Burnout and quality of life among healthcare professionals during the COVID-19 pandemic in Saudi Arabia

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ABSTRACT

Background and Objectives. Healthcare professionals (HCPs) have had to deal with large numbers of confirmed or suspected cases of COVID-19 and were at a high risk of burnout and dissatisfaction regarding their work-life integration. This article aims to assess burnout, the work-life balance (WLB), and quality of life (QoL) among healthcare workers and the relationship between these aspects in Saudi Arabia. Methods. An analytical cross-sectional study was conducted among 491 HCPs from five secondary hospitals in Jazan, Saudi Arabia. Three standardized questionnaires were used to gather data, including WLB, burnout, and the WHO Quality of Life-BREF. Results. Healthcare professionals struggled to balance their work and personal lives during COVID-19 and reported many burnout symptoms and a low level of QoL. Two-thirds (68.8%) of HCPs arrived home late from work and (56.6%) skipped a meal. HCPs who worked through a shift without any breaks were found in 57.8%. It was reported that 39.3% of HCPs felt frustrated by technology while being exhausted from their work (60.5%). The correlation coefficients between the WLB and health-related QoL (HRQoL) showed a significant negative correlation for all items, which ranged from (-.099 to -.403, $P<0.05$). The WLB and burnout scores were successful predictors of low levels of HRQoL ($P<0.001$ for both explanatory variables). Conclusions. Work-life imbalances, high levels of burnout, and low QoL levels are common among healthcare professionals in Saudi Arabia during COVID-19. Hospital administration should address the WLB and reduce burnout symptoms among HCPs to increase satisfaction and improve the quality of care.

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Key words: healthcare professionals during COVID-19, KSA.

Acknowledgments: the authors would like to thank the Jazan Health Directorate for their cooperation. Additionally, they would like to thank all HCPs who sacrificed their valuable time to participate in this study.

Contributions: the authors contributed equally.

Conflict of interest: the authors declare no potential conflict of interest.

Funding: none.

Ethical approval and consent to participate: the study was performed following approval by the local authorities (Jazan Health Ethics Committee #2131). Consent from the HCPs was obtained before data collection.

Availability of data and material: data and materials are available by the authors.

Received: 5 July 2023.
Accepted: 5 July 2023.

Licensee PAGEPress, Italy
Italian Journal of Medicine 2023; 17:1623
doi:10.4081/itjm.2023.1623

Introduction

The COVID-19 pandemic is an unprecedented public health crisis. The pandemic affected the healthcare system and caused morbidity and mortality for the public and the healthcare profession (HCPs). Moreover, it resulted in unmeasured significant psychological impacts. During the past two years, many studies have been conducted assessing the psychological impact of COVID-19 on healthcare workers (HCWs).[1-4] High levels of stress, anxiety, depression, insomnia, obsessive-compulsive symptoms, somatization, post-trauma stress disorder, increased risk of developing long-term mental health implications were reported.[1-3]

Work-life balance (WLB) for HCPs has become an important focus during the COVID-19 pandemic. WLB is defined as a high-level engagement in professional

activities and personal commitments with minimal conflict between social roles inside and outside of work. WLB is comprised of the following three dimensions: time, involvement, and satisfaction balance.[5-7] There is a relationship between WLB and burnout, and a significant relationship is found between WLB, organization, commitment, and job satisfaction.[8]

Burnout can be defined as a "state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding" and displayed by the following three aspects: personal burnout, work-related burnout, and client-related burnout.[9] WLB was proven to be associated with quality of life (QoL) in every domain.[10] The World Health Organization (WHO) defines QoL as the "population's perception of their position in life in the context of the culture and value systems in which they live and, on their goals, expectations, standards, and concerns".[11]

The COVID-19 outbreak upended work, family, and social life and placed significant pressure on the global healthcare system. HCWs have had to deal with large numbers of confirmed or suspected cases and are under massive psychological and physical stress.[12-14] Overall, HCPs are at a high risk of burnout and dissatisfaction regarding their work-life integration (WLI) in comparison to other workers, which in turn, impacts patient satisfaction, quality of care, and costs.[15,16] The burnout of HCWs and a reduction in the QoL are related to increased medical errors.[17] It is well documented that a large number of international studies have been conducted during COVID-19 assessing HCWs levels of burnout.[18-20] The research outcomes dealing with working environments are entirely different in each setting over the course of the pandemic as the most important factor shaping HCWs' burnout differs from country to country.

Most studies conducted in Saudi Arabia on burnout and QoL occurred before the COVID-19 pandemic, although some reports were published in the past two years. These studies have shown a high prevalence of a moderate-to-high level of burnout and moderate-to-low QoL.[21-24] Studies assessing WLB, burnout, and quality of life are scanty. Hence, this research aims to assess WLB, burnout, QoL, and their associated factors among HCPs in the Jazan region.

Materials and Methods

Study design, setting, and population

We performed an observational cross-sectional study that targeted HCWs in Jazan hospitals. The study was conducted in the Jazan region, which is one of the smallest provinces in Saudi Arabia and covers an area of 13,457 km^2. The region lies in the southwestern part of Saudi Arabia at the northern border of Yemen and has a population of more than 1.5 million, according to the last population census in 2010. Additionally, it is divided into eight health sectors and has 21 governmental hospitals that belong to the Ministry of Health, of which one comprises governmental sectors and three comprise private hospitals. The study targeted all HCWs of different specialties and departments in Jazan hospitals. Work settings included intensive care units, inpatient units, outpatient clinics, pharmacies, clinical labs, and other departments across hospitals with COVID-19 wards. According to Health Manpower in MOH Hospitals 2018, there are 1708 physicians and 3736 nurses, and 3202 allied health personnel. The main inclusion criteria of the subjects were as follows: HCWs in major hospitals in the Jazan region; 50% or greater full-time equivalent; and those who have been working for at least four consecutive weeks.

Sampling procedures

The sample size for this study was calculated using the sample size formula for a cross-sectional study design. The anticipated population proportion (p) of the sample is estimated to be 50% to provide the maximum sample size, a 95% confidence level, and a 5% marginal error. Additionally, due to the 30% nonresponse rate and practical reasons, we increased the sample size to 550 HCPs. The respondents were selected using the simple random sampling method from five major hospitals in the Jazan region. The total sample size was distributed equally across the five selected hospitals, and proportionate sampling was selected for each job category in each hospital.

Data collection techniques, instruments, and their validity and reliability.

A web-based questionnaire was used for data collection. The data collection tool comprised four parts. The first part involved sociodemographic information (age, marital status, occupation, job period, chronic disease, economic status, nationality, residency, household members, and special habits, such as smoking or khat chewing). The second part was the work-life climate (eight items) scale, which is a psychometrically valid scale with the internal consistency of (Cronbach's alpha =0.83).[25] The work-life climate scale asked: "During the past week, how often did this occur?" This was followed by phrases such as skipping meals, arriving home late from work, or having difficulty sleeping. The response scale for the work-life climate items included the following: rarely or never (less than one day); sometimes (one to two days); occasionally (three to four days); all the time (five to seven days); and not applicable. HCPs in work settings with less frequent work-life climate difficul-

ties (lower scores) had a healthier WLB. The third part involved a burnout assessment of five items. It is part of the Safety, Communication, Operational Reliability, and Engagement (SCORE) survey. The SCORE is a validated measure of work setting regarding teamwork climate and personal burnout (Exhaustion).[25,26] The internal consistency for burnout climate is (0.90) using Cronbach's alpha.[25] The fourth part assessed the QoL outcomes using the WHO QoL BRef (WHOQoL-BREF). It is a self-administered 26-item instrument that is categorized into four domains (physical, psychological, social relationships, and environmental). Each item is scored from one to five on a response scale. Higher total scores indicate a higher QoL.[27] The WHOQoL-BREF is a valid questionnaire with Cronbach's alpha coefficient for the whole scale of 0.93.[28] The internal constancy for this research was assessed based on Cronbach's alpha and produced 0.768, 0.803, and 0.898 for the WLB, personal burnout and the WHOQoL-BREF, respectively.

Statistical analysis and data processing

The Statistical Package for Social Sciences software program ver. 24 was used for data analysis. Descriptive statistics that were based on simple tabulations, frequencies, and percentages were used. The distribution of continuous variables was assessed using the Kolmogorov-Smirnov test, and the means and the standard deviations were calculated. Categorical variables were described as frequency and percentage. To assess the differences in demographic, workplace, QoL, and burnout characteristics, the means of continuous variables were compared using the student's t-test and one-way ANOVA. Additionally, the Pearson correlation coefficient was used to examine the association between WLB, burnout, and QoL among the study participants. The differences in the percentages of categorical variables between the two groups were assessed using the Chi-square test, and the multiple linear regression model was used to assess the predictors of the overall QoL score. The final model was assessed for multicollinearity and assumptions of the ordinary least squares technique. A P-value of less than 0.05 was used as a cutoff to indicate that the result was statistically significant.

Ethical considerations

The study was performed following approval by the local authorities (Jazan Health Ethics Committee #2131). Consent from the HCPs was obtained before data collection. The participants were told that they had the right to refuse or withdraw at any time and that no identification data would be collected. The data collected from the study participants was kept and used for scientific purposes only.

Results

Table 1 illustrates the HCWs' background characteristics and work-life climate, burnout, and HRQoL indicators, according to the selected characteristics. The total number of HCPs who responded to the survey was 491 (89.3%, 491 out of the targeted 550). Male HCPs represented 64.4% (n=316), while females represented 35.6% (n=175). The distribution of the HCPs showed that 22.6% (n=111) were physicians, 27.1% (n=133) were nurses, 20.6% (n=101) were technicians, 13.2% (n=65) were therapists, 9.6% (n=47) were administrative and management staff and 6.9% (n=34) were pharmacists. Most of the respondents were aged 30-39 years (n=233; 47.5%), followed by 20-29 years (n=161; 32.8%) and 40-69 years (n=97; 19.8%). The table showed that females had a significantly higher level of burnout (M=3.5, SD=0.8) compared to males (M=3.2, SD=1.0, P<0,05). Physicians and nurses reported higher levels of burnout (M=3.6, SD=0.9) compared to other HCPs (P<0.05). HCPs who lived alone experienced more burnout (M=3.4, SD=0.9) than those who lived with their families (M=3.3, SD=1.0, P<0,05).

Table 2 presents the work-life climate and burnout dimensions among HCWs according to gender. Two-thirds (68.8%) of HCPs arrived home late from work and (56.6%) skipped a meal. HCPs who worked through a shift without any breaks were found in 57.8%. Regarding the work-life climate, it was reported that 39.3% of HCPs felt frustrated by technology. Compared to males, 66.9% of females reported changing personal/family plans because of work, 69.1% arrived home late from work, and 64% had more difficulty sleeping. However, there were no significant differences between males and females in all WLB dimensions (P>0.5 for all items).

According to the burnout dimensions, the highest complaint among HCPs was for working too hard on the job (63.7%), followed by being exhausted from their work (60.5%). Approximately one-third (36.5%) of all HCPs were frustrated by their jobs, which represented the lower percentage of all dimensions of burnout. Although females were 4.3% more burnt out from their work and 62.9% more exhausted from their jobs compared to males, there were no significant differences (P>0.05).

The correlation coefficients of all dimensions of the WLB, HRQoL, and burnout items are shown in Table 3. The correlation coefficients of order zero were measured using the Pearson correlation coefficient. The correlation coefficients between WLC and HRQoL showed a significant negative correlation for all items, ranging from -.099 to -.403 (P<0.05), except for the items regarding the poorly balanced meal and social domains of QoL, where the correlation coefficient was negative at r=-0.082. However, this was statistically in-

Table 1. Healthcare profession's background characteristics and burnout scores indicators according to some selected characteristics (n=491).

Characteristic	N	%	Burnout mean (SD)		P-value
Gender	Male	316	64.4	3.2 (1.0)	0.014
	Female	175	35.6	3.5 (0.9)	
Age groups	20-29 years	161	32.8	3.3 (1.0)	0.010
	30-39 years	233	47.5	3.4 (0.9)	
	40-62 years	97	19.8	3.1 (1.0)	
Occupation	Physician	111	22.6	3.6 (0.9)	<0.001
	Nurse	133	27.1	3.6 (0.9)	
	Pharmacist	34	6.9	2.8 (0.9)	
	Administration/management	47	9.6	2.8 (0.9)	
	Technician	101	20.6	3.1 (1.0)	
	Therapist	65	13.2	3.1 (1.0)	
Residence	Rural	238	48.6	3.2 (1.0)	0.009
	Urban	252	51.4	3.4 (1.0)	
Nationality	Saudi	385	78.6	3.2 (1.0)	0.008
	Non-Saudi	105	21.4	3.6 (1.0)	
Marital status	Single	143	29.1	3.3 (1.0)	0.339
	Married	338	68.8	3.3 (1.0)	
	Divorced/widowed	10	2.0	3.7 (1.1)	
Mode of living	Alone	62	12.6	3.4 (0.9)	0.012
	With family	404	82.3	3.3 (1.0)	
	With friends	25	5.1	3.8 (1.1)	
Monthly income	Less than 15 thousand	310	63.1	3.2 (1.0)	0.070
	15000-25000	153	31.2	3.5 (0.9)	
	26000-35000	8	1.6	3.1 (1.1)	
	More than 35000	20	4.1	3.2 (1.2)	
All participants		491	100	3.3 (1.0)	

Table 2. Work-life climate and burnout dimensions among healthcare professionals according to gender (n=491).

Variables	Proportion with agree response			P-value
	All HCW N (%)	Male N (%)	Female N (%)	
Work-life dimensions				
Skipped a meal	278 (56.6)	179 (56.6)	99 (56.6)	0.987
Worked through a shift without any breaks	284 (57.8)	192 (60.8)	92 (52.6)	0.078
Ate a poorly balanced meal	222 (45.2)	148 (46.8)	74 (42.3)	0.332
Changed personal/family plans because of work	307 (62.5)	190 (60.1)	117 (66.9)	0.140
Had difficulty sleeping	288 (58.7)	176 (55.7)	112 (64.0)	0.074
Slept less than 5 hours in a night	290 (59.1)	191(60.4)	99 (56.6)	0.403
Arrived home late from work	338 (68.8)	217 (68.7)	121 (69.1)	0.914
Felt frustrated by technology	193 (39.3)	125 (39.6)	68 (38.9)	0.879
Burnout dimensions				
Affected by events in an emotionally unhealthy way	228 (46.4)	145 (45.9)	83 (47.4)	0.743
Burned out from their work	240 (48.9)	145 (45.9)	95 (54.3)	0.075
Exhausted from their work	297 (60.5)	187 (59.2)	110 (62.9)	0.424
Frustrated by their jobs	179 (36.5)	105 (33.2)	74 (42.3)	0.046
Working too hard at their jobs	313 (63.7)	199 (63.0)	114 (65.1)	0.632

HCW, healthcare workers. P-value is based on pearson chi-square.

significant (P>0.05). The table documented a positive significant correlation coefficient between all items for the burnout and WLB dimensions. The correlation coefficient ranged from 0.159 to 0.489 (P<0.05) for all.

Table 4 provides the multiple linear regression model for the factors that predict the overall HRQoL scores among the study participants. The table shows that WLB and burnout scores significantly predict a low

Table 3. Correlations between work-life climate and health-related quality of life domains and burnout dimensions (n=491).

Variable	Skipped a meal	Ate a poorly balanced meal	Worked through a day/shift without any breaks	Arrived home late from work	Had difficulty sleeping	Slept less than 5 hours in a night	Changed personal/ family plans because of work	Felt frustrated by technology
HRQoL								
Overall health	-.178**	-.166**	-.187**	-.142**	-.294**	-.210**	-.217**	-.314**
Physical domain	-.142**	-.138**	-.251**	-.187**	-.403**	-.346**	-.217**	-.303**
Psychological domain	-.104*	-.099*	-.224**	-.153**	-.320**	-.258**	-.168**	-.348**
Social domain	-.126*	-0.082	-.205**	-.134**	-.270**	-.230**	-.225**	-.225**
Environmental domain	-.150**	-.107*	-.230**	-.200**	-.270**	-.239**	-.172**	-.287**
Burnout								
Affected by events here in an emotionally unhealthy way	.191**	.259**	.336**	.336**	.264**	.258**	.257**	.184**
Burned out from their work	.217**	.236**	.395**	.448**	.355**	.228**	.360**	.311**
Exhausted from their work	.235**	.279**	.410**	.489**	.361**	.303**	.402**	.187**
Frustrated by their jobs	.156**	.197**	.342**	.317**	.332**	.219**	.310**	.300**
Working too hard on their jobs	.159**	.164**	.298**	.382**	.212**	.162**	.279**	.168**

**Correlation is significant at the 0.01 level (2-tailed). HRQoL, health-related quality of life.

Table 4. Multiple linear regression model for the factors that are associated with the health-related quality of life overall scores as a dependent variable (n=491).

Term	Coef	SE Coef	T-value	P-value
WLB score	-5.12	1.02	-5.01	<0.001
Burnout score	-2.296	0.867	-2.65	0.008
Age (Years)	0.242	0.102	2.36	0.018
Gender				
Male (ref)				
Female	-2.35	1.76	-1.34	0.182
Nationality				
Saudi (ref)				
Non-Saudi	0.86	2.08	0.42	0.677
Residency				
Rural (ref)				
Urban	1.88	1.43	1.32	0.187
Occupation				
Physician (ref)				
Nurse	4.18	2.32	1.80	0.072
Pharmacist	6.08	3.15	1.93	0.054
Administration/management	10.06	2.85	3.53	0.000
Technician	6.73	2.33	2.89	0.004
Therapist	8.49	2.60	3.26	0.001
Marital status				
Single (ref)				
Married	1.68	1.69	1.00	0.319
Divorced/widowed	-7.34	4.82	-1.52	0.128

WLB, work-life balance; HRQoL, health-related quality of life; Coef, regression coefficient; SE Coef, standard error of the coefficient; ref, reference.

level of HRQoL (P<0.001 for both explanatory variables). The results indicate that an increase in the WLB score by one unit decreased the HRQoL by 5.12, while an increase in the burnout score by one unit decreased the overall HRQoL score by 2.296. The table indicated that although the nurses exhibited 4.18-fold higher HRQoL scores than the physicians, it was statistically insignificant (Beta=4.18, P>0.05). Moreover, administration/management exhibited 10.06-fold higher HRQoL scores than the physicians (Beta=10.06, P<0.05). The same applies to technicians (Beta=6.73, P<0.05) and therapists (Beta=8.49, P<0.05).

The mean scores and their 95% CI for all subscales of the HRQoL according to gender are shown in Figure 1. The figure shows that there are statistically significant differences in all domains' HRQoL, except for the social domain (P<0.05 for all). Female participants scored lower than males in all subscales of the HRQoL domains. The social domain had the highest mean among all study participants.

Discussion

The growing interest in WLB is manifested by the desire to improve employees' QoL by exploring the pivotal role of health as a fundamental domain in WLB.[29] The COVID-19 pandemic was unprecedented and represented a real challenge for HCPs, as it created stressful circumstances due to increased patient loads and exposure to the risk of death due to the new unknown disease.[30] It is well documented that HCPs' work environments and personal lives were significantly affected by COVID-19. This research provided important insight into the impact of COVID-19 on HCPs in Saudi Arabia in terms of WLB, burnout, and QoL.

Establishing a good WLB requires balancing work and nonwork activities, such as family and personal life, with minimum conflict.[31] Our results revealed that most study participants scored high means for the WLB during COVID-19. This was shown by the high percentages of agreement in all domains of WLB, ranging from 39.3% to 68.8%. This indicated the existence of a high level of work-life unbalance. Our results agree with the outcomes of studies that were conducted during the severe acute respiratory syndrome outbreak in 2002, where HCPs reported increasing levels of the WLB.[32,33]

Our results reported a relatively high degree of frustration with the technology, which is consistent with recent research that was conducted in Saudi Arabia, where 40.1% reported experiencing burnout that was associated with the use of electronic health records during COVID-19.[34] The results of our study suggested high levels of burnout in most dimensions, ranging from 36.5% to 63.7%. These findings are consistent with research that was conducted during COVID-19 in

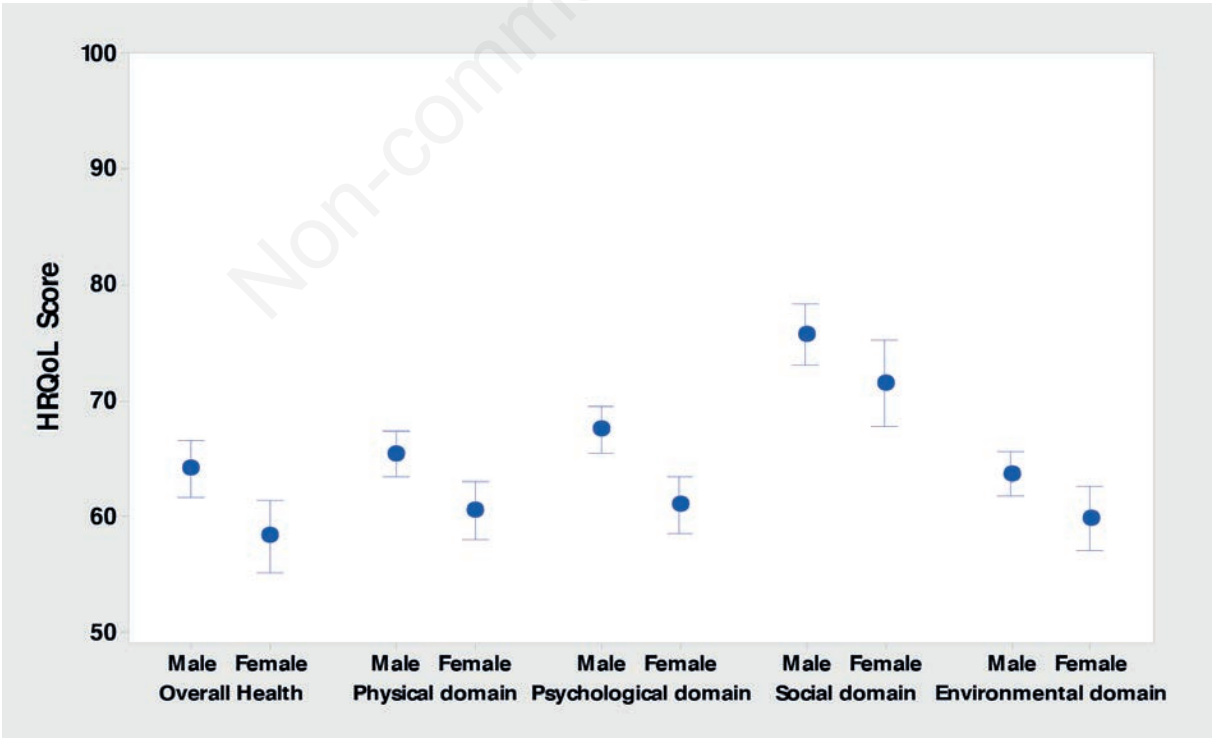

Figure 1. Mean scores and 95% confidence interval for subscales of the health-related quality of life (scored from zero to 100) according to gender. Statistically significant differences in all domains except for social. Statistically significant according to the independent t test. HRQoL, health-related quality of life.

Italy, where burnout was described as of great concern among HCPs in a large tertiary hospital.[35]

The QoL assessment in the present study indicated a relatively low QoL, except for the social domain. This is consistent with a study in Saudi Arabia,[36] where they found that the QoL among HCPs during the COVID-19 pandemic was low. Additionally, our results are consistent with a study that was conducted in India, where 45% of the HCPs reported a low QoL.[37]

Regarding the association between WLB and burnout, our results found a significant association between the poor WLB factors and burnout domains. This is in agreement with many studies that published similar research.[5,38] The multiple linear regression model indicated that age is an independent predictor of the overall QoL, as an increase in age is associated with an increase in the overall QoL. This is consistent with two studies in Saudi Arabia.[36,39] The possible explanation for this is that more experienced HCPs may be more adaptable to the work situation than younger staff.

Although this study is the first Jazan region, KSA to sketch the profile of WLB, burnout, and QoL in Saudi Arabia, our research has some limitations. First, as we used a cross-sectional design, the associations between WLI behavior, burnout, and QoL should be interpreted carefully. Second, the discussion of our findings in this article was very general in some parts, as it was influenced by the various scales that were used to assess the WLB, burnout, and QoL. Finally, the self-reported data may affect the accuracy of the study outcomes; however, our population level of education and the high response rate may mitigate potential sampling bias. The study did not analyze the WLB, burnout, and QoL in relation to COVID-19 variables, such as direct contact with patients, previous infection of COVID-19, and extra work hours. Further studies are recommended on these issues.

Conclusions

Burnout has always been an issue for HCPs; however, working within the stressful COVID-19 hospital environment has exacerbated the stress leading to burnout. The overall QoL was affected negatively for all healthcare workers. Work-life imbalances, high levels of burnout, and low QoL levels were common among HCPs in Saudi Arabia during COVID-19. To minimize the risk of imbalance and improve the QoL, hospital administration should address the work-life climate and reduce burnout symptoms among HCPs to increase satisfaction and improve the quality of care. There is an increasing need for coping strategies to minimize the impact of burnout and imbalances in work-life balance among the HCPs during crises to ensure that HCPs are equipped to face the challenges of future public health crises.

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