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Psychological symptoms and quality of life in cardiac patients: A study in the north of Iran

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Abstract

Introduction: Considering the effect of psychological conditions on physical diseases, this study aimed to assess the relationship between psychological symptoms and quality of life in patients with CardioVascular Diseases (CVDs).

Materials and Methods: The statistical community of this cross-sectional study included all patients with CVDs referred to the cardiology clinic of Shahid Sayyad Shirazi Hospital in Gorgan City, north part of Iran, in 2021. Of them, 181 patients were selected through convenient sampling. They fulfilled the General Health Questionnaire-28 (GHQ-28) and World Health Organization Quality of Life Questionnaire (WHOQOL-BREF). We analyzed the data through SPSS-16, descriptive statistics, Shapiro-Wilk test, Spearman correlation, Pearson correlation, independent t, Kruskal-Wallis test, and Mann-Whitney test.

Results: In this study, we assessed 181 patients (78 males and 103 females) with CVDs. Most patients had good or fair general health and quality of life. The quality of life and its dimensions have indirect and significant relationships with GHQ score, and its subscales included somatic symptoms, anxiety, and depression ($P= 0.001$), an exceptionally social dysfunction subscale. Also, comparing mental health scores and quality of life between two genders and different age groups indicated no significant differences ($P> 0.05$).

Conclusion: We revealed that there are significant and indirect relationships between quality of life and psychological health in cardiovascular patients.

Keywords: Anxiety, Cardiovascular diseases, Depression, Mental health, Quality of life

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Introduction

The prevalence rate of CardioVascular Diseases (CVDs) is increasing due to the increased risk factors of CVDs, such as obesity, smoking, air pollution, and aging (1,2). In Iran, CVDs has been considered the most mortality cause in recent decades (3,4). The chronic nature of cardiac diseases and physically threatening symptoms can impair well-being and quality of life (5) and patients with heart failure had moderate to poor quality of life (6). Quality of life is associated with patients' mortality, morbidity, and daily function (7). Several factors, such as psychological conditions, can affect the quality of life (8-10). Among psychological conditions, depression and anxiety are most common psychiatric symptoms in cardiac patients and are related to decreased quality of life (11-14). Based on the evidence, the physical symptoms and incurable and debilitating nature of CVDs in most patients lead to poor quality of life and psychological symptoms (11,15). Although the physical symptoms may improve using medical treatments, the neglected cognitive and psychological symptoms reduce life quality (16). So, improving mental health can enhance the quality of life and health-promoting behaviors in CVD patients and, ultimately, the medical treatment outcome (17,18). Regarding the mentioned issues and the lack of studies, especially in our country, that assess the relationship between mental health and quality of life in patients with CVDs, we aimed to assess the this relationship in an Iranian population.

Materials and Methods

All patients with cardiovascular diseases who visited the cardiology clinic of Shahid Sayyad Shirazi Hospital in Gorgan City, Iran in 2021 were considered as the study population. The participants were selected using a convenience sampling method based on specific selection criteria. A sample size of 181 cases was determined using a standard formula and previous studies (19).The inclusion criteria included patients aged 18-64, having at least six months of cardiac disease, patients with chronic disease who underwent medical treatment or without treatment, and willingness to participate.The exclusion criteria included non-cardiac patients (cardiac patients refer to patients with coronary stenosis, congenital heart disease, arrhythmia, and patients with coronary artery bypass surgery), the patients on the first visit who have severe medical illnesses that affect the quality of life or general health, history of psychiatric disorders, taking psychiatric medicines, having cognitive deficits, and substance abuse.

Research instruments

A) General Health Questionnaire-28 (GHQ-28): Goldberg developed this instrument to screen mental illnesses in care health centers in 1972. In 1979, Goldberg and Hillier developed GHQ-28 in four subscales of somatic symptoms, anxiety, social dysfunction, and depression. Each subscale contains seven items scored 0 to 3 in a Likert system. A score higher than 22 indicates mental health problems (20,21). This questionnaire has been applied in different countries, and various studies have approved its reliability and validity (22). In Iran, Seidi reported the validity through re-test, half-splitting, and the Cronbach's alpha as 0.70, 0.93, and 0.90, respectively (23).

B) World Health Organization Quality of Life Questionnaire (WHOQOL-BREF): This questionnaire measures physical health, mental health, social relationships, and environmental health through 24 questions. The total score ranges from zero to one hundred, and a higher score indicates a better condition. In Iran, Nejat et al. assessed its validity through a Cronbach's alpha higher than 0.70 in all domains (24).

Data were analyzed using SPSS version 16, descriptive statistics, the Shapiro-Wilk test, Spearman correlation, Pearson correlation, independent t, Kruskal-Wallis, and Mann-Whitney tests.

Results

In the present study, 181 CVDs patients (78 males and 103 females) participated. They aged 51.99 ± 11.21 years (53.21 ± 11.55 years in males and 51.08 ± 10.92 years in females, *P*= 0.073). Major participants were aged more than 55 years (45.3%). Table 1 presents the mean scores for general health and quality of life.

Table 1. The mean scores of GHQ-28 and quality of life

Variable	Mean	SD
General Health Questionnaire		
Somatic symptoms	8.08	3.4
Anxiety	8.88	4.14
Social dysfunction	7.08	1.76
Depression	2.96	2.74
Total score	27.01	8.48
Quality of life		
Physical health	57.19	25.3
Mental health	56.61	19.44
Social relationships	65.36	19.35
Environment health	59.59	14.34
Total score	58.14	17.88

The results of Table 1 indicate that 65 patients (35.91%) had good general health, 107 patients (59.12%) had fairly good general health, and 9 patients (4.97%) had poor general health. Also, 28 patients (15.47%), 90 patients (49.72%), 57 patients (31.49%), and six patients (3.31%) had very good, good, poor, and very poor quality of life, respectively.

We used non-parametrical tests to assess the relationship between general health and quality of life due to the non-normality distribution of data ($P < 0.05$).

Table 2 presents the results of the Spearman coefficient, which assesses the relationship between general health and quality of life in CVDs patients.

Table 2. The relationship between general health and quality of life

	Quality of life									
Dimension	Physical health		Mental health		Social relationships		Environment health		Total score	
General health	r*	P	r*	P	r*	P	r*	P	r*	P
Somatic symptoms	-0.738	0.001	-0.679	0.001	-0.428	0.001	-0.546	0.001	-0.730	0.001
Anxiety	-0.730	0.001	-0.707	0.001	-0.439	0.001	-0.624	0.001	-0.752	0.001
Social dysfunction	0.295	0.001	0.339	0.001	0.216	0.001	0.248	0.001	0.352	0.001
Depression	-0.714	0.001	-0.738	0.001	-0.454	0.001	-0.617	0.001	-0.752	0.001
Total score	-0.777	0.001	-0.737	0.001	-0.467	0.001	-0.632	0.001	-0.781	0.001

*Spearman coefficient

As seen in Table 2, the quality of life and its dimensions have indirect and significant relationships with GHQ total score, and its subscales. We did not find any significant difference between two genders in the scores of general health and quality of life ($P > 0.05$). In terms of age groups, the patients were divided into three age groups: ≤45, 46-55, and >55 years. Comparing the scores of general health and quality of life between the age groups indicated no significant differences in the total scores of these questionnaires and their subscales between different age groups ($P > 0.05$). Tables 3 and 4 present the total scores of these questionnaires and their subscales in both genders and different age groups.

Table 3. Comparing the total scores of general health and quality of life and their subscales in both genders

Variable	Male	Female	P*
	Mean ± SD	Mean ± SD	
General Health Questionnaire			
Somatic symptoms	7.73 ± 2.77	8.34 ± 3.22	0.227
Anxiety	9.06 ± 3.83	8.74 ± 4.38	0.937
Social dysfunction	6.92 ± 1.10	7.19 ± 2.13	0.728
Depression	3.21 ± 2.78	2.78 ± 2.71	0.201
Total score	26.92 ± 8.21	27.08 ± 8.71	0.848
Quality of life			
Physical health	57.06 ± 25.08	57.29 ± 25.11	0.992
Mental health	55.81 ± 18.47	57.21 ± 20.22	0.551
Social relationships	64.27 ± 20.38	66.18 ± 18.60	0.553
Environment health	58.95 ± 15.31	60.08 ± 13.62	0.790
Total score	57.76 ± 17.38	58.43 ± 18.33	0.715

*Mann-Whitney test

Table 4. Comparing the total scores of general health and quality of life and their subscales in different age groups

Variable	≤ 45 years M ± SD	46-55 years M ± SD	> 55 years M ± SD	P*
General Health Questionnaire				
Somatic symptoms	7.45 ± 3.33	8.02 ± 2.92	8.29 ± 2.97	0.643
Anxiety	7.89 ± 4.24	8.78 ± 3.99	9.48 ± 4.13	0.107
Social dysfunction	7.41 ± 2.05	6.89 ± 1.36	7.02 ± 1.83	0.437
Depression	2.89 ± 2.63	2.58 ± 2.51	3.26 ± 2.95	0.455
Total score	25.86 ± 8.35	26.29 ± 8.07	28.11 ± 8.77	0.313
Quality of life				
Physical health	61.77 ± 23.27	59.53 ± 22.93	53.17 ± 26.88	0.218
Mental health	60.80 ± 19.20	55.36 ± 17.66	55.20 ± 20.59	0.215
Social relationships	67.98 ± 21.56	64.84 ± 18.15	64.30 ± 18.99	0.397
Environment health	62.32 ± 15.08	57.95 ± 14.52	59.23 ± 13.78	0.179
Total score	61.86 ± 17.64	58.18 ± 17.65	56.11 ± 18.05	0.277

*Kruskal-Walli's test

Discussion

The present study evaluated 181 patients (78 males and 103 females) with cardiovascular diseases through the GHQ-28 and the WHOQOL-BREF. The results revealed that most patients had good or fairly good general health. Also, many of these patients had a very good or good quality of life. The quality of life and its dimensions have indirect and significant relationships with the mean score of general health, and its subscales. Also, comparing general health scores and quality of life between two genders and different age groups indicated no significant differences.

In Iran, Nasiry Zarrin Ghabaee et al. studied 150 patients (57 males and 62 females) who were admitted to the cardiac care unit. They found that a majority of these patients had moderate to poor quality of life, based on the short form of quality of life questionnaire. In our study, most patients had good to moderate quality of life. Also, the mean mental health score was 29.14 ± 13.75, the same as the present study (27.01 ± 8.48). In this study, somatic symptoms of general health were related significantly to the physical domain of quality of life. While in our study, the subscales and total scale of quality of life are related to general health and its subscales. In Nasiry Zarrin Ghabaee et al. study, there was a correlation between the depression subscale of GHQ and quality of life with gender. In our study, the general health and quality of life scores are not significantly different in the two genders, which is inconsistent with Nasiry Zarrin Ghabaee et al. study (19). This difference may be related to more cases and female patients in our study. In a review study by Mohsenzadeh et al. on 1581 Iranian cardiac patients using the short form of life quality questionnaire (SF-36), the results indicated the mean score of quality of life was 42.09. Most of these patients had good to moderate quality of life, the same as the present study. In contrast, the mean score is lower than the mean score of quality of life in our study. The highest scores among sub-scales were related to vitality, mental health, social relationships, and physical health. In our study, the highest scores were seen in social relationships and environmental, physical, and mental health, respectively. This difference may be related to the small sample size, more psychological symptoms, but stronger social relationships in patients evaluated in our study (25).

Mental health is essential to enhance quality of life in patients with chronic diseases such as cardiovascular diseases. In this line, Alzahrani et al. assessed the quality of life in cardiac patients with and without psychiatric disorders in Saudi Arabia through the WHOQOL-BREF. Ninety-three (27.1%) of 343 patients had psychiatric disorders. The patients with psychiatric disorders had a significantly poorer total quality of life and all domains than patients without psychiatric disorders. The two groups' highest and lowest differences were related to mental health and environmental health, respectively (5). These findings support our study. In addition, another study conducted on two hundred patients with heart failure indicated that 65% and 62% of these patients experience depression and anxiety, respectively. Furthermore, the patients had poor quality of life in mental health (41.5 ± 11.3) and physical health dimensions (35.8 ± 9.6). Depression and anxiety were independent predictors of poor quality of life in patients with heart failure (26). This finding supports our findings, which refer to significant relationship between mental health and quality of life.

Based on the findings, physicians should consider promoting mental health to enhance the quality of life and physical condition in patients with cardiovascular diseases.

The present study had limitations such as a small sample size, lack of access to some patients due to the COVID-19 pandemic, and lack of willingness to fulfill the questionnaires in some patients. Future studies should compare the quality of life, mental health, self-efficacy, and social support in healthy individuals and cardiac patients. The effect of training coping styles to combat anxiety and depression should also be evaluated in cardiac patients. Educational attainment, marital status, and the duration of cardiovascular disease should also be considered when interpreting the study results. These factors could significantly influence the findings and provide a deeper understanding of the patient's condition.

Conclusion

The results suggest that most of the cardiovascular patients who participated in the present study had good general health and quality of life. The quality of life and its dimensions have significant relationships with the total score of general health, and its subscales. The two genders and different age

groups indicated no significant differences in general health and quality of life.

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Conflict of Interests

The authors declare no conflict of interests.

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Ethical Considerations

The study was conducted by the Declaration of Helsinki and approved by the Golestan University of Medical Sciences. All participants were informed that participation is voluntary and reassured that responses would remain confidential. Informed written consent was also obtained from all participants who filled out the questionnaires. Participants may withdraw from the trial at any point without any penalty and will not receive compensation for taking part. In the study, personal information about participants collected during the consent/data collection processes is stored securely.

Code of Ethics

IR.GOUMS ethics committee.REC.1400.082

Authors' Contributions

Fatemeh Gholami Tanha wrote the article and collected data. Leila Kashani supervised and revised the discussion. Mohammadali Vakili conducted statistical analysis. Amir Maghsodloonejad and Najmeh Shahini involved in study concept and design, final approval, and literature review.

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