How to Cite:
Mahmoud, M. A., & Alorf, S. H. (2022). Impact of COVID-19 on quality of life among healthcare doctors and public health specialist, Saudi Arabia, Riyadh 2022. *International Journal of Health Sciences*, *6*(S5), 12050–12059.
https://doi.org/10.53730/ijhs.v6nS5.11826

Impact of COVID-19 on quality of life among healthcare doctors and public health specialist, Saudi Arabia, Riyadh 2022

Mahmoud Abdulrahman Mahmoud
Associate Professor Community and Preventive Medicine

Shaikhah Hamad Alorf
MBBS
Corresponding author email: Shaikhah.h.orf@gmail.com

***Abstract*---**Background: In 2019, coronavirus disease pandemic (COVID-19) influences the quality of life of health personnel who are on the front lines in dealing with COVID-19 patients. Aim and objectives: The Aim of the study was to assess the quality of life of medical doctor and public health specialist who worked during COVID19, Saudi Arabia, and Riyadh 2022 and to analysis the different risk factors affect the quality of life of medical doctors and public health specialist who worked during COVID19, Saudi Arabia, and Riyadh 2022. Subjects and methods: This was an analytic cross sectional which was done at Kingdome of Saudi Arabia, Riyadh,for medical doctors and public health specialist. Results: There was statistically significant difference in psychological domain between participants with physical or psychological disorders and those without, as participants with no physical or psychological disorders had higher psychological domain (mean = 64.55 ± 16.46) than participants with physical or psychological disorders (mean = 49.89± 16.86), p-value<0.001. Conclusion: The present study revealed health care workers' quality of life during and after the outbreak of the COVID-19 pandemic. Factors such as marital status, physical and psychological disorders, place of work and specialty were significantly associated with decrease the quality of life. It is commanding that the physical and mental health of health care workers is improved, to help fight the COVID-19 pandemic. Our findings can help health practitioners and authorities to identify high-risk individuals and provide them with appropriate intervention and timely protection.

***Keywords*---**assessment, quality of life, health professionals, COVID-19, SARS-CoV-2.

Introduction

The severe acute respiratory syndrome–coronavirus-2 (SARS-COV-2) pandemic, designated coronavirus disease-19 (COVID-19) reportedly emerged in Wuhan, China, at the end of December 2019, and then expanded all across the province, causing massive attention around the world. This virus can be actively spread from person to person by droplets emitted when coughing and sneezing. SARS-COV-2 infects the respiratory system, specifically the cells lining the alveoli, in humans. The first instance of COVID-19 was confirmed in Wuhan, Hubei Region, China. According to estimates, five SARS patients were treated first before the disease spread to all other countries. The World Health Organization declared the COVID-19 outbreak a global pandemic in March 2020 (1).

In the Kingdom of Saudi Arabia (KSA), the first case was detected on 2 March 2020, and the number of cases progressively increased in April 2020. The Saudi government adopted a proactive approach to timely control the spread of the disease. The Ministry of Health launched several educational campaigns on hand hygiene and the adoption of social distancing measures(2). The delivery of facemasks, gloves, and sanitizers in most public places was ensured since the beginning of the pandemic. The government implemented long curfew hours and lockdowns between March and June 2020 in most KSA regions, and canceled visits to holy places and mosques in the KSA and tourist area (3). the impact of the coronavirus disease 2019 (COVID-19) pandemic on the sustainability of quality of life (QOL) and the effects on social and human interactions have been reported worldwide(4).

The World Health Organization (WHO) defines QOL as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (5). The effect of stress, anxiety, and burnout levels on the quality of life of healthcare personnel caring with COVID-19 patients was investigated in a cross-sectional research study conducted in Turkey among 240 health care employees. The study employed the Perceived Stress Scale (PSS), Spielberger State-Trait Anxiety Inventory, Maslach Burnout Inventory, and Quality of Life (QoL) Scale. The study's main findings were that the stress, anxiety, and burnout experienced by health personnel caring for COVID-19 patients had an impact on their quality of life (QoL)(6)

Material and Methods

This was an analytic cross sectional which was done at Kingdome of Saudi Arabia, Riyadh, for medical doctors and public health specialist
Inclusion Criteria: Medical doctors and public health specialist who worked during COVID 19
Exclusion Criteria: Any other medical specialty, medical doctors who did not work during covid19
Sample Size: 385 or more surveys are needed to have a confidence level of 95% that the real value is within ±5% of the surveyed value

Sampling Technique: Using online survey, snowball sampling and convenience sample by using the data base of medical doctor in The Saudi Commission for Health Specialties
Date Collection Tool (Instrument) Quality of Life Scale is The World Health Organization Quality of Life (WHOQOL)

Statistical analysis plan

Descriptive statistics are presented in the form of mean and standard deviation for numerical variables. Numbers and percentages are used for the categorical variables. Independent samples t-test and one-way ANOVA test were used to compare physical health domain, psychological domain, social relationships domain and environment domain across characteristics of the participants. Multiple linear regressions were used to study the association of different domains and characteristics of the participants. Cronbach alpha was done to study the reliability of the four domains. IBM SPSS 28 for windows software was used for the analysis, and a P-value < 0.05 is considered statistically significant.

Results

Table 1: Characteristics of the participants (N=390)

		N	%
Gender	Male	149	38.21
	Female	241	61.79
Region	Riyadh	390	100.00
Specialty	Cardiologist	15	3.85
	ENT	38	9.74
	ER	43	11.03
	ER- pedia	30	7.69
	Family	19	4.87
	General surgery	49	12.56
	ICU	92	23.59
	IM	29	7.44
	Preventive medicine	75	19.23
Place of work	Governmental	260	66.67
	Private	27	6.92
	Military	103	26.41
Marital status	Single	100	25.64
	Married	290	74.36
Any physical or psychological disorders	No	313	80.26
	Yes	77	19.74
Age	Mean (SD)	32.50(4.24)	
	Less than 30	111	28.46
	30-39	254	65.13
	More than 40	25	6.41

A total of 390 participants of healthcare doctors and public health specialists who worked during COVID 19 epidemic were included in this study. 38.21% of the

participants were males and 61.79% were females. All the participants were Riyadh residents. 23.59% of them were specialized in ICU unit, 19.23% of them were working in preventive medicine, and 12.56% of them were general surgeons. The major of them 66.67% were working in governmental workplace, 26.41% were working in military workplace, where only 6.92% of them were working in private workplace. The majority of them 74.36% were married while 25.64% of them were single. 19.74% of the participants were suffering from physical or psychological disorders and 80.26% of them had no physical or psychological disorders. Mean age of the participants was 32.50 ± 4.24 years, while 28.46% of the participants were less than years, 65.13% of them were between the ages of 30-39 years and only 6.41% of them were more than 40 years.

Table 2: Testing the internal consistency of the four domains

Physical health domain	Cronbach's Alpha	0.827
	N of Items	7
Psychological domain	Cronbach's Alpha	0.810
	N of Items	5
Social relationships domain	Cronbach's Alpha	0.771
	N of Items	3
Environment domain	Cronbach's Alpha	0.795
	N of Items	8

Cronbach alpha for internal consistency test was done to study the reliability of the four domains. Physical health domain has good reliability, Cronbach's alpha= 0.827. Psychological domain has good reliability, Cronbach's alpha= 0.810. Social relationships domain has acceptable reliability, Cronbach's alpha= 0.771. Environment domain has acceptable reliability, Cronbach's alpha= 0.795.

Table 3: Comparison of physical health domain, psychological domain, social relationships domain and environment domain across gender

	Gender	N	Mean	SD	P-value
Physical health domain	Male	149	66.35	18.55	0.081
	Female	241	63.01	18.15	
Psychological domain	Male	149	62.78	17.84	0.320
	Female	241	60.96	17.32	
Social relationships domain	Male	149	65.07	21.71	0.547
	Female	241	63.69	22.32	
Environment domain	Male	149	64.32	15.80	0.775
	Female	241	63.85	15.28	

Independent t-test was used to compare physical health domain, psychological domain, social relationships domain and environment domain across gender. There was no statistically significant difference.

Table 4: Comparison of physical health domain, psychological domain, social relationships domain and environment domain across marital status

	Marital status	N	Mean	SD	P-value
Physical health domain	Single	100	61.75	17.73	0.109
	Married	290	65.16	18.52	
Psychological domain	Single	100	53.67	18.77	<0.001
	Married	290	64.41	16.21	
Social relationships domain	Single	100	58.63	20.07	0.003
	Married	290	66.15	22.44	
Environment domain	Single	100	62.81	13.96	0.363
	Married	290	64.45	15.95	

Independent t-test was used to compare physical health domain, psychological domain, social relationships domain and environment domain across marital status. There was statistically significant difference in psychological domain across marital status, as married participants had higher psychological score (mean = 64.41± 16.21) than single participants (mean = 53.67± 18.77), p-value<0.001. There was statistically significant difference in social relationships domain across marital status, as married participants had higher social relationships score (mean = 66.15± 22.44) than single participants (mean = 58.63± 20.07), p-value= 0.003.

Table 5: Comparison of physical health domain, psychological domain, social relationships domain and environment domain across any physical or psychological disorders

Any physical or psychological disorders		N	Mean	SD	P-value
Physical health domain	No	313	66.84	17.96	<0.001
	Yes	77	53.90	16.24	
Psychological domain	No	313	64.55	16.46	<0.001
	Yes	77	49.89	16.86	
Social relationships domain	No	313	67.86	20.78	<0.001
	Yes	77	49.40	21.07	
Environment domain	No	313	66.29	14.67	<0.001
	Yes	77	54.83	15.28	

There was statistically significant difference in physical health domain between participants with physical or psychological disorders and those without, as participants with no physical or psychological disorders had higher physical health domain (mean = 66.84 ± 17.96) than participants with physical or psychological disorders (mean = 53.90± 16.24), p-value<0.001. There was statistically significant difference in psychological domain between participants with physical or psychological disorders and those without, as participants with no physical or psychological disorders had higher psychological domain (mean = 64.55 ± 16.46) than participants with physical or psychological disorders (mean = 49.89± 16.86), p-value<0.001.

Table 6: Comparison of physical health domain, psychological domain, social relationships domain and environment domain across age

	Age	N	Mean	SD	P-value
Physical health domain	Less than 30	111	63.45	19.91	0.851
	30-39	254	64.64	17.74	
	More than 40	25	64.43	17.96	
Psychological domain	Less than 30	111	62.12	17.45	0.871
	30-39	254	61.34	17.64	
	More than 40	25	62.83	17.18	
Social relationships domain	Less than 30	111	63.63	22.18	0.708
	30-39	254	64.14	22.42	
	More than 40	25	67.67	18.21	
Environment domain	Less than 30	111	63.24	15.50	0.743
	30-39	254	64.22	15.38	
	More than 40	25	65.63	16.56	

One-way ANOVA test was used to compare physical health domain, psychological domain, social relationships domain and environment domain across age. There was no statistically significant difference.

Table 7: Multiple linear regression for the association between physical health domain and characteristics of the participants

Physical health domain	Coefficient	P-value	95% CI of the coefficient	
Gender				
Male	Ref.			
Female	-3.27	0.075	-6.86	0.33
Age	-0.12	0.589	-0.54	0.31
Specialty				
Cardiology	Ref.			
ENT	0.57	0.915	-9.92	11.06
ER	-5.59	0.287	-15.9	4.72
ER- pedia	-0.4	0.942	-11.27	10.46
Family	-7.28	0.228	-19.14	4.59
General surgery	-0.07	0.989	-10.22	10.07
ICU	-1.05	0.829	-10.66	8.55
IM	-3.63	0.515	-14.59	7.33
Preventive medicine	1.23	0.802	-8.46	10.92
Place of work				
Governmental	Ref.			
Private	-4.58	0.204	-11.66	2.5
Military	-6.86	0.001	-10.93	-2.79
Marital status				
Single	Ref.			
Married	-1.36	0.53	-5.61	2.89
Any physical or psychological disorders				
No	Ref.			

Yes	-14.22	<0.001	-18.9	-9.55

* Ref = Reference category, CI = confidence interval

Multiple linear regressions was used to study the association of physical health domain and characteristics of the participants. There was statistically significant association between physical health domain with place of work and physical or psychological disorders. As compared to governmental workplace, military workplace had a lower physical health domain score by an average of 6.86, p-value =0.001. As compared to absence of physical or psychological disorders, presence of physical or psychological disorders had a lower physical health domain by an average of 14.22, p-value <0.001.

Table 8: Multiple linear regression for the association of environment domain and characteristics of the participants

Environment domain	Coefficient	P-value	95% CI of the coefficient	
Gender				
Male	Ref.			
Female	-0.34	0.828	-3.38	2.71
Age	0.06	0.752	-0.3	0.41
Specialty				
Cardiology	Ref.			
ENT	5.25	0.246	-3.63	14.13
ER	-2.53	0.568	-11.26	6.19
ER- pedia	2.91	0.534	-6.29	12.11
Family	-2.79	0.585	-12.83	7.25
General surgery	1.65	0.705	-6.93	10.24
ICU	2.74	0.508	-5.39	10.88
IM	0.65	0.89	-8.62	9.93
Preventive medicine	4.42	0.29	-3.78	12.62
Place of work				
Governmental	Ref.			
Private	-4.89	0.109	-10.88	1.1
Military	-2.07	0.238	-5.52	1.37
Marital status				
Single	Ref.			
Married	-2.51	0.171	-6.11	1.09
Any physical or psychological disorders				
No	Ref.			
Yes	-12.57	<0.001	-16.53	-8.62

* Ref = Reference category, CI = confidence interval

Multiple linear regressions was used to study the association of environment domain and characteristics of the participants. There was statistically significant association of environment domain with physical or psychological disorders. As compared to absence of physical or psychological disorders, presence of physical or psychological disorders had a lower environment domain by an average of 12.57, p-value <0.001.

Discussion

In our present study findings, physical health and psychological domains have good reliability, while social relationships and environment domains have acceptable reliability. This domains also studied in Bangladesh study where physical domain scored the highest, shadowed by social relationship, environmental, and psychological domains, respectively. Eventually, the promising scores corresponding to each domain assert the overall improvement of the QoL among the HCWs. (7) In addition, the findings of the earlier studies performed on the general population are congruent to the current study. (3,8) An Indonesia cross-sectional study reported that the Physical and Psychological Health Domains average scores indicated Good QoL, whereas Social Relation and Environmental Health Domains average scores indicated Moderate QoL among HWs. (9)

In the current study, there was no statistically significant difference when comparing four domains across gender. In contrast, the average QoL score of Covid-19 recovered female HCWs was significantly lower than their male counterparts in psychological, social relationships, and environmental domains in Bangladesh study. (7) In another Cross-Sectional Survey from the Kingdom of Saudi Arabia, male had lower scores than females. (3) In this present study, there was no statistically significant difference when comparing four domains across age. However, male and middle-aged participants were more at risk of lower QoL scores, reported in Saudi Arabia survey. (3) In Chinese study, younger age was shown to be associated with the likelihood of developing mental health problems in HCWs. (10) In contrast, in another Saudi Arabia study detected that healthcare professionals who were more than 40 years of age had higher mean scores. (11) After comparing four domains across marital status in this study, there was statistically significant difference in both psychological and social relationships domains across marital status, as married participants had higher psychological score and social relationships domains than single participants. We found that married participants had a higher psychological domain.

Similarly, in Turkey study, married healthcare professionals had significantly higher stress and trait anxiety scores than single employees. (6) Also in Bangladesh, single HCW had a better physical and psychological QoL than married and divorced HCW while married respondents had a better social life. (7)Among present study, there was statistically significant difference in four domains between participants with physical or psychological disorders and those without. Participants without physical or psychological disorders had higher score than those with disorders. Similarly, HCW with comorbid medical conditions reported significantly lower QoL scores in the other Saudi Arabia Survey. (3) Also, in Italian study, participants reporting PTSD with comorbid depression had higher each domain scores. (12)

Finally, Regarding to our comparison of four domains across place of work which recently discussed in our study, the physical health domain was higher in governmental workplace than in military workplace. Furthermore, the psychological domain was higher in governmental workplace than in private workplace and in military workplace than in private workplace. However,

governmental workplace and military workplace had a lower physical health and social relationships domain score and governmental workplace and private workplace had a lower psychological domain.

Conclusion

The present study revealed health care workers' quality of life during and after the outbreak of the COVID-19 pandemic. Factors such as marital status, physical and psychological disorders, place of work and specialty were significantly associated with decrease the quality of life. It is commanding that the physical and mental health of health care workers is improved, to help fight the COVID-19 pandemic. Our findings can help health practitioners and authorities to identify high-risk individuals and provide them with appropriate intervention and timely protection.

References

1. Algahtani FD, Hassan SUN, Alsaif B, Zrieq R. Assessment of the quality of life during covid-19 pandemic: A cross-sectional survey from the kingdom of saudi arabia. Int J Environ Res Public Health. 2021;18(3):1–12.
2. Algaissi AA, Alharbi NK, Hassanain M, Hashem AM. Preparedness and response to COVID-19 in Saudi Arabia: Building on MERS experience. J Infect Public Health. 2020 Jun;13(6):834–8.
3. Arab-Zozani M, Hashemi F, Safari H, Yousefi M, Ameri H. Health-related quality of life and its associated factors in COVID-19 patients. Osong Public Heal Res Perspect. 2020;11(5).
4. Carmassi C, Pedrinelli V, Dell'Oste V, Bertelloni CA, Grossi C, Gesi C, et al. PTSD and Depression in Healthcare Workers in the Italian Epicenter of the COVID-19 Outbreak. Clin Pract Epidemiol Ment Heal. 2021;17(1).
5. Çelmeçe N, Menekay M. The Effect of Stress, Anxiety and Burnout Levels of Healthcare Professionals Caring for COVID-19 Patients on Their Quality of Life. Front Psychol. 2020 Nov;11:1–7.
6. Hadning I, Ainii NQ. An Analysis of Health Workers' Quality of Life in Indonesia During COVID-19 Pandemic. In: Proceedings of the 4th International Conference on Sustainable Innovation 2020–Health Science and Nursing (ICoSIHSN 2020). 2021.
7. Intriago, C. Z., & Posligua, T. I. Q. (2020). Telecommunications and virtualization in times of pandemic: impact on the electrical engineering career. *International Journal of Physical Sciences and Engineering*, *4*(3), 38–44. https://doi.org/10.29332/ijpse.v4n3.630
8. Keshky E, El Sayed M, Basyouni SS, Al Sabban AM. Getting through COVID-19: The pandemic's impact on the psychology of sustainability, quality of life, and the global economy–A systematic review. Front Psychol. 2020;3188.
9. Kim S. World Health Organization quality of life (WHOQOL) assessment. Encycl Qual life well-being Res. 2020;1–2.
10. Maqsood MB, Islam MA, Nisa Z un, Naqvi AA, Al Qarni A, Al-karasneh AF, et al. Assessment of quality of work life (QWL) among healthcare staff of intensive care unit (ICU) and emergency unit during COVID-19 outbreak using WHOQoL-BREF. Saudi Pharm J. 2021;29(11).

11. Marynets, N., Marynchenko, H., Vynnychuk, R., Voloshchuk, H., & Voropayeva, T. (2022). Education of humanitarian specialists during COVID-19 pandemic. *International Journal of Health Sciences*, *6*(1), 244–254. https://doi.org/10.53730/ijhs.v6n1.3907
12. Rashid MU, Khan MAS, Dalal K, Sagar SK, Hossian M, Barsha SY, et al. Quality of life (QoL) among COVID-19 recovered healthcare workers in Bangladesh. BMC Health Serv Res. 2022 Dec;22(1).
13. Sharma A, Tiwari S, Deb MK, Marty JL. Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2): a global pandemic and treatment strategies. Int J Antimicrob Agents. 2020;56(2):106054.
14. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). The COVID-19 pandemic. *International Journal of Health Sciences*, *5*(2), vi-ix. https://doi.org/10.53730/ijhs.v5n2.2937
15. Wang P, Lu J an, Jin Y, Zhu M, Wang L, Chen S. Statistical and network analysis of 1212 COVID-19 patients in Henan, China. Int J Infect Dis. 2020;95