

THE RELATION BETWEEN ANXIETY AND QUALITY OF LIFE IN HEART PATIENTS

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Abstract

BACKGROUND: The study aims to determine the relationship between anxiety and quality of life in patients with coronary artery disease (CAD).

METHODS: Study participants included 56 CAD patients referred to Chamran Heart Center and Isfahan Cardiovascular Research Center both affiliated to Isfahan University of Medical Sciences. Sampling was random and Cattle anxiety scale and McNew quality of life questionnaire were used for data collection. A questionnaire was filled in for demographic characteristics. Data were analyzed using multiple regression analysis.

RESULTS: The findings showed a strong significant inverse correlation between anxiety and quality of life in CAD patients. The strongest correlation among anxiety (manifest-hidden) and quality of life categories (physical -emotional – social category) was that between manifest anxiety and different categories of quality of life.

CONCLUSION: Considering the significant relation between anxiety and quality of life in CAD patients, it is recommended to include methods of controlling anxiety in the treatment program of these patients.

Keywords: anxiety, manifest anxiety, cardiovascular disease, quality of life.

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Introduction

In spite of the fact that death rate due to cardiac diseases is reduced in past decades, these diseases are still the main cause of death for both men and women and lead to disabilities in patients. Among heart diseases, coronary artery diseases are the main cause of death.¹ This disorder is very common in developing countries as well as developed countries, and it develops in the young and middle aged and leads to disabilities and death.²

This disease starts with development of atherosclerosis followed by clinical demonstration of chest angina, myocardial infarction and sudden death. The causes of CHD and related atherosclerosis are complicated and manifold. This disease is not simply an avoidable outcome of aging or genetic structure, but various biologic, environmental, behavioral, psychological, cultural and social variables are involved in its etiology and pathology.³ Psychological variables such

as depression and anxiety are known as risk factors for coronary artery diseases and it recommends psychological and physiological interaction to improve CHD.⁴ A high level of anxiety is related to the risk of coronary artery diseases, death and sudden death especially among men, but this relationship is not clearly seen among women. Collected data show that high levels of anxiety are related to increasing risk of death factors in CHD.⁵ Anxiety can lead to most symptoms related to heart diseases, such as cardiac conditions which cause a sudden drop in cardiac output. This condition can cause cardiac ischemia or cardiomyopathy.⁶ 55 years after the first exploration of relation between mood disorders and cardiac diseases, there is still a strong and convincing belief about relation between various aspects of psychological stress and cardiac diseases. However, there are vague and controversial evidences about patho-physiologic mechanism which limits coronary artery diseases to these

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aspects. Psychological stress is related to what happens to people in the psychological and social area of their life and it is affected by patho-physiologic changes.⁸

Anxiety is a common problem among cardiovascular patients and those who are dealing with severe cardiac disease or related interventions⁸⁻¹⁴. Anxiety among cardiac patients is almost high and about 70-80 percent of the patients who had severe heart problems, experienced anxiety. Anxiety is persistent in 20 to 25 percent of patients for a long time.^{9,12,13} It is prevalent about 20 to 25 percent even among patients who are diagnosed for cardiac disease but never had a severe condition and never needed any intervention. Although anxiety is a normal reaction to a severe cardiac disease, persistent and severe anxiety is not normal and has negative outcomes for health.^{8-11, 15-19}

Anxious cardiac patients are usually afraid of career related, social, sexual physical disabilities and death²⁰. Studies show that treatment environment is the main cause of anxiety and patients in CCU face a lot of physical and psychological stress²¹ and experience fears and worries.²² Psychological disorders including anxiety may be the main problem for cardiac patients in CCU²³. Other stressful factors are noisiness, advanced equipments and medical terms used by health care team.²⁴

Most anxieties come from thinking about death or symptoms of going to die such as shallow breathing, severe chest pain, myocardial infarction complications and treatment methods including electric shock and using catheters and so on.²⁵

Anxiety can be a psychological adjustment obstacle in chronic cardiac patients and prevent physical recovery after a severe cardiac disease. Severe anxiety is a predictor of bad quality of life for cardiac patients.^{17-19,26-28} Anxiety decreases self care abilities in patients^{10,29} and patients with high anxiety usually cannot manage and supervise their life style and have problems in thinking, acting and controlling their diet.

Anxious cardiac patients compared to not anxious ones are delayed returning to their jobs³⁰. Also, anxiety in cardiac patients affects their sexual life negatively.³¹ Patients with severe heart diseases usually experience a period of extreme weakness and disabilities because of extreme changes in physical symptoms.³²

Patients' anxiety causes lots of problems in dealing with the disease.^{29,33-34} Severe anxiety causes disabilities and affects the physical and emotional functioning in patients³⁵ and this affects their quality of life and disrupt their functioning.^{36,37}

In medicine field, quality of life is replaceable with health, feeling good and description and explanation

of diseases' effects or more complicated interventions which affect functioning and feeling good in patients, but quality of life is beyond health even though these two are related.³⁸

Therefore, considering the prevalence of cardiac diseases especially in industrial and developing societies, and considering the central role of anxiety, its assessment and treatment and its effects on patients' quality of life, it is important to study the relationship between anxiety and quality of life in order to diagnose anxiety and its significance and provide methods for its assessment and treatment.

Materials and Methods

This is a correlation study. The sample included 56 patients referred to Chamran Heart Center and Isfahan Cardiovascular Research Center (ICRC). Entry criteria included diagnosis for coronary artery diseases. Data were collected using 3 questionnaires:

1. Demographic questionnaire for demographic data including age, sex, marital status, education, etc.
2. Cattle anxiety scale to assess general anxiety, hidden anxiety and manifest anxiety of the patients³⁹. Reliability of this questionnaire in clinical studies has always been higher than 70%. This questionnaire includes 40 multiple choice (3 choices) questions: questions 1 to 20 assess hidden anxiety and questions 20 to 40 assess hidden anxiety.
3. McNew quality of life which is designed for assessing the quality of life in cardiac patients especially those with CAD. This questionnaire compared to other HRQOL (heart quality of life) assessment tools has a more acceptable validity and reliability based on the references. The German version of this questionnaire was tested in 2004 to assess the psychoanalysis criteria in patients who were diagnosed for CAD after angiography, and were under medical treatment, medications or invasive procedures.

This questionnaire was standardized in 2004 for cardiac patients in Isfahan province. It includes three scales: emotional, physical and social and 27 questions designed based on 7 Likert scales. The reliability of this questionnaire is reported to be 0.95 based on Cronbach's alpha.⁴⁰ Data were analyzed by SPSS software version 11.5 using Pearson correlation coefficient and multiple regression.

Results

Demographic data including age, sex, career and education of 56 cardiac patients who participated in this study are presented in table 1.

As the table shows, in the sex variable 82.1% of subjects (46) were male and 17.9% (10) were female

and most subjects (71.4%) was older than 50 years of age. Regarding career variable, 26.8% had private business, 12.5% were employee, 42.9% were retired and 17.9% were housewives. The subjects' education showed no specific pattern.

Table 2 presents the subjects' anxiety with number, mean and standard deviations. As it shows, the mean of hidden anxiety is 17.20 and the mean of manifest anxiety is 15.97. Also, the mean of quality of life and its various scales (emotional, physical, social) are presented in this table.

As table 3 shows, there is a significant correlation between scores of anxiety and quality of life in cardiac patients ($P < 0.01$), so that more anxiety reduce the quality of life and vice versa. Also, there is a significant relation between various types of anxiety (manifest-hidden) and the quality of life ($P < 0.01$). Moreover, the relation between anxiety and various scales of quality of life (emotional, physical, social) is significant, which due to similarity to previous result, it is not mentioned.

To find the relationship between manifest and hidden anxiety and quality of life and predicting it, linear multiple regression enter method was used. In this analysis, predicting variables were hidden and manifest anxiety and criterion variable was quality of life. To use this model, first the assumptions were evaluated. They included.¹ Lack of multiple linear relationship between the two variables of manifest and hidden anxiety was proved.² Variables were checked by PPlot diagram for a normal distribution. Since the density of scores around the curve showed no systematic bias, this assumption was ready for application of the model.³ The third assumption that was existence of very high or very low scores in entered variables was proved by Mahalanobis Distance with Outlier model and the output was presented in Data View.

Manifest and hidden anxiety are predicting variables and quality of life is criterion variable. Statistical index of regression analysis for manifest and hidden anxiety as predicting variables and quality of life as dependent variable was 0.79 in Correlation coefficient model, 0.63 in Coefficient of determination model, 0.61 in Adjusted R square model, and 0.64 in Prediction standard error model.

Regression analysis of variables of hidden and manifest anxiety on the quality of life showed that $f = 47.44$ and $P < 0.0001$, which shows that R square is significant and the applied model is suitable. Also, B amount shows that beta for hidden anxiety is 0.079 and for manifest anxiety is 0.73. These amounts determine the power of predicting (independent) vari-

able in their prediction. As it is shown in table 5, manifest anxiety has a high power of predictability and significance. But hidden anxiety has a low predictability and is not significant. Therefore, from anxiety subscales (manifest and hidden anxiety), just manifest anxiety has a high predictability.

Table 1. Demographic data of the patients

variable	condition	Frequency (percentage)
sex	male	46(82.1)
	female	10(17.9)
age	30-25	1(1.8)
	40-30	5(8.9)
	50-40	10(17.9)
	60-50	19(33.9)
	over 60	21(37.5)
	business	15(26.8)
career	employee	7(12.5)
	retired	24(42.9)
	housewife	10(17.9)
	Primary school	18(32.1)
education	guidance school	10(17.9)
	diploma	17(30.4)
	college	5(8.9)
	bachelor or higher degrees	6(10.7)

Table 2. Number, mean and SD of subjects in variables of anxiety and quality of life

Variable	number	mean	SD
Hidden anxiety	56	17.20	4.26
Manifest anxiety	56	15.97	6.48
Anxiety (general)	56	33.16	10.09
Emotional scale	56	5.04	1.11
Physical scale	56	4.59	1.11
Social scale	56	5.09	1.14
Quality of life	56	4.89	1.02

Table 3. Correlation coefficients between anxiety and quality of life

Statistical index variables	number	Correlation coefficient	P value
Anxiety and quality of life	56	-0.77	< 0.001
Manifest anxiety & quality of life	56	-0.79	< 0.001
Hidden anxiety & quality of life	56	-0.54	< 0.001

Discussion

The main aim of this study is to find the relationship between anxiety and quality of life of the cardiac patients who had medical files in Chamran hospital or Isfahan Cardiovascular Research Center (ICRC). The results showed a strong significant inverse relationship between the anxiety and quality of life of cardiac patients. The results of another study⁵ also showed that high amount of anxiety is related with increasing risk factors of death and decrease of quality of life in patients with CAD and it agrees with the results of the present study. Also, a study¹³ on 48 patients who had MI showed a relationship between anxiety and later incidence of cardiac problems in these patients. Besides, studies conducted in five different countries showed that cardiac patients have a high level of anxiety especially after infarction. Therefore, anxiety for cardiac patients is a global issue. This anxiety causes negative effects on quality of life of cardiac patients and it various scales (physical, emotional, social). In the present study also, anxiety had negative effects on various scales of quality of life of patients, which is neglected because of the similarity with quality of life results. Conducted studies show that there is a relation between health and quality of life. Nowadays, quality of life is an important topic in health care. Because becoming sick and remaining sick reduces the quality of life. In addition, quality of life should be considered in health care protocol for patients in order to decrease the negative effects of disease on their life. Patients' quality of life depends on medical and psychological treatments they need. Patients' quality of life becomes important when patients survive the disease but have severe physical and psychological disabilities. One of the negative complications of cardiovascular diseases is anxiety which has negative effects on the patients' quality of life. Other findings of this study also show that there is a relationship between various aspects of anxiety (hidden-manifest) and quality of life of cardiac patients, so that the relationship between manifest anxiety and quality of life is ($r = -0.79$, $P < 0.001$) and the relationship between hidden anxiety and quality of life is ($r = -0.054$, $P < 0.001$). Also, the results of multiple regression analysis showed that manifest anxiety can predict 0.74% of changes of quality of life, while hidden anxiety can predict just 0.08%. This means that manifest anxiety is a good predicting criteria for reduce of quality of life in cardiac patients. Therefore, the highest correlation is between manifest anxiety and quality of life. Considering that manifest anxiety has significant effects on people's functioning in emotional, physical

and social scales, therefore, manifest anxiety has a higher correlation with individual functioning and quality of life. The results of studies⁴³ show that quality of life depends on the effects of patients' physical, psychological and social health on the disease or related treatments. In this definition, patients' mind and multiplicity of quality of life are emphasized. Health related quality of life indicates an attitude towards disease or its treatment. Therefore, patients with similar health conditions can have different quality of life because of their individual differences regarding expectations and confrontation methods.⁴⁴

The present study showed that there is a significant relationship between anxiety and quality of life in cardiac patients. Therefore, anxiety is an important index reducing quality of life among cardiac patients. So, to improve quality of life of cardiac patients, their anxiety should be reduced. Considering the results of this study it can be concluded that anxiety is a common phenomenon among cardiac patients and it leads to serious and dangerous outcomes if not treated. Therefore, evaluating anxiety and its treatments should be included in health care services for improvement of cardiac diseases and decreasing its risk factors. Anxiety, both is physiological and behavioral scales can reduce the patients' functioning and quality of life. Therefore, medication and psychological interventions are necessary to treat anxiety in cardiac patients, especially eclectically⁴⁵. In this regard, the purpose of this study is to determine the importance of anxiety and its outcomes and the negative effects it has on the quality of life of patients and the necessity of serious follow up to introduce methods for evaluating and controlling anxiety. It is emphasized that if physical problems of cardiac patients are controlled and the patients learn methods of adjustment with the disease, it not only increases the physical scale of quality of life in these patients, but improves their quality of life in general.

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