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RESEARCH ARTICLE

The Influence of Partial Curfew on the Quality of life in the Kingdom of Saudi Arabia during the COVID-19 Pandemic

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Abstract:

Objectives:

The study aims to explore individual's QoL during COVID-19's imposed partial curfew in Saudi Arabia.

Methods:

A descriptive cross-sectional study was conducted. A total of 1353 adult participants completed the World Health Organization Quality of Life - BREF online questionnaire during COVID-19's imposed curfew. Pearson correlation and one-way ANOVA was conducted to examine the association between the QoL domains, and to examine the association between the QoL domains and sociodemographic characteristics, respectively.

Results:

The findings showed that social and environmental QoL were the most affected by the pandemic. Sociodemographic characteristics played a role in shaping differences in QoL among the four dimensions of QoL. Men, non-Saudis, private sector employees, and people with income below SAR5,000 reported the lowest QoL.

Conclusion:

The COVID-19 pandemic changed people's lives, their activities and relationships. It affected their QoL in different dimensions and based on specific sociodemographic characteristics. The study findings have implications for policymakers to tailor programs that focus on the different aspects of QoL including social, environmental, physical and psychological domains.

Keywords: Quality of Life, WHOQOL, Health, Pandemic, COVID-19, ANOVA.

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1. INTRODUCTION

The Coronavirus disease (COVID-19) is an infectious respiratory illness that first affected Wuhan's individuals in China in late 2019. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic [1]. As of November 4, 2020, COVID-19 has spread across more than 200 countries and affected more than 47 million people with more than 1.2 million confirmed deaths [2]. In response to the COVID-19 outbreak, countries have taken proliferating precautionary measures to control the disease's spread including retail shutdowns, flights suspension, school closures, social distancing, and nationwide lockdown.

The enforced precautionary measures, while important, resulted in major impacts on national economies, social interactions and employment [3, 4]. These measures have disturbed people's normal lives at the individual level in terms of limiting physical activity, increasing sleep and eating disorders and negatively affecting mental well-being [5 - 9]. For example, in China, a recent study has reported that COVID-19 affected the mental health of residents of the Liaoning Province. About half of the surveyed residents were "horrified" by the pandemic [10]. Another study reported that COVID-19 has negatively affected the mental health of 70% of the surveyed residents of the West Bengal province and increased their depression and worry over financial impact [6]. Furthermore, Mazza and colleagues found a high level of psychological distress during the first phase of the COVID-19

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outbreak in Italy [11]. Moreover, infected individuals had a fear of death that caused psychological anxiety [12].

The COVID-19 pandemic has introduced negative consequences beyond deteriorated mental health, especially for individuals from low and middle socioeconomic statuses. Such individuals working as laborers, small-scale retailers, and private employees in unorganized or informal sectors depending on daily wages and do not hold stable jobs with steady incomes and thus, were severely affected by the pandemic [13 , 12]. Additionally, the COVID-19 pandemic has greatly affected the educational sector. Educational institutions had to cancel face-to-face classes and adopt an online teaching module that could not effectively substitute traditional face-to-face classes [14]. Although the COVID-19 pandemic had significant negative impacts on human life, it has contributed to some positive outcomes. Given imposed lockdowns and curfews that reduced commuting on roads, the COVID-19 pandemic has contributed to reduced noise and air pollution [15].

Like other countries, the Kingdom of Saudi Arabia (KSA) took strict measures to contain the spread of the COVID-19 disease right after confirming the first case in the Country on March 2nd, 2020 [16]. On March 22, KSA enforced a nationwide partial curfew that was extended to a 24-hours curfew on April 6th [17]. The Country also suspended religious practices such as prayers and Umrah, shifted to online education for all levels, adopted teleworking for the majority of employees, closed retail shops and suspended recreational events. Despite these measures to flatten the COVID-19 outbreak curve, the number of COVID-19 cases in KSA is among the highest in the Arab region with 348,510 confirmed cases and 5,456 deaths [16].

In KSA the COVID-19 outbreak was associated with the prevalence of stress, anxiety, depression, and poor mental well-being [18 - 22]. In examining the psychological impact of COVID-19 on the general population of KSA, Joseph and his colleagues found moderate to severe symptoms of anxiety and depression among 40% of the surveyed adults [22]. Furthermore, recent evidence found that fear of COVID-19 increased the probability of experiencing anxiety and depression, and indirectly reflected the low quality of life (QoL) [20]. A recent study also found that COVID-19 was associated with moderate and high levels of stress among Saudi students from different levels [18]. These studies have also concluded the important role of social support in mitigating the negative impacts of COVID-19 on the population [20, 21].

The impact of COVID-19 on people's lives has initiated an interest in assessing the QoL. These studies have concluded that various aspects of QoL during COVID-19 were affected negatively for the different studied populations. The variation and inconsistency reported in previous studies regarding the impact of COVID-19 on different populations, in different contexts, and in relation to different sociodemographic factors necessities further examine the impact of COVID-19 on general populations. Building on that, the current study took an overall approach to assess the QoL of the general population of KSA during the COVID-19 outbreak. To the best of our knowledge, this is the first study that assesses the QoL during the COVID-19 lockdown in KSA in relation to several sociodemographic factors.

The study aimed to explore individuals QoL during the imposed partial curfew as a result of the COVID-19 precautionary measures in KSA. The study's findings contribute to current efforts in documenting the diverse impacts of COVID-19 on different aspects by taking a comprehensive approach to assess four dimensions of QoL of the general population rather than focusing on one dimension or a specific group. Moreover, it contributes to broader conversations about examining and understanding the impacts of pandemics on QoL. Such understating would be necessary to consider factors in facilitating a better QoL in COVID-19. Indeed, exploring and assessing the QoL is imperative to guide subsequent actions and guidelines to be adopted to address the negative and lasting impacts of COVID-19.

2. METHODS

The present descriptive cross-sectional study used a snowball sampling method to assess the QoL during COVID-19. This sampling method allowed to recruit participants across five geographical districts in KSA during the curfew period. An online questionnaire was developed using Question Pro in English and Arabic. A pilot study among 10 participants was conducted to evaluate the feasibility of the questionnaire and to increase the quality of the research. Minor modification was done based on respondents' feedback.

Data collection started during the partial curfew in 2020 and lasted for two weeks. During that period, a partial curfew was imposed from 5:00 p.m. to 6:00 a.m. The curfew led to an increase in the usage of the internet by 33% [23]. Also, governmental announcements of COVID-19 updates were reported through official social media accounts and people tend to keep track of it. Therefore, the study's researchers decided to disseminate the questionnaire through various social media platforms (Twitter, WhatsApp, LinkedIn and Snapchat) to reach a large number of participants. Also, direct messages were sent to certain public health influencers via Twitter and LinkedIn to be shared with their followers. After one week, a reminder was sent to encourage participation.

Informed consent was required before participation in the study while assuring the confidentiality of participants' personal information. The inclusion criteria were residents of KSA who were 18 years and older. The study protocol was approved by the Institutional Review Board.

2.1. Instrument

The Quality of Life (QoL) was assessed using a validated tool "WHOQOL-BREF" which was developed by the World Health Organization (1996) to examine the QoL in four dimensions: Physical health, Psychological, Social relationships, and Environment. Awadalla, (2009) have published a validated Arabic version of WHOQOL-BREF [24], which the researchers used for data collection.

The WHOQOL-BREF includes 26 items that reflect good to excellent psychometric properties [25]. The WHOQOL-BREF generates a profile and scoring scale for each QoL

domain. Questions are categorized into four domains; each domain includes facets: Physical health domain (7 items), Psychological domain (6 items), Social Relationship domain (3 items) and Environment domain (8 items).

In addition to the four domains, WHOQOL-BREF contains two additional questions, one relating to overall QoL and the other relating to satisfaction with health [26]. These two questions with the four domains represent the general facet of overall QoL (OQOL) and health. The WHOQOL-BREF assesses responses using a five-points Likert scale, with higher scores signifying better QoL. The scores were multiplied by four to be directly comparable with scores derived from the WHOQOL-100.

In addition to the WHOQOL-BREF domains, sociodemographic characteristics questions were added including age, gender, nationality, residence province, educational level, occupation, and financial and marital status.

2.2. Statistical Analysis

The statistical analysis was done using IBM Statistical Package for Social Sciences (SPSS) version 21. The sociodemographic characteristics of respondents were described by frequency and proportion. The total score of general QoL and general health questions were presented by mean ± and standard deviations. Pearson correlation was used to determine the relationship between QoL score of the WHOQOL-BREF four domains. A one-way ANOVA was conducted to compare sociodemographic characteristics and their association to QoL domains among respondents. For statistically significant variables, Tukey's HSD pairwise; multiple comparison procedure was used for post-hoc comparisons.

3. RESULTS

3.1. Survey Respondents

The current study assessed the QoL during the COVID-19 pandemic using the WHOQOL-BREF. After posting the questionnaires online for two weeks, 2,213 viewed the questionnaires and 1,353 respondents completed them. This paper reported the findings of the completed questionnaire.

3.2. Sociodemographic Variables and QoL Domain Scores

Reliability analysis was carried out on the WHOQOL-BREF scale comprising 26 items. Based on the calculated sample Cronbach's alpha showed a high level of internal consistency, $\alpha = 0.899$.

As presented in Table **1**, the mean scores for Physical health, Psychological, Social relationship, and Environmental domains were 16.0 (SD = 2.53), 15.56 (SD = 2.75), 15.00 (SD = 3.06), 16.47 (SD = 2.45), respectively. The General QoL facet domain mean score was 17.00 (SD = 3.47). The General health facet domain mean score was 16.89 (SD = 3.81). A Pearson correlation was conducted to determine the relationship between the General QoL score and QoL in four domains. There was a weak and positive correlation between General QoL score and Physical domain, which was statistically significant (r (1353) = .368, *P* = .00). There was a moderate and positive correlation between General QoL score and Psychological and Social domains, which was statistically significant (r (1353) = .462, *P* = .00), (r (1353) = .416, *P* = .00), respectively. Furthermore, the Environmental domain showed a strong and positive significant correlation with the General QoL score, (r (1353) = .501, *P* = .00).

Table 1. WHOQOL-BREF scores for Saudi Arabia Residents during COVID-19 Pandemic.

-	Minimum	Maximum	Mean ± SD
Physical Health	5.14	20.00	16.01 ± 2.53
Psychological	4.67	20.00	15.56 ± 2.75
Social Relationship	4.00	20.00	15.00 ± 3.06
Environmental	5.14	20.00	16.47 ± 2.45
General QoL	4.00	20.00	17.00 ± 3.47
General Health	4.00	20.00	16.90 ± 3.81

Table 2. Sociodemographic characteristics of Saudi Arabia resident.

Variables	Frequency	Percentage (%)
Gender		
Male	361	26.7
Female	992	73.3
Nationality		
Saudi	1259	93.1
Non-Saudi	94	6.9
Region		
Central	330	24.4
Eastern	818	60.5
Northern	37	2.7
Western	125	9.2

(Table 2) contd.....

Variables	Frequency	Percentage (%)
Southern	43	3.2
Age		
18-20	65	4.8
21-30	457	33.8
31-40	424	31.3
41-50	205	15.2
51-60	137	10.1
Above 60	65	4.8
Marital Status		
Single	496	36.7
Married	769	56.8
Divorced	71	5.2
Widow	17	1.3
Education Level		
Less than high school	28	2.1
High school	243	18.0
Bachelor's degree	832	61.5
Graduate's degree	250	18.5
Occupation		
Student	242	17.9
Government sector	373	27.6
Private sector	258	19.1
Freelancer	39	2.9
Housewife	212	15.7
Retired	120	8.9
Not employed	109	8.1
Sector		
Health	127	9.4
General and higher education	239	17.7
Energy	65	4.8
Finance	29	2.1
Information technology	17	1.3
Real estate	14	1.0
Military	34	2.5
Others	145	10.7
Type of Residence		
Rental flat	284	21
Rental house	127	9.4
Owned flat	111	8.2
Owned house	831	61.4
Average Family Income		
Less than 5000 SAR	161	11.9
from 5000 - 10000 SAR	297	22
from 11000 - 15000 SAR	293	21.7
from 16000 – 20000 SAR	257	19
More than 20000 SAR	345	25.5

Table **2** describes the sociodemographic factors of the respondents. The study respondents included 992 (73%) females and 361 (27%) males. The majority of respondents were Saudi 93% and 7% were non-Saudi. Among the 1,353 respondents, 60% were from the Eastern region, followed by the Central region (24%). Most of the respondents were between 20 and 40 years old (65.1%), while 15.2% were between 41 and 50 years old, and 15% were older than 51. Fifty-seven percent of the respondents were married, and 37% were single. In terms of education level, most of the respondents had a bachelor's degree (61.5%), while 18.5% had a graduate degree, and 20% had a high school degree or less. In terms of employment, 27.6% of the respondents held a governmental job, while 17.7% worked in general and higher education sectors. The average family income among the majority of the respondents was between SAR 5,000 and SAR15,000 (43%), with the majority of them (61.4%) living in owned houses.

A one-way between subjects (ANOVA) was conducted to compare various sociodemographic factors and their association with the four QoL domains among residents of KSA. The findings are tabulated in Tables **3-6**.

Table 3. Sociodemographic characteristics and QoL in Physical Health domain

Variables	Mean ± SD	F	*P*
Gender			
Male	15.9 ± 2.5	0.097	0.755
Female	16.0 ± 2.5		
Nationality			
Saudi	16.0±2.52	.717	.397
Non-Saudi	15.79±2.64		
Region			
Central	16.2 ± 2.5	1.174	.320
Eastern	16 ± 2.6		
Northern	16.5 ± 2.5		
Western	15.8 ± 2.5		
Southern	15.8 ± 2.8		
Age			
18-20	16.0 ± 2.5	1.487	.191
21-30	16.10 ± 2.5		
31-40	15.9 ± 2.5		
41-50	16.2 ± 2.3		
51-60	16. 0 ± 2.7		
Above 60	15.4 ± 2.6		
Marital Status			
Single	15.9 ±2.7	1.602	.187
Married	16.1 ±2.4		
Divorced	15.6 ±3.0		
Widow	15.3± 3.3		
Education Level			
Less than high school	15.9 ± 3.3	3.896	**.009**
High school	16.2 ± 2.6		
Bachelor's degree	16.1 ± 2.5		
Graduate's degree	15.5 ± 2.5		
Occupation			
Student	16.2 ± 2.6	1.085	.369
Government sector	16.0 ± 2.5		
Private sector	15.9 ± 2.6		
Freelancer	16.5 ± 2.2		
Housewife	16.0 ± 2.4		
Retired	15.6 ± 2.7		
Not employed	16.0 ± 2.7		
Sector			
Health	15.9 ± 2.4	.546	.799
General and higher education	16.0 ± 2.5		
Energy	16.0 ± 2.4		
Finance	15.4 ± 2.9		
Information technology	16.1 ± 2.5		
Real estate	15.9 ± 2.0		
Military	16 ± 3		
Others	16.3 ± 2.5		

(Table 3) contd.....

Variables	Mean ± SD	F	*P*
Type of Residence			
Rental flat	15.9 ± 2.5		
Rental house	15.8 ± 2.9	.809	.489
Owned flat	15.8 ± 2.4		
Owned house	16.0 ± 2.5		
Average Family Income			
Less than 5000 SAR	15.9 ± 2.7		
from 5000 - 10000 SAR	16.1 ± 2.4		
from 11000 - 15000 SAR	15.7 ± 2.5	1.84	.117
from 16000 – 20000 SAR	16.1 ± 2.6		
More than 20000 SAR	16.1 ± 2.4		

Table 4. Sociodemographic characteristics and QoL in Psychological domain.

Variables	Mean ± SD	F	p-Value
Gender			
Male	15.65 ± 2.7	.539	.463
Female	15.35 ± 2.8		
Nationality			
Saudi	15.79 ± 2.64	.840	.359
Non-Saudi	15.3 ± 3.07		
Region			
Central	15.7 ± 2.9		
Eastern	15.6 ± 2.7		
Northern	15.9 ± 2.2	1.353	.248
Western	15.1 ± 2.9		
Southern	15.6 ± 3.3		
Age			
18- 20	14.8 ± 2.7		
21-30	15.3 ± 2.9		
31-40	15.3 ± 2.7	10.120	**.000**
41-50	16.0 ± 2.7		
51-60	16.7 ± 2.3		
Above 60	16.5 ± 2.51		
Marital Status			
Single	14.9 ± 2.9		
Married	15.9 ±2.6	13.193	**.000**
Divorced	15.4 ±2.9		
Widow	15.9 ±3.1		
Education Level			
Less than high school	15.9 ± 2.7		
High school	15.5 ± 3.0	.764	.514
Bachelor’s degree	15.6 ± 2.7		
Graduate’s degree	15.3 ± 2.8		
Occupation			
Student	15.0 ± 2.9		
Government sector	15.7 ± 2.8		
Private sector	15.3 ± 2.7		
Freelancer	16.4 ± 2	5.284	**.000**
Housewife	15.8 ± 2.5		
Retired	16.4 ± 2.7		
Not employed	15.3 ± 2.9		
Sector			

(Table 4) contd.....

Variables	Mean ± SD	F	p-Value
Health	15.2 ± 2.8	.797	.590
General and higher education	15.8 ± 2.6		
Energy	15.6 ± 2.2		
Finance	15.5 ± 2.7		
Information technology	15.5 ± 2.5		
Real estate	16 ± 1.6		
Military	15.0 ± 3.4		
Others	15.5 ± 2.9		
Type of Residence		1.059	.365
Rental flat	15.4 ± 2.9		
Rental house	15.7 ± 2.8		
Owned flat	15.3 ± 2.6		
Owned house	15.6 ± 2.7		
Average Family Income		.975	.420
Less than 5000 SAR	15.4± 2.9		
from 5000 - 10000 SAR	15.4 ± 2.9		
from 11000 - 15000 SAR	15.4 ± 2.7		
from 16000 – 20000 SAR	15.7 ± 2.7		
More than 20000 SAR	15.7 ± 2.6		

Table 5. Sociodemographic characteristics and QoL in social relationships domain.

Variables	Mean ± SD	F	p-Value
Gender			
Male	14.7 ± 3.1	3.013	.083
Female	15. 0 ± 3.0		
Nationality			
Saudi	15.0 ± 3.1	1.244	.265
Non-Saudi	14.6 ± 3.1		
Region			
Central	14.9 ± 3.2	2.023	.089
Eastern	15.0 ± 3.0		
Northern	15.6 ± 3.4		
Western	14.4 ± 3.2		
Southern	14.3 ± 3.1		
Age			
18- 20	14.0 ± 3.2	7.085	**.000**
21-30	14.7 ± 3.1		
31-40	14.7 ± 3.2		
41-50	15.6 ± 2.7		
51-60	15.7 ± 3		
Above 60	15.7 ± 2.6		
Marital Status			
Single	14.4 ±2.9	12.905	**.000**
Married	15.3 ±3.1		
Divorced	14.2 ±2.9		
Widow	15.2 ±2.6		
Education Level			
Less than high school	16.0 ± 2.6	3.557	**.014**
High school	14.6 ± 3.3		
Bachelor’s degree	15.1 ± 3.0		
Graduate’s degree	14.6 ± 2.9		
Occupation			

(Table 5) contd.....

Variables	Mean ± SD	F	p-Value
Student	14.3 ± 3.2	4.403	**.000**
Government sector	15.0 ± 3.0		
Private sector	14.6 ± 3.0		
Freelancer	15.4 ± 2.8		
Housewife	15.4 ± 3.0		
Retired	15.7 ± 2.8		
Not employed	14.8 ± 3.1		
Sector			
Health	14.3 ± 3	1.858	.074
General and higher education	15.2 ± 2.9		
Energy	15.0 ± 2.7		
Finance	14.4 ±3.6		
Information technology	15.4 ± 3.1		
Real estate	14.7 ± 2.5		
Military	13.8 ± 3.9		
Others	14.9 ± 3		
Type of residence		3.293	**.020**
Rental flat	14.5 ± 3.4		
Rental house	14.7 ± 3.0		
Owned flat	15.2 ± 3		
Owned house	15.1 ± 3		
Family income		1.85	.115
Less than 5000 SAR	14.6 ± 3.3		
from 5000 - 10000 SAR	14.8 ± 3.1		
from 11000 - 15000 SAR	14.7 ± 2.9		
from 16000 – 20000 SAR	15.1 ± 3.1		
More than 20000 SAR	15.2 ± 2.9		

Table 6. Sociodemographic characteristics and QoL in the environment domain.

Variables	Mean ± SD	F	p-Value
Gender			
Male	16.15± 2.57	8.271	**.004**
Female	16.58±2.40		
Nationality			
Saudi	16.52±2.44	9.112	**.003**
Non-Saudi	15.73±2.52		
Region			
Central	16.5 ± 2.6	4.075	**.003**
Eastern	16.2 ± 2.4		
Northern	16.8 ± 2.4		
Western	16.0 ± 2.5		
Southern	15.3 ± 2.5		
Age			
18- 20	16.6 ± 2.8	9.4	**.000**
21-30	16.5 ± 2.4		
31-40	16.0 ± 2.5		
41-50	16.7 ± 2.3		
51-60	17.2 ± 2.2		
Above 60	17.5 ± 1.7		
Marital Status			

(Table 6) contd.....

Variables	Mean ± SD	F	p-Value
Single	16.3 ±2.6	3.215	**.022**
Married	16.6 ±2.3		
Divorced	15.8 ±2.8		
Widow	16.8 ±3.3		
Education Level			
Less than high school	16.0 ± 2.6	.458	.712
High school	16.4 ± 2.6		
Bachelor's degree	16.5 ± 2.4		
Graduate's degree	16.5 ± 2.4		
Occupation			
Student	16.6 ± 2.5	4.620	**.000**
Government sector	16.4 ± 2.6		
Private sector	16.1 ± 2.4		
Freelancer	17 ± 2.2		
Housewife	16.5 ± 2.3		
Retired	17.4 ± 2.1		
Not employed	16.2 ± 2.7		
Sector			
Health	16.1 ± 2.4	2.355	.022
General and higher education	16.6 ± 2.4		
Energy	16.6 ± 2.2		
Finance	15.5 ± 3.2		
Information technology	16 ± 2.9		
Real estate	16 ± 1.9		
Military	15.1 ± 3.2		
Others	16.4 ± 2.5		
Type of Residence		19.164	.000
Rental flat	15.7 ± 2.6		
Rental house	16.0 ± 2.7		
Owned flat	16.0 ± 2.1		
Owned house	16.9 ± 2.3		
Average Family Income		21.08	.000
Less than 5000 SAR	15.4± 2.7		
from 5000 - 10000 SAR	16. ± 2.6		
from 11000 - 15000 SAR	16.3 ± 2.4		
from 16000 – 20000 SAR	16.7 ± 2.3		
More than 20000 SAR	17.2 ± 2.1		

Concerning gender, females reported significantly ($P < 0.05$) higher scores in the Environmental QoL domain (16.58±2.40) compared to males (16.15± 2.57). There was a significant effect of gender at $P<.05$ level for the Environmental QoL domain [F (1, 1351) = 8.271, $P = 0.004$].

Saudis reported significantly ($P < 0.05$) higher scores in the Environmental QoL domain (16.15±2.44) compared to non-Saudis (15.73± 2.52). There was a significant effect of nationality at $P<.05$ level for the Environmental QoL domain [F (1, 1351) = 9.112, $P= 0.003$].

Respondent across the Saudi regions showed a high significant result ($P < 0.05$) in the Environmental QoL domain. [F (4, 1348) = 4.075, $P = 0.003$]. Post hoc comparisons using the Tukey HSD test indicated that the mean score for the Southern region (M = 15.3, SD = 2.5) was significantly different than the Eastern, Central and Northern regions (M = 16.2, SD = 2.4), (M = 16.5, SD = 2.6), (M = 16.8, SD = 2.4), respectively. However, the Western region (M = 16.0, SD = 2.5) did not significantly differ from all other regions.

Age among respondents showed a significant result ($P < 0.05$) in the Psychological QoL, Social QoL and Environmental QoL domains [F (5, 1347) = 10.120, $P = 0.000$], [F (5, 1347) = 7.085, $P = 0.000$], [F (5, 1347) = 9.4, $P = 0.000$], respectively. Post hoc comparisons using the Tukey HSD test indicated that there was a significant difference in the mean between respondents who were younger than 40 years old and those who were older than 41 years old.

Marital status showed a significant result ($P < 0.05$) in the Psychological QoL, Social QoL and Environmental QoL domains. [F (3, 1349) = 13.19, $P = 0.00$], [F (3, 1349) = 12.9, $P = 0.00$], [F (3, 1349) = 3.215, $P = 0.022$], respectively. Post hoc comparisons using the Tukey HSD test indicated that there was a difference between married and single respondents in the Psychological and Social QoL domains. However, the

difference in the Environmental QoL domain was between married and divorced respondents.

The education level showed a significant result ($P < 0.05$) in the Physical health [F (3, 1349) = 3.896, $P = 0.009$], and Social QoL domains [F (3, 1349) = 3.557, $P = 0.014$]. Post hoc comparisons using the Tukey HSD test indicated that in the Physical health domain there was a significant difference between; those holding high school and graduates' degrees and between bachelor's degree and graduates' degree holders. However, there was no difference across the Social QoL domain.

Occupation among respondents showed a significant result ($P < 0.05$) in the Psychological QoL [F (6, 1346) = 5.284, $P = 0.023$], Social QoL [F (6, 1346) = 4.403, $P = 0.00$], and Environmental QoL domains [F (6, 1346) = 4.620, $P = 0.00$]. Post hoc comparisons using the Tukey HSD test indicated that among the three domains there was a significant difference between respondents working in the private sector and retired. Furthermore, there was a significant difference between students and housewives in the Psychological and Social QoL domains.

Employment sector in the study showed only a significant result ($P < 0.05$) in the Environmental domain [F (7, 662) = 2.355, $P = 0.022$]. Post hoc using the Tukey HSD test indicated that there was only one significant difference between military and general and higher education.

The type of residence in the study showed a significant result ($P < 0.05$) in the Social [F (3, 1349) = 3.923, $P = 0.020$] and Environmental domains [F (3, 1349) = 19.164, $P = 0.000$]. Post hoc comparisons using the Tukey HSD test indicated that there was a highly significant difference between an owned house and the following categories: rented apartment, rental house and owned apartment.

Average family income showed a significant result ($P < 0.05$) only with the Environmental QoL domain [F (4, 1348) = 21.08, $P = 0.000$]. Post hoc comparisons using the Tukey HSD test determined that an average family income of less than SAR 5,000 was significantly different from an average family income of more than SAR 5000.

4. DISCUSSION

During the COVID-19 lockdown, the Saudi government was thoroughly monitoring the situation and enforcing stringent measures to safeguard the wellbeing of its citizens, residents, and visitors. Yezli & Khan, (2020) revealed that COVID-19 has significantly affected countries all over the world and dramatically changed peoples' lifestyles [27]. Social distancing measures, restrictions of movement and lockdowns were implemented in KSA to decelerate the transmission of the COVID-19 disease and reduce negative consequences [28]. The current study assessed the Physical, Environmental, Psychological, and Social domains of QoL for residents of KSA during the COVID-19 lockdown.

Amongst the four domains of QoL, respondents reported the highest QoL in the Environmental domain and the lowest QoL in the Social domain.

Our study revealed that precautionary measures had unintended negative consequences on social life and psychological well-being. For instance, the closure of religious spaces during the pandemic might have highly affected the spiritual welfare of the population and minimized the social support that is vital for coping during the pandemic. Furthermore, psychological well-being, has been affected by increased anxiety and depression disorders during the COVID-19 pandemic [18, 22]. Strong evidence showed that social support can greatly contribute to mental health. Alyami *et al*., (2020) revealed a significant role of perceived social support in enhancing the mental well-being of individuals during the COVID-19 pandemic among the Saudi population [19]. Harvey and Alexander,(2012) also noted that individuals with high perceived social support were emotionally healthier than individuals with low perceived social support [29].

The lockdown negatively impacted residents of KSA, especially since social gatherings and family visits are prevalent within the Saudi culture. Indeed, the lockdown has been found to increase stress levels and aggravate feelings of isolation [21]. With regards to the association between sociodemographic characteristics and the Social relationship domain, the effect appeared significantly across age, occupation and marital status.

Given our study, youth (18 to 20 years) who were probably undergraduate students, reported lower scores compared to their counterparts. Such findings can be explained by the sudden and extreme shift in the educational process for all students of different levels. Like several countries, KSA shifted to online education, although it was never actively employed before the pandemic. The experience of students during a pandemic along with extreme and rapid changes triggered psychological distress. The lack of social interaction imposed by precautionary measures of physical and social distancing further contributed to their distress. In line with this result, Silva and colleagues (2020) found the Psychological domain of QoL among undergraduate dental students to be the most affected by isolation due to COVID-19 [30]. Likewise, AlShibani (2019) has reported low QoL in the Social and Psychological domains among students [31].

With regards to marital status, single participants in our study reported significantly lower QoL in the Social and Psychological domains. This finding is in concurrence with Gutiérrez-Vega *et al*.'s (2018) study that found married participants to have the highest QoL scores in Social and Psychological domains, even after controlling for sex, age, and socioeconomic status. Previous studies have concluded that marital status is linked to mental health and the improvement of QoL [32]. Indeed, Han *et al*., (2014) confirmed that being single is related to low QoL as social and intimate relationships with partners improve mental health [33].

The environment has been identified as an important dimension of QoL that encompasses aspects of financial resources, freedom, accessibility, physical safety and security, health and social care, leisure activities and home environment. In response to COVID-19, several restrictions on freedom of movement were imposed to minimize the spread of the disease. During the pandemic, KSA was not only committed to

applying precautionary measures but was also keen to ensure residents' welfare and safety by providing them with various electronic applications for remote consultation with physicians, emergency transportation permits as well as ordering medications, food, and grocery.

Within the Environmental domain, certain sociodemographic characteristics were significantly associated with QoL. Men, non-Saudis, private sector employees as well as people with an average income of less than SAR 5,000 and military employees reported the lowest QoL among their respective groups. Since men are usually the breadwinners in the Saudi context, employment insecurity and financial uncertainty introduced by the COVID-19 pandemic represented a major concern that affected their QoL. Such concern increased among the younger population as they are less financially capable than their older counterparts with lower average incomes [34].

Our study found that private-sector employees reported the lowest QoL in the Environmental domain. The private sector, which accounts for about 85% of the workforce in KSA, has been extremely affected by the pandemic [35]. The estimated losses necessitated governmental intervention by introducing several initiatives to mitigate the effect of the pandemic on the private sector. For example, the government initiated unemployment insurance "SANED" for Saudi employees working in the private sectors that have been affected by the COVID-19 pandemic. Through SANED, employers are entitled to compensation that covers up to 60% of Saudi employees' wages, instead of terminating the employment contracts of their Saudi employees [36]. Such initiative can explain why Saudi participants in our study reported better QoL than non-Saudis. Saudis received a monthly percentage of their wages and maintained job security. However, the situation was different for non-Saudi employees in the private sector in which job security and financial stability remained a major concern.

Participants working in the military sector reported the lowest QoL. The military played a major role in enforcing lockdown and curfew regulations during the pandemic. Unlike other sectors, the military's work responsibilities were not suspended by the COVID-19 lockdown. On the contrary, their responsibilities were extended during the COVID-19 lockdown and accordingly, increased their chances of exposure to the infection. Collectively, participants reporting low QoL in the Environment domain reflected a group with work conditions that lacked stability and security.

Families with an average income below SAR 5,000 reported a low score in the Environmental QoL domain. This is aligned with Rappaport's (2008) assumption that individuals derive utility from the consumption of a traded good, housing, leisure, and local consumption amenities which shapes their QoL. Furthermore, he claimed that the increased income results in increased money spent on housing and leisure which improves QoL [37].

To the best of our knowledge, this is the first study to assess the QoL of the general population in KSA during the COVID-19 lockdown based on sociodemographic factors. The study used a convenience sampling method with an over-representation of females and participants from the Eastern region. Further, as the study was cross-sectional, it is difficult to follow up with respondents and measure their QoL post lockdown. Such limitations raise venues for future research. Future research examining the effect of socio-economic factors on QoL along with further analysis of factors affecting specific domains of QoL would be imperative. Further studies to investigate the reasons behind the lower scores of QoL in the specific domains of Social and Environmental domains for specific groups would be necessary.

CONCLUSION

Th study investigated QoL during COVID-19's imposed partial curfew in Saudi Arabia. The study concluded that the QoL in the Environmental domain was least affected by the COVID-19 pandemic, while the QoL in the Social domain was the most affected. Furthermore, the COVID-19 had varying degrees of impact on the QoL of residents of KSA based on their sociodemographic characteristics. Students, youth, singles, men, non-Saudis, private sector employees and people with average income below SAR 5,000 had lower scores of QoL compared to their respective counterparts. The findings of the study can act as a guiding tool to support policymakers in addressing long-term strategies for the identified sociodemographic characteristics during pandemics. Thus, the long-term impact of such changes is to be considered and accordingly addressed by developing and tailoring programs that tackle such impacts, for example, focusing on mental health intervention.

LIST OF ABBREVIATIONS

WHO	=	World Health Organization
SPSS	=	Statistical Package for Social Sciences

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study protocol was approved by the Institutional Review Board (IRB-2020-03-215).

HUMAN AND ANIMAL RIGHTS

No animals were used for studies that are the basis of this research. All human procedures followed were following the guidelines of Helsinki Declaration of 1975.

CONSENT FOR PUBLICATION

Informed consent was obtained from all participants of this study.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

Not applicable.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflicts of interest, financial or otherwise.

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Declared none.

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