

Burnout and Stress among Healthcare Workers at Primary Healthcare Centers: The Role of COVID-19 Pandemic

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Abstract

Background: Healthcare workers (HCWs) faced numerous job-related hazards during the COVID-19 pandemic outbreak, such as job-related stress and burnout, which are considered to be the paramount burdens. The aim of the present study was to assess the extent of burnout and stress among HCWs during COVID-19 in primary healthcare centers.

Methods and Results: This cross-sectional study was conducted at five primary healthcare centers in Port Said governorate (Egypt). The study sample consisted of 250 HCWs (physicians, nurses, pharmacists, paramedical personnel, and administrative staff). Measurement tools included Maslach Burnout Inventory (MDI) and Perceived Stress Scale (PSS). Regarding degree of burnout, the current study results concluded that, two-thirds of HCWs had high occupational exhaustion, around three-quarters had high depersonalization, and the majority of them had low personal accomplishment assessment. Regarding stress levels, almost half of HCWs had high stress, and more than one-third had moderate stress. There was a statistically significant, positive correlation between degrees of occupational exhaustion, depersonalization, and stress level.

Conclusion: This research can inform healthcare leaders and enable them to improve HCWs' experience by addressing levels of stress and burnout; managers must support staff who provide care and service to decrease the harmful effects of the COVID-19 pandemic. (*International Journal of Biomedicine*. 2022;12(2):256-264.)

Key Words: healthcare workers • burnout • stress • COVID-19

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Abbreviations

DP, depersonalization; EE, emotional exhaustion; HCWs, healthcare workers; PA, personal accomplishment

Introduction

The World Health Organization started announcing the COVID-19 outbreak on March 11, 2020.⁽¹⁾ This new coronavirus produced a global health crisis in that year, with over 100 million people infected and 2 million people dying worldwide.⁽²⁾ This virus creates significant challenges, causing

higher rates of mental health problems among healthcare workers (HCWs). These consequences have been illustrated in studies from China and Italy, and warnings of long-term consequences have been issued.^(3,4)

HCWs faced numerous job-related hazards during the COVID-19 pandemic outbreak, such as job-related stress and burnout, which are considered to be the paramount burdens. Burnout among healthcare providers was recognized at the beginning of the 1970s.⁽¹⁾ It is regarded as a significant occupational health hazard among HCWs and has a great negative influence on patients, healthcare providers, and health institutions.⁽⁵⁾ High time pressure, workload, and a lack of

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organizational support have all been linked to burnout.⁽⁶⁾

Burn-out is defined in ICD-11 as follows:⁽⁷⁾

Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions:

- feelings of energy depletion or exhaustion;
- increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and
- reduced professional efficacy.

Burnout syndrome is a serious condition caused by excessive work, resulting in bodily or psychological sickness.⁽⁸⁾ Organizational burnout manifests itself in decreased quality of healthcare performance, feelings of negativism about one's job, increased personnel turnover, and high service costs. Occupational burnout is considered an important risk factor for reduced quality of life and diminished health of HCWs, especially as the epidemic spreads.⁽⁹⁾

All healthcare providers make massive efforts at their highly critical and stressful workplaces each day. Moreover, HCWs are more susceptible to sickness than the general public. Even in the absence of significant stressful situations, such as epidemics or conflicts, healthcare personnel are subjected to increased stress due to the nature of their employment.⁽¹⁰⁾ According to the literature, healthcare personnel who manage COVID-19 patients have greater psychological concerns or worries than the general public; they are likely to become infected and spread the virus to their families and surroundings.^(11,12)

Stress is an inherent aspect of life. Workplace stress is defined as emotional, perceptual, behavioral, and physiological responses to negativism at work.⁽¹³⁾ It is hypothesized that working in such a high-stress, high-vigilant condition for an extended period of time will have severe psychological consequences for HCWs. Also, stress can decrease the employees' productivity and limit their creativity and innovation during working hours.⁽¹⁴⁾

Significance of study

The COVID-19 pandemic has presented additional challenges worldwide; the consequences of those challenges for HCWs are working in a highly infectious environment.⁽¹⁵⁾ Also contributing to burnout are fears of becoming sick or infecting a relative, lack of proper personal protective equipment, lack of access to up-to-date information, communication, limited time with family and friends, and increasing demands from childcare and domestic tasks.⁽¹⁶⁾ Healthcare providers recognize possible symptoms, such as irritation, anger, demotivation, powerlessness, sadness, depression or being overwhelmed, poor concentration, and feeling tired.⁽¹⁷⁾ Finally, this pandemic puts an extra bodily and psychological burden on HCWs, so it is essential to identify the level of stress and burnout among them.

The aim of the present study was to assess the extent of burnout and stress among HCWs during COVID 19 in primary healthcare centers.

Specific objectives

- To determine the levels of burnout among HCWs during COVID-19
- To identify the levels of stress among HCWs during COVID-19
- To explore the relationship between job burnout and

stress among HCWs during COVID 19 in primary healthcare centers

Subjects and Methods

Research design

This cross-sectional study was conducted at primary healthcare centers in Port Said governorate (Egypt). Universal Health Insurance (UHI) in Port Said is accessible every day from 9 a.m. to 10 p.m. There are five districts located in Port Said: Elzhour district, Eldawahey district, Elarab district, Elmanakh district, and Port Fouad district. One primary health care center had been chosen randomly from each district: Elghwara health care center, El Qabouty health care center, Elarab health care center, Elkuwait health care center, and Port Fouad health care center.

The study sample consisted of 250 HCWs (physicians, nurses, pharmacists, paramedical personnel, and administrative staff) from the last-mentioned setting (Table 1). A convenience sampling technique⁽¹⁸⁾ was used from the total population (n=714), and the final calculated sample size was 250 with a confidence level of 95%, based on the following equation: $n = Z^2 P (1-P) / d^2$,

where n is the sample size, Z is the statistic corresponding to level of confidence, P is expected prevalence (that can be obtained from same studies or a pilot study conducted by the researchers), and d is precision (corresponding to effect size).

Measurement tools

Maslach Burnout Inventory (MDI).⁽¹⁹⁾ The Arabic version of (MBI) was translated by Al-Dubai and Rampal.⁽²⁰⁾ Burnout was measured using the emotional exhaustion (EE) (9 items), depersonalization (DP) (5 items), and personal accomplishment (PA) (8 items) subscales that are parts of the 22-item MBI. The Arabic version has confirmed a high internal consistency, based on Cronbach's alpha coefficient, for the three MBI subscales (EE: $\alpha=0.88$; DP: $\alpha=0.78$; and PA: $\alpha=0.89$), which indicated a valid and reliable instrument for measuring burnout.

Scoring system: The scoring system is measured with a 7-point Likert scale ranging from never having those feelings to having those feelings a few times a week (0=never, 1=a few times a year or less, 2=once a month or less, 3=a few times a month, 4=once a week, 5=a few times a week, 6=every day). Responses were tabulated into three tiers (low, moderate, or high) based on the reference ranges, for EE: low (≤ 17), moderate (18–29), and high (≥ 30); for DP: low (≤ 5), moderate (6–11), and high (≥ 12); for PA: low (< 33), moderate (34–39), and high (> 40). For EE and DP, a higher score means greater burnout; this is inverse for PA.

Perceived Stress Scale (PSS).⁽²¹⁾ The Arabic version was translated by Almadi et al.⁽²²⁾ PSS is considered the most widely used psychological instrument for measuring the perception of stress. PSS is used to measure the degree to which situations are appraised as stressful. It is composed of ten items. The Arabic PSS has been shown to have adequate reliability and validity. The Chronbach's coefficient for the PSS was $\alpha=0.82$.

Scoring system: Scoring system is measured with a 5-point Likert scale ranging from never having those feelings to having those feelings very often (0=never, 1=almost never, 2=sometimes, 3=fairly often, 4=very often). Scores ranging

from 0-13 would be considered low stress; scores ranging from 14-26 would be considered moderate stress; scores ranging from 27-40 would be considered high perceived stress.

In addition, we used a Structured Interview sheet. This structured sheet was developed by the researchers in the Arabic language. It was used to collect data about the personal characteristics of the studied subjects. It comprised personal characteristics such as age, sex, marital status, job status, educational level, residence, years of experience, current job, working days per week, and working site at the center.

Table 1.
Personal characteristics of the study group (n=250)

Variable	n	%
Age, years		
>20	10	4.0
20 - >25	38	15.2
25 -> 30	64	25.6
30 ->35	105	42.0
35 ->40	24	9.6
> 40	9	3.6
Mean±SD	33.5±8.92	
Marital status		
Single	59	23.6
Married	173	69.2
Divorced	14	5.6
Widowed	4	1.6
Resident		
Rural	110	44.0
Urban	140	56.0
Educational level		
Diploma education	17	6.8
Technical education	64	25.6
Bachelor degree	169	67.6
Gender		
Male	47	18.8
Female	203	81.2
Years of experience		
Less than 5 years	45	18.0
5-10 years	117	46.8
More than 10 years	88	35.2
Years of experience at this place		
Less than 5 years	131	52.4
5-10 years	73	29.2
More than 10 years	46	18.4
Current job		
Staff nurse	104	41.6
Pharmacist	20	8.0
Physician	57	22.8
Paramedical personnel and administrative staff	69	27.6
Working days per week		
Three days	52	20.8
Four days	135	54.0
Five days	58	23.2
Six days	5	2.0
Salary		
Enough	220	88.0
Not-enough	30	12.0
Overtime work		
Yes	90	36.0
No	160	64.0
Number of patient contacted per days		
Less than 10	64	25.6
10-20	88	35.2
21-30	71	28.4
More than 30	27	10.8
Persons working with you in the clinic		
1	165	66.0
2	85	34.0
Working site at the center		
Vaccination	20	8.0
Family planning	39	15.6
Antenatal care	34	13.6
Clinics	46	18.4
Laboratory	14	5.6
Reception – triage	8	3.2
Pharmacy	20	8.0
Clerical offices	69	27.6

Pilot study

•In January 2021, a pilot study was conducted before performing the main study. The questionnaire was tested on a sample of HCWs that represent 10% of the total subjects. They were randomly selected and excluded from the total population, after the development of the tool and before starting data collection.

•The aim was to determine the applicability of the designated data collection tool, test its feasibility and suitability, assess the clarity of language, estimate the time needed to fill in the questionnaire, and identify potential obstacles and problems that may be encountered during the period of data collection.

•Data obtained from the pilot study was analyzed, and some modifications were done. Completion of the total sheet ranged between 15 and 20 minutes.

Field work

•An initial interview: In every primary healthcare center, the research team met with medical and nursing directors to explain the nature and purpose of the study to gain their permission and cooperation; then the research team initiated communication, explained the aim of the study for studied HCWs individually, and obtained their agreement.

•Verbal consent was obtained from studied HCWs, then researchers distributed the questionnaire format and started to collect data from them at their workplace, in the presence of the researchers for any clarification. The researchers assured that information was kept secret and used only for the research purpose.

•The researchers visited the previously mentioned settings at Port Said governorate according to the available time, during two shifts and three days per week.

•The whole process of data collection went on from March 2021 until August 2021.

Administrative design

Written official permission was obtained from the Dean of Faculty of Nursing, Port Said University, to carry out this study in the selected settings. The researchers sent the official letters for permission to collect the data from the last-mentioned settings. The medical and nursing director of each center was contacted and informed in order to obtain permission to include HCWs in the study, then the aim of the study was explained and data collected.

Ethical consideration

Approval was obtained from the Ethics Committee of the Faculty of Nursing, Port Said University. Verbal consent was obtained from all the participants before collecting any data. The aim of the study was explained in a simple and clear manner. All data were considered confidential and not used outside this study's purpose. Participants were informed about their right to withdraw from the study at any time without giving any reason.

Statistical analysis was performed using statistical software package SPSS version 21.0 (SPSS Inc, Armonk, NY: IBM Corp). Categorical variables were analyzed using the chi-square test with the Yates' correction. Kruskal-Wallis H test with Bonferroni correction was used to compare differences between 3 or more independent groups. Spearman's rank correlation coefficient (R) was calculated to measure the strength and direction of the relationship between two variables. A probability value of $P < 0.05$ was considered statistically significant.

Results

Table 1 shows that 42% of the HCWs were aged between 30 and <35 years. More than two-thirds of them were married and had bachelor's degrees. More than half resided in an urban area and had less than five years' experience. The majority of HCWs were females and nearly half of them were staff nurses. More than half of them worked four days per week. Finally, 36% had overtime work.

About 60% and 74.8% of HCWs had high tiers for EE and DP, respectively. The majority of HCWs (81.2%) had low PA assessment (Fig.1).

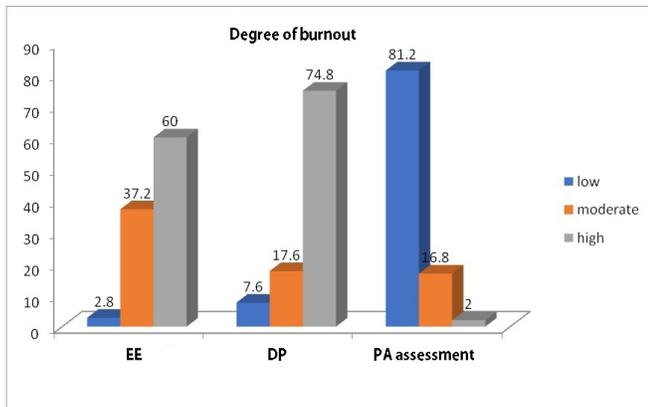


Fig. 1. Degree of perceived burnout among HCWs

Table 2 shows that high EE represents 70% of pharmacists, followed by 65.4% of nurses. High DP represents 81.2% of paramedical personnel and administrative staff, followed by 76.9% of nurses. The majority of nurses (87.5%) had low levels of PA, followed by the majority of paramedical and administrative staff (79.7%). Finally, there was no significant difference between perceptions of HCWs

Table 2. Perceptions of HCWs regarding the degree of burnout

Degree of burnout	Low		Moderate		High		Statistics
	n	%	n	%	n	%	
Occupational/ Emotional exhaustion (EE)							
Nurses	3	2.9	33	31.7	68	65.4	H=2.4401 P=0.4862
Pharmacists	1	5.0	5	25.0	14	70.0	
Physicians	2	3.5	27	47.4	28	49.1	
Paramedical personnel and administrative staff	1	1.4	28	40.6	40	58.0	
Depersonalization / loss of empathy (DP)							
Nurses	7	6.7	17	16.3	80	76.9	H=1.6138 P=0.6563
Pharmacists	1	5.0	8	40.0	11	55.0	
Physicians	6	10.5	11	19.3	40	70.2	
Paramedical personnel and administrative staff	5	7.2	8	11.6	56	81.2	
Personal accomplishment (PA) assessment							
Nurses	91	87.5	11	10.6	2	1.9	H=0.6916 P=0.8752
Pharmacists	13	65.0	6	30.0	1	5.0	
Physicians	44	77.2	12	21.1	1	1.8	
Paramedical personnel and administrative staff	55	79.7	13	18.8	1	1.4	

regarding the degree of burnout in all dimensions.

Almost half of the HCWs (46%) had a high level of stress, 40% - a moderate level, and only 14% - a low level of stress (Fig.2).

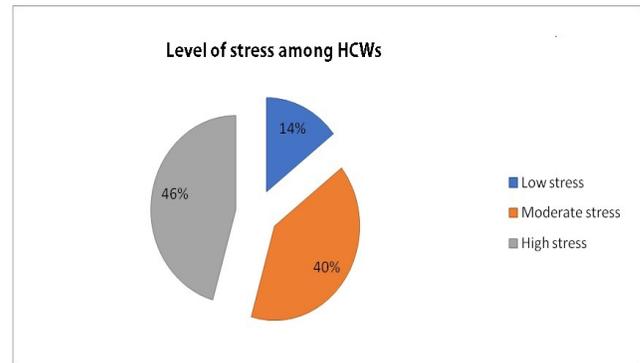


Fig. 2. Total level of perceived stress among all HCWs

Approximately half of the nurses (46.1%) and pharmacists (45%) had a moderate level of stress and more than half of the paramedical and administrative staff (56.6%) had a high level of stress. Finally, there was no significant difference between levels of perceived stress among all HCWs (Table 3).

Table 3. Levels of perceived stress among HCWs

Level of stress	Low		Moderate		High		Statistics
	n	%	n	%	n	%	
Nurses	14	13.5	48	46.1	42	40.4	H=5.769 P=0.123
Pharmacists	3	15.0	9	45.0	8	40.0	
Physicians	12	21.1	20	35.1	25	43.8	
Paramedical and administrative staff	7	10.1	23	33.3	39	56.6	

Table 4.

Relation between personal characteristics of healthcare workers and the level of perceived stress

Variable	Low stress		Moderate stress		High stress		Statistics
	n	%	n	%	n	%	
Age, years							
>20	4	40.0	4	40.0	2	20.0	H=10.979 P=0.052
20 - >25	5	13.2	19	50.0	14	36.8	
25 -> 30	4	6.3	29	45.3	31	48.4	
30 - >35	21	20.0	38	36.2	46	43.8	
35 - ≥40	1	4.2	9	37.5	14	58.3	
>40	1	11.1	1	11.1	7	77.8	
Marital status							
Single	5	8.5	28	47.5	26	44.1	H=9.1796 P=0.027 P _{M-W} =0.0038
Married	29	16.8	64	37.0	80	46.2	
Divorced	1	7.1	8	57.1	5	35.7	
Widowed	1	25.0	0	0	3	75.0	
Resident							
Rural	13	11.8	47	42.7	50	45.5	χ ² =1.275 P=0.529
Urban	23	16.4	53	37.9	64	45.7	
Educational level							
Diploma education	5	29.4	7	41.2	5	29.4	H=4.271 P=0.118
Technical education	4	6.3	26	40.6	34	53.1	
Bachelor degree	27	16.0	67	39.6	75	44.4	
Gender							
Male	7	14.9	17	36.2	23	48.9	χ ² =0.363 P=0.834
Female	29	14.3	83	40.9	91	44.8	
Years of experience							
Less than 5 years	10	22.2	8	17.8	27	60.0	χ ² =20.201 P=0.000
5-10 years	22	18.8	51	43.6	44	37.6	
More than 10 years	4	4.5	41	46.6	43	48.9	
Years of experience at this place							
Less than 5 years	19	14.5	56	42.7	56	42.7	χ ² =7.238 P=0.124
5-10 years	15	20.5	26	35.6	32	43.8	
More than 10 years	2	4.3	18	39.1	26	56.5	
Working days per week							
Three days	8	15.4	21	40.4	23	44.2	H=7.205 P=0.066
Four days	15	11.1	52	38.5	68	50.4	
Five days	13	22.4	25	43.1	20	34.5	
Six days	0	0	2	40.0	3	60.0	
Salary							
Enough	31	14.1	91	41.4	98	44.5	χ ² =1.421 P=0.491
Not-enough	5	16.7	9	30.0	16	53.3	
Overtime work							
Yes	20	22.2	29	32.2	41	45.6	χ ² =8.102 P=0.017
No	16	10.0	71	44.4	73	45.6	
Number of patient contacted per day							
Less than 10	24	37.5	17	26.6	23	35.9	χ ² =44.822 P=0.000
10-20	9	10.2	44	50.0	35	39.8	
21-30	3	4.2	30	42.3	38	53.5	
More than 30	0	0	9	33.3	18	66.7	
Persons working with you in the clinic							
1	22	13.3	65	39.4	78	47.3	χ ² =0.726 P=0.696
2	14	16.5	35	41.1	36	42.4	
Working site at the center							
Vaccination	3	15.0	9	45.0	8	40.0	H=12.141 P=0.096
Family planning	12	30.8	13	33.3	14	35.9	
Antenatal care	1	2.9	17	50.0	16	47.1	
Clinics	8	17.4	20	43.5	18	39.1	
Laboratory	1	7.1	6	42.9	7	50.0	
Reception – triage	1	12.5	3	37.5	4	50.0	
Pharmacy	3	15.0	9	45.0	8	40.0	
Clerical offices	7	10.1	23	33.3	39	56.5	

We found a statistically significant, positive relation between the level of perceived stress and marital status (“widowed” vs. “married”), years of experience, having overtime work, number of patients contacted per day and working site at the center (Table 4). Table 5 showed a statistically significant, positive relation between the mean scores of EE/DP and the level of experience, days worked per week, and overtime work. There was a statistically significant relation between the DP score and marital status, educational level and working site at the center. A statistically significant, positive relation was also found between the mean scores of DP/PA and age, and number of patients contacted per day (Table 5).

Table 5.

Relationships between personal characteristics of healthcare workers and scores of burnout

Variable	EE	DP	PA
Age	H=9.113 P=0.258	H=16.592 P=0.019	H=17.760 P=0.017
Resident	$\chi^2=3.102$ P=0.159	$\chi^2=2.614$ P=0.271	$\chi^2=0.064$ P=0.969
Marital status	H=10.361 P=0.110	H=14.650 P=0.023	H=6.203 P=0.169
Educational level	H=6.751 P=0.150	H=10.248 P=0.036	H=2.672 P=0.503
Gender	$\chi^2=0.114$ P=0.945	$\chi^2=1.497$ P=0.473	$\chi^2=0.846$ P=0.655
Level of experience	H=43.781 P=0.001	H=25.147 P=0.001	H=0.609 P=0.548
Days worked per week	H=25.707 P=0.001	H=16.864 P=0.010	H=6.139 P=0.219
Salary	$\chi^2=3.024$ P=0.220	$\chi^2=4.235$ P=0.147	$\chi^2=5.366$ P=0.068
Patient contacted per day	H=47.467 P=0.001	H=74.664 P=0.001	H=11.677 P=0.044
Work experience in years	H=5.455 P=0.148	H=1.502 P=0.220	H=1.360 P=0.335
Current job	H=6.340 P=0.237	H=8.612 P=0.130	H=7.267 P=0.269
Overtime work	$\chi^2=7.780$ P=0.021	$\chi^2=8.674$ P=0.015	$\chi^2=0.764$ P=0.664
Persons working with you in the clinic	$\chi^2=6.745$ P=0.034	$\chi^2=7.893$ P=0.025	$\chi^2=3.645$ P=0.160
Working site at the center	H=17.068 P=0.195	H=30.053 P=0.003	H=18.074 P=0.248

A statistically significant, positive correlation between degrees of EE, DP, and stress levels was found; meanwhile, there was no statistically significant correlations between PA assessment and stress level (Table 6).

Table 6.

Correlation between degrees of burnout and stress levels among HCWs

Burnout degree	Stress	EE	DP
EE	R=0.230 P=0.001	-	R=0.501 P=0.001
DP	R=0.301 P=0.001	-	-
PA assessment	R=0.097 P=0.126	R=0.181 P=0.040	R=0.204 P=0.001

Discussion

Burnout is a common work-related issue that has been viewed as a pandemic of present-day culture that requires expanding consideration and further contemplation around the world.⁽²³⁾ Universally, healthcare providers are facing unusual conditions resulting from the pandemic of COVID-19. Some evidence has appeared about conditions that affect healthcare personnel in many dimensions, such as high workload and extreme stressors that are considered threats to emotional health and lowered quality of life.⁽²⁴⁾ Consequently, the study aimed to assess the extent of burnout and stress among healthcare providers during COVID-19 in healthcare centers.

The current study results identified degrees of burnout: two-thirds of HCWs had high EE, and around three-quarters of them had high DP; meanwhile, the majority of HCWs had low PA. These results may be because of the commonly stressful working environments during crises globally. In addition, a high workload increases liability to increased demands on performance, making it challenging to balance between specialized standards and patient prospects.

This result was consistent with similar study results conducted in Korea and revealed greater risks for burnout in all three aspects (EE, DP, and PA) during the COVID-19 outbreak.⁽²⁵⁾ In the same line, a study in Italy showed high scores on EE and depersonalization subscales and a low mean score on the PA subscale that correspond to higher degrees of experienced burnout.⁽²⁶⁾ Conversely, a study in Ghana among HCWs indicated lower levels of burnout and lower to moderate values for EE and physical exhaustion.⁽²⁷⁾

The present study determined degrees of burnout among HCWs and showed that the majority of pharmacists and more than two-thirds of nurses had high EE; in addition, the majority of nurses had high DP and, at the same time, low PA. These findings may be due to the prevalence of burnout among staff nurses with different work types.

Moreover, the profession of nursing is linked to a higher grade of burden. Since the beginning of the pandemic, HCWs have experienced worsening working circumstances with high workloads and changing duties and responsibilities. In addition, job burnout seriously affects one's physical and psychological well-being.⁽²⁸⁾ These findings are in line with a study conducted in Ethiopia among 412 nurses who experienced burnout, and their results indicated that more than two-thirds had high EE, and the majority had high depersonalization and low values of personal achievements.⁽²⁹⁾ Also, research done about frontline nurses giving care to cases with new coronavirus in China stated that around half of the studied nurses suffered from burnout, more than two-thirds of them had EE, and less than half had DP.⁽³⁰⁾

The current study revealed that almost half of the HCWs had high stress; moreover, more than one-third of them had moderate stress, and a lower percentage had low stress. The high prevalence of stress among the studied subjects may be because of direct interaction with patients infected by COVID-19, absenteeism owing to personal or family illness, or a change away from their major roles as well as specific demographic factors as the majority of them are females and

more than two-thirds of them are married. Therefore, they had responsibilities toward their families and worried about infecting their family members. This result may also be explained by other studies, which showed that being female at a young age leads to high psychological stress.⁽³¹⁾

This finding was supported by research carried out on Palestinian healthcare personnel within hospitals and primary healthcare centers, which discovered that a significant group of the study subjects suffered from stress.⁽³²⁾ This result is supported by a systematic review, which concluded that stress is a common syndrome among healthcare personnel in primary healthcare centers.⁽¹²⁾

A study conducted by Arafa et al.⁽³³⁾ on 426 HCWs (physicians, nurses, and other care providers) from Egypt and KSA on the front line of defense against COVID-19 stated that the majority of the studied subjects experienced stress and its related negative consequences, and research done in China showed that about one-third of participants had stress.⁽³⁴⁾

Moreover, research done in Spain found that more than two-thirds of healthcare personnel suffered from stress during this pandemic.⁽²⁹⁾ In a study conducted in Saudi Arabia about healthcare providers working in primary health centers (regular and fever clinics; clinics specialized in managing patients with COVID-19 symptoms), the results affirmed that HCWs in fever clinics exhibited significantly more stress and role conflict and ambiguity than those who were working in regular primary healthcare centers.⁽³⁵⁾ The results of the current study publicized that almost half of nurses and pharmacists had a high level of stress; meanwhile, nearly half of the physicians and more than half of the secretaries and employees had a moderate level of stress. A possible acceptable explanation for the high level of stress among nurses is that female nurses tend to have more family responsibilities in their daily lives, as well as worry about becoming infected and infecting relatives, work-related concerns about the quality of patient care, changing health team responsibilities, and lack of personal protective equipment. In line with the foregoing, a study on 406 nurses in Xinjiang, China⁽³⁾ exhibited high levels of stress, which agrees with study results conducted on healthcare providers across the U.S.⁽³⁶⁾ Thus, among 288 providers, two-thirds (n=184) reported increased stress, and one-third (n=96) reported increased anxiety or depression related to care provision during the COVID-19 epidemic.

The high level of stress among pharmacists may be due to fewer pharmacists being employed per shift, increased workload, increased infection rates, and worry about getting infected; in addition, the pharmacists did not receive sufficient education about epidemics, so the media was their primary source of knowledge about COVID-19. Fears of the pandemic lasting for too long, and increased working hours were factors contributing to increased emotional distress. Similar to the current study results, a study conducted by Hawari et al.⁽³¹⁾ revealed that pharmacists experienced greater distress during the COVID-19 lockdown period.

The current study demonstrated a statistically significant positive relationship between the level of perceived stress and age, years of experience, having overtime work, the number of patients contacted per day, and the working site at the center.

In the same line, findings of a study about stress and burnout among HCWs during the COVID-19 pandemic showed that younger age was the strongest predictor of perceived stress.⁽³⁷⁾ Also, our study is consistent with a study of HCWs in Singapore,⁽³⁸⁾ which showed that working longer hours than usual appeared to be strongly and consistently associated with stress, anxiety, and job burnout. On the other hand, a study of HCWs by Maraqa et al.⁽³²⁾ showed that age, job title, experience, marital status, and type of healthcare setting showed no significant relation with high-stress levels

Results of the present study revealed a statistically significant positive relationship between EE and the level of experience, days worked per week, the number of patients contacted per day and overtime work. Similarly, a study conducted among medical and administrative staff at a tertiary hospital in Italy during the COVID-19 pandemic showed that the factors affecting the levels of EE are the length of working experience and increased workload.⁽³⁹⁾ The findings of the present study are in congruence with meta-analysis research that reported a negative relation in that greater experience through years worked is one of the factors that decreased HCWs' risk of adverse psychological outcomes during virus outbreaks.⁽⁴⁰⁾

The present study result clarified that DP has a statistically significant, positive relation with days worked per week, the number of patients contacted per day, overtime work, and working site at the center. This DP may be due to feelings of treating patients as objects rather than human beings and becoming more callous toward patients, extra workload, change in work responsibilities, change in the worksite, and less work environment satisfaction. The result aligns with a study conducted in Saudi Arabia,⁽⁴¹⁾ which also found that DP levels are higher when working more than eight hours during the COVID-19 pandemic, when performing on-call duties, and when job duties are changed. In addition, a study among health professionals in Italy stated that work hours were found to be one of the predictors of depersonalization during the COVID-19 pandemic.⁽⁴²⁾

The focus of the current study was to identify the correlation between burnout and stress among HCWs. The results revealed a statistically significant, positive correlation between degrees of EE and DP with stress levels. The supplementary analysis may be due to burnout leading to physical stress and sickness in addition to stress. HCWs feared infecting their loved ones with COVID-19 due to their exposure to the virus.⁽⁴³⁾

Besides, since the onset of the pandemic, HCWs have experienced worsening work conditions and higher than usual rates of sickness and death among patients and colleagues due to complications related to COVID-19. In line with this hypothesis, the findings from other studies documented that work-related stress is associated with a range of adverse health outcomes, including EE and psychiatric disorders.⁽⁴⁴⁾ Similarly, a study among 488 Chinese nurses that investigated occupational stress, job burnout, and quality of life of surgical nurses in Xinjiang (China) clarified a positive correlation between occupational stress and job burnout.⁽³⁾ A study in Turkey among HCWs showed that high, moderately positive

correlations were found between stress, trait anxiety, and burnout.⁽⁴⁵⁾

Conclusion

Regarding degree of burnout, the current study results concluded that, two-thirds of HCWs had high occupational exhaustion, around three-quarters had high depersonalization, and the majority of them had low PA assessment. Regarding stress levels, almost half of HCWs had high stress, and more than one-third had moderate stress. There was a statistically significant, positive correlation between degrees of occupational exhaustion, depersonalization, and stress level.

We recommend:

- Design and implement health education programs to reduce symptoms of stress, and the impact and risk of burnout.
- Design and implement stress reduction and psychological support programs for HCWs to reduce stress.
- Conduct counseling services in response to the COVID-19 outbreak in different healthcare settings for HCWs.
- Introduce supportive administrative practices in order to reduce the stress and anxiety levels of healthcare professionals.

This research can inform healthcare leaders and enable them to improve HCWs' experience by addressing levels of stress and burnout; managers must support staff who provide care and service to decrease the harmful effects of the COVID-19 pandemic. Finally, organizational managers must provide a safe and comfortable working environment that improves staff satisfaction and countermands burnout and stress. The organization will benefit because employees with low levels of burnout and stress will engage in their jobs and have high achievements.

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Competing Interests

The authors declare that they have no competing interests.

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