

The radiology workforce's response to the COVID-19 pandemic in the the Middle East, North Africa  
and India

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Abstract

### Introduction

This study aimed to investigate the response of the radiology workforce to the impact of the coronavirus disease 2019 (COVID-19) pandemic on professional practice in India and eight other Middle Eastern and North African countries. It further investigated the levels of fear and anxiety among this workforce during the pandemic.

### Methods

A quantitative cross-sectional study was conducted using an online survey from 22 May-2 June 2020 among radiology workers employed during the COVID-19 pandemic. The survey collected information related to the following themes: (1) demographic characteristics, (2) the impact of COVID-19 on radiology practice, and (3) fear and (4) anxiety emanating from the global pandemic.

### Results

We received 903 responses. Fifty-eight percent had completed training on infection control required for handling COVID-19 patients. A large proportion (79.5%) of the respondents strongly agreed or agreed that personal protective equipment (PPE) was adequately available at work during the pandemic. The respondents reported experiences of work-related stress (42.9%), high COVID-19 fear score (83.3%) and anxiety (10%) during the study period.

### Conclusion

There was a perceived workload increase in general x-ray and Computed Tomography imaging procedures because they were the key modalities for the initial and follow-up investigations of COVID-19. However, there was adequate availability of PPE during the study period. Most radiology workers were afraid of being infected with the virus. Fear was predominant among workers younger than 30 years of age and also in temporary staff. Anxiety occurred completely independent of gender, age, experience, country, place of work, and work status.

### Implications for practice:

It is important to provide training and regular mental health support and evaluations for healthcare professionals, including radiology workers, during similar future pandemics.

**Keywords:** Radiology; COVID-19; Radiographer; Fear; Anxiety

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5 **North Africa and India**  
6

7 **Introduction:**  
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10 The World Health Organisation officially announced the coronavirus disease 2019 (COVID-19)  
11 outbreak as a pandemic in March 2020 (1) after the virus was initially detected in the Chinese city  
12 of Wuhan in December 2019 (2, 3). Radiological investigations, such as chest radiography and  
13 Computed Tomography (CT), play a major support role in the diagnosis of respiratory  
14 manifestations in COVID-19 (4-7) along with the patient’s clinical history and blood biomarkers  
15 (8,9). Thus, radiology departments are essential in the management of highly infectious patients,  
16 and the radiology workforce (RWF) is a part of the multidisciplinary healthcare team on the front  
17 lines of combating the COVID-19.  
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26 Most of the RWF comes into physical contact with patients while positioning them for radiological  
27 examinations. Therefore, it is essential for the imaging team to strictly adhere to appropriate rules  
28 of conduct to protect themselves from the risk of exposure and contracting coronavirus, especially  
29 as a nosocomial infection (10-12). However, the pandemic has brought a risk of infection and a  
30 high mortality rate as well as, psychological and mental trauma to the public and medical  
31 personnel (13, 14).  
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38 In response to the pandemic, Health Care Professionals (HCPs) have dedicated themselves to the  
39 service of others despite the impact on their emotional and physical wellbeing due to  
40 uncertainties, varying work requirements and extended work schedules (15-17). Moreover,  
41 significant amounts of variance in work may indirectly impose a considerable amount of anxiety  
42 and stress among HCPs (18,19), as has been revealed in other outbreaks, such as Severe Acute  
43 Respiratory Syndrome and Ebola (20, 21, 17). Anxiety can be either stimulus-related or general in  
44 nature (22), and these experiences can lead to negative impacts and long term adverse mental  
45 health consequences among HCPs(23,24). Thus, HCPs face incredible challenges while having to  
46 deliver radiological services to patients during this unprecedented time(23).  
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53 Stress is an emotional experience that increases when events are uncontrollable and  
54 unpredictable (25). Stress can produce biophysical reactions, such as headache, abdominal pain,  
55 chest pain, eating and sleep disturbances and heart palpitation, as well as; psychological-  
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4 emotional reactions, such as anxiety, depression, tension, anger, nervousness and frustration (26).  
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6 Stress and anxiety are linked to fear (27). Fear is a present response when facing a real or supposed  
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8 threat, while anxiety is a future response that indicates an impending danger (25). Anxiety and  
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10 fear are likely distinct emotional states but often overlap due to underlying behavioural  
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12 mechanisms (28).

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14 Furthermore, in an attempt to maintain adequate healthcare workers to cope with COVID-19  
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16 cases, it is likely that work-related anxiety may affect all members of the healthcare team. This  
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18 impact can lead to variation in the team's psychosocial variables along with burnout and emotional  
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20 exhaustion (29,30). Additionally, these experiences may weaken the team's morale and  
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22 confidence and can affect the healthcare delivery system and its associated reassurance to the  
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24 public (30).

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26 Prevention and intervention are requirements that focus on the individual along with the working  
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28 conditions to reduce high levels of emotional tension and to positively impact work-related  
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30 behaviour (31). To improve the current situation and plan for future similar incidents, periodic  
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32 evaluations of HCPs' experiences and identification of underlying reasons may aid in building  
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34 appropriate coping strategies (32). Hence, it is important to conduct significant research among  
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36 HCPs during pandemics to establish clear directives, initiate precautionary measures and provide  
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38 health-informed interventions in preparation for current and future outbreaks (33).

39  
40 The Middle East, North Africa and India (MENAIN) constitute a major fraction of the world's  
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42 population (34,35). Moreover, due to the unique cultural factors and the nature of daily  
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44 interpersonal relations in Middle Eastern countries, there are relatively more close contacts and  
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46 interpersonal social activities in this area than in the rest of the world (36,37). Considering the  
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48 aforementioned factors and the current pandemic, it is important to investigate the perceptions  
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50 of the impact of the current pandemic, including the mental and physical health of HCPs serving  
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52 in this region, to inform planning for similar future pandemics. The current study aimed to assess  
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54 the response of the RWF on the impact of the COVID-19 pandemic, including the level of fear and  
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56 anxiety among professionals across the MENAIN region.

## 57 **Methods**

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4 This work was a part of an international study, COVID-19 Response in Radiology, aimed at assessing  
5 the global impact of the COVID-19 pandemic on the RWF and radiology practice. Data were  
6 collected from 22 May to 2 June 2020 from nine countries across the MENAIN region during the  
7 COVID-19 pandemic.  
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11 This was an exploratory, quantitative, cross-sectional study that investigated the impact of COVID-  
12 19 and related anxiety and fear among the RWF across the MENAIN region. The study was needed  
13 to capture the impact of the current urgent situation of the COVID-19 outbreak. The current study  
14 design was generally quick, easy, and cheap to perform and was particularly suitable for estimating  
15 the impact of COVID-19 on the population (38, 39).  
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## 22 **Participants**

23 Participants included the RWF working at hospitals during the pandemic, such as radiologists,  
24 radiographers, advanced practitioners, and radiology nurses. The population size was unidentified,  
25 as there have been no previous studies in this region to the best of our knowledge. Therefore, we  
26 used the formula of cross-sectional studies to calculate the sample size with a 95% confidence  
27 level, the margin of error was set at 5%, and the population size was infinite. The calculation  
28 proposed a minimum of 385 participants. The study used convenience sampling as it is an easy  
29 method to access participants in different geographical proximity.  
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## 37 **Instruments:**

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39 The survey consisted of four sections: (1) demographic characteristics, (2) radiology professional  
40 practice survey, (3) the Coronavirus Anxiety Scale (CAS), and (4) the Fear of COVID-19 Scale (FC-  
41 19S).  
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45 The demographic characteristics included general participant information, such as gender, age  
46 and years of experience. The radiology professional practice survey contained questions related  
47 to the impact of the pandemic on professional practice, infection control and COVID-19 related  
48 stress. This instrument was developed by a team of academic radiographers from the United  
49 Kingdom (UK). The team comprised of representatives from UK nations (England, Wales, Scotland  
50 and Northern Ireland) who outlined and piloted the questions required for the survey (40). The  
51 CAS was used to measure anxiety (41, 42) with a 5-point frequency scale (0='not at all' to 4='nearly  
52 every day over the last two weeks'). The scale measures the physiological and psychological  
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4 symptoms of fear or anxiety that respondents experienced when exposed to COVID-19 related  
5 thoughts or information. The total score was calculated by adding up each item's score (ranging  
6 from 0-20). Based on a CAS cut-off score of  $\geq 9$ , current users of the CAS may consider lowering  
7 the cut-off score to  $\geq 5$  when assessing the general population but retaining a cut-off score of  $\geq 9$   
8 when screening at risk or anxious groups (35). The FC-19S was used to assess fears caused by  
9 COVID-19(43). The participants indicated their level of agreement with the statements using a five-  
10 item Likert-type scale ranging from (5 = 'strongly disagree', 4 = 'disagree', 3 = 'neither agree nor  
11 disagree', 2 = 'agree', and 1 = 'strongly agree'. The total score was calculated by adding up each  
12 item's score (ranging from 7-35). The higher the score, the greater the fear of COVID-19 (43).

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14 The professional practice questionnaire was adopted from a previous study carried out in the UK  
15 (40). A pilot study was conducted, and minimal language edits were performed based on the  
16 feedback received from participants. Participants of the pilot study were not included in the  
17 current study. The CAS is a highly reliable ( $\alpha = 0.92$ ) and factorially valid measure that meets  
18 conventional standards for model fit (41, 42). The FC-19S is also a highly reliable measure with  
19 acceptable internal consistency ( $\alpha = 0.82$ ) (43). Moreover, the CAS and FC-19S have been validated  
20 and used in previous studies for HCPs and the general public (44-49).

21  
22 The link to the online survey was shared amongst the radiology health board leads across multiple  
23 countries via email and was advertised on social media platforms. Participants were given an  
24 electronic informed consent form to indicate their willingness to participate in the study, and a  
25 completed form was mandatory before filling in the survey.

26  
27 Ethical approval for the study was obtained from the Research Ethics Committees of three  
28 institutions (ID: 31818, ID:20-05-18-01 and ID: 45/2020).

## 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 **Analysis**

49  
50 The data were collected, categorized and processed using the Statistical Package for Social  
51 Sciences (SPSS), version 24<sup>®</sup>. The quantitative variables were expressed as percentages, and  
52 comparisons were made using independent sample t-tests and Pearson Chi-square tests. P-value  
53 of  $< 0.05$  were considered statistically significant. All graphs were created using Microsoft Office  
54 Excel 2013<sup>®</sup>.

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4 Cut-off point  $\geq 9$  was used to assess the level of anxiety among participants, and the score of  $\geq 9$   
5 was considered dysfunctionally anxious. The mean CAS score was calculated based on the total  
6 score of all items scores. There was no defined cut-off point for the FC-19S; therefore, the authors  
7 suggested a score of  $> 19$  as a high fear score, while scores from 9-19 as medium fear, and  $< 8$   
8 were regarded as low fear.  
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## 10 **Results:**

### 11 **Demographics**

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Nine hundred and three responses were received from radiology workers. Of these, 49% percent (n = 443) were female and 50.9% (n = 460) were male. The largest age group with 50% of the participants (n = 449) was the group from 18\_29 years, while 38.1% (n = 344) of the sample had less than five years of experience. The majority of the sample included radiographers (93%, n = 835) and 78% (n = 705) were permanent staff. The temporary staff members who were only working during the COVID-19 pandemic made up the remaining 22% (n = 198) and were comprised of students (13%, n = 117) and retired staff (9%, n = 81). Participants were from nine countries: United Arab Emirates, Oman, Kingdom of Saudi Arabia, Turkey, Sudan, Bahrain, India, Kuwait and Jordan (Table 1).

### 36 **Infection control**

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Of participants, 57.9% had received training on infection control and handling infected patients. Figure (1) shows that 93.6% strongly agreed and agreed that they understood the methods of COVID-19 transmission, and 88.9% strongly agreed and agreed that their current understanding of infection prevention principles and control was adequate to protect themselves and their patients during the COVID-19 pandemic. Finally, 79.5% of the respondents strongly agreed and agreed that PPE was adequately available at the workplace (Figure 1).

### 50 **Workload**

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The main diagnostic tools used for both the initial and follow-up investigations of COVID-19 patients were general x-ray and CT; these modalities were used by 610 and 552 of the respondents, respectively. Therefore, 48.1% (n = 434) and 36.7% (n = 331) of respondents reported an increased workload for general x-ray and CT, respectively, during the study period.



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4 The overall workload in the radiology department increased during the study period for 38.5% of  
5 the participants, while 23.6% reported an irregular pattern (Figure 2).

### 8 **Stress**

10 The results indicated that 42.9% of the respondents began to experience work-related stress  
11 during the COVID-19 pandemic, and 40.9% experienced stress sometimes. The analysis revealed  
12 that 72.9% strongly agreed and agreed that their family, partners and friends were significantly  
13 affected by their recent work-related stress.

14 While 52.5% strongly agreed and agreed that they had adequate social and psychological support  
15 structures at work for dealing with stress, 57.1% of the participants felt that they might need  
16 professional help to cope with their stress during the COVID-19 outbreak (Figure 3). Fear of  
17 becoming infected with COVID-19 was a major (56.9% n = 514) stressor at work since the COVID-  
18 19 pandemic (Figure 4).

### 27 **Anxiety**

29 The mean of the total score of the CAS was  $3.2 \pm 3.7$  out of 20 points. The analysis of the CAS  
30 revealed that only 10% (n = 90) of respondents were anxious, and 90% (n = 813) were not anxious.  
31 The percentage of anxiety was 25%, 22.2% and 19.2% for nurses, radiology residents and  
32 radiographers, respectively (Figure 5). Almost seventy percent of respondents did not feel  
33 nauseous or had no gastrointestinal problems at all when they thought about or were exposed to  
34 information about the COVID-19. Similarly, 53.3% did not have trouble falling or staying asleep  
35 because they were thinking about the COVID-19 (Table 2).

### 42 **Fear**

44 The mean of the total score of fear for COVID-19 among participants was  $24.7 \pm 6.4$  out of 35  
45 possible points. The FC-19S analysis revealed that 83.3% (n = 752) had a high fear score, 15.9% (n  
46 = 144) had a medium fear score, and only 0.8% (n = 7) had a low score of fear for COVID-19. The  
47 group of workers that experienced the greatest fear about COVID-19 were advanced practitioners  
48 (100%) and radiologists (95.2%) (Figure 6).

53 We found that 35.4% of the participants strongly agreed and agreed that they felt uncomfortable  
54 when thinking about COVID-19. Similarly, 28.6% reported being afraid of COVID-19 (Table 3).

57 The Pearson Chi-square correlation showed no significant association between anxiety level and  
58 gender, age, length of experience, country, working place, or work status.

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4 Similarly, Pearson Chi-square correlation results revealed no significant association between fear  
5 of COVID-19 and either gender, length of experience, or country. Nevertheless, there were  
6 statistically significant correlations with age ( $\chi^2(8) = 54.3, p = 0.01$ ), working place ( $\chi^2(14) =$   
7  $49.1, p = 0.001$ ), and work status ( $\chi^2(13) = 13.3, p = 0.03$ ). The post hoc test showed that the fear  
8 of COVID-19 was most frequently associated with participants aged 18-29 years, workers in private  
9 hospitals, and students working as temporary staff during the COVID-19 pandemic.

10  
11 An independent samples t-test was conducted to compare the CAS with training and the results  
12 showed insignificant differences ( $p = 0.54$ ). Moreover, an independent samples t-test was also  
13 carried out to compare the scores for fear of COVID-19 among radiology workers who had previous  
14 COVID-19 training and others who had not received training. The results showed a significant  
15 difference in the mean fear level of the COVID-19 between workers who attended the training ( $M$   
16  $= 25.78, SD = 5.8$ ) and others who did not ( $M = 23.33, SD = 7.01$ ) at  $p < .001$ . These results suggest  
17 that training does influence fear, and workers who attended training had a lower fear score.

#### 28 **Discussion:**

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30 Radiology examinations are key clinical decision tools used in the management of patients  
31 presenting with respiratory distress and possible COVID-19 symptoms (50). Radiographers are  
32 usually in close proximity to the patient during image acquisition (10, 12). Therefore, it is important  
33 for RWF to demonstrate a comprehensive understanding and application of infection control  
34 knowledge during practice (11, 12). However, the current study found that only 58% of RWF had  
35 received training on infection control for handling COVID-19 patients, 93.6% understood the mode  
36 of coronavirus transmission and 88.9% confirmed an adequate level of infection control  
37 knowledge. This finding is broadly consistent with the results of other studies (51,52) that similarly  
38 reported a high understanding of infection control, prevention and compliance among HCPs. The  
39 high level of understanding of infection control measures perceived by the RWF in the current  
40 study could be attributed to the wide and active dissemination of COVID-19 information by public  
41 health agencies via media outlets, including social media platforms, at the onset of the pandemic  
42 (53). It could also be attributed to the robust training on infection control included within the  
43 radiology/radiography curriculum or the maintenance of an active continuous professional  
44 development portfolio by radiology practitioners.

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4 The workload in the radiology department was perceived to have increased during the study  
5 period by 38.5% of the participants, while 24% noticed a decrease in workload. These  
6 contradicting responses can be due to the nature and size of individual radiology departments and  
7 also the type of patients they typically serve. For example, an increase in the workload can be  
8 justified in a large hospital where new incoming COVID-19 patients do not hamper routine work  
9 but add to it along with the extra time required taken for the associated infection control  
10 measures. However, a small department may stop receiving routine patients in order to exclusively  
11 serve COVID-19 patients due to limited capacity. Increased pressure on general x-ray and CT  
12 services were perceived as expected because these modalities were the key recommended initial  
13 and follow-up investigation tools in use during the current pandemic (4-7). Baseline chest x-ray  
14 showed a sensitivity of 69% in COVID-19 infection and imaging follow-up (54); chest CT has a  
15 limited but important role in the clinical management of COVID-19 patients (50). The perceived  
16 reduction of patient numbers may also have been potentially due to adherence to national and  
17 international guidance to minimize non-urgent work in the radiology department (55,56), as well  
18 as due to infection control issues related to transporting COVID-19 patients to CT scanners and  
19 availability of CT modality in the departments (57). While the study did not investigate the  
20 occupational radiation dose, it is worth emphasising the importance of radiation safety for all RWF  
21 members (58); corrective actions are needed to comply with radiation safety and protection  
22 during radiology examinations (59). Moreover, proper radiation protection for patients should be  
23 implemented (60) to ensure radiation safety practice in both routine and crisis situations.

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43 It was apparent that the number of patients needing care and the imaging modalities was  
44 increased; as a result, hospitals recruited temporary staff to work during the COVID-19 pandemic  
45 (61). The result of the current study showed that the temporary staff recruited during the  
46 pandemic constituted 22% of the total workers to augment service delivery.

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Previous studies have shown that epidemics can lead to the development of new or worsening psychiatric symptoms or ailments, such as fear, depression, anxiety, panic attacks, somatic symptoms, psychosis and even suicide (62-64). Another recent study reported similar findings during the COVID-19 pandemic, with a heightened risk for mental health problems among HCP who in direct contact with confirmed or suspected COVID-19 cases (14). Even though 79.5% reported adequate availability of PPE, 56.9% were afraid that they would be infected with COVID-

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4 19. A higher percentage of fear was reported in China; 85% of HCPs were afraid of becoming  
5 infected at work (56). Although some HCPs might need psychosocial support, they rarely seek help  
6 (66). Similarly, the current results showed that 57% of the participants suggested a need for  
7 professional support to deal with stress during the COVID-19 pandemic. HCPs involved in the care  
8 of COVID-19 patients should undergo regular evaluations of stress, depression, and anxiety levels  
9 to support their wellbeing (14,66). Our findings also acknowledge the requirement of creating  
10 awareness of the need for professional support amongst the RWF in dealing with stress, anxiety  
11 and other psychological disorders that might arise during the COVID-19 pandemic and similar  
12 crises.  
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22 Stress can produce biophysical reactions, such as headache, abdominal pain, chest pain, eating  
23 and sleep disturbances and heart palpitation, as well as; psychological-emotional reactions, such  
24 as anxiety, depression, tension, anger, nervousness and frustration (26). The current study  
25 showed that 18% of respondents had eating problems, such as nausea and stomach problems,  
26 and 19% reported trouble falling or staying asleep after the pandemic began. Eating problems are  
27 often associated with anxiety (67) and anxious people find it difficult to fall asleep and may wake  
28 up frequently during the night (68). The COVID-19 pandemic has become a significant stressor and  
29 studies in China found that medical professionals reported elevated levels of depression, stress,  
30 anxiety and insomnia (66, 69). Stress and anxiety are linked to fear (27). Fear is a present response  
31 when facing a real or supposed threat, while anxiety is a future response that indicates an  
32 impending danger (25). Anxiety and fear are likely distinct emotional states but often overlap due  
33 to underlying behavioural mechanisms (28).  
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45 The result of the current study found no significant association between anxiety level and gender,  
46 age, experience, country, workplace, or work status was demonstrated in the present study, even  
47 though the countries varied in their readiness and strategies for tackling the new pressures. The  
48 lack of association with age or gender may indicate that the interaction and support level between  
49 different workers was so high and effective during stressful times that it helped to lift people and  
50 homogenize their responses. Likewise, no significant association was found between the fear of  
51 COVID-19 and gender, experience, or country. Nevertheless, in the current study, fear of COVID-  
52 19 was strongly associated with participants from 18-29 years of age and also with  
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4 respondents' work status. A recent study documented that the safety of medical staff during the  
5 pandemic and lack of treatment for COVID-19 were the main factors that induced stress in all  
6 medical staff, with no significant differences between the study groups (70).  
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10 Furthermore, a different review study found that increasing evidence suggests that COVID-19 can  
11 be an independent risk factor for stress among HCPs (71). In the current study, temporary staff  
12 showed a higher level of fear, which might be due to the relatively lower practical experience of  
13 students or the experience of retired workers of being away from work. Therefore, it is suggested  
14 that temporary staff be engaged in expeditious training to update their skills and knowledge. Our  
15 findings accordingly suggest that training in infection control does influence fear, and workers who  
16 attended this type of training had a lower fear score than those who did not. Moreover, training  
17 in stress management helped to prevent and reduce COVID-19 fear, stress and anxiety (49,72).  
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### 26 **Strengths and limitations**

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28 The main strengths of this study were the robust actions taken to document the radiology  
29 response in multiple countries and providing insight into the RWF's health and wellbeing.  
30 Moreover, our ability to assess the impact of the COVID-19 pandemic on radiology practices and  
31 associated factors, such as fear and anxiety, among the RWF provided more insight into the  
32 psychological needs of medical workers to continue providing quality service.  
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38 The study was limited by our inability to capture the underlying reasons for participants' responses  
39 as well as their expectations and ideas for service improvement during future pandemics. We also  
40 acknowledge the existence of differences in social and cultural stress factors across the countries  
41 studied, which likely influenced our findings.  
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### 46 **Conclusions**

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48 It is extremely important to investigate the mental and physical health of HCPs serving in the  
49 MENAIN region to handle the current pandemic and also prepare for potential future pandemic  
50 situations. The results of the current study revealed the status of the RWF in terms of workforce,  
51 fear, stress and anxiety. It was demonstrated that the workload changed in a bipolar way; it  
52 increased by 38% due to pressure on general x-ray and CT scanning as they were the initial and  
53 follow-up investigations for COVID-19 patients, and also decreased by 23% due to adherence to  
54 national and international guidance to minimize non-urgent work. There was adequate availability  
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4 of PPE; however, radiology workers still worried about becoming infected with COVID-19. We  
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6 found that 42.9% of the respondents began to experience work-related stress after the COVID-19  
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8 pandemic began and 57.1% felt that they might need professional help to deal with stress during  
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10 the COVID-19 pandemic.

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12 Fear was associated with workers younger than 30 years of age and also with temporary staff.  
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14 Nevertheless, anxiety occurred completely independently of gender, age, experience, country,  
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16 working environment and work status. Therefore, professional support is needed to reduce or  
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18 prevent fear, stress, and anxiety among HCPs. It is imperative to establish clear directives, initiate  
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20 precautionary measures, provide informed health interventions, obtain support from family and  
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22 increase the productivity of the RWF in preparation for both current and future outbreaks.

### 23 24 **Funding**

25  
26 None

### 27 28 **Declarations of interest:**

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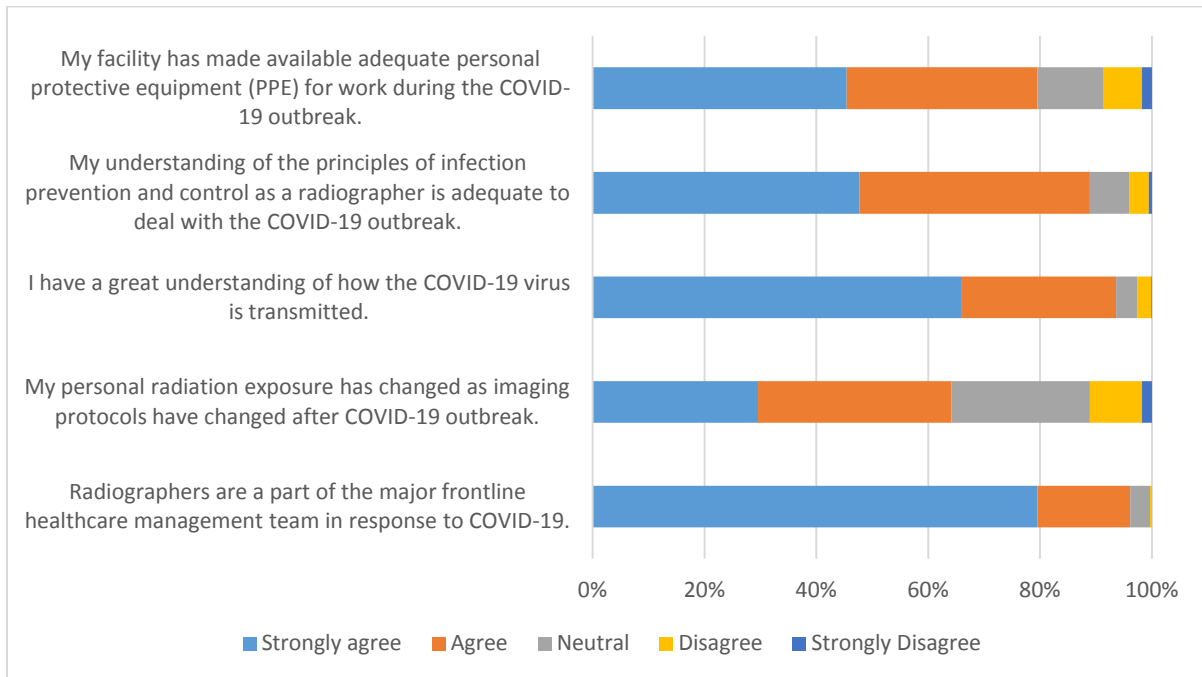


Figure 1: Infection control of COVID-19

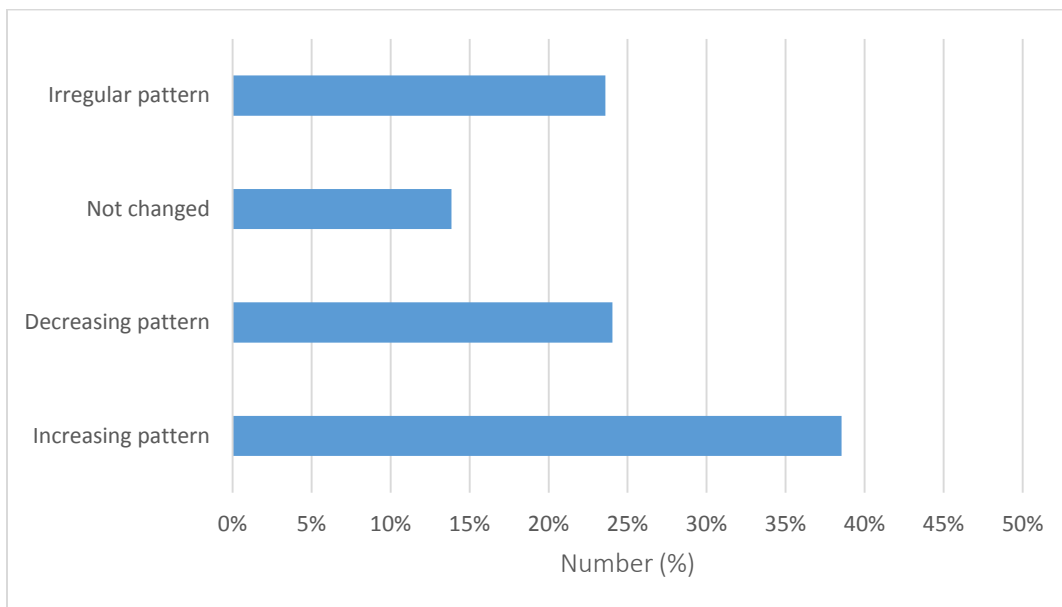


Figure 2: Workload during COVID-19 Pandemic

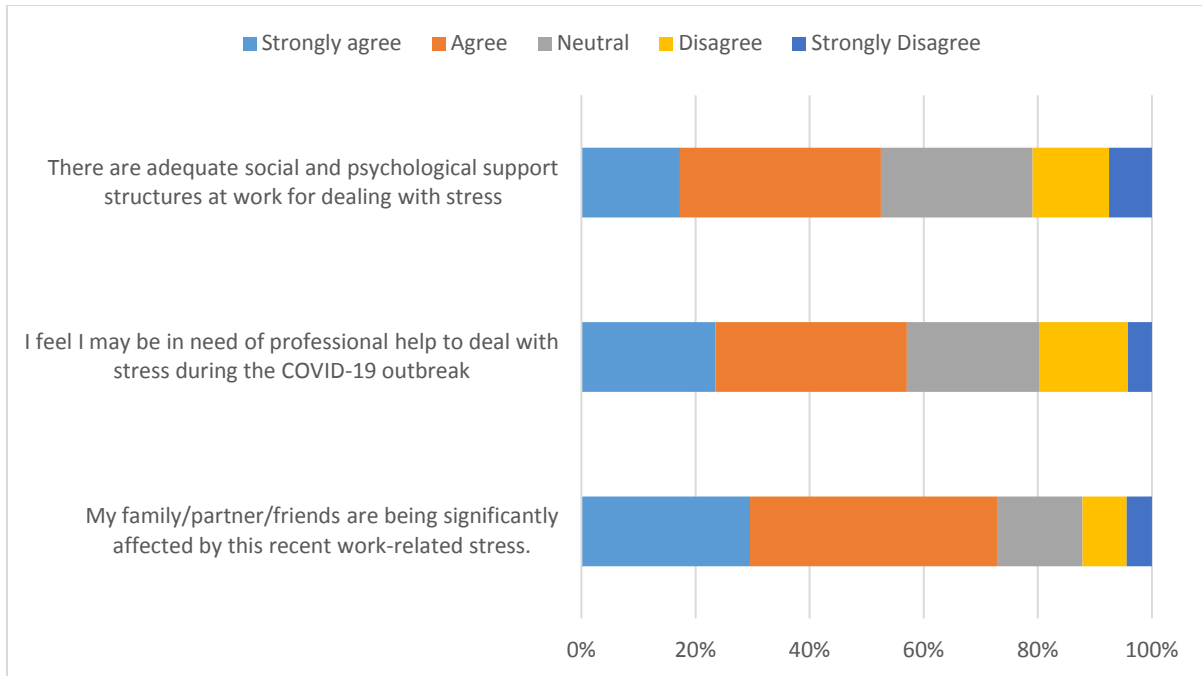


Figure 3: Stress related to COVID-19

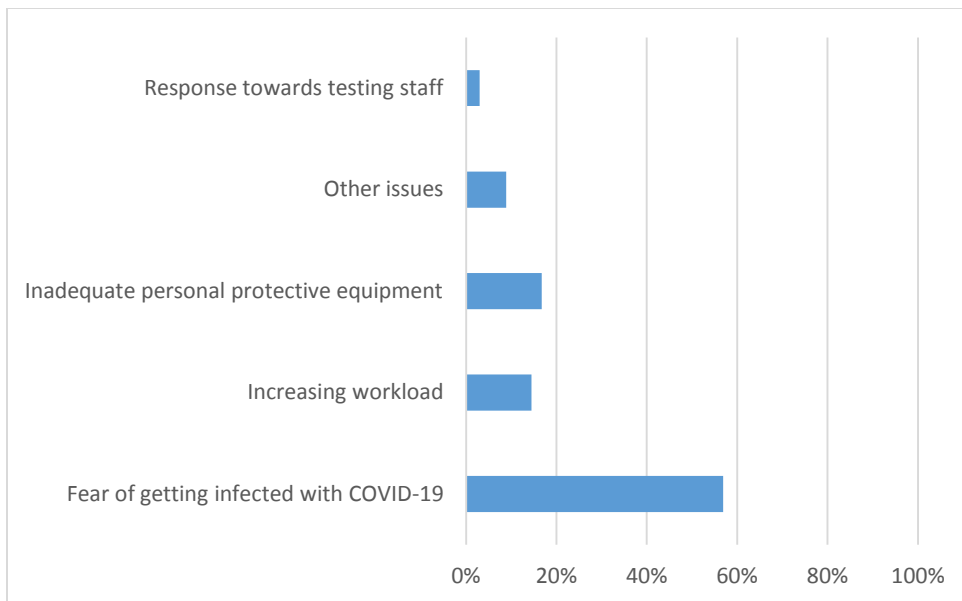


Figure 4: Stressor at work

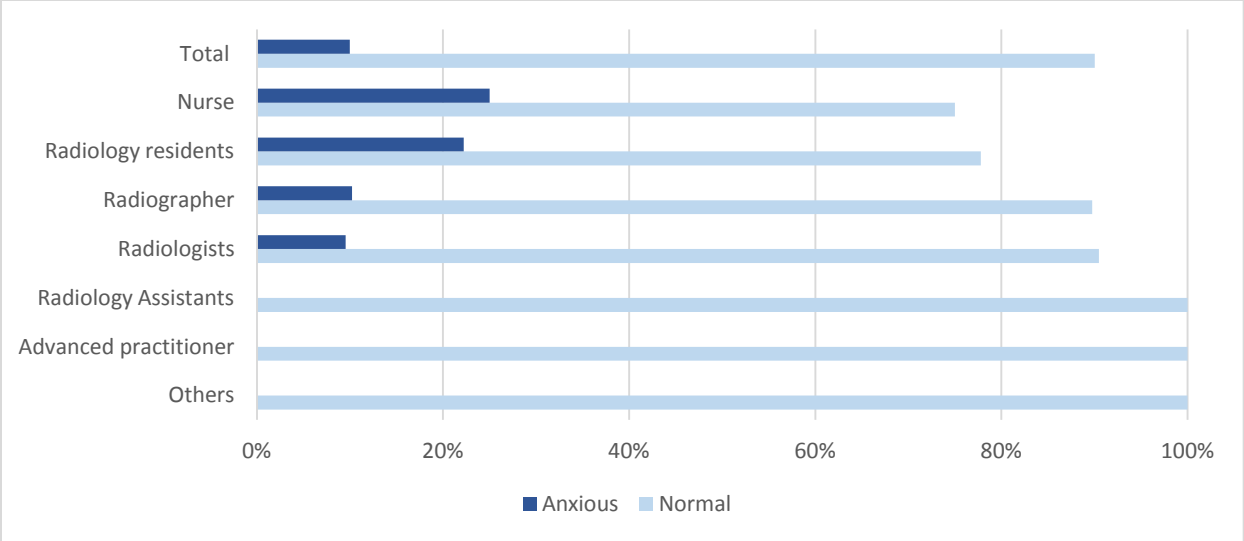


Figure 5: Level of Coronavirus Anxiety among workers.

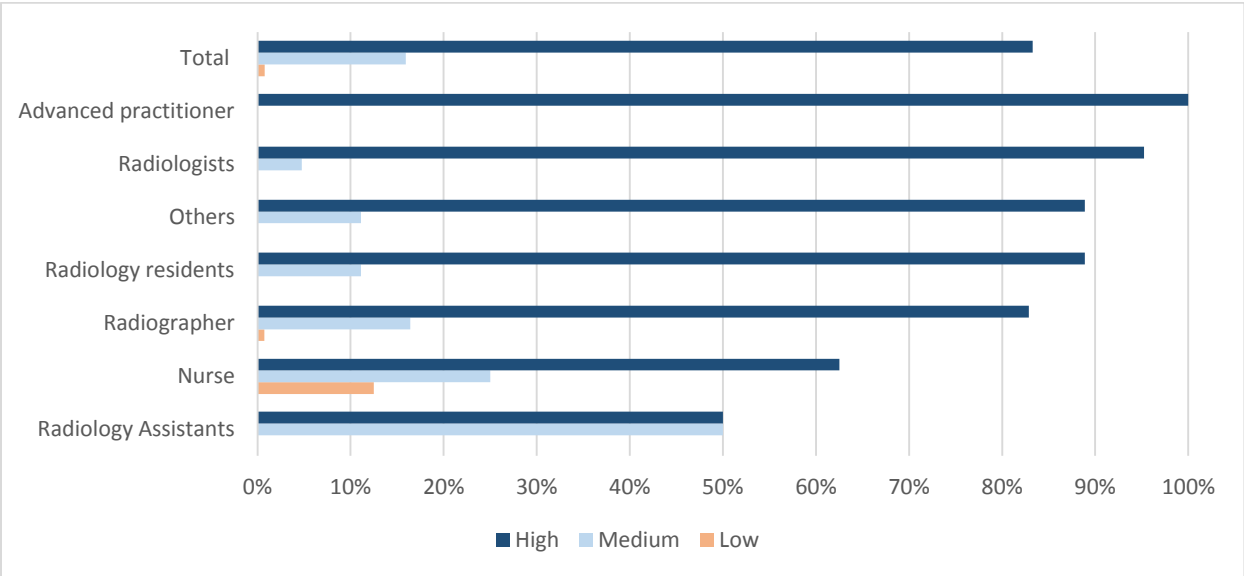


Figure 6: Level of Fear of COVID-19 among workers.

Table 1: Demographic Information

		Count	Column N %
Gender	Female	443	49.1%
	Male	460	50.9%
Age	18 - 29 Years	449	49.7%
	30 - 39 years	252	27.9%
	40 - 49 years	161	17.8%
	50 - 59 years	38	4.2%
	60 years or above	3	0.3%
Experience	Less than 5 years	344	38.1%
	6- 10 years	222	24.6%
	11- 15 years	126	14.0%
	16 - 20 years	99	11.0%
	more than 20 years	112	12.4%
Title	Radiographer	835	92.5%
	Advanced practitioner	13	1.4%
	Radiologists	21	2.3%
	Radiology Assistants	8	0.9%
	Radiology residents	9	1.0%
	Nurse	8	0.9%
	Others	9	1.0%
Workplace	Academic institute	103	11.4%
	Government Hospital	489	54.2%
	Government Clinic	51	5.6%
	Private Hospital	206	22.8%
	Private clinic	34	3.8%
	Research centre	14	1.6%
	Regularity body	2	0.2%
	Consultancy	4	0.4%
Country	United Arab Emirates	144	15.9%
	Oman	59	6.5%
	Kingdom of Saudi Arabia	84	9.3%
	Turkey	237	26.2%
	Sudan	129	14.3%
	Bahrain	62	6.9%
	India	124	13.7%
	Kuwait	40	4.4%
	Jordan	24	2.7%
Work Status	Temporary staff (student)	117	13.0%
	Temporary staff (retired)	81	9.0%
	Permanent staff	705	78.1%

Table 2: Coronavirus Anxiety Scale (CAS).

	Not at all		Rare		Several days		> 7 days		Every day		M	SD
	N	%	N	%	N	%	N	%	N	%		
I felt dizzy, lightheaded, or faint when I read or listened to news about the coronavirus.	526	58.3%	253	28.0%	89	9.9%	18	2.0%	17	1.9%	.61	.9
I had trouble falling or staying asleep because I was thinking about the coronavirus.	481	53.3%	193	21.4%	174	19.3%	42	4.7%	13	1.4%	.80	1.0
I felt paralysed/frozen when I thought about or was exposed to information about the coronavirus.	583	64.6%	179	19.8%	105	11.6%	21	2.3%	15	1.7%	.57	.9
I lost interest in eating when I thought about or was exposed to information about the coronavirus.	569	63.0%	130	14.4%	162	17.9%	24	2.7%	18	2.0%	.66	1.0
I felt nauseous or had stomach problems when I thought about or was exposed to information about the coronavirus.	630	69.8%	101	11.2%	121	13.4%	39	4.3%	12	1.3%	.56	1.0

Table 3: Fear of COVID-19 (FC-19S)

	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		M	SD
	N	%	N	%	N	%	N	%	N	%		
I am most afraid of coronavirus-19.	73	8.1%	185	20.5%	250	27.7%	219	24.3%	176	19.5%	3.3	1.2
It makes me uncomfortable to think about coronavirus-19.	65	7.2%	255	28.2%	198	21.9%	208	23.0%	177	19.6%	3.2	1.2
My hands become clammy when I think about coronavirus-19.	18	2.0%	80	8.9%	236	26.1%	344	38.1%	225	24.9%	3.8	1.0
I am afraid of losing my life because of coronavirus-19.	82	9.1%	122	13.5%	224	24.8%	253	28.0%	222	24.6%	3.5	1.2
When watching news and stories about coronavirus-19 on social media, I become nervous or anxious	44	4.9%	187	20.7%	213	23.6%	247	27.4%	212	23.5%	3.4	1.2
I cannot sleep because I'm worrying about getting coronavirus-19.	29	3.2%	88	9.7%	173	19.2%	342	37.9%	271	30.0%	3.8	1.1
My heart races or palpitates when I think about getting coronavirus-19.	23	2.5%	96	10.6%	179	19.8%	322	35.7%	283	31.3%	3.8	1.1