The Impact of COVID-19 Pandemic on Mental Health of Health Care Workers of Bahrain Defence Force Royal Medical Services

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ABSTRACT

Background: Literature from around the globe shows that Health Care Workers (HCW) on the front line who are exposed to patients with COVID-19, and previously, other viral epidemics, are at risk of developing adverse psychological reactions such as anxiety and depression. The objective of this study is to perform an evidence-based evaluations of the mental health of HCW in Bahrain Defence Force Royal Medical Services (BDFRMS) Hospital with regard to the COVID-19 pandemic.

Methods: A cross-sectional, survey-based study from BDFRMS Hospital. In the study, an online survey was created using two internationally validated diagnostic scales; the 9-item Patient Health Questionnaire (PHQ-9), and the 7-item Generalized Anxiety Disorder Scale (GAD-7), and the survey was distributed among HCWs by electronic messaging via email or phone. The data obtained was used for statistical analysis to identify the symptoms of anxiety, depression and associated risk factors based on mental health diagnostic scales, demographic, clinical, and work-related data.

Results: The prevalence of HCWs experiencing anxiety among the sample in this study was 19.6 % and the prevalence of depression was 20.5 %. The prevalence of GAD was significantly higher among HCW covering on calls/shifts [OR=2.307, 95% CI (1.010, 5.269), P-value=0.046]. The odds of experiencing GAD and/or depression was higher among HCWs with higher exposure to COVID19. The prevalence of GAD and depression was also higher among HCWs who have changed their living circumstances for safety measures and are working away from their families.

Conclusion: HCWs are a vulnerable group to both depression and anxiety, and that was found to be directly proportional to exposure to COVID-19. Stigmatization of mental illness and reluctancy to seek help increase vulnerability of HCWs to adverse psychological reactions. The study recommends increasing the awareness of the importance of mental healthcare in pandemics and estimate the mental health burden of COVID-19 and can further be used to promote the mental well-being among HCW.

Keywords: Depression, Anxiety, COVID-19, Pandemic, Health Care Workers

BACKGROUND

The pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) disease, (COVID-19), which started in China in December 2019 has rapidly spread around the globe[1], Bahrain reported the first COVID-19 case on February 21st 2020[2], and since then the cases are on the rise reaching 2375 cases as of June 1st 2021[3]. Prior to the COVID-19 Pandemic, other adverse psychological effects of viral epidemics such as the 2003 SARS outbreak, were always subject of interest. Current literature from across the world attempted to measure the psychological impact of COVID-19 pandemic on HCWs. Most results showed significant prevalence of anxiety and depression, reaching up to 62.1% and 53.4% for depression and anxiety respectively in one study[4]. And many studied the factors that could alter the susceptibility to negative psychological outcomes, and found multiple risk factors associated with increased prevalence of anxiety and depression such as; female gender, being divorced, lower socioeconomic backgrounds, history of chronic disease, social isolation and burnout, being a nurse or a pulmonologists, being in frontline, lacking sufficient training, and lacking confidence in protection measures[5-7]. Protective factors on the other hand were also identified such as having efficient resources, updated information and adequate protective precautions. [5]

A heroic stereotype and over portrayed self-sacrifice drawn by population and media about HCWs during epidemics and outbreaks usually impose high level of expectations, indirectly increase stigmatization of mental health, and minimize seeking help, that makes this group specifically highly vulnerable to mental disorders[8].

This study aims to perform an evidence-based local evaluations of the mental health of HCW in Bahrain Defence Force Royal Medical

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Services (BDFRMS) Hospital with regard to the COVID-19 pandemic and estimate the mental health burden of COVID-19 locally which can be used to further promote the mental well-being among HCW.

METHODS

Study Design: A cross sectional study, at two timestamps, early in the pandemic in April 2020 and the other in March 2021. Online survey (Appendix 1) was formulated and distributed among health care workers in Bahrain Defense Hospital Royal Medical Services, the survey included consent of participation, along with demographic data (Age, Gender, Nationality, Marital Status, Living Region, Level of education).

The second part of the survey was formulated for general Information about the health care worker, including (job title, specialty, years of experience, coverage of on calls/Shifts, average number of on calls/ shifts, clinic coverage, number of clinic covered, number of wards covered, medical illnesses screen, psychiatric illnesses screen, if present and if any psychiatric help was sought and the type of help, type of modalities utilized to reduce work related stress also obtained, also screened for smoking, drinking, and recreational substances , frequency, duration obtained if present. Number of children if any also obtained.

The third part of the survey was formulated to obtain the covid-19 exposure, if HCW was dealing with Covid-19 cases directly, or handling specimens, or screened due to status suspicion, being part of Covid-19 team, of If diagnosed and what symptoms they acquired, if any family members or close contacts were positive, if critical covid-19 cases were encountered at work or treated by them, having fears or doubts that might be infected accidently during working hours, or have changed living circumstances during the pandemic for safety measures, any arrangements done to work away from the family, or if HCW infected any family members or close contacts accidently.

The fourth and fifth part of the survey included an anxiety scale, and a depression scale -as detailed below- to measure the extent of impact on HCW.

Setting and Participant: The participants in the study are all employees at BDFRMS Hospital. Data collected at two timestamps: early in the pandemic in April 2020, and the other in March 2021. Inclusion Criteria were to be a HCW at BDFRMS, (that include medical staff, such as, nurses, doctors, technicians, pharmacists, and non-medical staff, such as clerks and secretaries), exposure or potential exposure to COVID-19 patients. Survey was sent electronically via email or phone throughout the hospital department, and any HCW who has chosen to complete the survey was included. There were no exclusion criteria set for the study.

Psychological Instruments: The survey was based on two of the internationally validated diagnostic scales: the 9-item Patient Health Questionnaire (PHQ-9) and the 7-item Generalized Anxiety Disorder Scale (GAD-7)[9-12].

Data used for statistical analysis to identify the symptoms of anxiety and depression and associated risk factors based on mental health measurements and demographic data.
PHQ-9 is a nine items scale, to assess depressive symptoms, rated according to the frequency of symptoms experienced over the past two weeks. Each symptom was rated from 0-4 scale, A cutoff of 10 and above was used to identify moderate or severe level of depression. GAD-7 was used, which is a seven items scale, to assess anxiety symptoms over the period of the past two weeks, with a score range from 0-21, using a cutoff point of 10 and above to identify moderate to severe anxiety[13].

GAD-7, has an optimal cutoff point of ≥ 10, with good reliability and validity, has 89% sensitivity and 82% specificity[9,10].

PHQ-9 has an optimal cutoff point of 10, PHQ-9 is valid and reliable tool with the optimal cutoff it has 88% sensitivity and 88% specificity[11,12].

Statistical Analysis: Continuous variables are represented as mean $\pm$ standard deviation and categorical variables as percentages. Categorical variables were analysed using Chi-square test for association or Fisher's Exact test. Pearson's correlation Coefficient was calculated to assess the relationship between the instruments. Odds Ratios were calculated to assess the association between the factors included in the study and the prevalence of general anxiety disorder, and the revalence of depression. P value <0.05 was considered statistically significant. Analyses were performed using SPSS version 25.0.

RESULTS

A total of 224 participants were included in the analysis. The age of the respondents ranged from 20-70 years old, with mean and standard deviation 35.86 $\pm$ 9.199. Majority of the respondents were females (75.4%). Five percent of the respondents reported that they had psychiatric illnesses. The prevalence of HCW experiencing anxiety among the sample was 19.6% (95% CI: (14.7, 25.5) %) and the prevalence of HCW experiencing depression was 20.5% (95% CI: (15.4, 26.4) %). The prevalence of GAD and depression were found to be correlated (ρ=0.785, P-value=<0.01). The severity of Anxiety and depression among the sample in relation to GAD-7 and PHQ-9 showed (55.40%; 54.90%) having mild illness respectively as depicted in Figure 1.

After each instrument (GAD7 and PHQ9), the respondents were asked to what degree did these problems make it difficult for them to do their work, take care of things at home, or get along with other people. Their answers are displayed in Figure 2.

A respondent with GAD-7 scores equal to 10 or higher is considered experiencing Anxiety. A respondent with PHQ-9 score equal to 10 or higher is considered experiencing Depression. The summary of demographic and clinical characteristics stratified by scores is displayed in Table 1.

According to the Chi-square test for association, three of the demographic and clinical characteristics are associated with Depression, namely, the nationality, having a psychiatric illness, and receiving psychiatric help. As for General Anxiety disorder (GAD), having a psychiatric illness was the only variable associated with it. Work related characteristics such as job title and information about shifts and on calls are displayed in Table 2, stratified by scores.

Odds ratios were calculated for the variables significantly associated with the Prevalence of General Anxiety Disorder and with the prevalence of Depression. The odds ratios are shown in Table 4.

The prevalence of GAD was significant among HCW covering on calls/ shifts (OR=2.307, 95% CI (1.010, 5.269), P-value=0.046). the odds of experiencing GAD or/and depression were higher among HCW with higher exposure to COVID19, as shown in table 4. The prevalence of GAD and depression was also higher among HCWs who have changed their living circumstances for safety measures and are working away from their families.
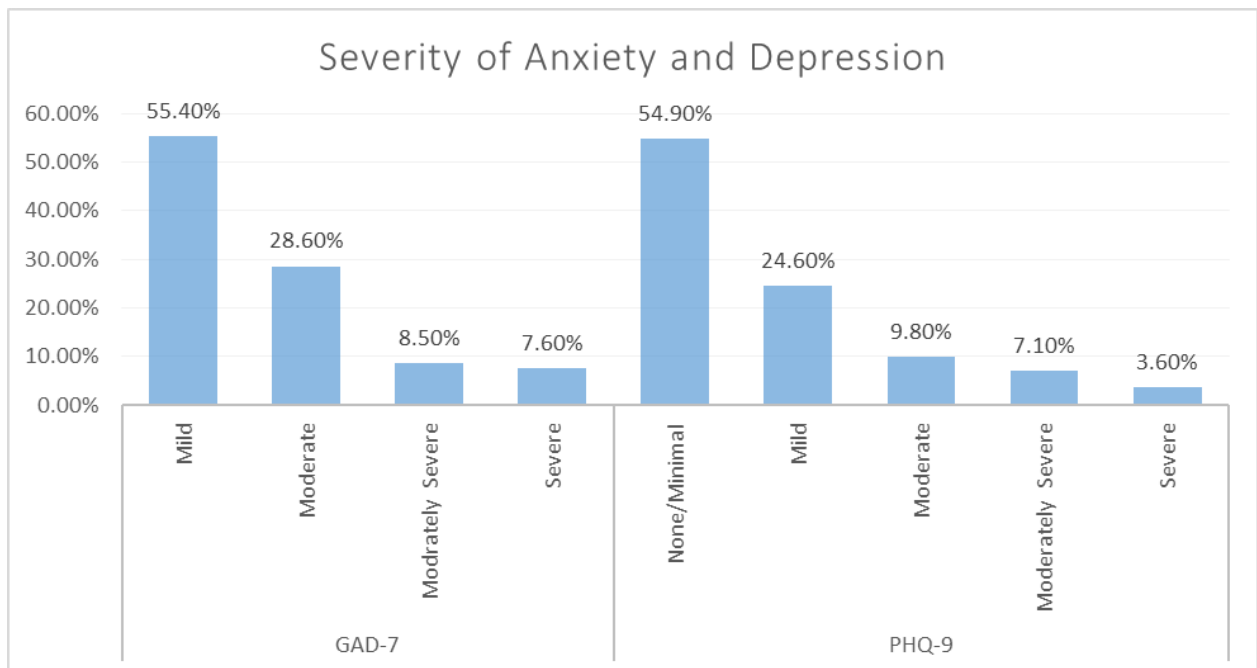
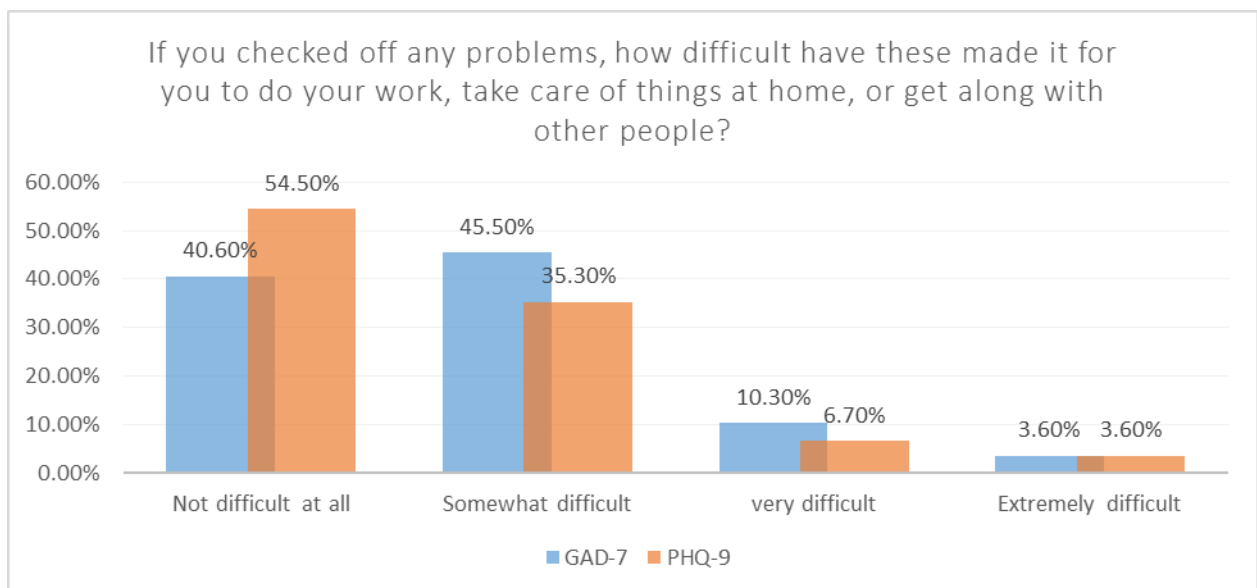**Figure 1:** Severity of Anxiety and depression among the sample

Figure 2: Respondents answer to the degree of difficulty question

DISCUSSION

Consistent with previous studies about COVID-19 impact on the mental health of HCWs, this study showed that HCW are at increased risk of mental disorders. In this study, recorded prevalence of anxiety and depression were 19.6 % and 20.5 % respectfully which is above the normal population before the pandemic, where 1-year prevalence of generalized anxiety disorder ranges from 3 to 8 percent and lifetime prevalence rate for major depression is 5 to 17 percent[14]. While these percentages are with no doubt significant, they could be an under-representation of the real problem as other similar studies showed high levels of depression and anxiety amongst HCW reaching up to 62.1% and 53.4% for depression and anxiety respectively in one study[4].

Demographic and clinical characteristics of participants as shown in the results, revealed majority of the respondents were females (75.4%),

and although higher prevalence of depression and anxiety among females was noted (Table 1), it was not statistically significant. Female gender was linked to increased risk of negative psychological outcomes in multiple studies[5,7,15-18].

Demographic and clinical characteristics of participants also revealed a very minimal number of participants who receive psychiatric help. Only two participants who reported more than 10 cutoff score for both, the GAD-7 and the PHQ-9 are receiving pharmacological help. And only 2 who reported more than 10 cutoff score in the GAD-7, and four who reported more than 10 cutoff score in the PHQ-9 are receiving non-pharmacological help. Professional psychological help was found unpopular amongst healthcare workers in multiple studies, where the majority would opt to endure the distress, solve it without assistance, talk to friends and family, or seek online resources[19]. Underrecognition

Table 1: Demographic and Clinical Characteristics (N (%) or mean ± SD)

Variable		GAD-7		P-value	PHQ-9		P-value
		<10	≥ 10		<10	≥ 10	
Time Stamp	2020	84 (84)	16 (16)	0.186	81 (81)	19 (19)	0.546
	2021	93 (77)	28 (23)		94 (78)	27 (22)	
Nationality	Bahraini	126 (78)	36 (22)	0.116	123 (76)	39 (24)	0.034*
	Non-Bahraini	54 (87)	8 (13)		55 (89)	7 (11)	
Age		36.4 ± 9.4	33.7 ± 8	0.096	36 ± 9.4	34.4 ± 8	0.266
Gender	Male	46 (83.6)	9 (16.4)	0.481	46 (84)	9 (16)	0.378
	Female	134 (79)	35 (21)		132 (78)	37 (22)	
Marital Status	Single	50 (72)	19 (28)	0.125	50 (72)	19 (28)	0.209
	Married	123 (84)	23 (16)		121 (83)	25 (17)	
	Divorced	7 (78)	2 (22)		7 (78)	2 (22)	
Do you have children?	Yes	108 (84)	21 (16)	0.254	107 (83)	22 (17)	0.249
	No	72 (76)	23 (24)		71 (74.7)	24 (25.3)	
how many children do you have?		2 ± 1	2 ± 1	0.859	2 ± 1	2 ± 1	0.733
Any medical illnesses?	Yes	45 (76)	14 (24)	0.348	43 (72.9)	16 (27.1)	0.188
	No	135 (82)	30 (18)		135 (82)	30 (18)	
Do you have any psychiatric illnesses?	Yes	4 (50)	4 (50)	0.05*	3 (37.5)	5 (62.5)	0.01*
	No	176 (81.5)	40 (18.5)		175 (81)	41 (19)	
If yes, specify the psychiatric illness.	Anxiety	3 (42.8)	4 (57.1)	0.165	3 (42.8)	4 (57.1)	0.536
	Depression	1 (20)	4 (80)		1 (20)	4 (80)	
	Bipolar Disorder	1 (100)	0		1 (100)	0	
	Sleeping Disorders	4 (80)	1 (20)		3 (60)	2 (40)	
Do you receive any psychiatric help?	Yes	7 (63.6)	4 (36.4)	0.233	5 (45.5)	6 (54.4)	0.011*
	No	173 (81)	40 (19)		173 (81)	40 (19)	
If yes, specify type of therapy.	Pharmacological	1 (33.3)	2 (66.7)	0.682	1 (33.3)	2 (66.7)	>0.05
	Non-Pharmacological	5 (71.4)	2 (28.6)		3 (42.9)	4 (57.1)	
	Both	1 (100)	0		1 (100)	0	
Any modalities utilised to reduce stress?	Yes	95 (76.6)	29 (23.4)	0.130	96 (77.4)	28 (22.6)	0.412
	No	85 (85)	15 (15)		82 (82)	18 (18)	
Are you a smoker?	Yes	13 (76.5)	4 (23.5)	0.750	12 (70.6)	5 (29.4)	0.353
	No	167 (81)	40 (19)		166 (80)	41 (20)	
how often do you smoke?	Sometimes	4 (100)	0	0.262	3 (75)	1 (25)	0.754
	Frequently	2 (100)	0		1 (50)	1 (50)	
	Daily	5 (55.6)	4 (44.4)		7 (77.8)	2 (22.2)	
how long is your usage of smoking?	1-2 years	3 (100)	0	0.307	2 (66.7)	1 (33.3)	>0.05
	3-4 years	4 (100)	0		3 (75)	1 (25)	
	> 4 years	6 (60)	4 (40)		8 (80)	2 (20)	
Do you drink alcohol?	Yes	9 (90)	1 (10)	0.691	8 (80)	2 (20)	>0.05
	No	171 (79.9)	43 (20.1)		170 (79)	44 (21)	
how often do you drink alcohol?	Occasional	3 (75)	1 (25)	>0.05	4 (100)	0	0.467
	Social	3 (100)	0		2 (66.7)	1 (33.3)	
	Sometimes	3 (100)	0		2 (66.7)	1 (33.3)	
If yes, how long is your usage of alcohol?	Less than 1 year	2 (100)	0	>0.05	2 (100)	0	0.200
	1-2 years	3 (100)	0		1 (33.3)	2 (66.7)	
	3-4 years	1 (100)	0		1 (100)	0	
	> 4 years	3 (75)	1 (25)		4 (100)	0	
Do you use any recreational substances?	Yes	6 (100)	0	0.601	4 (66.7)	2 (33.3)	0.605
	No	174 (79.8)	44 (20.2)		174 (79.8)	44 (20.2)	
How often do you use recreational substances?	Frequently	1 (100)	0	-	1 (100)	0	>0.05
	Social	1 (100)	0		0	1 (100)	
	Sometimes	3 (100)	0		2 (66.7)	1 (33.3)	
	Occasional	1 (100)	0		1 (100)	0	
If yes, how long is your usage of recreational substances?	Less than 1 year	3 (100)	0	-	2 (66.7)	1 (33.3)	>0.05
	3-4 years	1 (100)	0		0	1 (100)	
	> 4 years	1 (100)	0		1 (100)	0	

* P-value less than 0.05.

The Impact of COVID-19 Pandemic on Mental Health of Health Care Workers (HCW) of Bahrain Defence Force Royal Medical Services (BDFRMS)

Table 2: Work related characteristics stratified by the scores (N (%) or mean ± SD)

Variable		GAD-7		P-value	PHQ-9		P-value
		<10	≥ 10		<10	≥ 10	
Job Title	Non-Medical	27 (93.1)	2 (6.9)		26 (89.7)	3 (10.3)	
	Technician	8 (72.7)	3 (27.3)		8 (72.7)	3 (27.3)	
	Specialist	25 (78.1)	7 (21.9)		28 (87.5)	4 (12.5)	
	Nurse	68 (81.9)	15 (18.1)	0.386	63 (75.9)	20 (24.1)	0.378
	Intern	10 (83.3)	2 (16.7)		11 (91.7)	1 (8.3)	
	Resident	33 (71.7)	13 (28.3)		34 (73.9)	12 (26.1)	
	Consultant	9 (81.8)	2 (18.2)		8 (72.7)	3 (27.3)	
Years of Experience		11.9 ± 8	10.2 ± 7	0.219	11.6 ± 8	11.3 ± 8	0.844
Do you cover on calls/shifts?	Yes	119 (76.8)	36 (23.2)	0.046*	118 (76.1)	37 (23.9)	0.074
	No	61 (88.4)	8 (11.6)		60 (87)	9 (13)	
How many average on calls/shifts per month.		10.7 ± 7	10.9 ± 6	0.851	10.7 ± 7	10.9 ± 7	0.924
What is the duration of your on call/shift?		13.3 ± 8	14.3 ± 9	0.530	13.2 ± 8	14.5 ± 8	0.393

* Significant at the 0.05 level.
Covering on calls or shifts was found to be significantly associated with (GAD). COVID-19 exposure related characteristics are displayed in Table 3.

Table 3: COVID-19 exposure related characteristics, stratified by score (N (%))

Variable		GAD-7		P-value	PHQ-9		P-value
		<10	≥ 10		<10	≥ 10	
Do you work with COVID cases directly?	Y	51 (66.2)	26 (33.8)	<0.01**	49 (63.6)	28 (36.4)	<0.01**
	N	129 (88)	18 (12)		129 (88)	18 (12)	
Do you handle specimens of COVID19 cases?	Y	36 (96.2)	16 (30.8)	0.028*	30 (57.7)	22 (42.3)	<0.01**
	N	144 (84)	28 (16)		148 (86)	24 (14)	
Are you treating or part of team treating patients with COVID19?	Y	55 (70.5)	23 (29.5)	0.008**	51 (65.4)	27 (34.6)	<0.01**
	N	125 (86)	21 (14)		127 (87)	19 (13)	
Have you encountered or took part of treating any critical COVID19 cases?	Y	24 (68.6)	11 (31.4)	0.066	20 (57.1)	15 (42.9)	0.001**
	N	156 (82)	33 (18)		158 (84)	31 (16)	
Screened for COVID19, due to status suspicion?	Y	138 (78)	40 (22)	0.038*	137 (77)	41 (23)	0.100
	N	42 (91.3)	4 (8.7)		41 (89.1)	5 (10.9)	
Diagnosed lately with COVID19?	Y	12 (92.3)	1 (7.7)	0.472	10 (76.9)	3 (23.1)	0.733
	N	168 (80)	43 (20)		168 (80)	43 (20)	
Any family members or close contacts has positive COVID?	Y	34 (81)	8 (19)	>0.05	30 (71.4)	12 (28.6)	0.202
	N	146 (80)	36 (20)		148 (81)	34 (19)	
Have you infected any family member or close contact accidentally with COVID19?	Y	14 (93.3)	1 (6.7)	0.314	13 (86.7)	2 (13.3)	0.742
	N	166 (79)	43 (21)		165 (79)	44 (21)	
Do you fear or doubt that you might be infected accidentally during working hours?	Y	127 (76)	40 (24)	0.006**	130 (78)	37 (22)	0.347
	N	53 (93)	4 (7)		48 (84.2)	9 (15.8)	
Do you fear or overthink the possibility that you might infect any close contact with COVID19?	Y	117 (74)	40 (26)	<0.01**	118 (75)	39 (25)	0.018*
	N	63 (94)	4 (6)		60 (89.6)	7 (10.4)	
Do you have to work away from your family at the current pandemic?	Y	57 (70.4)	24 (29.6)	0.008**	53 (65.4)	28 (34.6)	<0.01**
	N	123 (86)	20 (14)		125 (87)	18 (13)	
Have you changed your living circumstances during the pandemic for safety measures?	Y	126 (77)	38 (23)	0.036*	123 (75)	41 (25)	0.005**
	N	54 (90)	6 (10)		55 (91.7)	5 (8.3)	

* Significant at the 0.01 level.
** Significant at the 0.05 level.

Table 4: Odds Ratio for Variables significantly associated with the scores (OR (95% Confidence Interval)

Variable		GAD-7	PHQ-9
Nationality	Non-Bahraini	Ref.	Ref.
	Bahraini	1.929 (0.841, 4.422)	2.491 (1.049, 5.917) *
Do you have any psychiatric illnesses?	No	Ref.	Ref.
	Yes	4.400 (1.055, 18.346) *	7.114 (1.63, 30.977) **
Do you receive any psychiatric help?	No	Ref.	Ref.
	Yes	2.471 (0.690, 8.851)	5.190 (1.508, 17.856) *
Do you cover on calls/shifts?	No	Ref.	Ref.
	Yes	2.307 (1.010, 5.269) *	2.090 (0.947, 4.615)
Do you work with COVID cases directly?	No	Ref.	Ref.
	Yes	3.654 (1.846, 7.232) **	4.095 (2.080, 8.062) **
Do you handle specimens of COVID19 cases?	No	Ref.	Ref.
	Yes	2.286 (1.119, 4.671) *	4.522 (2.248 9.098) **
Are you treating or part of team treating patients with COVID19?	No	Ref.	Ref.
	Yes	2.489 (1.272, 4.870) **	3.539 (1.809, 6.921) **
Have you encountered or took part of treating any critical COVID19 cases?	No	Ref.	Ref.
	Yes	2.167 (0.967, 4.853)	3.823 (1.766, 8.275) **
Screened for COVID19, due to status suspicion?	No	Ref.	Ref.
	Yes	3.043 (1.029, 9.001) *	2.454 (0.910, 6.616)
Do you fear or doubt that you might be infected accidentally during working hours?	No	Ref.	Ref.
	Yes	4.173 (1.42, 12.247) **	1.518 (0.682, 3.379)
Do you fear or overthink the possibility that you might infect any close contact with COVID19?	No	Ref.	Ref.
	Yes	5.385 (1.84, 15.737) **	2.833 (1.196, 6.711) *
Do you have to work away from your family at the current pandemic?	No	Ref.	Ref.
	Yes	2.589 (1.323, 5.067) **	3.669 (1.870, 7.196) **
Have you changed your living circumstances during the pandemic for safety measures?	No	Ref.	Ref.
	Yes	2.714 (1.084, 6.798) *	3.667 (1.374, 9.783) **

* Significant at the 0.01 level.
**Significant at the 0.05 level.

of the benefits of professional psychological help may be due work culture, concerns about stigma or being seen as weak[19]. Recent study to measure the psychological impact of COVID-19 on HCW revealed that 35.5% of its participants reported stigmatization incidents, which is an important facet of mental illness[15]. Therefore, mental stigma among HCW should be taken into consideration especially when we provide psychological support, physicians might show reluctance in participation in psychological interventions, and some would show concern over their confidentiality, that leads to overall less participation[17].

The most important work-related characteristic that had significant correlation with GAD was covering on calls/shifts, which needs adapting to the shiftwork schedule or long working hours, and may cause sleep insufficiency which is linked to higher rates of depression and anxiety[20].
Work-related characteristic also showed that nursing staff were the majority of participants comprising 37.0% of sample size. While not shown to be correlated with high risk of anxiety and depression in this study, other studies show that nursing group showed highest rates of depression and was at increased risk of anxiety and depression[5,21,22].

Finally, COVID-19 exposure related characteristics, showed significant relation to the incidence of both GAD and depression with working with covid cases directly, handling specimens and being a front-line worker by treating COVID-19 cases. Other factors including fear of infecting close contacts, working away from family and changing living circumstances were also shown to be correlated to both depression and GAD. Similar findings in other studies showed that the major concerns amongst health care workers were the level of exposure to COVID-19 at work, the worry of contracting the disease and potentially transmitting it to loved ones and living away from their families where they lacked proper communication and social support[7,9,23].

Sleep is an important factor of metal health. In this study, the aspect of sleep was not screened for directly, rather it is one of the items checked in both psychological instruments used in the survey. Future research can focus on measuring the sleep status of HCW or the effect of psychological interventions to improve it.

Other than insomnia, Post Traumatic Stress Syndrome (PTSD) and Covid related traumatic experiences were not screened for in this study, likewise allowing a room for further studies. A cross sectional study conducted in China to measure the acute psychological effects of COVID-19, showed a prevalence of 9.8 % PTSD among health care workers[6]. In another study, 53.8% of participants showed symptoms of PTSD where COVID-related traumatic experiences were very common[24].

Finally, important contributing factors that should not be overlooked are the personality traits, which are proven to affect the individual experience to stress, and the regulations of emotions towards stressful events. In some studies neuroticism traits were shown to influence HCW during previous outbreaks like SARS as individuals with neuroticism are more likely to experience more stress, anxiety, and depression[25]. Additionally, it is important when determining risk level or implementing interventions, to explore the underlying organizational and collegial factors and their effect on workers' mental health. This

can reveal effective interventions such as the provision of needed PPE, enabling the work from home, or utilizing telemedicine platforms that can directly benefit the mental health of healthcare workers[19,26].

LIMITATIONS

1. Sample size was affected by the reluctancy in participation among HCWs due to perceived stigmatization, despite the study design being an online survey that is contactless and ensuring the anonymity of data collected. The sample size could alter the significance of some risk factors and is considered a limitation in drawing associations between all risk factors and developing depression and anxiety.
2. Lack of a baseline data of psychological distress in HCW to compare with the general population before the pandemic.
3. Common causes of psychological distress like lockdowns, media exposure, and the overload of scientific information that sometimes are contradictory in nature causing negative impact in both HCWs and general population are not studied here, which can have a significant negative association with mental health[18,26].

CONCLUSION AND RECOMMENDATIONS

In this study, HCW in BDFRMS was found to be at increased risk of mental disorders, with recorded prevalence of anxiety and depression of 19.6 % and 20.5 % respectfully, which is above the normal population before the pandemic. The prevalence of GAD was found to be significantly higher among HCW covering on calls/shifts, and the odds of experiencing GAD and/or depression was higher among HCW with higher exposure to COVID-19, HCWs who have changed their living circumstances like living away from their families.

This study aims to increase the awareness of the importance of mental healthcare in pandemics and encourage the policymakers to include mental healthcare providers in any COVID-19 taskforce, where psychological screening, psychological counselling, support, and actual psychiatric interventions both pharmacological and non-pharmacological can be provided early as needed.

Future studies could explore protective factors, and the long-term implications of epidemics such as burnout, sleep disorders, and PTSD.

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