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RESEARCH ARTICLE

Palestinian Healthcare Workers Mental Health Challenges during COVID-19 Pandemic: A Cross-Sectional Study

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ABSTRACT

Healthcare workers have been working on the frontlines since the COVID-19 pandemic in 2019. In Palestine Healthcare workers have been experiencing compounded stress given their preexisting limited access and resources as imposed by the Israeli colonial system and their management of the novel coronavirus. This study aimed to investigate the impact of COVID-19 on Palestinian healthcare workers' mental health in relationship to various demographic variables that have been found to correlate to expressed distress in previous literature. Using brief online questionnaires, 596 healthcare workers from various professions rated their experiences of depression, anxiety and risk perception. Descriptive analysis was carried out to analyze the data. Our findings indicate that the overwhelming majority of our participants were experiencing depressive and anxious symptoms, with females, physicians, and less experienced Healthcare workers showing elevated levels of symptomology. It is recommended that psychological services be offered to healthcare workers in Palestine with specific emphasis on the identified risk factors.

## Introduction

The novel Coronavirus has had devastating effects since it was first documented in December 2019. As of July 2022, there are over 564 million infections and more than 6 million deaths worldwide<sup>3</sup>. Although the virus has a relatively low mortality rate, at less than 2%, COVID-19 is highly transmittable, which made the initial outbreak fraught with uncertainty and panic<sup>11</sup>. While more than 100 countries went on lockdown for its general population<sup>3</sup>, healthcare workers (HCW) were among the few groups that continued to work amidst the mayhem. Indeed, HCWs had a higher likelihood of becoming infected given their increased exposure to the virus<sup>5</sup>, and while many individuals tried to recognize and show gratitude to HCWs during the initial phase of the COVID-19 outbreak, the psychological toll of facing this novel illness has been tangible amongst this population group<sup>1,5,7,10</sup>.

HCWs have been found to be at high risk of developing symptoms of depression, anxiety, and symptoms of traumatic stress during and following epidemics<sup>13</sup>. Several studies have documented the negative impact the current pandemic has had on HCWs' mental health<sup>1,4,7,10</sup>. For example, in their sample of 1257 HCWs across 34 hospitals in China, Lai and coworkers<sup>10</sup> found that half of their participants reported symptoms of depression and anxiety and 34% suffered from insomnia. In a sample of 2447 HCWs from 12 countries, 67% of HCWs reported moderate to very high psychological distress<sup>5</sup>. Similarly, García-Fernández and colleagues<sup>4</sup> found a higher rate of depressive symptoms and acute stress in healthcare workers compared to non-healthcare workers. Kang and colleagues<sup>7</sup> found that almost a third of their HCW participants had moderate to severe psychological disturbance.

In their review of 6 studies, Sproothy, Pratapa and Mahant<sup>16</sup> identified that among the common factors contributing to such adverse psychological outcomes are the excessive workload and hours, the inadequate personal protective equipment, the anxiety-provoking media coverage and the lack of proper psychological and social support provided to healthcare workers during the COVID-19 outbreak. Within this population, HCW have been found to vary in their cause of worry and their symptomology. Cai and colleagues<sup>1</sup> found that medical staff aged 31-40 expressed specific worry for infecting their families while HCW over 50 years old expressed more concern for patient

death and reported increased levels of fatigue from long work hours. Moreover, female HCWs have a higher likelihood to report depressive and anxious symptoms<sup>15</sup>, and nurses report more anxious and depressive symptoms than doctors<sup>1,10</sup>. Across several reviews, the primary cause for increased mental health problems among HCW was direct exposure to COVID-19<sup>15-16</sup>. Meanwhile, social support has been consistently identified as a mediator of anxious and depressive symptoms among HCW<sup>15,18</sup>.

Many Healthcare systems became overwhelmed and under-resourced for a pandemic on this scale<sup>14</sup>. The ongoing colonization and targeted de-development of Palestinian infrastructure meant that an already struggling Healthcare system was not equipped to handle the overwhelming demand on its' scarce resources and personnel<sup>14</sup>. With over 662,580 infections and more than 5,660 reported deaths from COVID-19 in occupied Palestine so far, 70% of Palestinian healthcare workers have reported high-stress levels during the pandemic<sup>12</sup>. Among the challenges faced by HCWs in Palestine are the lack of adequate protective equipment, the shortage of essential medicines, and the violent restriction of movement placed on HCWs and their patients by the colonial system<sup>6,14</sup>. HCWs have emphasized their increased sense of anxiety in the face of resource shortages, the fear of infecting loved ones, and their experience of loneliness and isolation from their community given their need to maintain a safe distance from vulnerable individuals in the community<sup>14</sup>. Palestinian HCWs who have reported high stress levels were found to be more likely to take sick leave and were more likely to express disappointment in their professional choices<sup>14</sup>.

With these findings from recent literature indicating that Palestinian HCWs' mental health has been deteriorating under the compounded stress of colonial oppression and a novel pandemic, it is important to center the importance of having a clearer understanding of the challenges to the wellbeing of HCWs<sup>15</sup>. In doing so, informed interventions and services can be tailored to address the needs of HCWs in Palestine based on their specific challenges thereby ensuring the continuity and sustainability of healthcare within the Palestinian system. The current study aims to identify the degree of anxiety and depression and risk perception among Palestinian HCWs in relationship to various demographic and professional variables including exposure to COVID-infected patients,

duration of work experience, sex, age, marital status and living conditions during the COVID-19 pandemic.

## Methods

### Participants

We investigated the effect of COVID-19 on the mental health of HCWs by recruiting participants from various healthcare professions, including doctors, nurses, midwives, medical assistants, laboratory technicians, medical educators, and public health practitioners who were working at either government or private sectors between April 2020 and May 2020. The study sample was calculated by computing the minimum number of necessary samples to meet the desired statistical constraints. The estimated sample size was 543 or more measurements/surveys at a confidence level of 98% and 5% precision taking into consideration 50% attrition rate. We invited a total of 596 eligible individuals to participate to ensure a high response rate and address possible response losses in data quality cleaning. Fortunately, all responses qualified for inclusion in our analysis. The research team widely shared the web-based questionnaire. Participants were recruited using non-randomized convenience sampling. Participation was voluntary and informed consent was obtained from the respondents. Demographic information on sex, age, marital status, living conditions, and work-related questions were included in the survey.

### Study Design

Outcome measures were assessed using the Generalized Anxiety Disorder (GAD-7) scale, and the Patient Health Questionnaire (PHQ-9). The GAD-7 is a brief self-report measure used to screen the core symptoms of generalized anxiety disorder<sup>17</sup>. The scale has been found to have good psychometric properties with proven validity and reliability across various populations<sup>17</sup>. The PHQ-9 was used to measure the severity of depression. The PHQ-9 has been found to be applicable, reliable and valid in both clinical and research contexts and across different cultural groups<sup>9</sup>. The original English version of both questionnaires was used for data collection.

### Outcomes and Covariates

We conducted descriptive analysis with the frequency and percentage of demographic and occupational-related variables presented in the tables below. The prevalence of the outcomes was analyzed. To identify the factors associated with anxiety among health workers, bivariate and

multivariate analyses were performed. The  $\chi^2$  (chi-square test) was used to examine the nature of the association between anxiety and depression with occupation, sex, exposure of HCW to COVID-19 cases and availability of mental health support team at the workplace. Logistic regression analysis was applied to investigate factors that predicted anxiety and depression. Instead of the linear probability model, the logistic regression function is preferable to fit some kinds of sigmoid curves when the response variable is dichotomous, and that reasonably portrays the reality of outcome events. The cutoff score of having generalized anxiety disorder [8] and depression symptoms [10] is 10, for both.

The response score was coded dichotomically (i.e., those who met criteria for anxiety and depression were coded as "1" and those who had not as "0"). The odds ratios and their 95 percent CI were calculated.  $P < 0.05$  was considered to be statistically significant.

### Results

A total of 596 participants responded to the survey and were included in the data analysis. Of those, 62.4% ( $n = 372$ ) were female, with nurses representing 34.2% ( $n = 204$ ) and doctors representing 48.8% ( $n = 391$ ). Sixty five percent of participants were aged 26 to 60 years ( $n = 391$ ), 52.3% were married ( $n = 312$ ), and 82.7% were living with family ( $n = 493$ ).

More than one third (35.6%) of participants' work experience ranged between 2- 5 years, and only 17% had less than 2 years' work experience. Approximately 27.5% of doctors and 11% of nurses reported working in the Intensive Care Unit (ICU) whereas 43.6 % of doctors and 56.4% of nurse's worked in hospitals.

### Severity of Measurements and Associated Factors

The majority of participants reported symptoms of depression (465 [78.0%]), and anxiety (552[92.6%]). Physicians reported experiencing more severe symptoms of anxiety (24.4%) and depression (2.1%) whereas only 7.8% of nurses reported severe anxiety and 1.5% reported severe depression;  $P = < 0.001$ . Females were found to report more severe anxiety than males, 17.7% and 12.1% respectively;  $P = 0.030$  (Table 2).

The prevalence of anxiety among males was (168 [75%]), while among females, it was (297 [79%]). The association between gender and anxiety were statistically not significant. However, the prevalence of depression among male and female

were (205 [91%]) and (359 [96%]) respectively, but the association showed statistically significant. Compared with those providing healthcare to COVID-19 confirmed cases or suspected cases, participants working in hospitals without COVID –

19 cases were less likely to report severe symptoms of depression (5 [2.9%] vs. 6 [1.4%];  $P = 0.345$ ), and anxiety (19 [11.0%] vs. 74 [17.5%];  $P = 0.003$ ).

**Table 2. Prevalence of anxiety and depression among the healthcare workers (n=596)**

	Occupation /Profession (%)					Gender (%)				Exposure to COVID-19 confirmed cases or suspected cases				Availability of mental health support team at the workplace			
	Doctors	Nurses	Others	Total	P	Male	Female	Total	P	Yes (%)	No (%)	Total (%)	P	Yes (%)	No (%)	Total (%)	P
<b>Anxiety</b>																	
<b>Normal</b>	19.9	20.6	30.7	22.0	<0.001	25.0	20.7	22.0	0.130	15.0	24.8	22.0	0.003	23.1	21.4	22.0	0.843
<b>Mild</b>	34.0	33.8	47.5	36.2		38.8	34.7	36.2		41.6	34.0	36.2		34.7	37.0	36.2	
<b>Moderate</b>	21.6	37.7	15.8	26.2		24.1	27.4	26.2		32.4	23.6	26.2		27.6	25.4	26.2	
<b>Severe</b>	24.4	7.8	5.9	15.6		12.1	17.7	15.6		11.0	17.5	15.6		14.6	16.1	15.6	
<b>Depression</b>																	
<b>Normal</b>	6.5	5.4	2.0	5.4	0.047	8.5	3.5	5.4	0.031	2.2	6.4	5.4	0.344	5.0	5.5	5.4	0.632
<b>Mild</b>	20.6	27.0	24.8	23.5		25.4	22.3	23.5		23.7	23.4	23.5		21.6	24.4	23.5	
<b>Moderate</b>	51.5	44.6	62.4	51.0		49.6	51.9	51.0		50.9	51.1	51.0		51.8	50.6	51.0	
<b>Moderately severe</b>	19.2	21.6	8.9	18.3		14.3	20.7	18.3		19.7	17.7	18.3		20.6	17.1	18.3	
<b>Severe</b>	2.1	1.5	2.0	1.8		2.2	1.6	1.8		2.9	1.4	1.8		1.0	2.3	1.8	

Table 3 represents the distribution of responses for each of the risk perception questions. The highest concern among participants was found to be “I am worried about getting infected with COVID-19” (30.9%), “I am worried about inadequate personal protective equipment for healthcare personnel” (24.8%), “I am worried about the prevention and

control measures that we are practicing at current moment” (22.1%) and “I am worried about fake news which might be spreading out in the community” (20.3%), sequentially. Almost in all items more than half the respondents opted the “neutral” response, which indicates high levels of uncertainty about the surrounding risks.

**Table 3: The distribution of response about risk perception to COVID-19 among healthcare workers (n=596)**

Item	Percentages		
	Disagree	Neutral	Agree
I am worried about getting infected with COVID-19	15.4	53.7	30.9
I am worried about my family members getting COVID-19 from me	29.4	62.2	8.4
I am worried about my colleagues (in the team) getting infected with COVID-19.	52.0	37.9	10.1
I am worried about inadequate personal protective equipment for healthcare personnel (PPE).	14.9	60.2	24.8
I am worried about fake news which might be spreading out in the community.	10.4	69.3	20.3
I am worried about the prevention and control measures that we are practicing at current moment.	25.7	52.2	22.1

The comparison of the score of risk perception among the variables using ANOVA shown in Table 4. The risk perception score of the doctor and nurses were the same (7.7) but were higher than the 'other' occupational category, and the mean difference was statistically significant ( $p = 0.001$ ). The risk perception score was not significantly associated

with gender ( $P = 0.199$ ), exposure to COVID-19 confirmed or suspected cases ( $p = 0.638$ ) and depression ( $p = 0.326$ ) but significantly associated with the availability of mental health support team at the workplace ( $p = 0.012$ ), occupation (0.001), and anxiety ( $p = 0.028$ ).

**Table 4: Risk perception to COVID-19 among the healthcare workers (n= 596)**

	Mean score	Std. Deviation	n	p value <sup>b</sup>
<b>Occupation</b>				
Doctor	7.7	1.75	291	0.001
Nurse	7.7	1.85	204	
Others <sup>a</sup>	7.0	1.35	101	
<b>Gender</b>				
Male	7.6	1.73	372	0.199
Female	7.4	1.75	224	
<b>Providing healthcare to COVID-19 confirmed cases or suspected cases</b>				
No	7.5	1.64	173	0.638
Yes	7.6	1.78	423	
<b>Availability of mental health support team at the workplace</b>				
No	7.9	1.86	127	0.012
Yes	7.5	1.70	469	
<b>Anxiety</b>				
Normal	7.9	1.89	170	0.028
Mild	7.4	1.60	269	
Moderate	7.5	1.75	118	
Severe	7.6	1.76	39	
<b>Depression</b>				
Normal	7.7	1.83	249	0.326
Mild	7.4	1.56	243	
Moderate	7.6	1.99	59	
Moderately Severe	7.6	1.79	36	
Severe	7.7	1.80	9	

<sup>a</sup>Others included pharmacists, laboratory technicians, public health specialists and healthcare administrator

<sup>b</sup>ANOVA

Table 5 shows regression coefficients between risk factors for anxiety and the study variables. The results revealed significant statistical correlation between GAD-7 total score and females, among the sampled population. However, no statistically

significant correlation was found with the remaining variables (i.e., age, marital status, staying with, occupation, work experience, work place, and the ICU), as indicated in table 5.

**Table 5 Regression coefficients between independent variables ( ) and Gad total score.**

Variable	N	Beta	P value
<b>Gender</b>	596	.177	<0.001
<b>Age</b>	596	.061	.230
<b>Marital status</b>	596	-.067	.167
<b>Staying with</b>	596	.019	.652
<b>Occupation</b>	596	-.034	.401
<b>Work experience</b>	596	-.076	.150
<b>Workplace</b>	596	-.050	.225
<b>ICU</b>	596	.059	.160

Additionally, our findings revealed a significant statistical correlation between the PHQ-9 total score and participant gender and work experience, with females and less-experienced participants reporting greater depressive symptoms. However,

no statistical significant correlation was found in other variables (i.e., age, marital status, living conditions, occupation, work place, and ICU), as indicated in table 6.

**Table 6 Regression coefficients between independent variables and PHQ total score (N=596).**

Variable	Beta	P value
Gender	.108	.014
Age	.038	.456
Marital status	-.069	.158
Staying with	.002	.966
Occupation	-.010	.806
Work experience	-.111	.038
Workplace	.035	.397
ICU	.071	.096

## Discussion

Our results indicate that the overwhelming majority of the sampled HCWs were experiencing significantly elevated depressive and anxious symptoms. These findings are in line with similar studies conducted across different countries, wherein HCW in China <sup>10,18</sup>, Spain <sup>4</sup>, India <sup>7</sup>, and other locations <sup>5,15</sup> have reported elevated psychological distress following the COVID-19 outbreak. Moreover, our results further elaborate on Maraga, Nazzal and Zink's <sup>12</sup> findings of elevated distress among Palestinian HCW and locate some facets of the manifestations of this distress as depressive and anxious symptoms thereby offering insight into the forms of targeted interventions needed. Indeed, the manifestation of such symptomology is clinically relevant given the heightened sense of responsibility thrown on the shoulders of HCW and the uncertainty surrounding the onset and treatment of COVID-19.

Furthermore, our findings corroborate previous findings on the variable of gender in the reporting of depressive and anxious symptoms <sup>10</sup>, with females reporting a significant elevation of depressive symptoms relative to their male counterparts, and with regression coefficient revealing a correlation between females and higher anxiety symptomology. Previous studies on perceived stress have identified that men and women respond differently to stress <sup>2,8</sup>. Women have been found to experience overall more stressful life events and have different coping strategies from men <sup>2</sup>. With the use of self-report questionnaires, one's level of internal transparency and recognition of affective distress is a precursor to responding, thus with women being socialized to be more forthcoming with their emotional processes, the elevated anxiety and depression scores among this group may be reflective of the culturally gendered variability in the identification and ownership of affective distress.

Moreover, less-experienced HCWs were found to report greater depressive symptoms. In their Chinese HCW sample, Lai and coworkers <sup>10</sup> identified that possessing an intermediate professional title was associated with higher anxiety and depression. This, coupled with Maraga, Nazzal, and Zink's <sup>12</sup> emphasis on their participants experience of reduced stress when they received training on responding to the outbreak indicates that experience and preparedness play a significant role in mediating the stressful effect of COVID-19 response. Thus, our findings suggest that the less experienced HCWs in our sample may have felt undermined in their sense of professional competency and agency given the overwhelming demands and uncertainty surrounding the treatment and management of COVID-19. The treatment of COVID-19 posed a serious challenge to highly resourced healthcare systems <sup>7</sup>, it is subsequently logical that newly-trained Palestinian HCWs operating in a purposefully de-developed healthcare system and infrastructure and serving a targeted population experience an elevated sense of anxiety and stress working with little resources and support.

Palestinian HCWs exposed to cases or suspected cases of COVID-19 in their workplace reported more severe symptoms of depression and anxiety than their counterparts working in hospitals with no confirmed COVID-19 cases. These findings are further underscored by participants endorsing fear of becoming infected with COVID-19 as their greatest concern, and is in line with existing literature indicating that fear of exposure to COVID-19 patients and fear of being infected are common risk factors of mental health problems among HCW <sup>10,19</sup>. Meanwhile, contrary to previous findings <sup>1,10</sup>, physicians in our sample reported more severe anxious and depressive symptoms in comparison to nurses. These results likely reflect the



toll of the burden of responsibility and role performance associated with physicians in Palestine, wherein doctors are treated with great deference which further underscores the greater populations' expectations.

Our study did not reveal any significant relationship between marital status, age, and living conditions with reported symptoms of anxiety and depression or risk perception. However, the availability of mental health support at the workplace was significantly associated with risk perception, suggesting that the presence of mental health services and support does play a mediating effect against the psychological stress of COVID-19. Studies have documented the benefits of providing containment and support to HCWs in the midst of the pandemic <sup>18</sup>, which further underscore the importance of attending to the psychological wellbeing of HCW as they attend to the physical wellbeing of their patients. Altogether, our findings indicate that the psychological well-being of HCWs in Palestine has suffered during the COVID-19 outbreak and that special consideration needs to be paid to female HCW, less-experienced staff and physicians' mental health needs during these times. Mental health services, specifically in the form of group and individual therapy and distress tolerance skills training, may very well help in containing and demystifying many aspects of HCWs experiences.

### **Limitations**

Even though our study sheds important light on the mental health impact of the COVID-19 outbreak on HCW and on the role of gender, profession, and level of experience, among other variables, the study does not explore participants' coping mechanisms and the role of social support networks, which has the potential to provide a more in-depth and comprehensive overview of HCWs overall experiences. Moreover, the use of brief self-report questionnaires designed in Western settings limits our understanding of Palestinian HCWs experiences of depression and anxiety as well as overlooks the impact of the colonial system that compounds their stress and psychological distress. It is recommended that future studies take a mixed methods approach to explore these important facets.

### **Conclusion**

This study underscores the urgent need for providing mental health support to HCW in Palestine. This support can take the form of group, individual psychotherapy with special focus on cultivating emotion regulation and distress tolerance skills training. It is recommended that such services be offered with particular consideration and catering to groups identified at higher risk of elevated anxiety and depression, namely females, physicians, and less experienced HCW, which will not only benefit HCWs themselves but stands to reduce turnover, burnout, and loss of service providers to the community at large.

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