% of the dentists were afraid of getting infected and 95% of them were concerned about carrying the virus to their family [16]. Similar to the non-infected DHCWs the Covid recovered DHCWs mostly had only minimal depression 39.86% (57), Followed by no depression 30.07% (43) and moderate depression 20.28% (29), while only 2%(3) of these participants had severe depression. These participants seemed to have even lesser anxiety and fear as compared to non-infected participants. A study revealed that fear was highly prevalent among the dental professionals of Pakistan [17]. Another study demonstrated that dentists were more afraid of Covid infection as compared to other Doctors and pharmacists [18]. Aerosol generating procedures in confined spaces of the dentist clinics makes them more prone to transference of the disease, This could be a reason for the higher fear and anxiety rates in these studies [19]. The relatively lower rates of fear and anxiety among the participants of our study as compared to other such studies could be explained by the fact that the data collection of our study was done during a time period (04/01/2022 – 28/01/2022) when the pandemic was reported to be declining, with low new positive rates [20]. The decrease in Covid related mental distress among DHCWs could be a result of that demonstrating that health professionals tend to have lesser anxiety as epidemics decline. When the male and female participants were compared it was observed that, there was significant increased mental distress among female DHCWs as compared to male non-infected participants 11 female were found to have severe psychological distress as compared to 6 male DHCWs. When scores of male and female non-infected DHCWs were compared using the Mann-Whitney U test it revealed a significantly higher mean score among the female members (p-value=0.041). Emphasizing the fact, non-infected female DHCWs had significantly higher psychological distress. Another study from Pakistan revealed similar findings that female dentists were more afraid of the Covid situation as compared to males (Mean fear of COVID 19 scale score for, male= 24.54 +- 5.3, female = 27.11+-4.3; p< 0.001) [21]. This can be explained by the factors that females have more work stress than men and as they are also responsible for house chores, and take care of the family members in addition to their careers [22]. The sensitive nature of women could be another contributing factor for this. However our results also showed that there was no significant difference of Covid related depression (p=0.976) among male and female Covid recovered DHCWs. Thus we may be forced to think that this decreased depression levels among female Covid recovered DHCWs, could be from a sense of acquiring immunity following Covid infection [23].It could also be a result of human nature which is more prone of fear of unknown as compared to a fear with known experience and consequences[24].

CONCLUSIONS

With a considerable sample size from both Public and private sector hospitals our study can claim to have credible results, which can play an important role for the promotion of psychological well-being among dental professionals. The results showed that DHCWs generally had mild to moderate psychological distress or depression as a result of the Covid situation.

Conflicts of Interest

The authors declare no conflict of interest

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