RESEARCH ARTICLE

COVID-19 Fear and Health-Related Quality of Life of Older Adults: Evidence from Iran

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SUMMARY

Background:
SARS-CoV-2 spread rapidly, infecting people around the globe including the Iranian population. Among those infected, the highest percentage in infection prevalence was amongstthose aged 60 years and older. The aim of the study was to examine Covid-19 fear and health-related quality of life in older adults.

Material/ Methods:
This cross-sectional study was conducted with a total of 205 elderly froman Iranian province.The research data were collected through an online questionnaire consisting of three parts: Personal Information Form, the Fear of COVID-19 Scale (FCS), and the World Health Organization Life Quality Scale-Short Form (WHOQOL-BREF).An independent two-group t-test (Student's t-test), and one-way ANOVA test were used to compare the means of the respective groups. The Pearson correlation coefficient was calculated to determine the level of correlation between two independent continuous variables. This data was analyzed using LISREL through confirmatory factor analysis.

Results:
In total, 205 elderly people responded. Participants (n=205) were in the age range of 60-87 with an average age of 67±6.83 years in men and 60-92 with an average age of 66±6.60 in women.The mean score was obtained for FCS19.5±6.6, the mean score was obtained for the WHOQOL-BREF 61.2±19.3. The mean score of FCS in men (20.4±6.3) was significantly higher than the mean score in women (18.3±6.7) (p=0.023). It was found that there were very weak but significant inverse correlations between FCS and the WHOQOL-BREF (r=−0.22; p=0.001).

Conclusions:
In conclusion, it was found that fear of COVID-19 was below the medium level, while their WHOQOL-BREF was above the medium level.Finally, we also found that, as the score from FCS increased, the scores obtained from WHOQOL-BREF decreased.

Key words: elderly, COVID-19, quality of life, fear, psychological impact, mental health

INTRODUCTION

In March 2020, the World Health Organization (WHO) announced that the world was facing a pandemic. The spread of SARS-COV-2 worldwide was so rapid that it was recognized as the greatest threat to public health in 2020. The Covid-19 pandemic has led to social isolation, fear, and insecurity in society (Khalki et al., 2022) as a whole and among the elderly in particular. The question is whether the impact of Covid-19 is deteriorating the quality of life and mental health of older adults.Over time, the international community became increasingly concerned about the mental health and social interactions of the elderly (Guida & Carpentieri, 2021; Li et al., 2021; Meng et al., 2020; Olyani & Peyman, 2021; Pąchalska et al., 2022).

Scientists have described the elderly and here because of physiological causes (malnutrition, poor immune system function, etc.) and other diseases (diabetes, chronic kidney disease, cardiovascular diseases, etc.) to be the most vulnerable age group in terms of undergoing acute severe symptoms and high rate of mortality from COVID-19 (Altın, 2020). We utilized the WHO-recommended cut-off age of 60-years to define "elderly" (Rudnicka et al., 2020). According to the results of different studies, approximately 12% of the world's population is over 60 and this number will increase to 22% by 2050. In 2006, the United Nations (UN) reported that about 6 percent of Iranian people were aged 60 and this number is increasing for various reasons such as varying culture, socioeconomic and demographic characteristics. Different studies have estimated that by 2050 more than 26% of the Iranian population will be aged 60 (Sadeghu, 2009).

Health anxiety, panic, stress, anxiety, sleeplessness, and depression are all common psychological impacts of pandemics. Because the elderly is delicate and vulnerable, they may be more susceptible to these consequences (Hussenoeder et al., 2021; Stojanov et al., 2021).Based on the available data, the virus causes a significant rate of mortality in the elderly, ranging from 3.6 percent to 14.8 percent (Bahar Moni et al., 2021).The COVID-19 pandemic has compelled nations to take extreme public health measures to mitigate the disease's impact. As a result, it was vital to take additional safeguards for the elderly, social separation being one of them, but there are also unambiguous calls for older people to be locked up (Lu et al., 2020). Social isolation in the elderly increased anxiety and depression symptoms, with depression symptoms being more common among the elderly who felt lonely and lacked social support (Brooke & Jackson, 2020).Furthermore, issues such as uncertainty during the pandemic, the risk of virus transmission to oneself and family members, and the shortage of antiviral medications added to the elderly's anxiety (Brooke & Jackson, 2020; Covid, Team, Covid, Team, Covid, Team, Chow, et al., 2020).While protecting the elderly from the pandemic's detrimental impacts, it's equally critical to recognize and address any mental health issues they may have.

Quality of life (QOL) is defined as a "individual's view of their place in life in relation to their objectives, expectations, standards, and concerns in the context of the culture and value systems in which they live" (Hussenoeder et al., 2021). Given the growing number of senior citizens in many nations, it is critical to pay attention to their fundamental requirements, physical and mental health, and overall quality of life (Błachnio, 2019).

All researchers and social institutions emphasize that this pandemic has had a direct impact on the quality of life of individuals. This study was aimed to find the answers to the following questions: i) How did older persons in nursing facilities feel about COVID-19, loneliness, resilience, and quality of life during the pandemic? ii) How dida dread of COVID-19, the fear of it, loneliness, resilience, and descriptive factors (age, gender, chronic disease history, and mental health) affect the QOL of older individuals in nursing facilities during the pandemic?

MATERIAL AND METHODS

Study design and participants

The study was conducted in the period from April to October 2021. We recruited our participants from a group residential in nursing homes from 5 centers in the Northern provinces of Iran. First, we prepared a list of all such homes that were located in the area. From them, we extracted five (20.0%) nursing homes by using a blind simple random number carried out by a third person, who was not part of this study. From these nursing homes, we approached everyone who fulfilled our inclusion criteria: over 60-years-old, voluntarily agreeing to participate in the study, residence within the nursing home for at least one year, and speaking and understanding Persian, and free of diagnosed disorders that could have interfered in their decision to independently participate or to provide independent responses.

Many participants in the nursing home were unfamiliar with Internet skills and online form filling. Further there were the restrictions imposed on visitors during the epidemic. Therefore we asked nurses and/or therapists who were already familiar with the study purpose and method, to help the residents to fill outthe online questionnaires.

Data collection

Of the 426 elderly people in nursing homes, only 205 agreed to participate in the study voluntarily, and met the inclusion criteria.Data were collected using an online Google form that included a demographic information form, the WHO-QOL-BREF, and COVID-19 Fear Questionnaires.

Ethical statement

This study was conducted in accordance with the Declaration of Helsinki and was approved by the Research Council of Golestan University of Medical Sciences and the National Ethics Committee in Biomedical Research with a code of IR.GOUMS.REC.1399.013.

WHOQOL-BREF

In order to quantify the health-related quality of life of elderly people, the WHOQOL-BREF, a generic health-related questionnaire developed by the WHO-QOL group, was chosen. The WHOQOL-BREF provides a score profile for four aspects of quality of life: physical health, psychological well-being, social interactions, and the environment. Higher scores indicate a higher standard of living. The Persian (Iranian) version of this questionnaire has two other questions that do not belong to any of the areas and assess health status and quality of life in general. This questionnaire contains a total of 26 questions. The psychometric characteristics of the Iranian species of this questionnaire showed that this tool can be used in Iran; the intra-cluster correlation index of this questionnaire was obtained from 0.75 to 0.84 in a retest within 2 weeks and over four ranges. On the other hand, Cronbach's alpha values and structural validity indices also indicated the acceptable validity of this instrument in the Iranian population (Doosti-Irani et al., 2018; Nejat et al., 2006). Self-administered and interviewer-administered versions of WHOQOL-BREF are both available (Kazemi et al., 2019; World Health Organization, 1996).

COVID-19 Fear Questionnaire

This questioner includes 7 question that are graded between 1 and 5 (strongly opposed, dissenting, neither agree nor disagree, agree, strongly agree). A total score of between 7-35 can be obtained. A higher score indicates a greater fear of the coronavirus (Ahorsu et al., 2020).

Statistical analysis

The data was entered into SPSS version 26, and LISREL version 8.8 software. Independent two-group t-test (Student's t-test), and one-way ANOVA test were used to compare the means of the groups. The Pearson Correlation Coefficient was calculated to determine the level of correlation between two independent continuous variables.

RESULTS

Participants (n=205) were in the age range of 60-87 with an average age of 67 ±6.83 years for men and the range of 60-92 with an average age of 66 ±6.60 for women.Most of the participants were married men and women, had higher education and lived in a small town (Table 1).

The analysis opened with the calculation of the average and standard deviation of the variables of Covid-19 fear, all the WHOQOL-BREF domains: physical health, mental health, social relations and environmental health and quality of life.

An independent samples t-test was carried out to compare the level of COVID-19 fear and all analyzed domains of WHOQOL-Bref in two gender groups. The results are presented in Table 3. Men proved to have a significantly higher level of fear of COVID-19 than did women. Further, their mean score in

Table 1. Distribution of selected demographic characteristics in the sample (N= 205)

	Men (N = 95;46.34%)	Women (N =110; 53.65%)
Age(M,SD) **Min.-Max.**	67.(6.83) 60-87	66.(6.60) 60-92
Marital status (N, %)		
Single	9 (9.47%)	9 (8.18%)
Married	73 (76.84%)	59 (53.63%)
Divorced	7 (7.36%)	13 (11.83%)
Widowed	6 (6.31%)	29 (26.36%)
Education (N, %)		
Elementary	27 (28.42%)	35 (31.81%)
Vocational	8 (8.42%)	16 (14.54%)
Secondary	17 (17.89%)	19 (17.27%)
Higher	43 (45.26%)	40 (36.36%)
Place of residence		
Big city	12 (12.63%)	20 (18.18%)
Small town	45 (47.37%)	50 (45.45%)
Village	38 (40%)	40 (36.36%)
No data	-	-

Legend: M -mean, SD - standard deviation, Min and Max - minimum & maximum, N-number, % percent of the sample

Table 2. Frequency distribution of mean, standard deviation Covid-19 fear and Quality of life

Variables	M±SD
COVID-19 fear	19.5±6.6
Physical health	51.5±12.1
Mental health	57.6±13.8
Social relations	54.9±20.4
Environmental health	57.9±16.7
Quality of life	61.2±19.3

Table 3. Comparison of mean COVID-19 fear and quality of life and its dimensions in men and women

Variables	Men	Women	t-independent	
	M±SD	M±SD	T	P
COVID-19 fear	20.4±6.3	18.3±6.7	2.29	0.023
Physical health	50.7±11.3	52.5±12.8	-1.08	0.279
Mental health	58.1±14	57.1±13.6	0.562	0.575
Social relations	54.5±20.6	55.1±20.7	0.217	0.828
Environmental health	60.1±16.9	55.3±16.3	2.06	0.041
Quality of life	61.3±17.9	60.1±22.3	0.437	0.662

the environmental health (t(203)=2.06, P=0.041) wassignificantly higher than the mean score obtained by women. Differences in the scores obtained by men and women on the other subscales were not statistically significant.

In addition, the age variable has been correlated with the measure of COVID-19 fear but no significant correlation was found (=0.06 p=0.326).

Finally, one extra analysis was conducted to measure the correlations between COVID-19 fear and the results of WHOQOL-Bref. The obtained results are shown in Table 4.The general score of the WHOQOL-Bref, and two more do-

Table 4. Correlations between Covid-19 fear and WHOQOL-Bref

Variables	COVID-19 fear	
	R	P
Physical health	-0.05	0.458
Mental health	-0.23	0.001
Social relations	-0.09	0.164
Environmental health	-0.17	0.012
Quality of life	-0.22	0.001

Table 5. Factor loads and T amount of each questionnaire item

	COVID-19 fear	Quality of life	T amounts
Question 1	0.77	☐	12.6
Question 2	0.80	☐	13.4
Question 3	0.74	☐	11.8
Question 4	0.78	☐	12.8
Question 5	0.74	☐	11.9
Question 6	0.74	☐	11.9
Question 7	0.80	☐	13.4
Physical health	☐	0.69	8.4
Mental health	☐	0.85	10.8
Social relations	☐	0.66	8.6
Environmental health	☐	0.89	11.2
General health	☐	0.74	9.6
Cronbach's alpha	0.90	0.86	

Table 6. Wellness fitting indicators

Indicators	Amount	Acceptable amount	Description
chi-square	p=0.000 X2=250.5	Being meaningful	Less than 0.05 so is meaningful
df/2χ	3	Amount between 1 to 3	Acceptable
RMSEA	0.13	Amount less than 0.07	Weak
NFI	0.91	Amount between 0.90 to 0.95	Acceptable
NNFI	0.91	Amount between 0.90 to 0.95	Acceptable
CFI	0.93	Amount between 0.90 to 0.95	Acceptable
IFI	0.93	Amount between 0.90 to 0.95	Acceptable
SRMR	0.07	Under 0.08	Acceptable

mains (mental health and environmental health) were found to have negative, significant Pearson correlations to COVID-19 fear.

The results of path analysis with LISREL software in Table 5 and Figures 1 showed that the value amounts of factors load of all questions or subscales are higher than 0.50 which indicate the fact that all loads acquire a desired explanatory power while the modulus of amounts of -T are higher than 1.96 which indicates the fact that the related question is capable of meaningful evaluation of its variable and the measuring model acquires a desired reliability.

Cronbach's alpha results in Table 5 show that the alpha coefficient for Covid-19 fear is equal to 0.90 and for health-related quality of life is equal to 0.86 which is higher than the acceptable amount of 0.70. Hence, the measurement model acquires desired validity.

Table 6 shows the wellness fitting indicators of RMSEA, the Chi-square root of NNFI, CFI, IFI and SRMR, as you may observe, most of the indicators are ac-
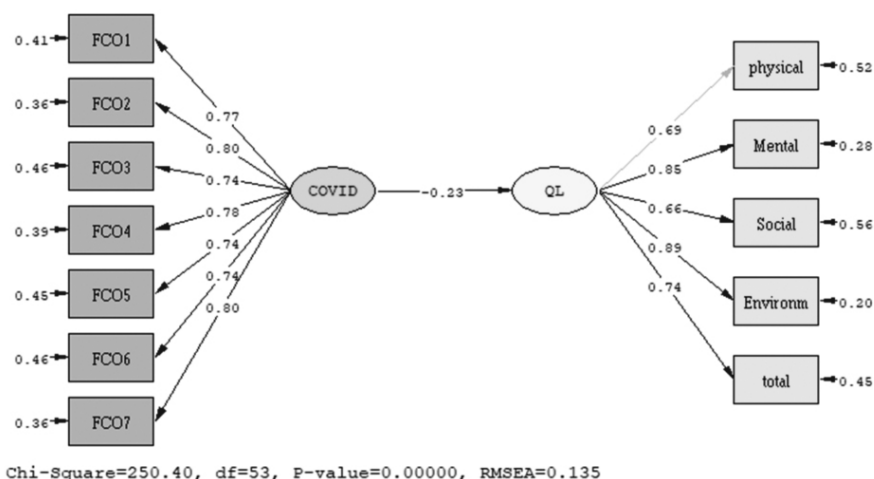
Chi-Square=250.40, df=53, P-value=0.00000, RMSEA=0.135

Figure 1. Model coefficients

Table 7. Regression analysis results

Variables	Quality of life				
	B	SE	Beta	T	P
COVID-19fear	64.4 -0.40	2.89 0.140	- -0.196	22.2	0.000 0.005

ceptable and hence, factor analysis confirmation supports the model and the model acquires empowered fitting.

The results of path analysis with LISREL software in Figure 1 showed that Covid-19 fear has a negative and meaningful effect on Quality of life:meaning that any increase in Covid-19 fear would cause a meaningful decrease in Quality of life (b=-0.23, t=-2.88, p=0.001).

The results of the single variable regression analysis in Table 7 show that COVID-19 fear is the meaningful anticipator of health-related quality of life (R=0.19, R2=0.03, F(1, 203)= 8.11, P=0.005):meaning, with an increase in the amount of COVID-19 fear, the health-related quality of life will significantly decrease.

DISCUSSION

The time of the pandemic and the time after the pandemic prompted scientists to conduct various studies to recognize the impact of the pandemic on people's lives. The aim of the study was to evaluate the relationship between COVID-19 fearamongst elderly people and their health-related quality of life.The group of seniors surveyed were volunteers living in nursing facilities during the pandemic.

According to Gokseven et al. (2021) people who live alone are prone to experience a higher rate of COVID-19 fear. Nevertheless our results provedthat the mean COVID-19 fear of older adults residing in a nursing home pandemic

was 19.5±6.6. This indicates that their dread was moderate when compared to the scale's minimum and maximum values. At the beginning of the pandemic, the researchers conducted a project where the results showed that the COVID-19 fear scale of the older adults residing in a nursing home was 18.48±5.32 (Parlapani et al., 2020). Another scientific group in Turkey, conducted a study in June 2020 and the rate of COVID-19 fear in those over the age of 65 was reportedin a moderate level. The results of both studies were similar to our study.

Analyses were conducted on the significance of differences in COVID-19 fear between men and women. The results showed small but statistically significant differences. In contrast to the available publications, according to which the COVID-19 fear score in women was significantly higher than in men (Hossain et.al., 2020), in our results men had a higher COVID-19 fear score. In addition, our results are related to those of Maggi et.al. (2021), according to which the elderly are more susceptible to psychological symptoms, necessitating the adoption of online psychological therapy to mitigate the long-term effects of a mental health crisis.

The data collected showed that the health-related quality of life of elderly people residing in a nursing home, according to their scores on the WHOQOL-BREF -physical, mental health, social relations, and environmental domains – was slightly above average. The social interactions and physical components of HRQOL were the most affected by the pandemic, whereas the mental and environmental dimensions were the least affected.A subject literature search found another study conducted in Turkey that aimed to assess the QOL of elderly people living in nursing homes. The results of these studies demonstrated that they had an above average score, with the highest scores being in the environmental and physical dimensions and the lowest score being in the social relations dimension (İlhan et al., 2016; Martín-Sánchez et al., 2020; Üyesi Sevgin Samancıoğlu Bağlama Gaziantep Üniversitesi et al., 2022). but in our study the older adults' physical health QOL was most affected by the pandemic, while their mental and environmental QOL were the least affected. Thus, the results of our study show that physical health was the first affected domain of HRQOL during the COVID-19 pandemic. The ability to maintain daily life and the level of satisfaction with this ability are included in the physical dimension of the scale. Curfews and prolonged closures imposed on the elderly during the epidemic most likely affected their daily lives and led to a decline in their physical well-being.

We also evaluated HRQOL for men and women separately. In contrast with our results, various studies during the pandemic explained that women's mental health was worsened by the COVID-19 epidemic than was men's (Acar et al., 2020; Kiely et al., 2019). Also, the result obtained in the present study contradicts the study conducted in Cuba, as their results showed that women are more afraid of COVID-19 than are men (Broche-Pérez et al., 2020).

CONCLUSION

In our study, COVID-19 fear levels were moderate, and all domains of HRQOL in nursing home residents during the pandemic were slightly above the moderate range. The pandemic had the greatest impact on the QOL of the elderly's physical health, while it had the least impact on their mental and environmental QOL. In order to improve the HRQOL ofnursing homeresidentsduring the pandemic and post-pandemis time, initiatives are recommended to maintain mental health, ensure normal sleep patterns, and reduce levels of loneliness. To minimize loneliness and improve QOL, it is also recommended that elderly people in nursing homes be provided with various forms of communication, such as telephone, email, video chat and mobile apps.

Limitations of study

While the findings on the relationship of COVID-19 fear to seniors' quality of life are important and are part of current research on optimizing seniors' quality of life, they are not without limitations. The main one concerns the small sample size; however, restrictions during the pandemic were an obstacle to reaching a larger number of respondents. Thus, these results should not be generalized to the entire population of Iranian seniors and need to be replicated on other groups and in other nursing homes.

Declaration of Competing Interest

The authors declare that there is no conflict of interest.

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