The Quality of Life of Urban Omani People During the COVID-19 Pandemic in A'Seeb Wilayat: A Cross-sectional Study

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ABSTRACT

Objectives: COVID-19 is an emergent disease with significant global concern, which might have a negative effect on quality of life. This study aimed to determine the impact of the COVID-19 pandemic on the quality of life of people (with or without COVID-19) attending primary health centers in A'Seeb Wilayat in Muscat, Oman. *Methods*: This cross-sectional study was conducted in four randomly selected primary health centers in A'Seeb Wilayat from 17 July 2021 to 31 January 2022. All Omani men and women, aged ≥ 18 years, regardless of their COVID-19 infection status, who were able to read and use online questionnaire, were included. The consecutive sampling method was applied. An online self-administered and validated Arabic version of the Short Form-12 was used to determine the impact of the COVID-19 pandemic on mental and physical quality of life. *Results:* A total of 701 participants were included with a mean age of 25.3 years. Two-thirds of the participants (n = 473, 67.5%) reported being physically affected by the COVID-19 pandemic (score of ≤ 50) and more than half (n = 392, 55.9%) had been mentally affected (score of ≤ 42). Univariate analysis revealed a significant association between physical impact and educational level, low family income, chronic diseases, and alcohol consumption. Gender, young age, being single, low income, and chronic diseases were significant risk factors for mental impact. *Conclusions:* Physical and mental impacts are very common during the COVID-19 pandemic. Several risk factors were identified. Public health programs need to be implemented to mitigate the negative impact of COVID-19 on quality of life.

COVID-19 is an emergent disease with significant global concern, caused by SARS-CoV-2.[1] The first case was reported on 1 December 2019 in Wuhan City in Hubei province, China.[1] With the rapid spread of the infection, the number of cases increased dramatically to 43 102 cases within 12 days only.[2] The World Health Organization (WHO) declared it a pandemic on 11 March 2020.[3] Worldwide, > 495 414 438 people were affected, and about 6 191 519 deaths were reported at the time of writing this paper.[4] Respiratory droplets constitute the main source of transmission, and the incubation period is about 14 days.[5] The majority of cases are mild in severity, with about 15% categorized as severe, and the overall mortality rate is about 2.3%.[6,7]

Different measures were advocated to curbing the spread of the disease, such as social distancing, hand hygiene, wearing face masks, and partial or total lockdown.[8] The profound impact of such measures on daily activities has resulted in potential impairment of quality of life.[9–12] A considerable amount of stress and worry about the social and economic consequences of the pandemic have raised concerns about the effect of COVID-19 on the mental and physical health of the population. A nationwide survey from China that included 52 730 responses revealed that more than one-third of respondents had experienced psychological distress during the COVID-19 pandemic.[9] A recent US study substantiated higher level of psychological distress among 1468 individuals aged ≥ 18 years during the COVID-19 pandemic when compared to 2018.[10] Another recent large cohort study from the UK revealed a remarkable increase in the level of mental distress among participants in 2020 compared

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to 2018–2019.[11] Similarly, a study from Morocco underlined a significant impact of the pandemic on mental and physical health among participants at two months post-quarantine.[12] Besides the negative impact of the pandemic in terms of stress from work and home and financial constraints on a cohort of 510 participants from Egypt, more than half reported being horrified, helpless, and apprehensive.[13]

In Oman, the first case of COVID-19 was announced on 24 February 2020. Currently, more than 388 571 cases and 4253 deaths were reported.[4] The government implemented different measures to contain the spread of the infection. The impact of the pandemic on mental health was assessed among 402 female doctors and nurses and found to be negatively affected.[14] This finding was confirmed by another study that corroborated higher levels of anxiety and insomnia among healthcare workers, with profound effects being more reportable among frontline healthcare workers.[15] As both of the aforementioned studies involved healthcare workers, we believe that there is a need to study the impact of the COVID-19 pandemic on the general population. To the best of our knowledge, this is the first study to provide pioneering insight into the effect of the COVID-19 pandemic on the quality of life of people (with or without COVID-19) attending primary healthcare centers in A'Seeb Wilayat in Muscat, Oman.

METHODS

This cross-sectional study was conducted through online questionnaire, and it was conducted in four randomly selected primary healthcare centers in A'Seeb Wilayat from 17 July 2021 to 31 January 2022. A'Seeb Wilayat has the largest population in Muscat governorate. It is important to note that some of the individuals who visited the primary healthcare centers in A'Seeb were from different governorates of Oman but were residing in Muscat governorate for various reasons (such as employment or education). The recruited participants included Omani men and women, aged ≥ 18 years, regardless of their COVID-19 infection status, able to read and use online questionnaire, and living in Muscat governorate. Exclusion criteria included non-Omanis, not able to read and use online questionnaire, very sick patients were unable to fill in the online questionnaire, and those who declined to participate in the study. A consecutive

sampling method was applied. Eligible participants were identified and invited to participate by a well-trained triage nurse. The online questionnaire and the purpose of the study were provided to all participants, and informed consent was obtained.

An online self-administered questionnaire was used in our study. The questionnaire consisted of two parts:

PART ONE
Sociodemographic characteristics, including gender, age, level of education, employment status, income of the family, marital status, COVID-19 status (infected or not), presence of any chronic diseases such as diabetes and hypertension, smoking, and alcohol consumption status. Moreover, if the participant had COVID-19 confirmed by polymerase chain reaction (PCR) testing, details about the symptoms and severity status were included. Severity was determined by inpatient and intensive care unit admission.

PART TWO
The Short Form-12 (SF-12) is a widely used and reliable scale for assessing the health-related quality of life.[16,17] It was originally developed from the 36-item Short-Form Health Survey (SF-36) with a fewer number of questions to make it more practical and feasible to be filled in by participants.[16] SF-12 covers eight domains related to physical and mental health, including limitations in physical activities, limitations in social activities, limitations in usual activities because of physical health problems, body pain, psychological distress and well-being, limitations in usual activities because of emotional health problems, energy and fatigue, and general health perceptions.[16] Reliability and validity of the original SF-12 have been tested in several studies.[17–19] The validity of the Arabic version of SF-12 has been tested in a previous study and was deemed valid.[20]

Due to the non-availability of estimates at present, we assumed that the ongoing COVID-19 pandemic has affected the quality of life of at least 50% of Omani citizens attending primary healthcare centers in Muscat governorate (regardless of the infection status). The sample size for this survey was calculated using nMaster software[21] for a single proportion, considering an absolute precision of 4%. For 95% CI, the sample size required was not < 600. To deal with the probability of non-responses, it was decided to recruit 15% more subjects, making

the rounded-off total 700 subjects. To assure representativeness of the sample it was decided to randomly select four primary healthcare centers within Muscat governorate and equally divide the required sample by the number of primary healthcare centers. This required us to survey 175 participants per primary healthcare center.

The statistical analysis was conducted using SPSS (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.). Descriptive analysis was reported as numbers and percentages. According to the suggested scoring method by Ware et al,[22] the scores were presented as mean (SD) for Physical Component Summary (PCS) and Mental Component Summary (MCS) scales. The scores ranged from zero to 100, with a score $\leq$ 50 on PCS indicating physical impact and a score of $\leq$ 42 indicating mental impact.[22] A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 701 participants were included in this study with a mean age of 25.3 years (range = 18–55, mean = 25.3±7.2, median (IQR) = 22 (10)). Nearly an equal number of males and females were recruited (48.6% and 51.4%, respectively). The majority of subjects were single (n= 487, 69.5%) and had attained higher education level (n = 588, 83.9%). One-fifth of the participants reported being diagnosed with COVID-19 (confirmed by PCR testing), out of which, 1.0% and 0.1% required admission to the hospital and intensive care unit, respectively. Fever, headache, and loss of smell were the most commonly reported symptoms among cases of confirmed COVID-19, and 1.6% were asymptomatic. Sociodemographic characteristics are depicted in Table 1.

Two-thirds of participants (n = 473, 67.5%) reported being physically affected by the COVID-19 pandemic (score of $\leq$ 50 on SF-12) and more than half (n = 392, 55.9%) had been mentally affected (score of $\leq$ 42 on SF-12).

Univariate analysis was carried out using the mean score for PCS and MCS across different variables. It revealed a significant association between the physical impact and educational level of the participant, low family income, chronic disease, and alcohol consumption. However, it is worth noting that such associations are of less importance as the mean score

Table 1: Sociodemographic characteristics.

Variables	n (%)
Gender	
Male	341 (48.6)
Female	360 (51.4)
Age, years, mean ± SD	25.3 ± 7.2
Marital status	
Single	487 (69.5)
Married	210 (30.0)
Widow	1 (0.1)
Divorced	3 (0.4)
Educational level	
Primary	4 (0.6)
Secondary	108 (15.4)
Higher education	588 (83.9)
Illiterate	1 (0.1)
Family income, OMR	
< 500	126 (18.0)
500–1000	293 (41.8)
> 1000	282 (40.2)
Chronic diseases	
No chronic diseases	621 (88.6)
Diabetes	19 (2.7)
Hypertension	16 (2.3)
Kidney disease	3 (0.4)
Liver disease	3 (0.4)
Thyroid disease	18 (2.6)
Heart disease	8 (1.1)
Other	20 (2.9)
Smoking	
Yes	29 (4.1)
No	672 (95.9)
Alcohol drinking	
Yes	7 (1.0)
No	694 (99.0)
COVID-19 confirmed by PCR	
Yes	141 (20.1)
no	560 (79.9)
Participants with COVID-19	
Admitted to the hospital	7 (1.0)
Admitted to ICU	1 (0.1)
Symptoms of COVID-19	
Fever	96 (13.7)
Cough	53 (7.6)
Headache	87 (12.4)
Loss of smell and taste	85 (12.1)
Runny nose	32 (4.6)
Difficulty breathing	35 (5.0)
Abdominal pain	20 (2.9)
Diarrhea	27 (3.9)
Asymptomatic	11 (1.6)

PCR: polymerase chain reaction; ICU: intensive care unit.

Table 2: Summary of the differences in the means for PCS in different variables.

Variables		PCS Mean ± SD	p-value
Gender			
Male		44.5 ± 8.2	0.408
Female		45.0 ± 8.0	
Age, years			
≤ 20		45.0 ± 7.5	0.251
21–30		44.3 ± 8.0	
31–40		45.7 ± 8.7	
41–50		42.9 ± 10.3	
> 50		48.4 ± 6.3	
Marital status			
Single		44.8 ± 7.8	0.200
Married		44.5 ± 8.8	
Widow			
Divorced		51.8 ± 1.6	
Educational level			
Primary		45.0 ± 6.7	0.017
Secondary		42.7 ± 8.0	
Higher education		45.1 ± 8.0	
Illiterate			
Family income, OMR			
< 500		43.5 ± 8.4	0.003
500–1000		44.1 ± 8.2	
> 1000		46.0 ± 7.7	
History of chronic diseases			
Chronic diseases	Yes	41.3 ± 9.3	0.001
	No	45.2 ± 7.8	
Diabetes	Yes	41.4 ± 7.6	0.075
	No	44.8 ± 8.1	
Hypertension	Yes	42.0 ± 9.8	0.178
	No	44.8 ± 8.1	
Kidney disease	Yes	36.7 ± 11.3	0.088
	No	44.8 ± 8.1	
Liver disease	Yes	46.4 ± 9.0	0.715
	No	44.7 ± 8.1	
Thyroid disease	Yes	39.5 ± 8.5	0.006
	No	44.9 ± 8.0	
Heart disease	Yes	42.3 ± 9.7	0.406
	No	44.8 ± 8.1	
Smoking			
Yes		43.0 ± 8.0	0.236
No		44.8 ± 8.1	
Alcohol intake			
Yes		38.2 ± 8.9	0.032
No		44.8 ± 8.1	
COVID-19 confirmed by PCR			
Yes		45.5 ± 7.8	0.194
No		44.5 ± 8.2	

PCS: Physical Component Summary; PCR: polymerase chain reaction.

Table 3: Summary of the differences in the means for MCS in different variables.

Variables		MCS Mean ± SD	p-value
Gender			
Male		41.6 ± 10.1	0.001
Female		38.9 ± 10.5	
Age, years			
≤ 20		40.6 ± 10.6	0.010
21–30		39.0 ± 10.3	
31–40		42.4 ± 9.7	
41–50		42.6 ± 11.2	
> 50		45.5 ± 10.7	
Marital status			
Single		39.7 ± 10.5	0.037
Married		41.3 ± 9.9	
widow			
Divorced		49.4 ± 11.2	
Educational level			
Primary		41.9 ± 9.2	0.929
Secondary		40.1 ± 9.54	
Higher education		40.2 ± 10.5	
Illiterate			
Family income, OMR			
< 500		38.5 ± 10.6	0.015
500–1000		39.7 ± 10.0	
> 1000		41.5 ± 10.6	
History of chronic diseases			
Chronic diseases	Yes	37.7 ± 12.3	0.021
	No	40.5 ± 10.1	
Diabetes	Yes	35.8 ± 13.1	0.060
	No	40.3 ± 10.3	
Hypertension	Yes	37.5 ± 9.8	0.294
	No	40.3 ± 10.4	
Kidney disease	Yes	30.2 ± 0.8	0.097
	No	40.3 ± 10.4	
Liver disease	Yes	46.0 ± 9.9	0.289
	No	40.2 ± 10.4	
Thyroid disease	Yes	33.6 ± 13.2	0.006
	No	40.4 ± 10.2	
Heart disease	Yes	43.5 ± 14.2	0.366
	No	40.2 ± 10.3	
Smoking			
Yes		39.0 ± 11.9	0.519
No		40.3 ± 10.3	
Alcohol intake			
Yes		35.4 ± 12.7	0.219
No		40.3 ± 10.3	
COVID-19 confirmed by PCR			
Yes		43.0 ± 10.9	0.001
No		39.5 ± 10.1	

MCS: Mental Component Summary; PCR: polymerase chain reaction.

for most of the variables was low (≤ 50), indicating that both those with or without a particular risk factor reported scores below the recommended cut-off score of ≤ 50 in SF-12 PCS. Similarly, for the mental impact, significant associations were detected with the following factors: gender, young age, marital status, low income, chronic diseases, and being diagnosed with COVID-19. However, as with PCS, the mean score for most of the variables was below the recommended cut-off in SF-12 MCS (≤ 42) [Tables 2 and 3].

DISCUSSION

The current analysis revealed a high rate of physical and mental impact of the COVID-19 pandemic among patients attending the local health centers in Muscat. A significant association was noticed between physical impact and educational level, low family income, chronic diseases, and alcohol consumption. Gender, young age, single status, low family income, chronic diseases, and diagnosed with COVID-19 (confirmed by PCR) were significant risk factors for mental impact.

The high prevalence of physical and mental repercussions of the COVID-19 pandemic in this study was consistent with other studies.[23–25] A recent study by Wang et al,[24] substantiated a high prevalence rate of psychological impact of the COVID-19 pandemic, with more than half of the respondents rating it as moderate to severe (53.8%).

The high prevalence of physical and mental impact of the pandemic can be ascribed to the restrictive measures applied to contain the disease.[26] Nearly every evening, most Omani males engage in outdoor activities, which came to a sudden halt due to the lockdown. It has been documented that quarantine measures and loneliness inevitability posed negative sequelae on physical and mental health.[27] Also, compromised social relationships and gatherings with family members and friends increased the vulnerability to psychological impairment.[27] Besides, restricted religious activities due to mosque closures might have also negatively affected psychological health. Omani lifestyle hinges on larger family and social interactions, which is a norm for this society, and hence our findings are not surprising. Importantly, the timing of conducting this study was in July, at the end of the second aggressive delta wave of COVID-19, when the majority of

death cases happened, and the rates ranged from 17 to 45 deaths per day, which used to be highlighted in the audiovisual media in Oman.[4] This might have influenced the negative psychological impairment of the participants.[4] Also, with the emergence of the COVID-19 pandemic, a rapid spread of infodemic knowledge and misinformation via social media was noticeable. A recent systematic review corroborated a link between the false news and psychological distress, fear, panic attacks, and fatigue.[28] Another reason for the very high prevalence of physical and mental impairment could be attributed to the fact that about one-fourth of our sample were diagnosed with COVID-19, and studies revealed the persistence of symptoms especially fatigue, dyspnea, psychological distress, and impaired quality of life even after COVID-19.[29,30]

Nevertheless, the true prevalence of COVID-19 was underestimated in our sample, as the implemented protocol of the government was to test those with severe symptoms only. Therefore, it may be postulated that more participants were, in fact, infected but the diagnosis was not confirmed by PCR.

Females and those of a younger age were more vulnerable to mental impairment in the current analysis, which was consistent with other studies in the literature.[24,31–33] Possibly, this is due to younger people's economic and social activities being more disrupted during the COVID-19 pandemic.[34] Also, younger people are more accessible to false news and misinformation through social media, which might influence anxiety and stress.[35] Moreover, older people tend to be less reactive to stress and display more emotional regulation.[36] Also, those who are single are more likely to be affected mentally during COVID-19, perhaps because they are also younger. Participants with lower income had more propensity for mental and physical impact, which is consistent with other studies elsewhere.[36,37] This might be explained by the fact that those with low income are usually working in places where remote work is not an option; and therefore, tend to be more anxious about getting infected.[37] Also, more restrictions and bans on movements of individuals (from 5 pm to 4 am) were applied by the supreme committee during the study period, which in turn might have negatively affected physical health. Our analysis revealed a significant association between mental and physical impact and the presence of chronic

diseases, which was in parallel with other studies in the literature.[31,38] Given the higher risk of deaths and admissions among individuals with chronic diseases might explain the high rate of mental impairment in the current analysis. Additionally, fear of getting a severe infection and death might lead to loneliness and more restricted social and physical activities. In our study, it was difficult to explain the significantly lower scores among those educated to the secondary level as compared to the primary and higher education groups. Alcohol is known to affect physical health,[39] and this was also noted in our study.

With such a high prevalence rate of physical and mental impact of COVID-19 pandemic, there is a strong need to implement a well-structured community and wellness program to mitigate the imminent consequences of the pandemic. Moreover, healthcare workers need to be more vigilant about the dramatic effect of the pandemic on the physical and psychological well-being of clients. Also, the widespread implementation of cognitive-behavioral therapy via the Internet might alleviate the psychological sequelae of the pandemic, particularly among those with depressive symptoms.[40]

This study has some limitations. First, the cross-sectional design impedes the inference of causal relationships. Moreover, using self-reported questionnaires might over- or underestimate the true prevalence of physical and mental impact. Additionally, while using an online questionnaire is considered as the best tool during the COVID-19 pandemic, it posed some limitations such as difficulty in determining the response rate. Also, restricting data collection to only four primary healthcare centers in the Muscat governorate limited the generalizability of the results. Finally, the use of consecutive sampling may have resulted in selection bias.

CONCLUSION

The overall negative impact of COVID-19 on mental and physical health was detrimental in our sample. Females, the younger age group, low income, and the presence of chronic diseases were significant predictors of low quality of life. Healthcare workers need to be more attentive and vigilant to the physical and psychological impact of the COVID-19 infection. Additionally, it would be imperative for policymakers to consider implementing public health programs to ease the dramatic effects of the COVID-19 infection.

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