

The Quality of Life of Urban Omani People During COVID-19 Pandemic in Al Seeb Willayat: A Cross-Sectional Study

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Abstract

Objectives: Coronavirus is an emergent disease with huge global concern which might have negative effect on quality of life. This study aimed to determine the impact of COVID-19 pandemic on quality of life of people (with or without COVID-19), attending primary health centers in Al-Seeb Willayat in Muscat region.

Methods: This is a cross-sectional study that was conducted in four randomly selected primary health centers in Al Seeb Wilayat, in Muscat region, from 17/7/2021 to 30/12/ 2021. All Omani men and women, aged ≥ 18 years, regardless of their COVID-19 infection status, able to read and use the online surveys were included. Consecutive sampling method was applied. An online self-administered and validated Arabic version of the Short Form-12 (SF-12) was used to determine the impact of COVID-19 pandemic mental and physical quality of life.

Results: A total of 701 participants were included with the mean age of 25.3 years. Two thirds of 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 income of the family, 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 impact is very common during 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.

Keywords: COVID-19, Coronavirus, Quality of Life, Oman

Introduction

Coronavirus is an emergent disease with huge global concern, caused by SARS-COV2.¹ The first case was reported on 1st 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 World Health Organization (WHO) declared it as pandemic on 11th of March 2020.³ Worldwide, more than 495,414,438 people were affected and about 6,191,519 deaths were reported until 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% are categorized as severe and the overall mortality rate is about 2.3%.^{6,7}

Different measures were advocated with the aim of curbing the spread of the disease such as social distancing, hand hygiene, wearing face mask and partial or total lockdown.⁸ 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 the concern about the effect of COVID-19 on mental and physical health of the population. A nationwide survey from China that included 52730 responses revealed that more than one third of respondents had experienced psychological distress during COVID-19 pandemic.⁹ A recent US study substantiated higher level of psychological distress among 1468 individuals aged 18 years and above 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 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 24th February 2020. Currently, more than 388,571 cases and 4,253 deaths were reported.⁴ The government embarked on different measures to contain the spread of the infection. The impact of the pandemic on the mental health was assessed among 402 female doctors and nurses, and were found to be negatively affected.¹⁴ This finding was confirmed by another study that corroborated higher level of anxiety and insomnia among health care workers with profound effects being more reportable among frontline health care workers.¹⁵ As both of the aforementioned studies involved health care workers, we believe that there is a need to study the impact of 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 COVID-19 pandemic on quality of life of people (with or without COVID-19), attending primary health care centers in Al-Seeb Wilayat in Muscat region.

Methods

This is a cross-sectional study that was conducted through online surveys. The study was conducted in four randomly selected primary health care centers in Al Seeb Wilayat, in Muscat region. Al Seeb Wilayat has the greatest population in the Muscat region. It is important to note that some of the individuals who visited the PHC centers in Al Seeb Wilayat were from different regions of Oman but were residing in the Muscat region for various reasons (such as employment or education). The recruited subjects included Omani men and women, aged ≥ 18 years, regardless of their COVID-19 infection status, able to read and use the online surveys, and living in Muscat region. Exclusion criteria included non-Omanis, not able to read and use the online surveys, very sick patients who are unable to fill-in the online survey, and those who decline to participate in our study. A Consecutive sampling method was applied. Eligible participants were identified and invited to participate by a well-trained triage nurse. The online survey and the purpose of the study was provided to all participants who agreed to participate and an informed consent was obtained. The study was conducted from 17/7/2021 to 31/1/ 2022.

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

Part one: sociodemographic features: 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 has COVID-19 confirmed by PCR testing, details about the symptoms and severity status were included. Severity is determined by inpatient and intensive care unit admission.

Part two: The Short Form-12 (SF-12) is a widely used and reliable scale of assessing the Health-related Quality of Life (HRQOL).^{16,17} It was originally developed from the 36-item Short-Form Health Survey (SF-36) with 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. The SF-12 domains consist of the following: i) limitations in physical activities, ii) limitations in social activities, iii) limitations in usual activities because of physical health problems, iv) body pain,

v) psychological distress and well-being, vi) limitations in usual activities because of emotional health problems, vii) energy and fatigue, viii) 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 study conducted by Obtel et al and was deemed as valid.²⁰

Due to 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 health care centers in the Muscat region (regardless of the infection status). The sample size for this survey was calculated using nMaster software²¹ for a single proportion considering an absolute precision of 4%. For 95% CI the sample size required is not less than 600. To deal with the probability of non-responses, it was decided to recruit 15% more subjects, making the rounded off total to 700 subjects. To assure representativeness of the sample it was decided to randomly select four primary health care centers (PHCs) within the Muscat region and equally divide the required sample by the number of PHCs. This requires us to survey 175 subjects per PHC.

The statistical analysis was conducted using SPSS version 24. Descriptive analysis was reported as numbers and percentages. According to the suggested scoring method by Ware JE et al,²² the scores will be presented as Mean (Standard deviations) for Physical Component Summary (PCS) and Mental Component Summary (MCS) scales. The scores range from zero to 100, with a score less than or equal 50 on PCS delineates physical impact and a score of less than or equal 42 is indicative mental impact.²² The results will be statistically significant if the P value was <0.05.

Results

A total of 701 participants were included in this study with the mean age of 25.3 years [Age: minimum 18 years; maximum 55 years. Mean (SD): 25.30 (7.298); Median (IQR): 22 (10)] Nearly equal number of males and females were recruited (48.6% and 51.4%, respectively). The majority of subjects are 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% 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.

Table 1: Sociodemographic characteristics

Variables	Description	N (%)
gender	male	341 (48.6%)
	female	360 (51.4%)
age	Mean age (SD)	25.3 (7.298)
Marital status	single	487 (69.5%)
	married	210 (30%)
	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%)
Income of the family	Less than 500 OR	126 (18%)
	500-1000 OR	293 (41.8%)
	More than 1000 OR	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 (2.7%)
smoking	Yes	29 (4.1%)
	No	672 (95.9%)
Alcohol drinking	Yes	7 (1%)
	No	694 (99%)
COVID-19 confirmed by PCR	Yes	141 (20.1%)
	no	560 (79.9%)
Participants with COVID-19 confirmed with PCR	admitted to the hospital	7 (1%)
	admitted to the intensive care units (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 on breathing	35 (5%)
	Abdominal pain	20 (2.9%)
	Diarrhea	27 (3.9%)
	Asymptomatic	11 (1.6%)

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

Univariate analysis was carried out using the mean score for PCS and MCS across different variables. While it revealed a significant association between the physical impact and educational level of the participant, low income of the family, chronic diseases and alcohol consumption. Such association is of less importance as the mean score for most of the variables is low (≤ 50), which indicates 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 (confirmed by PCR). However, as with PCS, the mean score for most of the variables is below the recommended cut-off in SF-12 MCS (≤ 42) (Table 2 & 3).

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

Variable	Description	PCS (Mean (SD))	P value
Gender	Male	44.51(8.280)	0.408
	Female	45.02(8.021)	
Age	Less than 20	45.07(7.553)	0.251
	21-30 years old	44.32(8.089)	
	31-40 years old	45.76(8.740)	
	41-50 years old	42.97(10.331)	
	More than 50	48.49(6.377)	
Marital status	Single	44.82(7.843)	0.200
	Married	44.51(8.841)	
	Widow		
	divorced	51.82(1.628)	
Educational level	Primary	45.12(6.732)	0.017
	Secondary	42.72(8.074)	
	Higher education	45.14(8.006)	
	Illiterate		
Income of family	Less than 500 OR	43.51(8.453)	0.003
	500-1000 OR	44.12(8.212)	
	More than 1000 OR	46.02(7.790)	
History of chronic diseases	Chronic diseases Yes	41.38(9.342)	0.001

		No	45.21(7.882)	
	Diabetes	Yes	41.49(7.645)	0.075
		No	44.86(8.146)	
	Hypertension	Yes	42.06(9.800)	0.178
		No	44.83(8.102)	
	Kidney disease	Yes	36.77(11.324)	0.088
		No	44.80(8.124)	
	Liver disease	Yes	46.48(9.071)	0.715
		No	44.76(8.149)	
	Thyroid disease	Yes	39.55(8.531)	0.006
		No	44.90(8.097)	
	Heart disease	Yes	42.39(9.720)	0.406
		No	44.80(8.131)	
Smoking	Yes		43.01 (8.050)	0.236
	No		44.85(8.148)	
Alcohol drinking	Yes		38.22(8.947)	0.032
	No		44.84(8.118)	
COVID-19 confirmed by PCR	Yes		45.57 (7.85)	0.194
	No		44.57 (8.21)	

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

Variable	Description	MCS (Mean (SD))	P value	
Gender	Male	41.60(10.133)	0.001	
	Female	38.99(10.542)		
Age	Less than 20	40.60(10.649)	0.01	
	21-30 years old	39.04(10.333)		
	31-40 years old	42.46(9.725)		
	41-50 years old	42.62(11.233)		
	More than 50	45.57(10.729)		
Marital status	Single	39.72(10.574)	0.037	
	Married	41.33(9.919)		
	widow			
	Divorced	49.40(11.298)		
Educational level	Primary	41.99(9.257)	0.929	
	Secondary	40.16(9.544)		
	Higher education	40.26(10.595)		
	illiterate			
Income of family	Less than 500 OR	38.54(10.600)	0.015	
	500-1000 OR	39.76(10.008)		
	More than 1000 OR	41.54(10.639)		
History of chronic diseases	Chronic diseases	Yes	37.73(12.351)	0.021
		No	40.58(10.110)	
	Diabetes	Yes	35.82(13.126)	0.060
		No	40.38(10.319)	
	Hypertension	Yes	37.55(9.844)	0.294
		No	40.32(10.431)	
	Kidney disease	Yes	30.29(0.866)	0.097
		No	40.30(10.422)	
	Liver disease	Yes	46.62(9.987)	0.289
		No	40.23(10.420)	
	Thyroid disease	Yes	33.60(13.268)	0.006*

		No	40.43(10.288)	
	Heart disease	Yes	43.58(14.283)	0.366
		no	40.22(10.375)	
Smoking	yes		39.04(11.920)	0.519
	No		40.31(10.357)	
Alcohol drinking	yes		35.44(12.721)	0.219
	no		40.31(10.394)	
COVID-19 confirmed by PCR	Yes		43.04 (10.93)	0.001
	No		39.56 (10.18)	

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 region, Oman. A significant association was noticed between physical impact and educational level, low income of the family, chronic diseases and alcohol consumption. Gender, young age, being single, low income, chronic diseases and being 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 is consistent with other studies.²³⁻²⁵ A recent study by Wang et al substantiated a high prevalence rate of psychological impact of the COVID-19 pandemic and more than half of the respondents rated it as moderate to severe (53.8%).²⁴

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 of the Omani males engage in outdoor activities which came to a sudden halt due to the lock-down. It has been documented that the quarantine measures and the loneliness inevitability pose negative sequelae on physical and mental health.²⁷ Also, compromised social relationships and gathering with family members and friends increases the vulnerability to psychological impairment.²⁷ Besides, restricted religious activities due to mosques closures might have also negatively affect the psychological health. Omani lifestyle hinges around larger family and social interactions which by default 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 and this 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 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 of 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 confirmed by PCR 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 younger age were more vulnerable to mental impairment in the current analysis, which is consistent with other studies in literature.^{24,31-33} Possibly, this is due to younger people's economic and social activities being more disrupted during COVID-19 pandemic.³⁴ Also, younger people are more accessible to false news and misinformation through social medial, which might influence anxiety and stress.³⁵ Moreover, elder 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 to 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 of getting the infection.³⁷ Also, more restrictions and banning movements of individuals (from

5 pm until 4 am) were applied by the supreme committee during the study period which in turn might have negatively affected the physical health. Our analysis revealed a significant association between mental and physical impact and the presence of chronic diseases, which is in parallel with other studies in literature.^{38,39} 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 severe infection and death might lead to loneliness, and more restricted social and physical activities. In our study, it is difficult to explain the significantly lower scores among those educated till secondary level as compared to the primary and higher education group. Alcohol is known to affect physical health,⁴⁰ and this is 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 eminent consequences of the pandemic. Moreover, health care workers need to be more vigilant about the dramatic effect of the pandemic on physical and psychological wellbeing of clients. Also, the widespread implementation of cognitive behavioral therapy via internet might alleviate the psychological sequelae of the pandemic particularly among those with depressive symptoms.⁴¹

This study has some limitations. First, the cross-sectional design impedes the inference of causal relationship. Moreover, using self-reported questionnaire might over or under-estimate the true prevalence of physical and mental impact. Additionally, while using an online survey stands as the best tool during COVID-19 pandemic, it poses some limitations such as difficulty in determining the response rate. Also, restricting data collection to only four PHC centers in the Muscat region may limit the generalizability of the results. Finally, the use of consecutive sampling may result in selection bias.

Conclusion

The overall negative impact of COVID-19 on mental and physical health is detrimental in our sample. Females, younger age group, low income and the presence of chronic diseases are significant predictors of low quality of life. Health care workers need to be more attentive and vigilant to the physical and psychological impact of COVID-19 pandemics. Also, it would be imperative for policy makers to consider implementing some public health programs to ease the dramatic effects of COVID-19 pandemic.

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