Mental health status among Health Care Workers in Primary care exposed to COVID-19 pandemic in North Batinah, Oman

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Abstract

Background

The ongoing COVID-19 pandemic is causing an enormous strain on healthcare providers worldwide, from general practitioners to physicians and pharmacists. Health Care Worker (HCW) in primary care is the first line defender in the community. The disease impact is being felt both by those who care directly for COVID patients and those who practice in the community.

Methods

A questionnaire-based cross-sectional study was conducted in primary care/ Health centers in the North Batinah region of Oman to assess healthcare workers' psychological responses and related factors during the Covid-19 outbreak. All doctors and nurses working in primary health care services were invited to participate in the study by filling in the study questionnaire. An electronic survey link was sent out via email. Statistical analysis was performed using SPSS (IBM SPSS Statistics 24.0).

Result

About 67% of study participants were age 30-40, 76.5% were female, 95.4% were married, and 74.8% lived with spouse and children. More than one quarter (26.5%) were GP's, 63.9% nurses, and 9.7% were in family practice. More than two-thirds of HCW had no stress. Overall existence of anxiety was found significantly different among health care professionals (p-0.007). More than half of the health care professionals reported no depression. Female staff anxiety level was significantly higher than male staff (P-0.008). In general, depression prevalence was observed higher in female staff than male ones. However, no significant gender difference was observed.

Conclusion
HCWs who work in the frontline during the COVID-19 pandemic are at high risk for developing mental health issues and an effect on physical health. Their mental well-being is crucial for sustainable health care services in primary care. The issue of psychological problems during the Covid-19 outbreak global disaster needs special attention.
Keywords
COVID 19 pandemic, primary care, health care workers, mental health, stress, anxiety, depression

1. Introduction

The novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes coronavirus disease 2019 (COVID-19), has resulted in a global pandemic. COVID-19 was identified as the cause of a cluster of pneumonia in December 2019 among the population, health care workers, and other patients' contacts (2020). The spread is human-to-human transmission has been confirmed and recognized that symptomatic and asymptomatic individuals during the incubation period could transmit the disease. The fast and rapid transmission of the disease with high morbidity and associated deaths leads to anxiety and stress in the community and health care workers (HCW) (Wang et al., 2020).

The ongoing COVID-19 pandemic places an enormous strain on healthcare providers worldwide, from general practitioners to emergency physicians and pharmacists. HCW in primary care is the first-line defender in the community (Kang et al., 2020). Both those who care directly for COVID patients and those whose practice has been disrupted because of stringent lockdowns and increased demand from other parts of health services feel the disease's impact. The HCW has a fear of transmission of COVID to their families, concerns about self's health, which gives high anxiety working under extreme pressures (Brooks et al., 2018, Brooks et al., 2020).

Moreover, HCW is working in isolation, and they have very little communication and interaction with other workers, which may enhance anxiety and stress. They have a high risk of infection and working load, isolation working away from their families, aggravates the problem (Chen et al., 2006). This stress can be reduced by talking to someone about their experiences, discussing their work's emotional and physical challenges, and sharing their concerns with other colleagues. We can use social media for support groups (Su et al., 2007, Wiseman et al., 2015). This COVID 19 pandemic was very rapid, so there was little time for preparation and training for HCW; therefore, providing adequate on-the-job training is mandatory for all might relieve stress and increase confidence (Giorgi et al., 2020, Liang et al., 2020).

HCWs who work in the frontline during the COVID-19 pandemic are at high risk for developing mental health issues and an effect on physical health. Their mental well-being is crucial for sustainable health care services in primary care (Shanafelt et al., 2020). There is little evidence of how severe the issue of psychological problems of healthcare workers facing this global disaster. Therefore, there is a need for prospective and systematic research to understand the psychological effects of the Covid-19 outbreak on healthcare workers.

The main purpose of this study was to assess health care worker's anxiety and stress during the current COVID-2019 pandemic in North Batinah primary care Oman and to explore potential factors that could affect the stress and anxiety among HCW, which ultimately will help us to strengthen preparation to improve their mental well-being.

2. Methodology

2.1 Research Design

A questionnaire-based cross-sectional study was conducted in primary care/ Health centers in the North Batinah region of Oman to assess healthcare workers' psychological responses and related factors during the Covid-19 outbreak.

2.2 Research Ethics

A favorable ethical approval from the regional Research Review Committee was obtained. Prior to conducting the survey, the study's purpose was explained at the beginning of the electronic survey. The respondents were given the opportunity to ask questions via a dedicated email address for the survey.

2.3 Study Participants

All doctors and nurses working in primary health care services were invited to participate in the study by filling in the study questionnaire. An electronic survey link was sent out via email.

2.3 Study Questionnaire

An online questionnaire was used to minimize face-to-face interactions and facilitate the participation of healthcare workers who work extensively during this emergency period to assess healthcare workers' psychological responses and related factors during the Covid-19 outbreak. The administrative time for the filling was about 20 minutes.

The study questionnaire consists of two parts. The first part includes personal and working characteristics and sociodemographic. The second part is the Depression Anxiety Stress Scale (DASS) 21 is a self-report tool containing 21 items that assess three constructs: Depression, Anxiety, and Stress (Henry and Crawford, 2005, Lovibond and Lovibond, 1995).

The predesigned self-administered questionnaire was used; sociodemographic data were collected includes age, gender, marital status, specialties, number of children, the composition of the household, comorbid medical diseases, history of mental disorders, smoking status, and time spent daily on social media since the outbreak. Participants were also asked whether they have ever diagnosed with Covid-19 so far.

The Depression Anxiety Stress Scale (DASS) 21 is a self-report tool containing 21 items that assess three constructs: Depression, Anxiety, and Stress (Lovibond and Lovibond, 1995). Each subscale includes seven statements. Items consist of information referring to the previous week; respondents are asked to read these statements and rate the negative emotions' frequency. Ratings were made on a series of 4-point Likert-type scales from 0 (did not apply to me at all/ never) to 3 (applied to me very much/ always). Higher scores indicate more severe emotional distress.

2.4 Data Analysis

Statistical analysis was performed using SPSS (IBM SPSS Statistics 24.0). Data were expressed in frequencies for questionnaire responses for all variables in numbers and percentages. Cross tabulation was performed to determine if there is a relationship between subgroups. Chi-square tests are used for comparative analysis.

3. Results

About 67% of study participants were age 30-40, 76.5% were female, 95.4% were married, and 74.8% lived with spouse and children. More than one quarter (26.5%) were GP's, 63.9% nurses, and 9.7% were in family practice. A majority (89.3%) had no lifetime psychiatric disorder, 72.7% had had no current medical condition, and 18.4% had positive results of covid-19 antigen test (Table 1).

Table 1. Medical staff demographics

Characteristic	Value-n (%)
Age in years	
<30	23 (7)
30-40	219 (67)
41-50	71 (21.7)
>50	14 (4.3)
Gender	
Female	250 (76.5)
Male	77 (23.5)
Speciality	
Family Practice	31 (9.7)
Nurse	205 (63.9)
Family Physicians	85 (26.5)
Marital status	
Married	308 (95.4)
Single	15 (4.6)
House Hold	
Living with spouse and children	243 (74.8)
Living alone	34 (10.5)
Living with others	33 (10.2)
Living with parents	15 (4.6)
Smoking status	
No	316 (96.9)
Yes	10 (3.1)
Any life time psychiatric disorder	
No	292 (89.3)

Yes	11 (3.4)
May be	24 (7.3)
Any medical condition	
No	237 (72.7)
Yes	82 (25.2)
May be	7 (2.1)
Have COVID 19 +ve test	
No	266 (81.6)
Yes	60 (18.4)
Pattern of working	
Day time	108 (33)
Both day and evening	215 (65.7)
Evening	4 (1.3)
Time spend on social media	
<4 hours	196 (60.1)
4-6 hours	78 (23.9)
6-8 hours	25 (7.7)
>8 hours	27 (8.3)

Study participants were asked about their experience regarding support (PPE, working condition, and environment). Their answers were coded as not satisfactory, fair, good, and excellent. More than half (57%) believed that working condition and availability of PPE was good (Figure1).

Figure 1. Health Care Professionals experience regarding support (PPE, working condition and environment)
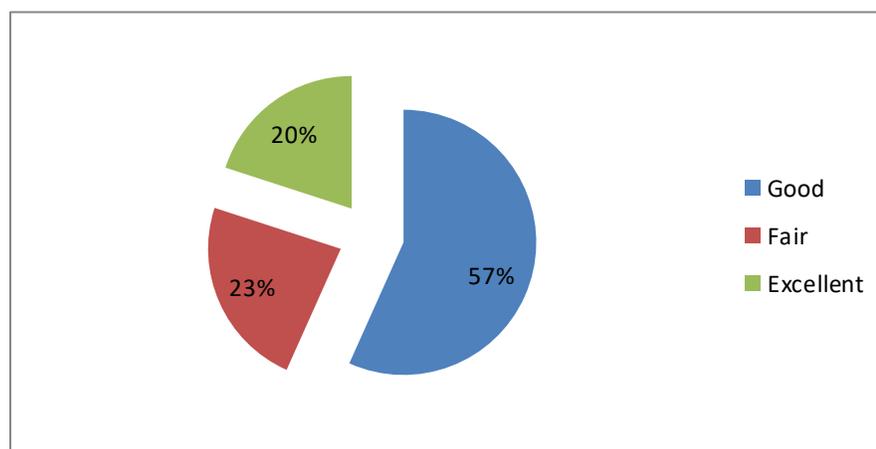
The emotions of the health care professionals from the different specialties are shown in Table 2. The DASS-21 self-report scales were used to measure the emotional states of depression, anxiety, and stress. The chi-squared test showed that differences in responses related to stress, anxiety, and

depression. More than two-thirds of HCW had no stress. Overall existence of anxiety was found significantly different among health care professionals (p-0.007). More than half of the health care professionals reported no depression.

Table 2. HCW feeling during COVID-19 outbreak

	Family Practice	Nurse	GP	Total	p-value
Stress					
Normal	23 (74.2)	144 (70.2)	68 (80)	235 (73.2)	
Mild	1 (3.2)	36 (17.6)	9 (10.6)	46 (14.3)	0.193
Moderate	4 (12.9)	13 (6.3)	6 (7.1)	23 (7.2)	
Severe	2 (6.5)	10 (4.9)	2 (2.4)	14 (4.4)	
Extremely Severe	1 (3.2)	2 (1)	0	3 (0.9)	
Anxiety					
Normal	12 (38.7)	64 (31.2)	47 (55.3)	123 (38.3)	
Mild	6 (19.4)	30 (14.6)	7 (8.2)	43 (13.4)	0.007
Moderate	5 (16.1)	63 (30.7)	19 (22.4)	87 (27.1)	
Severe	6 (19.4)	23 (11.2)	4 (4.7)	33 (10.3)	
Extremely Severe	2 (6.5)	25 (12.2)	8 (9.4)	35 (10.9)	
Depression					
Normal	20 (64.5)	108 (52.7)	58 (68.2)	186 (57.9)	
Mild	5 (16.1)	33 (16.1)	7 (8.2)	45 (14)	0.225
Moderate	5 (16.1)	48 (23.4)	16 (18.8)	69 (21.5)	
Severe	0	10 (4.9)	4 (4.7)	14 (4.4)	
Extremely Severe	1 (3.2)	6 (2.9)	0	7 (2.2)	

The study population was divided into four age-groups (Table 3). The main factors associated with age were stress (P<0.001) and depression (P<0.001). The medical staff below the forty-year age group were more stressed about infecting themselves and their families than other age groups. Similarly, the team below the forty-year age group experienced more anxiety and depression than older age groups.

Table 3. HCW feeling during COVID-19 with different ages

	<30	30-40	41-50	>50	Total	p-value
Stress						
Normal	16 (69.9)	148 (67.7)	64 (90.1)	12 (92.3)	240 (73.4)	
Mild	3 (13)	38 (17.4)	6 (8.5)	0	47 (14.4)	
Moderate	2 (8.7)	20 (9.1)	0	1 (7.7)	23 (7)	<0.001
Severe	2 (8.7)	12 (5.5)	0	0	14 (4.3)	
Extremely	0	1 (0.5)	1 (1.4)	0	3 (0.9)	

Severe						
Anxiety						
Normal	7 (30.4)	76 (34.7)	32 (45.1)	9 (69.2)	124 (37.9)	
Mild	3 (13)	27 (12.3)	13 (18.3)	0	43 (13.1)	
Moderate	5 (21.7)	65 (29.7)	16 (22.5)	3 (23.1)	89 (27.2)	0.074
Severe	5 (21.7)	26 (11.9)	4 (5.6)	1 (7.7)	36 (11)	
Extremely Severe	3 (13)	25 (11.4)	6 (8.5)	0	35 (10.7)	
Depression						
Normal	12 (52.2)	114 (52.1)	51 (71.8)	10 (76.9)	187 (57.2)	
Mild	5 (21.7)	34 (15.5)	9 (12.7)	2 (15.4)	50 (15.3)	
Moderate	4 (17.4)	57 (26)	7 (9.9)	1 (7.7)	69 (21.1)	<0.001
Severe	1 (4.3)	10 (4.6)	3 (4.2)	0	14 (4.3)	
Extremely Severe	1 (4.3)	4 (1.8)	1 (1.4)	0	7 (2.1)	

Table 3 shows differences in HCW feeling during the COVID-19 outbreak from the sexual perspective. The family's safety was the most significant impact in reducing staff stress, though there was no significant difference in different genders. However, the female staff anxiety level was significantly higher than male staff (P-0.008). In general, depression prevalence was observed higher in female staff than male ones.

Table 4. HCW feeling during COVID-19 outbreak between genders

	Female	Male	Total	p-value
Stress				
Normal	174 (69.6)	66 (85.7)	240 (73.4)	
Mild	40 (16)	7 (9.1)	47 (14.4)	
Moderate	22 (8.8)	1 (1.3)	23 (7)	0.046
Severe	11(4.4)	3 (3.9)	14 (4.3)	
Extremely Severe	3 (1.2)	0	3 (0.9)	
Anxiety				
Normal	82 (32.8)	42 (54.4)	124 (37.9)	
Mild	34 (13.6)	9 (11.7)	43 (13.1)	
Moderate	73 (29.2)	16 (20.8)	89 (27.2)	0.008
Severe	33 (13.2)	3 (3.9)	36 (11)	
Extremely Severe	28 (11.2)	7 (9.1)	35 (10.7)	
Depression				
Normal	137 (54.8)	50 (64.9)	187 (57.2)	0.275
Mild	42 (16.8)	8 (10.4)	50 (15.3)	

Moderate	54 (21.6)	15 (19.5)	69 (21.1)
Severe	10 (4)	4 (5.2)	14 (4.3)
Extremely Severe	7 (2.8)	0	7 (2.1)

Table 5 provides insights into the personal coping strategies used by the different professional groups of the medical staff. In the questionnaire, HCW were asked multiple questions regarding coping strategies using options yes and no. More than half (61.2%) of the participants believe that talking to family members or spending time with friends helps them. Half (52.9%) of study participants agreed that good Sleep helped them relax and cope with the current pandemic situation.

Table 5. Personal coping strategies used by health care professionals

	Family Physician (n-31)	Nurses (n-205)	General Practition er (n-85)	P value
I go in Denial				0.48
No	29 (93.5)	194 (94.6)	83 (97.6)	
Yes	2 (6.5)	11 (5.4)	2 (2.4)	
Try to disengage/isolate from environment				0.59
No	25 (80.6)	179 (87.3)	73 (85.9)	
Yes	6 (19.4)	26 (12.7)	12 (14.1)	
I predict and accept the stress as a challenge				0.87
No	26 (83.9)	174 (84.9)	74 (87.1)	
Yes	5 (16.1)	31 (15.1)	11 (12.9)	
Talking to family members/Spending time with friends helps me				0.81
No	14 (45.2)	81 (39.5)	33 (38.8)	
Yes	17 (54.8)	124 (60.5)	52 (61.2)	
Good Sleep relaxes me				0.62
No	14 (45.2)	84 (41)	40 (47.1)	
Yes	17 (54.8)	121 (59)	45 (52.9)	
Music/ book reading(Hobby) helps me to relax				0.28
No	24 (77.4)	155 (75.6)	57 (67.1)	
Yes	7 (22.6)	50 (24.4)	28 (32.9)	
Exercise/Sports helps me				0.09
No	16 (51.6)	141 (68.8)	51 (60)	
Yes	15 (48.8)	64 (31.2)	34 (40)	
Meditation and muscle relaxation helps me				0.51
No	24 (77.4)	167 (81.5)	73 (85.9)	

Yes	7 (22.6)	38 (18.5)	12 (14.1)	
I involve in religious coping reframing				0.48
No	23 (74.2)	154 (75.1)	58 (68.2)	
Yes	8 (25.8)	51 (24.9)	27 (31.8)	
Watching TV/ comedy shows				0.68
No	21 (67.7)	132 (64.4)	51 (60)	
Yes	10 (32.2)	73 (35.6)	34 (40)	
Time management helps me				0.73
No	21 (67.7)	152 (74.1)	61 (71.8)	
Yes	10 (32.2)	53 (25.9)	24 (28.2)	

4. Discussion

The rapid transmission of the disease and increasing influx of infected cases and associated deaths lead to an enormous panic and anxiety in health care workers (Adams and Walls, 2020). HCWs in primary care, during a pandemic working as front liners making them more susceptible to anxiety and stress due to overwhelming health care systems and fear of acquiring the infection, proved to cause significant short- and long-term psychological impact. One study revealed that most of the physicians are sleepless during the COVID-19 outbreak. They had insufficient sleep duration and unsatisfactory Sleep quality with slightly decreased physical and mental functioning during the day (Abdulah and Musa, 2020, Elbay et al., 2020).

In this study participants, 63.9% are nurses, and 36.2% doctors (GP and Family practitioners) were living with their families. One-third are females between 30-40 years of age. Most of the study participants reported appropriate and acceptable working conditions; however, 18.4% were COVID test positive during the pandemic.

Nurses have shown high anxiety 54.1% and depression was 31.2%. One-quarter of GP has shown stress, anxiety, and depression. Family physicians offer significant anxiety while stress and depression are the same as GP. A study (Elbay et al., 2020) demonstrated similar results females, young and single, having less work experience, working in the frontline were associated with higher scores. Literature has reported higher DAS-21 total scores in frontline workers are increased weekly working hours, increased number of Covid-19 patients cared for, lower level of support from peers and supervisors, lower logistic support, and lower feelings of competence during Covid-19 related tasks Pandemic and epidemic infectious diseases such as COVID-19 or MERS-CoV impose a significant level of anxiety and stress on healthcare workers who are caring of infected patients, with their main concern being the risk of transmitting the infection to their families or to acquire it themselves (Elbay et al., 2020, Temsah et al., 2020).

Burnout, stress, and the emotional burden of caring for sick patients were already affecting HCWs before COVID-19. Literature has reported the importance of physical and psychological support to HCW testing, vaccination, and treatments become available; the health care workforce should be considered a priority for evaluation and treatment. Because workforce safety is a high priority, active training in the proper use of barrier precautions and hygiene practices is essential (Kisely et al.,

2020). Luo reported the prevalence of anxiety, depression was the highest among patients with pre-existing conditions, and COVID-19 infection was similar between healthcare workers and the public. Common risk factors included being women, being nurses, having lower socioeconomic status, high risk of contracting COVID-19, and social isolation. Protective factors included having sufficient medical resources, up-to-date and accurate information, and taking preventive measures.

Lai et al. (Lai et al., 2020) did a survey of health care workers in hospitals equipped with fever clinics or wards for patients with COVID-19 in Wuhan and other regions in China; participants reported experiencing psychological burden, especially nurses, women, those in Wuhan, and frontline health care workers directly engaged in the diagnosis, treatment, and care for patients with COVID-19 (Lai et al., 2020, Luo et al., 2020)

Mental health and psychosocial consequences of the COVID-19 pandemic may be severe for people who have been directly or indirectly in contact with the virus; already vulnerable to biological or psychosocial stressors (including people affected by mental health problems), and health professionals (because of a higher level of exposure). Also reported the influence of the mental health of health care workers during the SARS epidemic. Chen (Chen et al., 2020) study results revealed that disease knowledge and protective measures, pre-job training was arranged to address identification of and responses to psychological problems in patients with COVID-19 (Chen et al., 2020, Fiorillo and Gorwood, 2020, Lu et al., 2006).

In our study, nurses have shown a higher level of anxiety and depression. As reported in the literature by Savitaski same findings reflects high levels of anxiety among nursing students during the continuing covid-19 pandemic. According to previous studies, even in normal circumstances, students experience anxiety (Savitsky et al., 2020). Alshakeli from Oman published while working during the pandemic period, 368 (32.3%), 388 (34.1%), 271 (23.8%), and 211 (18.5%) respondents were reported to have depression, anxiety, stress, and insomnia, respectively. No significant differences in depression status were found between the frontline and non-front line groups (p=0.201). Frontline HCWs are disproportionally affected compared to non-front line HCWs, managing sleep-wake cycles, and anxiety symptoms being highly endorsed among frontline HCWs. As psychosocial interventions are likely to be constrained owing to the pandemic, mental healthcare must first be directed to frontline HCWs (Alshekaili et al., 2020).

Al Ghafri reported Oman experiences from HCWs in Muscat governorate in battling COVID-19 to safeguard the community from the virus. A qualitative approach was adopted to address the literature gap about insights on the clinical, social, cultural, economic, and religious aspects of the COVID-19 pandemic in Oman (Al Ghafri et al., 2020). This study's outcomes support the handful of studies published during this global health crisis that has found that the mental health of health care workers has been harshly affected and predicted that it would continue, to various degrees, to be involved in the foreseeable future. This study highlights the urgency of providing administrative and psychological support and current and accurate information on COVID-19 to health care workers (Badahdah et al., 2020). Recognizing anxiety sources allows health care leaders and organizations to develop targeted approaches to address these concerns and provide specific support to their health care workforce. Depressive symptoms are reported with insomnia and severe anxiety symptoms (Preti

et al., 2020). Literature reported Bella prevalence of moderate and severe anxiety was 42.8% and 13.1%, respectively. The World Health Organization advises several coping strategies to address the psychological effects of the COVID-19 outbreak. These include rest and respite (during or between working shifts), good eating and healthy food, physical activity activities, and staying in contact with family and friends. The COVID-19 outbreak is a unique and unprecedented scenario for many HCWs.The ability to talk to someone about their experiences, discuss the emotional and physical challenges of their work, and share their concerns with other colleagues may help reduce feelings of loneliness and stress. Doctors on duty should be encouraged to talk to each other, and support groups should be provided via social media. The top coping strategies are talking to family members, good Sleep, exercise, religious activity, reading, and time management (Kathirvel, 2020).

Healthcare workers (HCWs) are subjected to additional stress due to engaging directly in the treatment of infected patients and increased risk for contagion, fear of transmission to their families, concerns about the health of self and loved ones, feeling stigmatized and rejected, and working under extreme pressures. Findings highlight the factors that need to be considered to protect doctors' mental well-being while fighting a disaster that has significant impacts on society worldwide. Providing healthcare workers' mental well-being is crucial for ensuring the sustainability of healthcare services during our struggle with Covid-19 (Hiremath et al., 2020).

5. Conclusion

Study results helped better understand the psychological needs and level of stress in HCW in primary care and strengthen preparations in safeguarding their mental well-being. Providing healthcare workers' mental well-being is crucial for ensuring the sustainability of healthcare services during our struggle with Covid-19. This study finding will assist health authorities worldwide in implementing relevant measures to minimize the psychological effects of the largest pandemic of our time on HCWs.

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