

Psychological Impact of COVID-19 Pandemic among Healthcare Personnel in United Arab Emirates

Ananya Srivastava^{1*} , Godfred A. Menezes² , Jewel Mary Kenneth¹ , Jennifer John¹ , Sahina Saif¹ , Taniqsha Bambani¹ , Zyna Ayesha Fayaz¹ , Carol Avil Mathias³ , Mohamedanas Mohamedfaruk Patni⁴, Shukri Adam⁵, Tarig Hakim⁶ , Mariam Al Nuaimi⁷ and Muna Obaid Alayyan⁸

¹RAK College of Medical Sciences, RAK Medical and Health Sciences University, Ras Al Khaimah, United Arab Emirates.

²Department of Microbiology and Immunology, RAK College of Medical Sciences, RAK Medical and Health Sciences University, Ras Al Khaimah, United Arab Emirates.

³Office of Student Affairs, RAK Medical and Health Sciences University, Ras Al Khaimah, United Arab Emirates.

⁴Department of Community Medicine, RAK College of Medical Sciences, RAK Medical and Health Sciences University, Ras Al Khaimah, United Arab Emirates.

⁵Department of Community Health Nursing, College of Nursing Sciences, RAK Medical and Health Sciences University, Ras Al Khaimah, United Arab Emirates.

⁶Department of Physiology, RAK College of Medical Sciences, RAK Medical and Health Sciences University, Ras Al Khaimah, United Arab Emirates.

⁷Emirates Health Services, Ras Al Khaimah, United Arab Emirates.

⁸Hospital Director, Emirates Health Services, Ras Al Khaimah, United Arab Emirates.

*Correspondence: ananya.20901055@rakmhsu.ac.ae

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Abstract

Given the magnitude of the COVID-19 pandemic, adverse psychological outcomes are expected to occur among healthcare personnel (HCPs). However, little is known about these outcomes within Ras al Khaimah, UAE. This study aims to assess the psychological impact of COVID-19 on healthcare personnel from different hospitals and clinics in Ras Al Khaimah (RAK), UAE. An online questionnaire was distributed to healthcare personnel within Ras al Khaimah, UAE, through an institutional email that enabled them to enroll in the study after giving informed consent. Likert scale was used to calculate the relation between demographic factors and 13 variables of psychological distress. An unpaired t-test was applied. This study shows that 31.7% of HCPs in RAK report moderate to high levels of anxiety due to concerns of potential workplace exposure, 41.6% are afraid of infecting their families and 13.1% find themselves feeling isolated from their families. Those who were younger than 45 years old, unmarried people and having more than two children were more likely to experience psychological distress than their counterparts. While the adverse psychological impact within this population is not as severe as what was noted in different populations in other countries, they must be addressed. It is important to ensure that HCPs have the appropriate physical and mental resources to persevere through similar stressful periods in the future.

Keywords: Psychological Distress, Healthcare Workers, Healthcare Personnel, Ras al Khaimah, UAE, Questionnaire

INTRODUCTION

The COVID-19 pandemic has wreaked havoc on the healthcare industry causing deaths of millions of people around the world. As of August 2023, over 769 million laboratory-tested COVID-19 cases and 6.9 million deaths have been reported globally. As of December 2023, 1.6 million cases were diagnosed and 2,349 deaths were recorded in the United Arab Emirates.¹⁻³

Previous studies have linked the outbreaks of infectious diseases, such as COVID-19, MERS, Ebola, H7N9, H1N1 and SARS with post-traumatic stress symptoms (PTSS) and other adverse psychological symptoms. Mandatory or self-imposed quarantine, social isolation, fear of infection, lack of supplies and financial loss increase the risk of mental disorders such as depression, anxiety, thought disorders and post-traumatic stress, and healthcare workers are not immune to this stress. Inadequate personal protective equipment (PPEs), staff shortages, and frequent exposure to patients' suffering and dying are some of the other challenges frequently encountered by healthcare workers. Lack of emotional support and negative coping strategies lead to the exacerbation of mental health problems.⁴⁻⁶

In China, 77.3% of frontline nurses had suffered anxiety symptoms, with the severity of anxiety depending on length of service and clinical

working time. Meanwhile, in the United States of America, 63.38% of healthcare workers reported mild to clinically meaningful anxiety, 46.61% reported mild to severe depressive symptoms, 5% endured suicidal ideation and 14% screened positive for post-traumatic stress disorder (PTSD).^{7,8}

Within the United Arab Emirates, a study in Sharjah reported that during the COVID-19 pandemic, frontline workers were more likely to suffer high levels of anxiety. Another study found that a larger percentage of HCPs in UAE suffered depression due to COVID-19 in comparison to the other Arab countries.^{9,10}

However, little is known about the psychological impact of the COVID-19 pandemic on medical workers in other parts of the UAE. It is necessary to gather data on this matter to help facilitate programs and provide resources to alleviate stress and ensure their psychological well-being in the event of future medical emergencies. It will also provide prospective physicians and nurses an understanding on what to expect as professionals in times of such emergencies in the future.

Objective

To assess the psychological impact of COVID-19 on healthcare personnel from different hospitals and clinics in Ras Al Khaimah, UAE.

METHODOLOGY

It was a cross-sectional study performed in various hospitals all over UAE conducted during November 2020 to February 2021. The study subjects were Frontline health care personnel from various medical institutions, clinics and hospitals across Ras Al Khaimah. Data could be collected from 82 participants which included people from different professions like doctors, nurses, teaching faculty, technicians and other staff members such as occupational therapists, administrative staff and maintenance staff. The study did not exclude potential subjects from participation on the basis of ethnic origin or gender. Subjects included men, women, and all ethnic origins, provided they met all eligibility criteria as follows:

1. They practiced as health care medical professionals.
2. They were dealing with COVID-19 patients/potential COVID-19 patients.
3. They lived/practiced in Ras al Khaimah.

Convenience sampling was used to select the study participants.

An online questionnaire was constructed by the student investigators and distributed among faculty staff for their advice. The questionnaire was revised based on their feedback and was recirculated among 15 faculties for their final review. This final version of the questionnaire was then distributed through an institutional email that enabled the target population to enroll in the study after giving informed consent. An online consent form was displayed at the beginning of the online questionnaire; if participants had no objection to the objectives of the survey, they would officially start the survey by clicking the "Start" button below, or they had the right to withdraw from the survey. Each participant was only allowed to answer the questionnaire once.

The questionnaire collected the following details:

Socio-demographic details included the following
Gender, Age, Occupation, Current living situation.

COVID-19 emergency-related psychological factors

Single items measured through pointed scale from 1-5. COVID-19 emergency-related

psychological factors included fear of COVID-19 infection due to work-related exposure.

Psychological distress

The various psychological effects of COVID-19 were estimated on a 5-point scale. Part I of the questionnaire has a scale ranging from 1 to 5 (1-Not at all, 2-Slightly, 3-Neutral, 4-Extremely, 5-Extremely) which measures the intensity of the psychological impacts of COVID-19 on the healthcare workers, whereas Part II has a scale (1-Never, 2-Rarely, 3-Sometimes, 4-Mostly, 5-Always) measuring the frequency of the effects. Higher values indicate higher psychological distress.

Analysis of main outcome and process measures compared front line healthcare workers in different work spaces all over RAK depending on the profession, severity of the daily challenges etc. Graphical representation was produced depending on the conclusion of the study.

Likert scale was used to calculate the relation between different demographic factors and 13 variables of psychological distress. The mean value of all the questions was measured and standard deviation calculated; following which an unpaired t-test was applied.

Survey details

Socio-demographic details:

- i). Age
- ii). Gender
- iii). Place of work
- iv). Marital status
- v). Profession
- vi). Number of children
- vii). Current living situation
- viii). History of COVID-19 infection
- ix). Family history of COVID-19 infection
- x). Change in living situation during the COVID-19 pandemic
- xi). Use of antidepressant medications

COVID-19 pandemic related social factors:
5-point scale (1-Not at all, 2-Slightly, 3-Neutral, 4-Extremely, 5-Extremely) where the higher value indicates higher effect.

- i). Effect of COVID-19 pandemic on personal relationships
- ii). Effect of negligence of public regarding COVID-19 regulations

Table 1. Distribution of respondents according to Socio-demographic profile

Demographic Profile	No. n=60	%
Age Group		
25-30	12	20.0
31-35	8	13.3
36-40	6	10.0
41-45	11	18.3
46-50	7	11.7
51-55	8	13.3
56-60	2	3.3
61-65	3	5.0
65+	3	5.0
Gender		
Male	25	41.7
Female	35	58.3
Profession		
Doctor	33	55.0
Nurse	9	15.0
Nursing Faculty	5	8.3
Pharmacy Faculty	3	5.0
Technical Staff	5	8.3
Other Staff	5	8.3
Marital Status		
Married	46	76.7
Single	14	23.3
No. of Children		
One	9	15.0
Two	23	38.3
Three	7	11.7
More than Three	4	6.7
None	17	28.3

*The largest demographic in each circumstance has been underlined

- iii). Change in perception of profession due to COVID-19 pandemic
 - iv). Change in family's perception of profession due to COVID-19 pandemic
 - v). Change in viewpoint of COVID-19 infection from initial outbreak
 - (vi). Change in personal hygiene practices due to COVID-19 pandemic
- COVID-19 pandemic related psychological factors: 5-point scale (1-Never, 2-Rarely, 3-Sometimes, 4-Mostly, 5-Always) where the higher value indicates higher effect.
- i). Feeling deprived of attention of personal relations
 - ii). Personal relations feeling deprived of

- respondent's attention
- iii). Feelings of anxiety due to potential workplace exposure to COVID-19 virus
- iv). Feelings of anxiety due to potentially spreading COVID-19 virus to personal relations
- v). Difficulty relaxing due to COVID-19 pandemic
- vi). Experiencing acute increase in stress due to COVID-19 pandemic
- vii). Feelings of hopelessness related to COVID-19 pandemic.

Limitations/expected challenges

1. Respondents found it difficult to complete the questionnaire due to busy working schedules.
2. Gathering data and finding respondents who would volunteer to participate in this study.

RESULTS

Of the 82 responses received, 60 were accepted in accordance with the eligibility criteria described in the Methods-Selection criteria. Table 1 shows their demographic characteristics.

Figure 1 shows the percentage of the respondents and their family members who were infected with the COVID-19 virus. Of the respondents who tested positive, 25% of them experienced PTSD symptoms.

20% of the respondent's tested positive for COVID-19 infection and 33.3% of respondents' families tested positive for the COVID-19 infection.

Table 2 describes the living situations of respondent's before and during the pandemic. Before the pandemic, 16.7% of the HCPs lived alone and 83.3% of the HCPs lived in a group/family setting. During the pandemic the number of HCPs residing with others decreased by 6.6%.

4(8.2%) of the 60 respondents were on antidepressants.

Figure 2 shows the distribution of respondents and their families feeling deprived of attention.

Figure 3 describes the responses of 4 factors - Effect on relationships due to the pandemic, effect of the public's negligence in regards to the COVID-19 prevention measure, change in perception of the COVID-19 infection since its inception and influence of the pandemic on personal hygiene

Figure 4 depicts the responses according to 5 factors - anxiousness due to fears of workplace exposure or of infecting family, difficulty in relaxing, moments of sudden stress and feelings of hopelessness in the face of the pandemic.

Likert scale was used to calculate the relation between the above-mentioned demographic factors and the 13 variables of psychological distress. The mean value of all the questions was measured and standard deviation was calculated; following which an unpaired t-test was applied. The values are provided in Table 3.

Profession

Our results do not show any relation between profession and psychological distress.

Age

The results showed that HCPs younger than 45 years were more likely to have psychological distress. Their responses showed that the pandemic had affected their personal relationships, causing them to feel deprived of attention from their family and friends. They also noticed that their family members and friends were feeling deprived of attention as well; which could be related to the respondent maintaining their distance from their close ones in an attempt to prevent them from being infected with the COVID-19 virus. Younger people also tend to be more anxious about work-place exposure to the COVID-19 virus; and also, about potentially infecting their close ones. They also feel a lot more frustrated about the negligence of others

in maintaining appropriate COVID-19 safety measures. This could be attributed to exposure levels. Older healthcare professionals were less likely to be on the front-lines, reducing their exposure and hence their stress levels. The same cannot be said for the younger professionals. Another factor could be experience. Those who were younger likely felt more fear due to how unpredictable the pandemic was, whereas those older might have felt more comfortable by relying on their medical expertise, particularly prior experiences with epidemics like HIV/AIDS and the H2N2 pandemics, to guide them through those unpredictable factors. If more personal factors were to be taken into consideration, the younger respondents perhaps were more shaken at the deaths caused by the pandemic, whereas the older respondents have had a longer career and hence more time to learn how to process the death of a patient and the turmoil that causes.^{5,11-14}

Marital status

Single people tend to have more psychological distress than those who are married. They noted a change in their personal relationships due to the pandemic. They are also aware that their friends and family members feel deprived of their attention, largely due to protective measures that the respondents had undertaken to prevent spreading the infection. Single people also noted a greater tendency to feel anxious due to the threat of work-place exposure to the COVID-19 virus. They feel frustrated when others do not maintain appropriate protective and

Table 2. Distribution of respondents according to living situation before and during the pandemic

	Living situation before pandemic		Living situation during pandemic	
	No. (n=60)	Percentage	No. (n=60)	Percentage
Alone	10	16.7	14	23.3
Extended family	6	10.0	4	6.7
Friends/colleagues	2	3.3	2	3.3
Parents	6	10.0	4	6.7
Spouse	6	10.0	7	11.7
Spouse & child/children	30	50.0	29	48.3

*Most respondents lived with their spouse and child/children before and during the pandemic. 5 respondents elected to move out from a shared living situation to single accommodation, 2 respondents left their extended family and moved in with their spouse, 1 respondent left their single accommodation and moved in with their spouse and child/children

social distancing measures, potentially spreading the virus. They feel hopeless in the face of the pandemic, expressing that they feel differently about their profession when compared to before the pandemic began.

The reasons for this increased stress could be attributed to a lack of company. The pandemic caused people, particularly healthcare workers, to

socially and physically distance themselves from friends and family in order to limit the spread of the virus, resulting in isolation. This isolation could be reduced if the respondent was living with their spouse and/or children. They could also more easily distract themselves and not focus too deeply at the pandemic at home, a contrast to those who were not married.^{15,16}

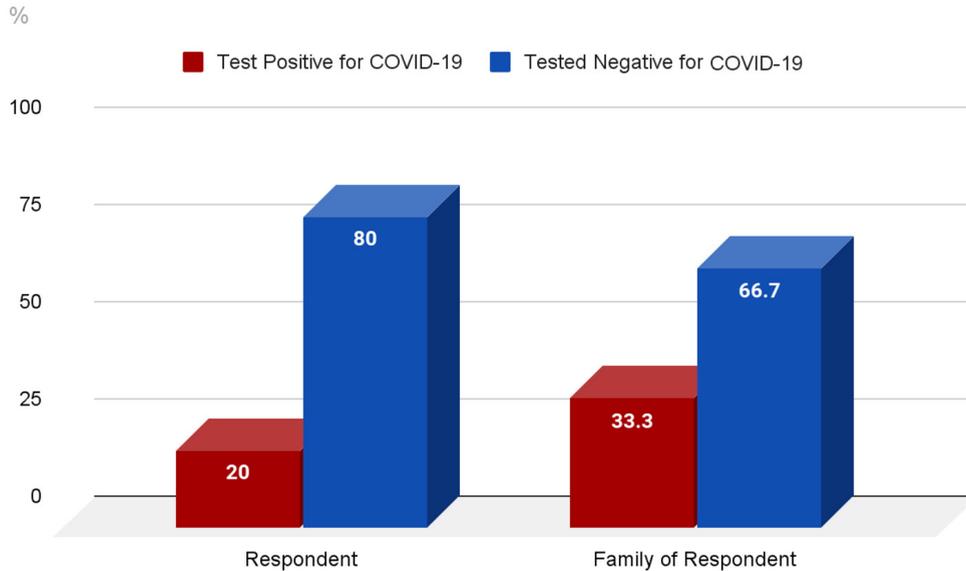


Figure 1. Distribution of respondents and their family members according to positivity for COVID-19

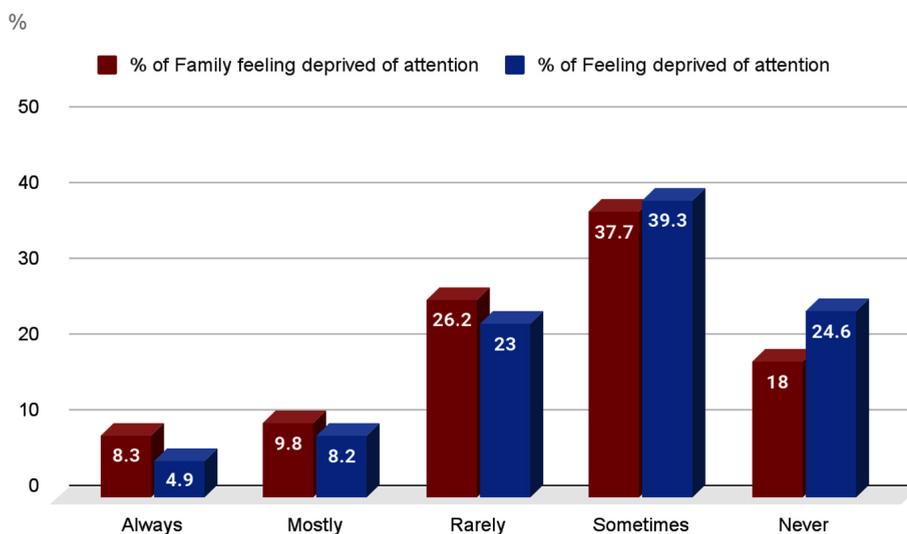


Figure 2. Distribution of respondents according to feeling of attention deprivation by and from family
 *Most respondents claim that their family sometimes feels deprived of their attention.
 Most respondents also report sometimes feeling deprived of their family’s attention.

Number of children

Out of all the respondents who had children, those with more than 2 children felt particularly lonely and were aware of their close ones feeling neglected by the respondent. They

also noticed that their friends/family members began viewing them differently due to factors related to the pandemic. They were more likely to feel anxious about potentially infecting their families and were more upset when others

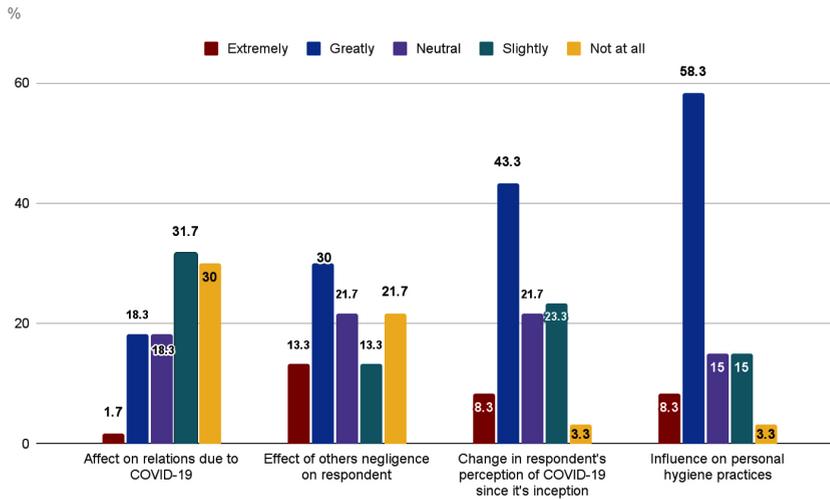


Figure 3. Distribution of respondents according to social factors

*Most respondents say that they have noticed a slight change in their relationships due to the COVID-19 and a great effect of other’s negligence in regards to COVID-19 safety regulations. They note that their perception of COVID-19 has greatly changed since the start of the pandemic and that they have made great changes in personal hygiene practices due to it.

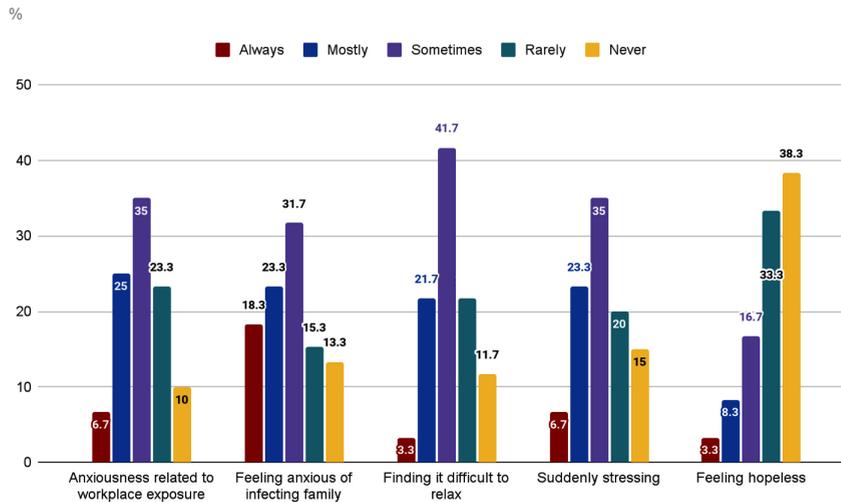


Figure 4. Distribution of respondents according to 5 factors (Anxiousness, difficulty relaxing, sudden stress, hopelessness)

*Most respondents claim to sometimes feel anxiety due to workplace exposure to COVID-19 virus or due to fear of them infecting their families with COVID-19 virus. They also sometimes find it difficult to relax due to the COVID-19 pandemic and find themselves having moments of sudden stress due to the COVID-19 pandemic. However, they report never feeling hopeless in the face of the COVID-19 pandemic.

Table 3. Findings of the Likert scale and unpaired t-test

Association of elements of psychological stress with demographic factors	Profession		Age		Marital status			
	No.	Mean ±SD	P-value	No.	Mean ±SD	No.	Mean ±SD	P-value
Effect on personal relationships due to the COVID-19 pandemic	Dr. (33)	2.33 ±1.18	1	≤ 45 (37)	2.54 ±1.14	Single (14)	2.92 ±1.14	0.02
	Non-Dr. (27)	2.33 ±1.18		> 45 (23)	1.91 ±1.14	Married (46)	2.1 ±1.14	
Feeling deprived of attention from close relations due to protection measures taken during the COVID-19 pandemic	Dr. (33)	2.48 ±1.11	0.78	≤ 45 (37)	2.70 ±1.11	Single (14)	2.92 ±1.11	0.6
	Non-Dr. (27)	2.4 ±1.11		> 45 (23)	2.04 ±1.11	Married (46)	2.3 ±1.11	
Awareness of close relations feeling deprived of attention due to protection measures undertaken during the COVID-19 pandemic	Dr. (33)	2.63 ±1.13	0.89	≤ 45 (37)	2.91 ±1.14	Single (14)	3.28 ±1.14	0.02
	Non-Dr. (27)	2.59 ±1.13		> 45 (23)	2.13 ±1.14	Married (46)	2.41 ±1.14	
Effect of the negligence of others in protection measures on respondent	Dr. (33)	2.93 ±1.34	0.77	≤ 45 (37)	3.29 ±1.37	Single (14)	4 ± 1.37	0.004
	Non-Dr. (27)	3.03 ±1.34		> 45 (23)	2.52 ±1.37	Married (46)	2.69 ±1.37	
Anxiousness due to work-place exposure to the COVID-19 virus	Dr. (33)	2.93 ±1.08	0.91	≤ 45 (37)	3.27 ±1.08	Single (14)	3.5 ±1.08	0.03
	Non-Dr. (27)	2.96 ±1.08		> 45 (23)	2.43 ±1.08	Married (46)	2.78 ±1.08	
Anxiousness of potentially infecting family/friends with the COVID-19 virus	Dr. (33)	3.24 ±1.27	0.76	≤ 45 (37)	3.56 ±1.27	Single (14)	3.71 ±1.27	0.08
	Non-Dr. (27)	3.14 ±1.27		> 45 (23)	2.60 ±1.27	Married (46)	3.04 ±1.27	
Difficulty relaxing due to the COVID-19 pandemic	Dr. (33)	2.72 ±1.01	0.38	≤ 45 (37)	3.05 ±1.01	Single (14)	3 ±1.01	0.43
	Non-Dr. (27)	2.95 ±1.01		> 45 (23)	2.47 ±1.01	Married (46)	2.76 ±1.01	
Experiencing moments of sudden stress related to the COVID-19 pandemic	Dr. (33)	2.84 ±1.14	0.68	≤ 45 (37)	3.18 ±1.41	Single (14)	3.42 ±1.15	0.06
	Non-Dr. (27)	2.96 ±1.14		> 45 (23)	2.34 ±1.41	Married (46)	2.74 ±1.15	
Feelings of hopelessness related to the COVID-19 pandemic	Dr. (33)	2.06 ±1.07	0.82	≤ 45 (37)	2.29 ±1.09	Single (14)	2.64 ±1.09	0.02
	Non-Dr. (27)	2 ±1.07		> 45 (23)	1.65 ±1.09	Married (46)	1.86 ±1.09	
Change in viewpoint of the COVID-19 pandemic since it's start	Dr. (33)	3.18 ±1.03	0.33	≤ 45 (37)	3.54 ±1.03	Single (14)	3.71 ±1.03	0.09
	Non-Dr. (27)	3.44 ±1.03		> 45 (23)	2.91 ±1.03	Married (46)	3.17 ±1.03	
Respondent's change in perception of profession	Dr. (33)	3.06 ±1.18	0.92	≤ 45 (37)	3.32 ±1.18	Single (14)	3.71 ±1.19	0.02
	Non-Dr. (27)	3.03 ±1.18		> 45 (23)	2.60 ±1.18	Married (46)	2.86 ±1.19	
Respondent's close relations changes in perception of profession	Dr. (33)	3 ±1.94	0.6	≤ 45 (37)	3.13 ±1.2	Single (14)	3.14 ±1.19	0.35
	Non-Dr. (27)	2.74 ±1.94		> 45 (23)	2.5 ±1.2	Married (46)	2.8 ±1.19	

* The relevant findings have been underlined

displayed negligence regarding precautions aimed at reducing the spread of the COVID-19 virus. They have had a significant change in viewpoint with regards to the pandemic and are more likely to feel hopeless in its face. There could be multiple reasons for these findings. For one, schools and universities shifted to online learning during the pandemic. Accommodating to the academic needs of each child could be stressful within a single house. The children would also undoubtedly be restless cooped up inside their homes, creating tensions within the house. The lack of a caretaker or nanny could also mean that the children demanded all spare attention, reducing the time the respondent had to themselves. There is also the risk of spreading infections. A young child is not likely to isolate themselves from their family members if they were infected with the virus. A few healthcare personnel also suffered from pay-cuts during the pandemic, due to the economic crisis that resulted. This could mean that the respondent was more stressed about the future of their children.⁶

DISCUSSION

A study in Sharjah found that 37% of healthcare workers reported moderate to severe psychological distress. Their main triggers for anxiety were concerns about spreading COVID-19 infection to their family, fears of getting infected with the virus and being isolated.⁹ HCPs in RAK reported similar concerns, with 31.7% reporting moderate to high levels of anxiety due to concerns of potential workplace exposure, 41.6% afraid of infecting their families and 13.1% feeling isolated from their families. In contrast, in the UK, 67% of the participants felt that being in the workplace increased their risk of catching the virus, despite the numerous safety measures. 88% of HCPs in the UK were concerned about being infected with the virus, while 78% of them were worried about passing the virus to their close ones.⁶ Meanwhile, 2.17% of Chinese HCPs reported an increased incidence in severe anxiety, 4.78% reported moderate anxiety and mild anxiety was reported by 16.09%. This study also found that the incidence of stress disorder in medical staff was 27.39%.¹⁵

In a study conducted in Italy, a total of 21.90% reported high perceived stress and 19.80% reported symptoms of anxiety. Said study even noted that being exposed to contagion was associated with symptoms of depression, a finding echoed in a different study in Maryland, USA; which noted higher post-traumatic stress symptoms in HCPs who were in direct contact with COVID-19 patients.^{17,18}

In a national study conducted in the United States of America, 33% reported clinically meaningful anxiety. The same study found that 17% of their respondents expressed moderate to severe depressive symptoms. Most disturbingly, 4% of the participants reported suicidal ideation.¹⁸

Younger respondents in the UK, Italy and in our study noted that the pandemic had affected their mental health. They were more likely to feel anxious and heavily stressed.^{6,19}

CONCLUSION

These results show that those who were younger than 45 years old were more likely to experience psychological distress than those older, which could be a consequence of differing exposure levels to the COVID-19 virus, and a significant difference in intellectual and emotional experiences.

It also shows that unmarried people tend to have more psychological distress than those who were married, likely due to the company and support of a loved one.

Finally, these results suggest that respondents with more than two children are more at risk for psychological distress. This could be attributed to the difficulty in accommodating the academic and emotional needs of each child, reducing personal time. It could also be due to straining financial situations as a consequence of the pay-cuts and lay-offs that the economic crisis caused.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORS' CONTRIBUTION

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

FUNDING

None.

DATA AVAILABILITY

All datasets generated or analyzed during this study are included in the manuscript.

ETHICS STATEMENT

This study is reviewed and approved by the Data & Statistics Department, Emirates Health Services – UAE and the Institutional Ethics Committee, RAKMHSU-REC and RAK-REC (MOHAP/REC/2020/70-2020-UG-M).

INFORMED CONSENT

Written informed consent was obtained from the participants before enrolling in the study.

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