

# Relationship Between Quality of Life and Fear of COVID-19 in Patients With Myocardial Infarction (Case Study: Shahid Madani Cardiac Hospital, Tabriz, Iran)

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## Research

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## Abstract

**Background:** Quality of life is one of the most important concepts in the fields of health and development, and the study of its related factors can play an effective role in strengthening the quality of life. COVID-19 is one of the emerging crises in the world, and fear of it can affect the quality of life of people.

**Purpose:** The purpose of this study was to investigate the relationship between quality of life and fear of COVID-19 in patients with myocardial infarction.

**Methods:** In this study, we administered WHOQOL-BREF (World Health Organization quality of life questionnaire) and the Fear of COVID-19 Scale (FCV-19S) to 200 patients with myocardial infarction admitted to the hospital from February to April 2021. Then, we calculated the correlation between the quality of life and fear of COVID-19.

**Results:** The results of this study showed a moderate to high score in all domains of QoL and overall QoL among patients. The mean score of fear of COVID-19 was lower than average level. The research revealed that there was a negative correlation between fear of COVID-19 and physical health, environmental health, and overall quality of life ( $p < 0.05$ ), but there was not a significant relationship between fear of coronavirus and psychological health and social relationships ( $p > 0.05$ ). Furthermore, there were significant correlations between quality of life and sociodemographic variables including gender, age, marital status, and level of education. So that, female, widow(er), uneducated, and older patients had a lower quality of life.

**Conclusions:** Since the quality of life is one of the main indicators of health, managers must take strategies to improve the quality of life of people, especially patients. One of the measures that they can take is to reduce the fear of COVID-19 among patients by taking wise strategies.

## Introduction

Quality of life (QoL) is a construct used increasingly frequently in the literature ([1, 2]. Definitions range from the philosophical to the pragmatic. QoL potentially encompasses a wide range of issues and the definition applied often reflects the perspective of the researcher or discipline; for example, defined at its most general it can be described as 'what the individual says it is' [3]. Other researchers emphasize the relative nature of QoL and have described it as 'the difference, or the gap, at a particular period of time, between the hopes and expectations of the individual and the individual's present experiences [4].

There is a considerable body of literature dedicated to the concept of quality of life. The review of various papers has revealed that there exist two common approaches to measuring the quality of life – the so-called “objective” and “subjective” approaches. This dichotomy is well illustrated in the Costanza R, Fisher B, Ali S, Beer C, Bond L, Boumans R, Danigelis NL, Dickinson J, Elliott C, Farley J, Gayer DE, Glenn LM, Hudspeth T, Mahoney D, McCahill L, McIntosh B, Reed B, Rizvi SAT, Rizzo DM, Simpatico T and Snapp R [5] paper where the authors point out that “QOL [quality of life] is proposed as a multi-scale, multi-dimensional concept that contains interacting objective and subjective elements.” There seems to be a general agreement in the literature that the objective approach constitutes a method of assessing the quality of life that involves the use of aggregate indicators that represent a region as a whole, such as life expectancy at birth, average income, unemployment, etc. Such indicators measure factual states of certain social phenomena rather than abstract concepts such as people's attitudes or feelings and are normally calculated within systems of official statistics. On the other hand, the subjective approach of measuring the quality of life represents a method that relies on reported people's perceptions and involves assessments of attitudes and feelings of individuals aggregated to the scale of a particular territory. Such information usually comes from various types of public opinion polls [6].

The absence of a consensual definition led experts from 15 countries in an effort to develop a definition that would capture the fundamental characteristics of QoL. They defined it as:

“The individual's perception of his/her position in life in the context of the culture and value systems in which he/she lives and in relation to his/her goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment”[7].

The need for a broader and more balanced QoL definition has resulted in widespread adoption of WHO's definition [8], as it seems to be one of the very few that takes into account the multidimensional nature of the concept. It includes dimensions above and beyond those described in the literature (e.g. [9], while taking into account the individuals' subjective evaluations and satisfaction with their life [10].

In January 2020, the World Health Organization (WHO) declared the coronavirus disease 2019 outbreak (COVID-19) an international public health emergency [11]. The global community continues to face high transmission rates of this unpredictable, fast-spreading infectious disease that presents serious challenges to global health [12].

Aiming to slow the spread of the virus, overload of healthcare systems and infection-related mortality, governments around the globe have implemented public health measures (such as isolation, quarantine, physical and social distancing) as fundamental infection control measures [13–16]. These unpleasant changes bring the perception of constrained freedom (sense of loss of control and being trapped, especially in those separated from family), increasing psychological distress and community anxiety ([15, 17]. The unpredictability of the situation makes people uncertain of how safe they are and how worried they should be, elevating fears and misconceptions [15].

## Background

QoL assessment across various domains helps identify the range of problems that can influence people's everyday lives. Literature suggests that QoL is a significant predictor of persistence in overall health and well-being [18]. Outbreaks of infectious diseases, such as COVID-19, negatively affect the physical, social, and psychological functioning of individuals and societies, and have significant economic consequences [19, 20]. A previous study from Hong Kong that assessed the health-related quality of life among survivors of the severe acute respiratory syndrome (SARS) six months after the start of the pandemic reported significant impairment in QoL for general health domains, physical conditions, and social functioning [21]. A recent study from Morocco reported negative effects of the COVID-19 pandemic on QoL [22]. Implementing preventive measures affects people's daily life activities and certainly influences individuals' general functioning and well-being [19, 23]. Previous research studied the negative psychological effects of quarantine after the SARS outbreak, and recent studies have introduced the term "coronaphobia" to describe stress and anxiety among general populations [24, 25]. Mental health experts expressed concerns about the repercussions of the COVID-19 pandemic on communities' psychological functioning and well-being [15, 25]. Though recent discussions in literature have cautioned about the broader psychological implications of massive quarantine to control COVID-19 spread on individuals' QoL [15], the empirical research on the effects of the COVID-19 pandemic on various dimensions of QoL in different countries is scarce.

Therefore, the aim of the current study was to investigate the quality of life and fear of COVID-19 in patients with myocardial infarction and determine the relationship between these two variables.

## Methods

### Population and sample

Patients with myocardial infarction admitted to Shahid Madani Cardiac Hospital constituted the target population of this study. The study sample was recruited by convenience sampling method and consisted of 200 patients with myocardial infarction admitted to the hospital from February to April 2021.

### Procedure

Patients recruited for the study met the following conditions:

1. The diagnosis of myocardial infarction was noted in their medical record by the treating physician.
2. They were fully awake and were able to cooperate with the researcher to answer the questions.
3. They were physically fit to answer the questions.

Participation was voluntary, and all of the respondents were informed about the anonymity of the study and that they could stop answering the questions at any time and without giving any reason.

## Instruments

### Sociodemographic information

A sociodemographic questionnaire was used to collect information about gender, age, marital status, and level of education of the participants.

### The WHOQOL-BREF

The validated WHOQOL-BREF (Persian version) was used to measure quality of life [26]. It consists of 26 items of which 24 were divided in four domains, including physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items), and two items on overall QoL and general health. The response options range from 1 (very dissatisfied/very poor) to 5 (very satisfied/very good) [27]. The obtained raw scores were transformed into a linear scale ranged from 0 to 100 to enable making comparisons between domains composed of unequal numbers of items [28].

## Fear of COVID-19 Scale (FCV-19S)

The seven-item FCV-19S was developed to quickly assess individuals' fear towards COVID-19 [29, 30]. A total score is calculated by adding up each item score (ranging from 7 to 35). The higher the score, the greater the fear of coronavirus-19. Responding to items on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree), the FCV-19S has been found to be psychometrically sound in assessing fear of COVID-19 in different populations, including different ethnic groups and various vulnerable groups. A higher level of fear toward COVID-19 is indicated by the higher FCV-19S score [29].

## Data analysis

Data was analyzed using SPSS software, version 26. Various statistical tests including Independent-Samples t-Test, one-way ANOVA, and Pearson's r were used based on levels of measurement of the variables. A p value less than 0.05 was considered statistically significant.

## Results

### Sample statistics

Table 1 shows the sociodemographic characteristics of the respondents. In the current study, most of the participants were male (n = 170). The majority of the participants were married (89%). The mean age was 57.11 years with a standard deviation of 11.35. Moreover, 25% of the respondents had finished secondary school, and 25% of them had a diploma or associate degree.

Table 1  
Sociodemographic characteristics of the participants (n = 200)

Variables	N	%
Age		
≤ 45 years	30	15
46 – 65 years	129	64.5
> 65 years	41	20.5
Gender		
Male	170	85
Female	30	15
Marital status		
Single	7	3.5
Married	178	89
Divorced	4	2
Widow(er)	11	5.5
Level of education		
Uneducated	28	14
Primary school	47	23.5
Secondary school	50	25
Diploma or associate degree	50	25
Bachelor's degree or more	25	12.5

## Quality of life

The results revealed that the mean physical health, psychological health, social relationships, environmental health, and overall quality of life were  $59.08 \pm 21.28$ ,  $60.35 \pm 20.01$ ,  $66.91 \pm 19.59$ ,  $61.54 \pm 19.12$ , and  $59.29 \pm 15.65$ , respectively.

The mean raw scores, mean transformed scores, and standard deviations for domains of WHOQOL-BREF are depicted in Table 2.

Table 2  
Raw scores and transformed scores of QoL domains

QoL domains	Mean raw scores	Standard deviation	Mean transformed scores (0 - 100)	Standard deviation
Physical health	23.54	5.96	59.08	21.28
Psychological health	20.48	4.80	60.35	20.01
Social relationships	11.03	2.35	66.91	19.59
Environmental health	27.69	6.12	61.54	19.12
Overall QoL	89.66	16.27	59.29	15.65

## Fear of COVID-19

The score of the fear of COVID-19 among patients is shown in Table 3. According to this table, the level of fear of COVID-19 among respondents of this research was less than average.

Table 3  
Score of fear of COVID-19 among patients

Variable	Mean	Standard Deviation
Fear of COVID-19	18.09	7.47

## Correlation between sociodemographic variables and job burnout

As shown in Table 4, there was a significant correlation between gender and physical health, social relationships, and overall quality of life; so that, male respondents obtained better scores in these dimensions and overall quality of life. Also, age and all of the domains of quality of life except environmental health were negatively correlated; so that, as participants got older, their quality of life decreased. According to the table, there was a significant relationship between marital status and all domains of quality of life except environmental health. According to the results of the subsequent LSD test, the obtained scores of widow(er)s in physical health, psychological health, and overall quality of life were significantly less than single, married and divorced respondents. Besides, social relationships of widow(er)s and divorced participants were worse than single and married ones. There was a significant correlation between level of education and all domains of quality of life except social relationships; so that, respondents who had higher levels of education obtained better scores in QoL domains.

Table 4  
Correlation between sociodemographic variables and QoL domains

Variables	Domain 1	Domain 2	Domain 3	Domain 4	Overall QoL
<b>Gender</b>					
Male	60.44 ± 21.15	61.37 ± 20.24	68.72 ± 18.48	62.05 ± 18.99	60.45 ± 15.43
Female	51.42 ± 20.75	54.58 ± 17.92	56.66 ± 22.67	58.64 ± 19.91	52.69 ± 15.49
p value	0.032*	0.087	0.002**	0.369	0.012*
<b>Age</b>					
Pearson correlation	- 0.192	- 0.142	- 0.163	- 0.034	- 0.166
p value	0.007**	0.046*	0.021*	0.636	0.019*
<b>Marital status</b>					
Single	73.97 ± 12.66	73.21 ± 14.99	76.19 ± 12.19	67.85 ± 12.33	69.91 ± 8.96
Married	59.37 ± 21.01	60.67 ± 20.07	68.30 ± 18.64	61.56 ± 19.07	59.73 ± 15.25
Divorced	78.57 ± 11.29	67.70 ± 12.44	45.83 ± 25.00	75.00 ± 12.23	67.54 ± 6.99
Widow(er)	37.98 ± 16.38	44.31 ± 15.50	46.21 ± 21.52	52.27 ± 22.53	42.39 ± 16.50
p value	0.000**	0.014*	0.000**	0.149	0.000**
<b>Level of education</b>					
Uneducated	48.08 ± 18.67	52.23 ± 21.82	61.90 ± 17.48	45.31 ± 17.54	47.87 ± 16.60
Primary school	59.27 ± 22.16	60.54 ± 18.79	62.23 ± 20.91	59.17 ± 17.94	57.97 ± 13.30
Secondary school	58.64 ± 21.47	57.33 ± 18.33	69.16 ± 20.29	61.56 ± 17.33	59.00 ± 14.01
Diploma or associate degree	61.50 ± 22.72	64.75 ± 20.27	69.50 ± 19.09	66.87 ± 17.91	63.09 ± 16.63
Bachelor's degree or more	67.14 ± 14.35	66.33 ± 20.26	71.66 ± 17.17	73.50 ± 16.56	67.53 ± 12.62
p value	0.018*	0.033*	0.110	0.000**	0.000**
The proportions were compared using Independent-Samples t-Test, one-way ANOVA, and Pearson's r. **p < 0.01; *p < 0.05.					

## Correlation between the fear of COVID-19 and quality of life

Pearson correlation was computed to see the relationship between quality of life and fear of COVID-19 (Table 5). According to the table, there was a significant and negative correlation between fear of Coronavirus and physical health, environmental health, and overall quality of life; so that, by increasing the fear of COVID-19, the scores of physical health, environmental health, and overall quality of life decreased.

Table 5  
Relationship between fear of COVID-19 and domains of QoL

Independent variable	Pearson's r	Domain 1	Domain 2	Domain 3	Domain 4	Overall QoL
Fear of COVID-19	Pearson correlation	- 0.317	- 0.083	- 0.055	- 0.187	- 0.242
	p value	0.000**	0.245	0.441	0.008**	0.001**

## Discussion

### Quality of life

The results of this study showed a moderate to high score of quality of life among patients with myocardial infarction. The scores of QoL domains among participants of this study were similar to those of Komalasari R, Nurjanah and Yoche MM [31], who measured the quality of life of patients with a history of cardiovascular diseases. In comparison, Lamesgin Endalew H, Liyew B, Kassew T, Ewnetu Tarekegn G, Dejen Tilahun A and Sewunet Alamneh T [32] reported moderate to low quality of life among MI patients.

# Fear of COVID-19

The mean score of fear of COVID-19 among patients with myocardial infarction was lower than average. The score of fear of COVID-19 among respondents of this study was similar to those of Haghbin M, Abbasi A, Rafei E, Kheradmand A, Javdani F, Hatami N, Afraz P and Kalani N [33], who measured the fear of Coronavirus in breast cancer patients.

## Relationship between fear of COVID-19 and quality of life

In the present study, there was a negative relationship between fear of Coronavirus and physical health, environmental health, and overall quality of life. The findings of this research were in line with the findings of Ferreira LN, Pereira LN, da Fé Brás M and Ilchuk K [34] and Khojasteh Rad a, Mohammadkhah f, Amjadi s and Navabi N [35], who reported that people with more COVID-19 anxiety had poorer quality of life.

## Conclusion

Since the present study has found a significant correlation between fear of COVID-19 and quality of life among patients with myocardial infarction, the following measures are suggested to reduce the prevalence of COVID-19 and thus improve the quality of life of patients:

- Educating patients on taking the essential precautions against the coronavirus.
- Providing the required hygienic equipment like face masks and hand sanitisers for all of the patients
- Accelerating the process of vaccinating people against COVID-19, and consequently, reducing the incidence of coronavirus.

Moreover, findings of the correlation between sociodemographic variables and quality of life indicated that female, widow(er), uneducated, and older patients had a lower quality of life. As a result, the government should take wise strategies to improve the quality of life of these patients.

## Declarations

### Ethical Approval and Consent to participate:

The study was approved by University of Tabriz (Biomedical Research Ethics Committee). Besides, all the patients provided written informed consent to participate in the study.

### Availability of supporting data:

The data that support the findings of this study are available on request from the corresponding author.

### Competing interests:

Prof. Golabi is a professor of sociology and Dr. Alizadeh Aghdam is the head of the sociology department at the University of Tabriz. Mr. Hosseini and Mr. Akbarian are master's students in sociology. The present study was conducted under the guidance of Prof. Golabi and Dr. Alizadeh Aghdam.

### Funding:

The current study did not have any funding sources.

### Authors' contributions:

FG and MBAA designed the research study. HA distributed the questionnaires among the patients and collected the data. MMHM analyzed the data and wrote the paper and FG, MBAA, and HA edited the manuscript. All authors read and approved the final manuscript.

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