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Research Article

Psychological Impact of Covid 19 on Confirmed Positive Health Care Workers of a Selected Government Hospital

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Abstract

Introduction: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an emergent viral infection causing a widely spread pandemic, named as Coronavirus disease (COVID-19). The COVID-19 pandemic prompted fears of falling sick, severe complications, helplessness due to the contagious nature of the disease, very limited treatment modalities, stigma and death. An urgent and comprehensive understanding of the mental health status of the people who were infected with COVID-19 working as healthcare professionals is needed both from medical and non-medical teams such as administrative staff. Our investigation was designed to survey the psychological impact of COVID-19 on confirmed positive healthcare workers of a selected government hospital, Dubai, UAE.

Methods: In November 2021, we conducted an online-based survey, using a purposive sample technique. The surveys collected data about aspects of participant sociodemographic, psychological impact, and mental health status. We assessed the psychological impact and mental health status using the Impact of Event Scale-Revised (IES-R), and the Depression, Anxiety, and Stress Scale (DASS-21).

Results: Our survey recruited 117 respondents of the both medical and non-medical grades. The average score of the participants on the impact of event scale (IES-R) questionnaire was 19.333 ± 18.31. More than half of the participants (67.5%) had normal scores on the IES-R, 10.3 % had scores in the mild range, 3.41% in the moderate range and 18.8% classified as severe. On the DASS, 86.3% had normal scores on the stress subscale, 58.1% on the anxiety subscale, and 82.9% on the depression subscale. Severe symptoms of stress were experienced by 4.3%, which is more or less similar to the 5.6% who experienced severe symptoms of depression and 7.9% who experienced severe symptoms of anxiety.

Conclusion: Throughout the different waves of the COVID-19 pandemic in UAE, the results showed that nearly one-fourth of the sampled population experienced moderate to severe psychological impact as a result of working in a tense in patient setting with disease ranging from depression to anxiety.

Keywords: Coronavirus; IES; Psychological Impact; Pandemic; Depression; Anxiety; Stress

Introduction

Since its discovery in December 2019 in the Hubei province of China, the novel coronavirus disease (COVID-19) spread rapidly both locally and internationally [1]. In only a span of one month, the disease caused by the virus was considered a public health emergency by the World Health Organization and was declared a pandemic by March 2020 [2]. Amidst the development of this infectious disease in 206 countries throughout the world, health care workers remained the focal point in the screening and treatment of this condition. Due to the infectious nature of this disease, the psychological impact of the isolation techniques employed by the authorities to curb transmission, as such lockdowns and social distancing, the members of the public faced immense psychological consequences from all the economic and sociopolitical distur-

bance. The health-care workers are not immune to the psychological consequences due to COVID-19. Among the healthcare workers; the front-line workers involved directly in handling these patients were at greater risk than others. The reasons for such adverse psychological outcomes range from excessive workload/work hours, inadequate personal protective equipment, over-enthusiastic media news, feeling inadequately supported [3,4]. Another important reason for such psychological impact is the infection rate among medical staff. The sudden reversal of role from HCW to a patient led to frustration, helplessness, adjustment issues, stigma, fear of discrimination in the hospital staff [4].

Latifa Hospital is a maternity hospital which was declared main tertiary care hospital for all pregnant patients with covid getting referrals from all over UAE during pandemic. Those were testing times resulting in many patients becoming serious causing escalation to intubations and emergency ceasrean sections. Some cases were shifted to ICU in Rashid Hospital for intensive care. A lot of staff members became ill with COVID-19 simultaneously who had to be isolated. This caused sheer burden of workload on remaining staff, alongside numerous mortalities due to COVID, had an impact on psychological health of hospital workers. Hence, it was decided to conduct this study to ascertain the mental health of staff and develop strategies to mitigate its effect.

Materials and Methods

This study followed a cross-sectional design to assess the health care workers psychological impact on the COVID19 pandemic in selected government hospital of Dubai, UAE. We used an online-based questionnaire distributed through WhatsApp and emails. Participants' physical distribution was not feasible due to the ongoing pandemic situation. Participants received the survey request through WhatsApp and email links given by the head of the departments, the in-charges and supervisors after getting the verbal consent from the participants. After clicking on the link of the survey, a cover page showing the study title, purpose, and needed time for completion showed up. If they agreed to participate, they were asked to click "start the survey," and then they start answering the survey questions.

As mentioned earlier, the survey was distributed during a period pandemic situation, therefore, we followed an online data collection technique. The survey was done online by using a common platform of Dubai Health Authority (Microsoft Forms online). The study protocol was approved by the Dubai Scientific Research Ethics Committee (DSREC), Dubai Health Authority, Reference No (DSREC-08/2021_07). All participants were informed about study purposes and provided informed consent. Data were kept confidential and were not disclosed unless for study purposes. Data collected was conducted over a period of 3 weeks (November to December 2021) after one and half year of the Covid-19 infection and social distancing measures were still being implemented and strictly guidelines were followed by the health authorities The calculated sample size was 117 based on the assumption of anticipated % frequency (p) of more than 50 percent of respondents will have psychological impact of the outbreak as moderate or severe in previous studies,5% margin of error, confidence interval (%) of 95% and a design effect of 3 as we followed non-probability sampling [5].

The adopted questionnaire covers several aspects of participant sociodemographic, psychological impact. Sociodemographic variables of participants included age, year of experience, Religion, marital status, designation, nationality, no of children, previous history of medical conditions or co-morbidities if any.

The second part of the survey assessed the psychological impact of COVID-19 using the Impact of Event Scale-Revised (IES-R) and Depression, Anxiety, and Stress Scale (DASS-21), both scales used previously in so many studies in assessing psychological impact related to SARS and COVID-19. The IES-R is an easily self-administered questionnaire to assess the symptoms of post-traumatic stress disorder after traumatic events in the past years. This 22-item scale is composed of three subscales measure the mean avoidance, intrusion, and hyperarousal. Responses to each item were rated from 0 to 4, where 0 indicates Not at all and 4 Extremely. The total IES-R score was subdivided into 0–23 (normal), 24–32 (mild), 33–36 (moderate), and > 37 (severe psychological impact) [6].

Furthermore, Mental health status was assessed using the DASS has been shown to be a reliable and valid measure in assessing mental health status This scale is composed of three subscales, depression, anxiety, and stress. Each subscale is composed of seven items, and each response was rated from 0 to 3, where 0 indicates 'Did not apply to me' and 3 indicated 'Applied to me most of the time'. Depression subscale was assessed in items 3, 5, 10, 13, 16, 17, and 21. The total score depression subscale score was subdivided into normal (0–9), mild (10–12), moderate (13–20), severe

(21–27), and extremely severe depression (28–42). Anxiety subscale assessed in items 2, 4, 7, 9, 15, 19, and 20. The total score of anxiety subscale was subdivided into normal (0–6), mild (7–9), moderate (10–14), severe (15–19), and extremely severe anxiety (20–42). Stress subscale is constructed by items 1, 6, 8, 11, 12, 14, and 18. The total score of stress subscale was subdivided into normal (0–10), mild (11–18), moderate (19–26), severe (27–34), and extremely severe stress (35–42) [7].

As described in the study methodology, statistical analysis was carried out using statistical package for social sciences 25, the data were cleaned, sorted, and processed prior to commencement of analyses. The survey's answers fields were designed to be mandatory to be filled before proceeding to the next section, options such as "None" or "I don't know" were provided, when necessary, in order to proceed and minimize missed data. Descriptive analyses were conducted for sociodemographic characteristics. The results of these analyses were presented using frequencies and percentages for categorical variables and means and standard deviations for continuous variables using the total sample (n = 117) as the base. The psychological impact of the COVID-19 pandemic was measured using scores on the IES-R and the three subscales of the DASS; results presented in means and standard deviation. The four scales (IES-R, DASS-stress, DASS-anxiety, and DASS-depression) were divided into two groups; one included individuals falling in normal/mild category according to score and other being category of moderate to very severe. Chi square test was applied to see any significant association between the variables and scores. Binary logistic regression was then used to assess the odds ratio. All tests of associations were carried out at a level of significance of <0.05 and 95% confidence Interval.

Results

Out of 117 staff from both medical and non-medical categories, 52% of staff were having less than 5 years of experience, 22%of staff were having more than 15 years of experience, 16% of staff were having 11 to 15 years of experience and remaining 22% of staff were having 6 to 10 years of experience. Around (77) 67% of staff were above 35 years of age, rest of the demographic distribution is shown in table 1. The study results showed that majority of the participants are Indians (69%) and 33% of the participants had 2 children and 30% of the participants had one child. Majority of the participants are nurses 73%, and 51 % of the participants did not have any preexisting medical conditions.

S.No	Variable	Category	Nos (%)	Mean	SD
1	Years of Experience	<5 years	62 (52%)	33.25	19.44
		6-10 years	26 (22%)		
		11-15 years	19 (16%)		
		>15 years	26 (22%)		
2	Age	20-25 yrs	2 (1.7%)	13.3	19.6
		26-30 yrs	2 (1.7%)		
		31-35 yrs	36 (31%)		
		>35 yrs	77 (67%)		
3	Marital status	Single	13 (11%)	23.4	43.1
		Married	100 (85%)		
		Divorced	1 (0.85%)		
		Widowed	2 (1.7%)		
		Separated	1 (0.85%)		
4	Nationality	Indian	69 (59%)	16.7	24.5
		Arab	16 (14%)		
		Emirati	4 (3.5%)		
		Philippine	23 (20%)		
		Pakistan	1 (0.85%)		
		African	2 (1.7%)		
		Any other	2 (1.7%)		
5	Number of children	One	35 (30%)	23.4	20
		Two	39 (33%)		
		Three	29 (25%)		
		Above 3	12 (10%)		
		NIL	2 (1.7%)		
6	Occupation	Physician	4 (3.4%)	14.63	29.28
		Nurse	85 (73%)		
		Pharmacists	21 (18%)		
		Lab personnel	5 (4.2%)		
		Technician	2 (1.7%)		
7	Medical history	Hypertension:	12 (10%)	10.6	17.0
		Hyperlipidemia	3 (3%)		
		Diabetes	8 (7%)		
		Asthma	11 (9%)		
		Migraine	10 (9%)		
		Other comorbidities	9 (8%)		
		Nil	60 (51%)		
		Other	4 (3%)		

Table 1: Demographic distribution of participants (n = 117).

When assessing the percentage distribution of DASS scoring, it showed that more than 55.8% percentage of the subjects never had symptoms of depression, anxiety and stress. Figure 1 shows the percentage of DASS scoring for the severity assessment of depression, anxiety and stress level of the participants. More than 50% of the participants did not report depression, anxiety and stress related to COVID-19. Mild levels of depression, anxiety and stress were identified among 21.6%, 24.6% and 31.2% of the participants. Less than 10% of the participants reported severe levels of depression, anxiety and stress.

The IES-R scoring was used for the assessment of the severity of PTSD towards COVID-19 is also shown in figure 1. The average score of the participants on the IES-R questionnaire was 29.5 ± 33. About 14.5% of participants scored less than 24, and 12.8% of participants scored 24-32, and 3.41% scored 33-36 and 17.9% of participants scored more than 37.

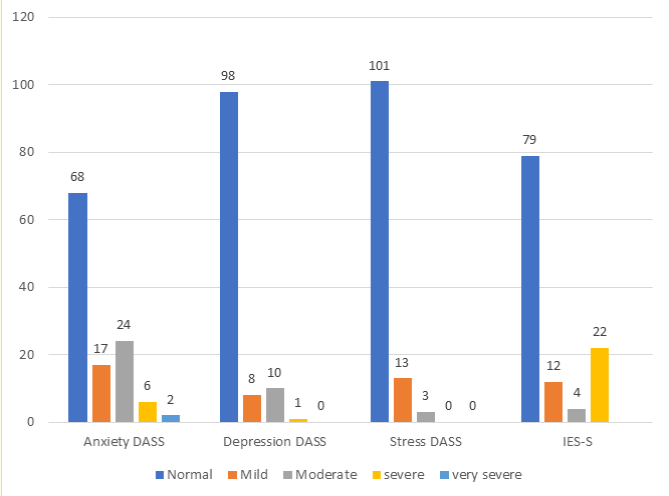

Figure 1: Severity of DASS (Anxiety, Depression and Stress) and IER-S score among participants.

S. No	Variable	Category	IES-R	DASS-Depression	DASS-Anxiety	DASS-Stress
			OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
1	AGE	>35 yrs.	1.296(0.44-3.79)	4.706 (0.56-39.5)	0.734 (0.26-2.04)	-
		< 35 yrs.				
2	Years of experience	>10	1.029 (0.38-2.79)	1.767 (0.41-7.55)	0.359 (0.13-0.99) *	0.833 (0.05-13.75)
		<10				
3	Marital Status	Married	1.694 (0.46-6.21)	0.719 (0.08-6.27)	1.694 (0.46-6.21)	6.333 (0.37-108)
		Single and others				
4	Nationality	Indians	1.362 (0.49-3.79)	1.60(0.39-6.44)	1.785 (0.64-4.93)	-
		Other nationalities				
5	Comorbidities	Nil	1.294 (0.47-3.51)	2.154 (0.50-9.20)	4.00 (1.30-12.22)*	-
		Any disease				
6	No of children	0-2	1.071 (0.36-3.18)	0.280 (0.03-2.36)	0.545 (0.16-1.82)	-
		>2				

Table 2: Association between sociodemographic variables and the psychological impact/adverse mental health status during the epidemic (n = 90) among the medical health care providers.

IES-R: Impact of Event Scale (IES-R); DASS-21: Depression, Anxiety and Stress Scale - 21 Items;

OR (95% CI): odds ratio (95% confidence interval); * p value < .05.

S. No	Variable	Category	IES-R	DASS-Depression	DASS-Anxiety	DASS-Stress
			OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
1	Age	>35 yrs.	0.400 (0.06-2.56)	-	0.143(0.02-0.84)*	-
		< 35 yrs.				
2	Years of experience	>10	0.813 (0.12-5.49)	-	0.099 (0.01-0.96) *	-
		<10				
3	Marital Status	Married	-	-	1.874 (0.22-15.9)	-
		Single and others				
4	Nationality	Indians	3.750 (0.37-37.98)	-	3.55(0.57-21.9)	-
		Other nationalities				
5	Comorbidities	Nil	0.182 (0.01-1.83)	1.273 (0.07-22.7)	0.750 (0.15-3.65)	-
		Any disease				
6	No of children	0-2	1.818 (0.27-12.1)	0.786 (0.04-14.02)	0.364 (0.07-1.81)	-
		>2				

Table 3: Association between sociodemographic variables and the psychological impact/adverse mental health status during the epidemic (n = 27) among the non-medical health care providers.

IES-R: Impact of Event Scale (IES-R); DASS-21: Depression, Anxiety and Stress Scale - 21 Items;

OR (95% CI): Odds Ratio (95% confidence interval);* p < .05. One of the variable has zero reading in which no OR is provided.

To find the association between different variables, subjects were divided into two main groups. The medical HCWs were those who had direct contact with the patient and were involved in care. Their association is shown in table 2. The non-medical staff were those who had an indirect contact with patient and were not involved in direct care. Their association with various risk factors is shown in table 3. In medical group, staff who had more experience had lesser odds of developing mental health problems especially anxiety related issues (OR: 0.359 CI 95% 0.13-0.99, p value <0.05). The subjects who had any other concomitant disease had 4 times the odds of developing anxiety than others (OR: 4.00 CI 95%1.30-12.22 p value <0.05).

In non-medical group, with respect to age, those more than 35 years are more susceptible to adverse mental health outcomes with 0.14 times odds of having higher scores on the DASS-A (95% CI:0.02-0.84 p value < 0.05). Participants with less experience were more likely to have higher anxiety than the participants with more experience (OR 0.099 95% CI 0.01-0.96 p value < 0.05). Marital status, presence of co-morbidities and nationality do not show any significance in the scoring with the IES scoring and the subscales of DASS.

Discussion

This survey was conducted in the middle of COVID-19 pandemic and enhanced community quarantine was implemented in the selected settings.

The results of these analyses were presented using frequencies and percentages for categorical variables and means and standard deviations for continuous variables using the total sample (n-117) as the base. The psychological burden of the COVID-19 pandemic was measured using scores on the IES-R and the three subscales of the DASS; results presented in means and standard deviation.

With a range of 0 to 88, the average score of the participants on the revised impact of event scale (IES-R) questionnaire was 19.333 ± 18.31. More than half of the participants (67.5%) had normal scores on the IES-R, but 10.3 % had scores in the mild range, 3.41% in the moderate range and 18.8% classified as severe. On the DASS, 86.3% had normal scores on the stress subscale, 58.1% on the anxiety subscale, and 82.9% on the depression subscale. Severe symptoms of stress were experienced by 4.3%, which is more or less similar to the 5.6% who experienced severe symptoms of depression and 7.9% who experienced severe symptoms of Anxiety.

During this time, moderate level of depression (9.4%), anxiety (20.4%) and stress (2.6%) were identified among the participants. However, these levels were lower than the rates reported by Salari., *et al*. which were 33.7%, 31.9% and 29.6% for depression, anxiety, and stress respectively [8]. In China, the majority reported worse psychological impact with overall mean IES-R scores more than 24 points, indicating the presence of post-traumatic stress disorder symptoms [9]. Different populations in the world have been experiencing pandemic fear which can worsen feelings of anxiety that can lead to mental health disorders. Previous experiences of outbreaks like those caused by SARS, Ebola, and MERS-CoV contribute to heightening the impact of the present pandemic [10,11].

During pandemics, healthcare workers were at the front-lines. They were subjected to long working hours, risk of infection, shortages of protective equipment, loneliness, exhaustion and separation from families [5]. They were at a significant risk of adverse mental health outcomes. However, our study shows that medical staff had comparable levels of psychological impact, and symptoms of stress and depression than non-medical comparable to the survey done among health care workers in Singapore [12]. This can be due to their strong sense of duty and ability to adapt to crisis. It can also be because the survey was done during later part of the COVID-19 pandemic when cases were still low and the health care system was in place and the number of deaths and hospital admissions were reduced. As the pandemic ensued, mental health policies were needed to support our medical professionals and other front-line workers who were in direct contact with the patient. A study done in UAE showed that HCWs were knowledgeable and used precautions diligently however, a third of them experienced anxiety and psychological distress during pandemic [13].

In this study, most respondents rated their current health status as good. And found to be more than 50% of the participants didn't have any comorbidities. However, patients who had any co-morbids had 4 times the odds of developing anxiety disorder compared to HCWs who had no chronic ailment. This may be explained by the fact that the novel coronavirus found to be more aggressive on people with comorbidities and below-optimal health status, which may result in more psychological burden and excessive worry [14].

Both medical and non-medical staff did show an association of developing moderate to severe anxiety among young staff with less experience. This seems plausible as inexperience staff are in process of developing mental composure when confronted with variety of work-related stresses hence, they are prone to early job-related anxiety and may need support and protection by their experienced counterparts. In addition, the non-medical staff at their young age are significantly associated with anxiety, a correlation not seen among medical HCWs. This points out the need to carefully plan the duties of all staff members ensuring a balanced team of exuberant youth as well as experienced peers.

The restriction in social mobility during the initial phase of COVID-19 pandemic was stressful as it prevents face-to-face connections and traditional social interactions [15]. Medical staff exhibited similar symptoms of anxiety and depression compared to non-medical staff. While isolation may be a necessary preventive measure, adequate information, opening lines of communication and provision of essential supplies to those confined may improve psychosocial outcomes [16].

The present study has some limitations. First, the survey was done online and administered in the English language. Majority of respondents were well educated with access to the internet. Second, the purposive sampling strategy was initiated within the social network of selected government hospital healthcare professionals and may not be representative of the general population. Third, the survey was rolled in the later phase of the pandemic and the psychological outcomes may change over the course of the public health crisis.

Conclusion

During the COVID-19 pandemic in Dubai, UAE, less than 20% respondents reported moderate-to-severe anxiety, less than 10% reported moderate-to-severe stress levels and one-sixth reported moderate-to-severe depression and psychological impact of the outbreak. Age, years of experience and presence of any disease were associated with a greater psychological impact of the pandemic and higher levels of anxiety. The findings of this study can be used to frame appropriate psychological interventions to avert occurrence of mental health problems preventing psychological crisis in future.

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Statement of Ethics and Disclosure

All procedures followed were in accordance with the ethical standards of the responsible committee and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study. Subjects (or their parents or guardians) have given their written informed consent and that the study protocol was approved by Dubai Scientific Research Ethics Committee (DSREC), Dubai Health Authority DSREC-08/2021_07.

Conflict of Interest

None.

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Contributions of Authors

Saima Faraz conceived and designed the research. Dr Nighat did manuscripts writing and Dr Laila did analysis. Sylvia Severine Fernandes and Merlin Nesakumari did data collection and compiling international research. Udayakumari Pethaperumal did data analysis.

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