

Health-related Quality of Life during Pandemic of COVID-19: A Mixed-Method study

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Abstract

Background: Coronavirus disease (COVID-19) suddenly occurred and rapidly continued to spread across the world which led to an immediate lockdown. People's Quality of life has been impacted in several ways because of the applied restrictions.

Objectives: To explore people's quality of life during the COVID-19 quarantine period.

Methods: A mixed-method research design was conducted by utilising descriptive cross-sectional online survey and telephone interview form. Descriptive statistical methods were utilised to analyse the data by using SPSS® version 23.0. Colaizzi's phenomenological method was used to analyse qualitative data.

Results: A total of 858 participants indicated an impact on the quality of life during the COVID-19 pandemic lockdown with physical, psychological, social, and religious challenges. Health care facility (HCF) workers reported worsening quality of life than non-healthcare facility (N-HCF) workers in all dimensions. Four major themes were formulated including physical, psychological, social and spiritual challenges.

Conclusion: COVID-19 pandemic quarantine restrictions have a negative impact on the public's quality of life. Our results confirmed that the health care worker emerged extensive effects than others.

Keywords: Quality of life, COVID-19, Health, Saudi Arabia

Introduction

In December 2019, the novel coronavirus (COVID-19) started in Wuhan, China. The virus spread quickly within Hubei province then it reached all provinces in China. After that, COVID-19 has been exported to most of the world countries. Since the coronavirus disease outbreak has been reached in many countries, the World Health Organization (WHO) declared a world outbreak in January 2020 (COVID-19). COVID-19 virus assumed to be transmitted primarily by respiratory droplets with a similar incubation time [1]. The World Health Organization (WHO)

declared a pandemic status as a result of accumulative the reported cases of the COVID-19, and rapidly increasing infectious cases in some countries of the world, including South Korea, Iran and Italy [2].

Quarantine is considered as one of the most effective tools for controlling any communicable disease outbreaks [3]. Through the rapid spread of COVID-19, Saudi government started travel ban from 8th of March 2020 with changing all education sectors and working place that includes most of the country sectors to remotely. This was followed by a curfew from seven in the night until six in the morning on 25th March 2020. As, the cases of COVID-19 are increasing more restriction applied in place in the fight against COVID-19 by restricted people going outdoor except for food and essential supplies, medical, care or compassionate needs, and work [4].

Globally, the pandemic of COVID-19 creates unprecedented health and social problems. COVID-19 has been impacted people's life and caused several concerns, fear and anxiety [5]. Globally, COVID-19 outbreak causes closure of gym, playground, pool, and fitness services. Applying of social and physical distance measures, businesses lockdowns and schools' closure had affected their daily physical activity. The lockdown may tend to reduce physical activity, irregular sleep pattern, and lose physical fitness [6]. Additionally, the spread of COVID-19 virus affects religious practice significantly, including religious services cancellation and cancelling the pilgrimages [7]. Many studies focused on diagnostic and therapeutic aspects of COVID-19 however, limited studies concern the quality of life (QOL) aspects, especially psychological and mental health [8]. Moreover, frontline medical professional suffers from great psychological stress and faced several challenges and losses. The fast spread of the virus and a large number of COVID-19 patients, high prevalence of hospitalisations, and critical condition of patients placed the medical work incredibly hard. Human-to-human transmission of COVID-19 increases medical worker fears of being infected [5]. Therefore, the quarantine can affect people's quality of life in different aspects, so it is important to explore the implications of these situations on Saudi's community health and well-being.

Methods

Subjects

A total of 858 participants were completed the online survey. Nineteen participants completed a telephone interview. All participants were adult over 18 years old and consented to participate in the study. The data were collected from June to September 2020. The proposed study was reviewed by the Ethics Committee of Prince Sultan Military Medical City Research Center (Ethics Number: HP-01-R079). All participants provided electronic informed consent and the link to a web page of the questionnaire. Participants were asked at the end of the questionnaire to show their interest in participating with the semi-structured interviews.

Variable studies

The used questionnaire was constructed by the research team, which includes items that cover the four aspects of quality of life (Physical, psychological, social and spiritual). It contains two parts; the first one involved socio-demographic characteristics, such as gender, age, education, employment status, marital status and region of residency as well as if the participant is diagnosed with chronic illness. The second part contains 11 elements and 4 dimensions: physical (4 elements), psychological (4 elements), social functioning (2 elements), and spiritual (1 element). Expert opinion to design the interview question which suggested one broad question to

cover all quality of life aspects. The main interview question was: how does COVID-19 impact your life in relation to physical, psychological, social and religious dimensions?

Data collection

Due to quarantine and restrictions, an online survey was distributed through social media, including WhatsApp and Twitter. Each survey required 5 to 10 minutes to be completed. A semi-structured telephone interview was conducted to complete the qualitative data in time that convenience for participants. After seeking permission from the participants, the interview was audio recorded. The research team ran the interview sessions which required 10 to 15 minutes.

Data analysis

To ensure internal consistency, the scale items were subjected to tests utilising the Cronbach Alpha as a measure. A .7 or above alpha value was considered reliable [9]. An independent sample t-test is a suitable test to compare the mean scores of two samples. A descriptive statistic of the study variable was reported. The analysis was performed by IBM SPSS Statistics v 23. The t-tests were used to compare the means of the impacted dimension of QOL between health care facility worker and non-healthcare facility worker scores. A .05 level of significance was used as the criteria for statistical significance for all multivariate analysis. Qualitative data were transcribed within 48 hours of the telephone interview and analysed by using Colaizzi's phenomenological method [10]. Three researchers independently reviewed the interview transcript, meaningful statements were summarised and extracted, and the presented themes were formulated. The research team discussed and resolved conflicting opinions on the content of the subjected data.

Results

The initial internal consistency analysis of the various dimensions of Quality of life (QoL) associated with COVID-19 is presented in Table 1. The reliability coefficients for all the dimensions were greater than 0.7 alpha which is acceptable; the dimensions can be considered internally consistent to be used in subsequent analysis.

Table 1: Reliability analysis

Scale	Number of Items (N)	Cronbach's Alpha
Physical Problems	4	.860
Psychological Problems	4	.831
Social Problems	5	.804
Religious Problems	1	.743

A total of 858 participants have completed the survey. Table 2 shows the descriptive characteristics of the participants. The average age of participants was (42.03) years, (47.1%) of them were men and (52.9%) women. The majority of participants were married (76.3%), and those with a bachelor's degree (55.6%). The central region of Saudi Arabia was the most

represented (65.6%). 44.5% of the participants indicated that they are working in a healthcare facility. Only 15.9% of the participants indicated of suffering from chronic diseases.

Table 2: Description of participants (n=858)

Frequency		Percent	
Age (Years)	Age (years) Mean ± SD Extremes (years)	42.03 ± 9.85 18 – 70	-
Gender	Male	403	47.1
	Female	454	52.9
Marital status	Married	655	76.3
	Single	169	19.7
	Other	34	4.0
Occupation	Student	221	25.8
	Working in a health facility	382	44.5
	Working in non-health facility	74	8.6
	Other	181	21.1
Education level	Secondary	105	12.2
	Diploma	84	9.8
	Bachelor	477	55.6
	Postgraduate	181	21.1
	Other	11	1.3
Region of residency	Central region	563	65.6
	Eastern region	58	6.8
	Western region	85	9.9
	Northern region	81	9.4
	Southern region	41	4.8
	Overseas	30	3.5
Chronic disease	Yes	136	15.9
	No	716	83.4
	Not respond	6	.7

Table 3: Summary statistics

	Min.	Max.	Mean	SD
Physical Problems Score	3.08	9.65	6.99	1.37
Psychological Problems Score	4.48	9.82	7.69	1.08
Social Problems Score	4.66	9.65	7.88	0.98
Religious Problems Score	3.03	10	8.17	1.08

Based on the analysis outcome, it can be observed that the major factors associated with COVID-19 QoL among Saudi Arabia's population are physical problems, psychological problems, social problems and religious problems. It is clearly shown in Table 3 that the COVID-19 does have a major impact on the religious practices of people in Saudi Arabia.

Table 4: Independent sample t-test

	t-test for Equality of Means						
	t	df	Sig.	Mean Diff.	Std. Error Diff.	95% CI	
						LB	UB
Physical Problems Score	-4.662	303.966	<.001	-0.707	0.152	-1.005	-0.408
Psychological Problems Score	-6.871	303.411	<.001	-0.786	0.114	-1.011	-0.561
Social Problems Score	-6.033	303.208	<.001	-0.649	0.108	-0.860	-0.437
Religious Problems Score	-5.745	300.026	<.001	-0.685	0.119	-0.920	-0.450

In univariate analyses, the HCF worker was significantly associated with the sum of all QOL factors scores. The results indicate that the mean physical problems score (<0.001), psychological problems score (<0.001), social problems score (<0.001), and religious problems score (<0.001) were significantly higher for HCF worker compared to the non-HCF worker.

Table 5: QoL dimension score by HCF worker and non-HCF worker.

		N	Mean	SE	SE of Mean	P value
Physical Problems Score	Non-HCF worker	476	6.61	1.29	0.11	<0.001
	HCF worker	382	7.32	1.36	0.11	
Psychological Problems Score	Non-HCF worker	476	7.27	0.96	0.08	<0.001
	HCF worker	382	8.06	1.04	0.08	
Social Problems Score	Non-HCF worker	476	7.53	0.9	0.07	<0.001
	HCF worker	382	8.18	0.98	0.08	
Religious Problems Score	Non-HCF worker	476	7.77	1.08	0.09	<0.001
	HCF worker	382	8.45	1	0.08	

Table 6: Themes identified through interview

Theme	Sub-theme
I. Physical challenges	<ul style="list-style-type: none"> i. Changes in behaviour towards physical activity ii. Changes in sleep pattern iii. Excessive attention for utilising preventive methods, e.g. Washing hand, wearing mask
II. Psychological challenges	<ul style="list-style-type: none"> i. Fear and anxiety of COVID-19 infection ii. Quarantine depression iii. Excessive thinking
III. Social challenges	<ul style="list-style-type: none"> i. Separation from family and friends ii. Financial issues
IV. Spiritual challenges	<ul style="list-style-type: none"> i. Losing the full pleasure of religious practice

Themes 1: physical challenges

Sub-theme 1: Changes in behaviour towards physical activity

All participants expressed changing in their physical activity due to the COVID-19 quarantine. P2: "I lost my daily session of exercise as all the sports club is closed and I can't do my walk as the restrictions prohibit it".

Sub-theme 2: Changes in sleep pattern

Majority of participants experienced changes in sleep pattern. P4: "I am staying at home and weak up at night several times" P8: "I had intermittent sleeping pattern through weak up at night many times". P10: "I often weak up to check the daily update cases which affect my sleep pattern". P15: "I can't sleep, and I have nightmares since quarantine started".

Sub-theme 3: Excessive attention for utilising preventive methods

All participants indicate excessive attention to applying preventive methods, e.g. Washing hand, wearing a mask. P7: "I am washing my hands frequently before and after touching anything even inside home". P16: "I got skin dryness in my hand because of the frequency of hand washing". P6: "I am wearing mask all time while spending time outside". P9: "I am wearing double mask to protect myself". P16: "I bought more than 5 boxes of mask to use".

Theme 2: Psychological challenges**Sub-theme 1: Fear and anxiety of COVID-19 infection**

All participants indicated a fear of exposure to COVID-19 infection, in particular, this increases the anxiety level while interacting with others. P3: "I am very scared while shopping for the basic life needs". P4: "I am always worried to catch the infection, every day I keep asking about the COVID-19 cases". P11: "I think may I will expose to the infection, which makes me afraid from going outside".

Sub-theme 2: Quarantine depression

Numerous depression triggers were recorded, most notably life and social changes as a result of quarantine, and concerns regarding the health situation of the whole world. Most of the participants stated that they had been depressed during the quarantine period. P2: "eating, drinking and sleeping but I can't seeing people so this makes me depressed". P12: "I feel depressed due to quarantine restriction, I can't come out of the home door". P16: "I felt loneliness caused by separation from my family and friends, so I am depressed".

Sub-theme 3: Excessive thinking

Most of the participants were concerned about the symptoms and complications of COVID-19. Participants were worried about the outbreak, spread of transmission and the death rate. P1: "I feel scared when I read mortality rate. Then I am thinking what if it becomes more cases? May I will get the infection". P6: "Although knowing all the symptoms of COVID-19, I repeatedly thinking when I feel a little headache, I wonder whether I become infected and what if it has worsened."

Themes 3: social challenges**Sub-theme 1: Separation from family and friends**

100% of participants reported they stressed because of family and friend's separation that occurs during the quarantine period. P3: "I am anxious because staying far from family and friends, it is difficult feeling". P8: "I feel that I am sad because I can't see my parents". P7: "this is the first time in my life to be far from my family, not seeing them every day". P18: "I feel lonely because the quarantine kept me away from family and friends".

Sub-theme 2: Financial issues

Some of the participants had been affected by COVID-19 as the pandemic has profoundly impacted the small business sector. P13: "I am concerning of the income loose that produced from the lockdown". P19: "I have many expenses should be paid but I have no income during the quarantine as my shop is closed"

Theme 4: spiritual challenges**Sub-theme 1: losing the full pleasure of religious practice**

Some of the religious practice has changed as a result of the pandemic. All participants reported that their pleasure of religious practice impacted during the lockdown period. P2: "praying at home made me feel of lose the pleasure of prayer". P5: "It is a bad feeling to lose praying at mosque". P9: "This is the first time in my life praying at home, I missed attending mosque". P12: "I feel angry because I can't pray at mosque".

Discussion

The current study explored the quality of life of Saudi's population during COVID-19 quarantine using a mixed-method approach. The quantitative findings clearly illustrate that people quality of life has impacted in all dimensions includes physical, psychological, social and religious. In addition, HCF workers experience poorer Quality of life in compare to non-HCF workers. On the other hand, qualitative findings are summarised into four themes: (1) physical challenges; (2) psychological challenges; (3) social challenges; (4) spiritual challenges.

Considering sleeping pattern, the majority of participants reported poor sleep habits maintaining routine habits, particularly the number of hours of sleep. This result is in line with a recent study accomplished in China found a high prevalence of poor sleep quality in the population during COVID-19 period [11]. In relation to physical activity and exercise, the current study results revealed that most of the participants reported reducing physical activity. Home confinement affected all levels of physical activity negativity across all globe [12]. On the contrary, a recent study carried out in Portuguese during COVID-19 found that most of the participants engaged in physical activity and exercises [13]. As regards to eating habits, our results show a significant change in eating style to worst habits. A research study reported that people started eating more in larger quantities and without careful of food selection [12 13].

Another concern is psychological challenges that people suffer from during COVID-19 quarantine period. Most of the participants in the current study stated that they experienced anxiety, depression and fearful during the quarantine. In a study about mental health effects of COVID-19 pandemic the results showed that due to exposure to an unexpected situation, stressful, anxiety and depression level had been elevated [5]. Another study illustrated that high prevalence of people suffers from distress symptoms and psychological disordered due to the quarantine period, and some of these may persist for a long time after the quarantine period [14].

The recent study result showed that the professionals who are working in a health care facility had experienced more psychological challenges than others. A study carried out in China resulted in 36.3% of 994 medical care staff and nurses accessed psychological material books, 50.4% had accessed psychological resources in media, and 17.5% participated in psychotherapy counselling [5]. Another study used a cross-sectional survey that enrolled 1,257 health care participants reported a developing a high prevalence of mental health symptoms after treating patients with COVID-19 in China. All participants indicated symptoms of depression, anxiety, insomnia, and distress Overall, 50.4%, 44.6%, 34.0%, and 71.5% respectively [15].

The spread of the virus turned the world to be isolated and restricted. Application of multiple restrictions has been imposed on people movement to comprise the pandemic. The public is forced to stay at home and are burdened with the stress of quarantine [16]. Our results showed that the majority of respondents stated and experienced challenges that resulted from social isolation. COVID-19 lockdown negatively associated with social concerns include personal safety, personal job security and straining familial relationships [17]. In addition, the recent study results of some participants indicated the existing financial issue caused by the lockdown. In Australia, lockdown causes significant increases in the unemployment rate, which tends the Commonwealth to maintain unemployment benefit for reducing the existing lockdown loses [17].

Our analyses have shown that religious aspect negatively associated with the quarantine restrictions. In a study carried out on the USA resulted in participants who able to participate in religious life remotely via communal prayer groups that were an important part of managing their quarantine period [18].

The current study is also utilising mix-methods to illustrate the perceived impacted Quality of life dimension during COVID-19 quarantine. Generally, the question focused on their experiences in relation to physical, psychological, social and spiritual challenges during the lockdown. Their perceptions of physical issues were related to sleep patterns, reducing physical activity, and a massive of preventable methods usage. There are several dynamic factors that influence people behaviour for physical activity would suggest that the applied restrictions would potentially affects physical activity behaviour at different levels. Staying alone has many adverse impacts on sleep pattern by reducing spent asleep time in bed (7% reduced sleep efficiency) and increased wake time after sleep onset [19]. Hand washing is an importance in the current lockdown to protect people from infection. Mask wearing is suggested to be complement as this measure by controlling the harm at the source. As well as protection of essential workers who have to work during the lockdown and help to decrease transmission of the infection. South Korea and Hong Kong were able to reduce their COVID-19 outbreaks without lockdown by using the preventive method of transmission [20]. Quarantine may lead to behavioural changes such as repeated washing and cleaning as a response to stressful changes [21].

Pandemic restrictions significantly impact psychological aspects including fear, anxiety and depression that may have been resulting from the quarantine. A large number of participants in this study complained of anxiety during their quarantine period. People are more likely to develop anxiety in the absence of interpersonal communication [22]. Since the pandemic of COVID-19 started, the Chinese government announce public quarantine that increases psychological distress in public. Most people are exposed to a stressful situation during the quarantine period; this increases anxiety and depression level [5]. A study in china surveyed a general population resulted in 28.8% of participants reported moderate to severe anxiety symptoms, and 16.5% reported moderate to severe depression symptoms [7].

COVID-19 pandemic cause loneliness and social isolation with the restrictions imposed to contain the viral spread. Respondents indicated that the quarantine limited their family and friend's relationship. Social isolation is consistently impacted health and well-being negatively. Quarantine and social distancing are important measures to reduce virus from spreading; however, also causes an elevation of loneliness level and social isolation, which in turn produce physical and psychological consequence [21]. In addition, participants not only experienced a stressful social response, but they also experienced an economic challenge, which may be related to lockdown. Globally, the functioning of supply chains has been disrupted, affecting companies around the world. Over the time of the lockdown, millions of people may lose their jobs. In addition, people worrying about the news of more companies shutting down their operations or revising estimations. Also, consumers have changed their patterns of consumption, resulting in shortages of several things in shops across the world [23].

We found that lockdown during COVID-19 epidemic led to spiritual issues, such as losing the full pleasure of religious practice. This significantly affected people quality of life, especially in the religious aspect. The lockdown significantly affected religious practice in several ways, including the cancellation of live religious services, closing religious schools, cancelling pilgrimages and prohibiting group interactions during festivals and celebrations [7].

Conclusion

Individuals with COVID-19 are in a state of physical, psychological, social and spiritual stress. Under quarantine, their behaviours towards the pandemic gradually transformed, and their emotional responses altered according to the situation. The negative impacts experienced by people during the COVID-19 quarantine gradually affected the Quality of life negatively. The majority of participants practised negative consequences in physical, psychological, social and spiritual aspects during COVID-19 lockdown.

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