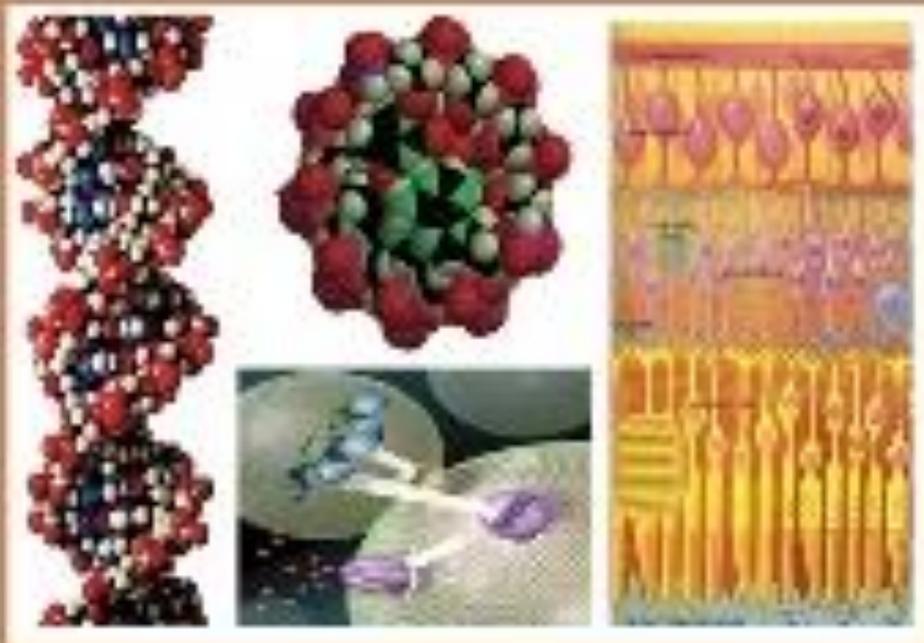




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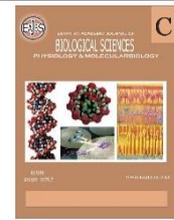
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An assessment of the Quality of Life During the COVID-19 Pandemic: A Cross-Sectional Survey from the Al-Baha Region, Saudi Arabia

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ABSTRACT

Background: In early 2020, COVID-19 emerged as a health crisis and began affecting various dimensions of people's quality of life (QoL). This study assessed QoL during the COVID-19 outbreak in the Al-Baha region of the Kingdom of Saudi Arabia. **Methods:** A cross-sectional survey was conducted between January 2023 and February 2023 to gather information on the participants' sociodemographic characteristics and QoL. To assess QoL, 12 items were adapted from the World Health Organization Quality of Life Instruments (WHOQOL-BREF). To describe QoL scores, median and interquartile ranges were used. A multinomial regression analysis was performed between associated factors and QoL score quartiles, and the statistical significance level was set at $p < 0.05$. **Results:** This study involved 624 participants, with a median QoL score of 37 and an interquartile range of 32–43. The multinomial regression analysis results illustrated that male (OR = 1.64; 95% CI: 1.05–2.57) participants aged 18–25 years (OR = 2.31; 95% CI: 1.18–4.52) and those who were married (OR = 2.12; 95% CI: 1.25–3.57) were likelier to be in the first quartile of the QoL scores. **Conclusions:** The COVID-19 pandemic significantly affected several aspects of individuals' QoL. To mitigate the negative influences of the pandemic and enhance the QoL and health of the population, community-based interventions are required.

INTRODUCTION

By the end of 2019, coronavirus disease (COVID-19) was detected in Wuhan, China, creating a global public health emergency (Organization, 2020). On March 11, 2020, COVID-19 was declared a pandemic by the World Health Organization (WHO). Worldwide, more than 200 countries were affected by the pandemic (Organization, 2020). The first case was detected in the Kingdom of Saudi Arabia (KSA) on March 2, 2020; the case numbers gradually increased beginning in April 2020. The outbreak of the disease was promptly controlled by the Saudi government. Several educational campaigns on the adoption of social distancing and hand hygiene were launched by the Ministry of Health (Algaissi *et al.*, 2020). Since the beginning of the pandemic, the delivery of gloves, sanitisers and facemasks has been ensured in many public places. Between March and June 2020, most KSA regions implemented curfew hours and lockdowns and cancelled visits to tourist areas, mosques and holy places in the KSA (CDC, 2020). Most organisations and educational institutions implemented remote-work policies. In the last decade, quality of life (QoL) has mostly been explored in studies focused on chronic and non-communicable diseases. It is known as "a patient's general subjective perception of the effect of illness or medical condition on various domains including physical, psychological, social and occupational functioning" (Haraldstad *et al.*, 2019).

Assessment of QoL across multiple domains helps identify what, particularly problems, influence people in their everyday lives. Studies have suggested that QoL is considered the most important predictor of overall health and well-being (Fayers & Machin, 2013). The negative effects of infectious diseases such as COVID-19 may affect the social, physical and psychological functioning of people and societies, as well as the economic effects (Qiu *et al.*, 2020; Yezli & Khan, 2020). A study from Hong Kong examined health-related quality of life (HRQoL) regarding an outbreak of severe acute respiratory syndrome (SARS) in 2003 that spread to several continents and resulted in 8,000 infections, approximately 10% mortality and a devastating effect on local and regional economies (Mucci *et al.*, 2020). It was reported that Hong Kong residents who lived six months after contracting SARS reported a noticeable impairment in HRQoL for physical conditions, general health domains and social functioning. Another study from Morocco found that the COVID-19 pandemic had negative effects on HRQoL.

People's activities in daily life may be influenced by implementing preventive measures that affect general functioning and well-being (Mazza *et al.*, 2020; Qiu *et al.*, 2020). A previous study investigated the negative psychological influences of quarantine after the SARS outbreak. Another study introduced the term "coronaphobia" to describe COVID-19-related anxiety and stress among general populations (Asmundson & Taylor, 2020; Hawryluck *et al.*, 2004; Lee *et al.*, 2020). Mental health experts have expressed their reflections on the COVID-19 pandemic populations' psychological functioning and well-being (Asmundson & Taylor, 2020; Rubin & Wessely, 2020).

Several discussions in the literature have cautioned about the psychological effects of quarantine to control the spread of COVID-19 on people's QoL (Rubin & Wessely, 2020). QoL was conceptualised by the WHO as "an individual's perception of

their position in the life in the context of the culture in which they live and in relation to their goals, expectations, standards and concerns" (Group, 1995). The outbreak of COVID-19 in many regions of the world, as well as in the KSA, was declared a public health emergency associated with high morbidity and mortality rates (Lee & You, 2020). Adherence to preventive measures, including disinfecting surfaces, wearing facemasks, and frequent handwashing, in addition to quarantine of infected people and maintaining social distancing, significantly affected individuals' daily life activities (Lee & You, 2020).

Most quarantined people had negative emotions, such as guilt, anger, fear and feelings of loss of control. Because of these reactions, people were doing things to protect themselves from COVID-19, but they still felt unsafe (Harper *et al.*, 2021). Few studies have illustrated that patients with some diseases, such as Parkinson's disease and breast cancer, and those who experienced deteriorated QoL, especially in psychological and physical dimensions (Alkhamees *et al.*, 2020; Bargon *et al.*, 2020; Greco *et al.*, 2021; Guo *et al.*, 2020).

It is important to understand that the COVID-19 pandemic had consequences extending to many dimensions of QoL, including social, environmental, and spiritual/religious aspects. This study assessed QoL in the COVID-19 outbreak in the Al-Baha region of the KSA to determine the association between sociodemographic factors and QoL.

MATERIALS AND METHODS

Study Settings, Participants and Questionnaire Administration:

This cross-sectional survey study was conducted between January 2023 and February 2023. The target population was those residing in the Al-Baha region of the KSA. Further inclusion criteria were being male or female, being adults (>18 years old), and being able to complete the online survey questionnaire. Participants who did not meet the inclusion criteria were excluded from the

study. A total of 624 participants were involved in this study. The questionnaire measured several areas. The first focused on sociodemographic data, including gender, age, marital status, education level, employment status and province. The second area consisted of questions about the influence of COVID-19 on QoL in the Al-Baha region. The questionnaire in this study was translated into Arabic and electronically circulated through several online communication channels.

QoL:

To examine the influence of the COVID-19 pandemic on QoL, 12 items were adapted from the WHOQOL-BREF scale (Algahtani *et al.*, 2021; Ohaeri & Awadalla, 2009). This scale can be adapted according to the permission granted by the WHO. The 12 items with the highest factor loadings on the WHOQOL-BREF scale were selected and modified to reflect this study's objectives. Some factors were considered, such as the

format of the questionnaire as well as language, culture, and the context of the COVID-19 pandemic. These factors were addressed when finalising the final arrangement of items on the questionnaire to obtain accurate responses from the participants.

The last version of the WHOQOL-BREF scale consisted of 12 items, with ratings on each item by five points from 1–5; thus, 12 was the lowest possible score and 60 was the highest possible score for the total scale. The list of original items and items after adaptation is shown in Table 1. A lower QoL is represented by a low score due to the negative influence of the COVID-19 pandemic. In this study, Cronbach's alpha was used to examine the reliability of the QoL measures. The estimated standardised Cronbach's alpha was 0.81, which demonstrates good internal consistency in terms of the reliability of the 12 items on the questionnaire.

Table 1: The list of items adapted to assess QoL in the context of the COVID-19 pandemic.

	Items before Adaptation on WHOQOL-BREF	Items after Adaptation
1	How would you rate your quality of life?	How would you rate the impacts of COVID-19 pandemic on your quality of life?
2	How satisfied are you with your health?	How would you rate the impacts of COVID-19 pandemic on your general health?
3	How safe do you feel in your daily life?	How would you rate the impacts of COVID-19 pandemic on your feelings of being safe in your daily life?
4	How healthy is your physical environment?	How would you rate the impacts of COVID-19 pandemic on your physical environment?
5	How available to you is the information that you need in your day-to-day life?	Keeping in view the impacts of COVID-19 pandemic, how available to you was the information that you needed in your daily life?
6	Have you enough money to meet your needs?	How would you rate the impacts of COVID-19 pandemic on your income?
7	How satisfied are you with your access to health services?	How would you rate the impacts of COVID-19 pandemic on your access to health services?
8	How satisfied are you with your personal relationships?	How would you rate the impacts of COVID-19 pandemic on maintaining relationships with your friends?
9	How satisfied are you with your personal relationships?	How would you rate the impacts of COVID-19 pandemic on maintaining relationships with your family?
10	How satisfied are you with the support you get from your friends?	Keeping in view the impacts of COVID-19 pandemic, 'how satisfied were you with the support you get from your friends?
11	To what extent does faith give you comfort in daily life?	To what extent does faith give you comfort in dealing with the hard time of COVID-19 pandemic?
12	To what extent does any connection to a spiritual being help you to get through hard times?	How would you rate the impacts of COVID-19 pandemic on your spiritual connections/practice?

Data Analysis:

The scale of QoL was not distributed normally; thus, median and interquartile range were used. A multinomial regression analysis was used between the associated factors and QoL score quartiles in the Al-Baha region. The Statistical Package for Social Sciences software (SPSS) version 26.0 (IBM, Inc., Armonk, New York, NY, USA) was used to perform the statistical analysis. For the statistical tests, the significance level was set at a *p*-value of 0.05.

Ethical Approval:

Ethical approval for this study was obtained from the deanship of scientific

research at Al-Baha University (reference number 1443-21-43115812-1).

RESULTS**Demographic Characteristics:**

A total of 624 people participated in this cross-sectional study. More than half of the study participants are male (53%). About 44% of the respondents were aged 18–25 years, and around 64% and 51% of the participants held a bachelor's degree and were married, respectively. Approximately 42% of the study population was employed and roughly most of the population in this study resided in Al-Baha city (42%) (Table 2).

Table 2: The multinomial regression between the QoL score quartiles and associated factors in COVID-19 outbreak in Al-Baha region.

Parameter	Category	N (%)	QoL Quartiles			
			1st OR (95% CI)	2nd OR (95% CI)	3rd OR (95% CI)	4th OR (95% CI)
Gender	Male	332 (53.2)	1.64 (1.05-2.57) *	1.06 (0.68-1.65) ns	0.91 (0.59-1.40) ns	Reference
	Female	292 (46.8)	Reference	Reference	Reference	Reference
Age group	18-25 y	274 (43.9)	2.31 (1.18-4.52) *	1.37 (0.73-2.60) ns	0.78 (0.43-1.42) ns	Reference
	26-35 y	112 (17.9)	1.28 (0.56-2.93) ns	1.44 (0.68-3.06) ns	1.15 (0.57-2.32) ns	Reference
	36-45 y	130 (20.8)	0.90 (0.43-1.92) ns	0.63 (0.30-1.30) ns	0.56 (0.29-1.07) ns	Reference
	≥46 y	108 (17.3)	Reference	Reference	Reference	Reference
Education level	<Secondary education	46 (7.4)	0.80 (0.30-2.31) ns	0.48 (0.14-1.59) ns	0.54 (0.14-2.03) ns	Reference
	Secondary education	136 (21.8)	0.52 (0.20-1.31) ns	0.83 (0.32-2.17) ns	1.47 (0.52-4.14) ns	Reference
	University	396 (63.5)	0.51 (0.22-1.18) ns	0.71 (0.30-1.72) ns	1.25 (0.48-3.29) ns	Reference
	Post-graduate	46 (7.4)	Reference	Reference	Reference	Reference
Marital status	Unmarried	270 (43.3)	0.24 (0.05-1.13) ns	0.57 (0.10-3.19) ns	0.52 (0.09-2.92) ns	Reference
	Widower	14 (2.2)	0.60 (0.07-5.45) ns	0.50 (0.04-6.68) ns	1.00 (0.91-11.02) ns	Reference
	Married	320 (51.3)	2.12 (1.25-3.57) **	1.35 (0.6-2.96) ns	1.50 (0.8-2.52) ns	Reference
	Divorced	20 (3.2)	Reference	Reference	Reference	Reference
Employment status	Student	222 (35.6)	0.67 (0.23-2.00) ns	1.32 (0.40-4.34) ns	0.75 (0.24-2.31) ns	Reference
	Not working	138 (22.1)	0.53 (0.17-1.63) ns	1.00 (0.30-3.40) ns	0.71 (0.22-2.25) ns	Reference
	Employed-Government	234 (37.5)	0.42 (0.14-1.23) ns	0.51 (0.16-1.70) ns	0.71 (0.23-2.15) ns	Reference
	Employed-Private	30 (4.8)	Reference	Reference	Reference	Reference
Province	Al-Baha	262 (42.0)	1.11 (0.41-3.00) ns	1.30 (0.44-3.80) ns	2.43 (0.73-8.11) ns	Reference
	Al-Aqiq	126 (20.2)	2.21 (0.78-6.30) ns	1.80 (0.60-5.64) ns	2.50 (0.70-9.00) ns	Reference
	Al-Makhwah	24 (3.8)	84.00 (37.00-168.00) ns	46.00 (25.00-137.00) ns	3.23 (0.93-7.34) ns	Reference
	Al-Mandaq	140 (22.4)	0.47 (0.16-1.40) ns	1.20 (0.39-3.56) ns	2.08 (0.61-7.20) ns	Reference
	Baljurashi	44 (7.1)	0.80 (0.20-3.00) ns	3.00 (0.84-10.72)	2.50 (0.58-10.70) ns	Reference
	Qilwah	28 (4.5)	Reference	Reference	Reference	Reference

OR: Odd ratio. Symbols illustrate the level of statistical significance: ns > 0.05; * < 0.05; ** < 0.01.

QoL Descriptive Analysis:

The descriptive analysis of QoL during the COVID-19 outbreak in the Al-

Baha region yielded a maximum score of 60 and a minimum score of 12. The median QoL score was 37, and the interquartile range

(IQR) was 32-43.

Predictors of QoL Score in the First Quartile:

Table 2 demonstrates the multinomial regression analysis findings between the quartile of the QoL score and factors associated with the COVID-19 pandemic. The results illustrate that male respondents were almost two times (OR = 1.64; 95% CI: 1.05–2.57) likelier to be in the first quartile (lower scores) than females. Participants in the 18–25 age group were over two times (OR = 2.31; 95% CI: 1.18–4.52) likelier to have low QoL scores compared to the older age group (≥ 46 years). The participants' marital status was significantly associated with lower QoL scores. The participants who were married were almost two times (OR = 2.12; 95% CI: 1.25–3.57) likelier to have lower QoL scores.

DISCUSSION

This cross-sectional study was conducted in the Al-Baha region of the KSA to understand the specific influences of the COVID-19 pandemic on QoL. To control the outbreak of coronavirus infections, KSA authorities implemented social distancing and lockdowns during February and June 2020. However, uncertain circumstances and a prolonged period of lockdown likely had psychological effects on individuals (Brooks *et al.*, 2020; Wen *et al.*, 2020). Thus, it is essential to identify the negative effects of the COVID-19 pandemic on QoL.

The outcomes of this study showed that some sections of the population were vulnerable to poor QoL during the COVID-19 outbreak due to their sociodemographic backgrounds. For example, male participants were at a great risk of lower QoL scores. A previous study among the general population in Saudi Arabia also found that male individuals were likelier to have lower QoL scores during the COVID-19 pandemic (Algahtani *et al.*, 2021). This likely risk is understandable in the presence of the COVID-19 outbreak.

Three dimensions of the QoL (environmental, social, and religious) were covered in this study by the QoL scale. Environmental dimension items explained

around two-thirds of the variability in QoL scores. They assessed participants' feelings about being safe, and the influence of the pandemic on income and access to information. Another dimension that explained greater than one-quarter of the variability in the QoL score was social items, which assessed the pandemic's effect on maintaining relationships with family members and friends.

However, less variability in an overall QoL score was explained by religious items that assessed the influence of the pandemic on performing religious activities. In Saudi cultural values and societal structure, particularly in the Al-Baha region, males were likelier to have lower levels of QoL across these dimensions. Because male members are likelier to work outside their homes, they feel less safe as a result of increased exposure (Ghazwani *et al.*, 2022). A 2020 study conducted among the general population of Italy found that the level of stress and anxiety increased in people who had to work outside their homes (Mazza *et al.*, 2020).

During the COVID-19 pandemic, males who are mainly responsible for income for their families were likelier to be at risk of anxiety and stress due to several factors, such as job loss or poor health. Moreover, restrictions on social distancing limited men's social activities, thereby affecting their relationships with friends. A systematic review conducted before the pandemic of COVID-19 illustrated the negative influences of social isolation on individuals' psychological wellness and physical health (Leigh-Hunt *et al.*, 2017). In 2004, during an outbreak of SARS in Canada, a survey study of people who were quarantined demonstrated that isolation contributed to decreased physical contact with family members and friends. Applying preventive measures, such as social distancing and wearing a facemask, forbade them from going to shops, which increased their feeling of loneliness (Hawryluck *et al.*, 2004).

The findings of this study demonstrated that respondents in the age category of 18–25 years reported significantly

lower QoL scores. However, a study by Algahtani (2021) illustrated that participants 26–45 years old were at increased risk of having lower QoL scores during the outbreak of COVID-19 (Algahtani *et al.*, 2021). In this current study, the outcomes showed that married participants were more vulnerable to poor QoL during the COVID-19 pandemic. This is because married people found it difficult to earn money during the pandemic, and many of them were concerned that they might have lost their jobs due to the economic crisis. Economic difficulties during the spread of COVID-19 were likely to have a negative influence on family members. A previous study demonstrated that economic crisis plays an important role in increasing vulnerability to poor emotional health, psychological and physical well-being and overall QoL (Kim & Park, 2015).

Limitations:

Among the limitations of this study, this research represents one of the KSA's 13 regions; therefore, it is difficult to generalize the outcomes of this study to other regions. Thus, future research should be conducted among people living throughout the 13 regions to capture the overall impact of the COVID-19 outbreak on QoL.

CONCLUSION

It can be concluded that participants who are male and aged 18–25 years and those who were married were at greater risk of having lower QoL levels during the COVID-19 pandemic in the KSA's Al-Baha region. The findings suggest a need to implement community health and wellness programmes to deal with pandemics in the future. These recommendations match the Saudi Vision 2030, which concentrates on fulfilling population requirements to live healthy lives and providing preventive measures to struggle with the psychological impacts of the crisis. The outcomes of this study provide baseline proof and highlight the need to replicate the effects of the pandemic of COVID-19 in people with various chronic diseases and explore factors related to the disease, possible emergencies, and the need for medical care. These investigations also

can help community health programmes in the KSA and in countries worldwide that have been impacted by the COVID-19 pandemic.

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Conflict of Interest: None declared.

Ethical Approval: The study was approved by the deanship of scientific research at Al-Baha University (reference number 1443-21-43115812-1).

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