



**PREDICTING THE QUALITY OF LIFE BASED ON SATISFYING
PSYCHOLOGICAL NEEDS IN PATIENTS UNDERGOING CORONARY ARTERY
BYPASS GRAFT SURGERY**

**SAHAR KERMANIAN¹, OMID REZAEI^{2*}, MOHAMMAD HOSSEIN MANDEGAR³,
AZADEH YARAGHCHI⁴**

¹ M.A. Department of Psychology, Science and Research Branch, Islamic Azad
University, Tehran, Iran. Email: saharkermanian@yahoo.com

² M.D. Associate professor of Psychiatry, University of Social Welfare & Rehabilitation
Sciences, Tehran, IRAN. Email: dr.rezaei@uswr.ac.ir

³ M.D. Department of Cardiac Surgery, Tehran University of Medical Sciences, Tehran,
Iran.

Email: info@drmandegar.com

⁴ Department of Psychology. Kish International Center, Islamic Azad University, Kish,
Iran.

Email: azadeh_yaraghchi@yahoo.com

***Corresponding Author: Omid Rezaei:**

**Associate Professor of Psychiatry, University of social Welfare & Rehabilitation Sciences,
Tehran, Iran: Email: dr.rezaei@uswr.ac.ir; Tel: +982188993453, Fax: +982122180140**

ABSTRACT

Background and purpose: the quality of life is one of the crucial aspects of personal life which is affected by coronary artery bypass grafting. Some of the psychological factors have been examined in predicting the quality of life of the CABG patients. The present research has been conducted in order to examine the relationship between meeting the fundamental physiological needs (self –determination, competence, and relationship with others) and the quality of life of the CABG patients.

Examination method: the population included 80 patients which had undergone coronary artery bypass grafting for the first time from July 2014 to January 2015 in Dey, Shariati, Kasra, and Laleh Hospitals in Tehran. These patients were selected through nonrandom selection method and were evaluated by the (SF-36) quality of life questionnaire and Gardia,

Deci and. Ryan's basic psychological needs scale. The obtained data were analyzed through Pearson correlation coefficient, simple linear regression analysis, and multiple regression analysis.

Findings: the results of the research indicated that there is a significant relationship between the psychological needs of CABG patients and their quality of life and approximately 17 percent of the changes in the quality of life is determined by the total score of the psychological needs and 22 percent of the changes in the quality of life is determined by the subscales of psychological needs (self- determination, competence, relationship).

Conclusion: based on the obtained results, satisfying psychological needs is one of the predictive factors of the quality of life in individuals who undergo coronary artery bypass grafting. Satisfying the fundamental psychological needs improved the psychological health and cognitive well- being and in case it is hindered it damages the psychological well- being and health of the individual and consequently his/ her quality of life. Considering this factor has an important role in predicting the quality of life of these patients.

Keywords: cardiovascular disease, quality of life, psychological needs, coronary artery bypass graft surgery

INTRODUCTION

Cardiovascular diseases are currently considered the main cause of death in Iran. The cardiovascular diseases and the symptoms caused by them has caused a large part of the productive forces of the country to become disabled especially in the most efficient years of their careers and it has eventually decreased production and increased the treatment costs [1]. 40 to 50 percent of the men and 25 to 35 percent of the women among the healthy forty- year olds will eventually be affected by cardiovascular diseases [2]. This disease decreases productivity and the quality of life in addition to affecting the mortality rate and disability [3].

All individuals know that patients who undergo artery bypass graft surgery encounter degradation in quality of life [3]. The World Health Organization (1995) defines “the quality of life” as: an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. Factors such as physical health, psychological status, degree of independence, personal beliefs, and the relationship between these factors with the aspects of the environment in which the person lives are presented in the quality of life [4].

Measuring the consequences of coronary artery bypass graft surgery through the patient's quality of life is nowadays one of the indexes of modern medicine and many applied researches have been conducted to control the degradation of the quality of life of these patients. Controlling the risk factors have a significant role in this field. Many social- psychological factors can affect this matter [5]. On the other hand, it is essential to identify and satisfy the psychological needs of heart patients and to examine their relationship with the quality of life of the patient. Satisfying self-determination, competence and relationship with others psychological needs creates the essential conditions for personal psychological growth, solidity, and well-being [6] and explains the foundation of a wide range of our behaviors. The results of the researches indicate that satisfying the fundamental psychological needs improves psychological health and cognitive well-being and if it is hindered degrades the person's psychological well-being and health. Moreover, psychological interferences could predict the degree of quality of life in individuals and also satisfying the fundamental psychological needs after coronary artery bypass graft surgery could control and decrease the effective cardiovascular factors and prevent

the coronary arteries from blocking again [7].

Based on that, the "self- determination theory" predicts that fluctuation in the degree of satisfying the needs directly predicts the "well- being fluctuations" of the person [8]. Numerous evidences have indicated that emotional inhibition and not satisfying the fundamental psychological needs increase physiological activity and heart reaction, decrease the rate of the healing process of the heart and arteries, decreases the changes of heart rhythm, cause coronary heart disease and mortality due to heart problems. Also inhibiting expressing the emotions and consequently not being able to satisfy the psychological needs have been presented as a fundamental structure in the health and personality history [9].

METHODOLOGY

This study was conducted in Dey, Shariati, Kasra, and Laleh Hospitals of Tehran from July 2014 to January 2015 in order to predict the quality of life based on satisfying the psychological needs of the patients undergoing coronary artery bypass grafting. The sample included 80 patients who for the first time underwent coronary artery bypass grafting and had applied to the clinic for examination 4 to 6 weeks after the surgery. The participants were selected through targeted sampling and

considering the criteria for entering and quitting the experiment. The research data were collected through using the demographic information questionnaire, the (SF-36) quality of life questionnaire, and Gardia, Deci and Ryan's basic psychological needs scale.

Data collection instrument:

- Demographic information questionnaire: this questionnaire included questions regarding age, gender, marital status, education, career status, and the patient's history of diseases
- The quality of life questionnaire: this questionnaire is a proper instrument for individuals to understand their health conditions and the degree of being satisfied with that condition. The quality of life questionnaire has 36 questions and is comprised of 8 scales. Each scale is made up of 2 to 10 articles. The subscales of this questionnaire include:
 1. Physical functioning (PF)
 2. Role limitations due to physical health (RP)
 3. Role limitation due to emotional problems (RE)
 4. Energy/ fatigue (EF)
 5. Emotional well- being (EW)
 6. Social functioning (SF)

7. Pain (P)
8. General health (GH)

Two other general scales are obtained by combining the subscales which include:

1. The physical health subscale: the sum of physical functioning subscale (PF), Role limitations due to physical health (RP), pain (P), and general health (GH)
2. The psychological health subscale: the sum of role limitations due to emotional problems (RE), (energy/ fatigue (EF), emotional well- being (EW), and social functioning subscales

These questionnaires have high validity and reliability [10 and 11]. The validity of this questionnaire was evaluated by Montazeri (2005) in Iran on 4163 individuals who were 14 years old and above, most of them were married [12]. The reliability coefficient of eight aspects of that varied between 0.77 and 0.95.

- Need satisfaction scale (NSS): this scale was made by Guardia et al. in 2000 and it measures three needs, "self- determination", "competence", and "relationship with others" in the participants [13].

The above- mentioned scale includes 21 articles and each article includes 7

questions and the questions are rated based on seven- point Likert scale.

Validity and reliability: the reliability coefficient obtained from testing it on mother, father, romantic partner, and friends of the participants have been reported to be 0.92, 0.92, 0.92, and 0.92 respectively [13]. This scale showed a high validity value in the researches. In Daftarchi and Sheykholeslam's research, the correlation between the score obtained from each answer and the score of the relevant subscale was calculated to examine the "reliability" of this scale [14]. The coefficient range for self-determination need was reported to be 0.45 to 0.66, the competence need, 0.47 to 0.80, and the relationship with others need between 0.38 and 0.61. All coefficients were at 0.01 and 0.05 level of significance. The collected data were finally analyzed through the descriptive statistics methods, Pearson correlation coefficient, simple linear regression, and multiple regression and the data were analyzed through the use of version 19 of SPSS software.

FINDINGS

The research resources of this study were 80 patients who had undergone coronary artery bypass graft surgery, 52 of them were female (65%), 28 were male (35%), 54 were married (67.5%), and the maximum mean age was 64- 69 years

(28.8%). The central distributions and the distribution of the under- study variables were separately calculated in this study. The results have been summarized in table 1.

The two- variable and multi variable linear regressions were used to test the hypothesis which stated that the psychological needs predict the quality of life of the patients who undergo coronary artery bypass grafting. To that end, the coefficient of determination (squared correlation coefficient) was first calculated and tested between the total scores of psychological needs and also its subscales, as the predictive variables and quality of life as the criterion variable. The results of the test indicated that the coefficient was significant and it is reported in table 2.

Therefore the psychological needs predict the quality of life of the patients who undergo coronary artery bypass grafting. Almost 17 percent of changes in the quality of life are explained by the psychological needs ($R^2= 0.167$).

The subscales of the psychological needs (self- determination, competence, relationship) can predict the quality of life of patients who undergo coronary artery bypass graft surgery.

Approximately 22 percent of the changes in the quality of life could be explained by the subscales of the psychological needs (self-

determination, competence, relationship) (R2= 0.219).

The regression coefficients were calculated and tested afterwards in order to specify the degree to which the psychological needs

and its subscales predict the quality of life of the patients who undergo coronary artery bypass graft surgery. The results could be seen in table 3.

Table 1- Indexes of central tendency and dispersion of the under- study variables

Variable	Subscale/ aspect	Mean	Median	Mode	Standard division	Minimum	Maximum
Psychological needs	Self-determination	41.73	45.549	49	8.347	19	49
	Competence	24.91	24.0	24	7.957	12	42
	Relationship	46.69	44.5	56	8.509	23	56
	Total score	113.30	114.0	123	17.520	72	147
Quality of life	Physical functioning (PF)	67.08	10.0	65	18.866	10	100
	Role limitations due to physical health (RP)	31.83	25.0	0	33.194	0	100
	Role limitation due to emotional problems (RE)	66.62	66.7	100	40.989	0	100
	Energy/ fatigue (EF)	58.96	60.0	70	16.388	15	95
	Emotional well-being (EW)	69.83	76.0	76	15.739	28	96
	Social functioning (SF)	63.14	62.8	75	23.608	25	100
	Pain (P)	72.01	77.5	78	19.430	23	100
	General health (GH)	59.28	60.0	55	22.172	5	95
	Total score	61.00	58.5	61	16.053	25	92

Table 2: Regression analysis for predicting the quality of life based on psychological needs

Predictive variable(s)	Criterion variable	R	R ²	Degree of freedom	F
Psychological needs (total score)	Quality of life	0.408	0.167	1.78	15.597**
Self- determination Competence Relationship	Quality of life	0.468	0.219	3.76	7.096

** P<0.01

Table 3: The regression coefficient for predicting the quality of life based on the psychological needs and its subscales

Criterion variable	Predictive variables	Unstandardized coefficients		Standardized coefficients	t
		b coefficient	Standard error	Beta	
Quality of life	Residue (a)	18.618	10.856	---	1.715
	Psychological needs (total score)	0.374	0.095	0.408	3.949**
Quality of life	Residue (a)	26.939	11.411	---	2.361*
	Self- determination	0.047	0.204	0.025	0.232
	Competence	0.805	0.223	0.399	3.617**
	Relationship	0.257	0.201	0.136	1.277

*p<0.05, **p<0.01

DISCUSSION AND CONCLUSION

The preset study is conducted aiming at predicting the quality of life based on satisfying the psychological needs of CABG patients. The results of this research generally indicated that there is a positive

and significant relationship between the psychological needs (self- determination, competence, relationship) and the quality of life of patients who undergo the coronary artery bypass graft surgery which means the more the patients is aware of his/ her

psychological needs and the more he/ she attends to them, the higher his/ her quality of life. Moreover, the results demonstrated that there is a positive and significant relationship between the psychological needs and the subscales of physical functioning, role limitation due to emotional problems, energy or fatigue, emotional well- being, pain, and general health. The findings finally indicated that there is no significant relationship between the psychological needs and the subscales of physical functioning and social functioning of the patients who undergo coronary artery bypass grafting. The findings of the study also indicated that the psychological needs can predict the quality of life of patients who undergo coronary artery bypass graft surgery and 17 percent of the changes in the quality of life could be explained by the total score on the psychological needs and almost 22 percent of the changes in the quality of life could be explained through the subscales of psychological needs (self- determination, competence, relationship).

A review of the previous study shows that this matter has also been approved in the researches which were conducted in [15-20]. The above- mentioned findings could be explained in this manner that satisfying the self- determination, competence, and relationship with others psychological

needs creates the essential conditions for psychological growth, solidity, and personal well- being [6] and explains a wide range of our behavior, which according to the researches [21 and 22], satisfying the fundamental psychological needs promotes the psychological health and cognitive well- being and if hindered, it could endanger the person's psychological well- being and health and consequently the quality of life. Also according to the self- determination theory, these needs have a role in pursuing goals and also the content of the goals which the individual pursues regarding the matter of motivation and they create intrinsic motivation and self- determinative behavior through organizing processes which is related to the effective performance of the individual and high levels of quality of life [23]. Moreover, satisfying psychological needs makes individuals have a natural and innate tendency to internalize the valuable social behaviors and values and this tendency is facilitated through the feeling of being connected to others and also the feeling of being competent in displaying the internalized behaviors.

Therefore supporting the “competence” and “relationship with others” needs, as the fundamental psychological needs, facilitates the process of internalizing the social relationships and values and it could

be reasoned that it involves improving the quality of life of people. Since based on the human independency model, regarding the quality of life which emphasizes personal decision- making, quality of life is nothing but the opinion of the individual and his/her internalization process [24].

The previous studies indicate that this finding has also been implicitly approved in the studies [15 and 25]. This finding could be explained in this manner that in case the psychological needs of the individuals are not satisfied, the individuals will not have the tendency to interact or communicate with the people around them and so this social inhibition will be revealed as time goes by carrying the symptoms of being cold to others, weakness in interpersonal and competitive awareness and failing in managing the process of the relationships. It seems like people who have high social inhibitions do not trust the effectiveness of social support. With regard to the personality trades of these people, the situations which requires other people's control or depending on other people, such as becoming ill, may turn into a crisis. Moreover not expressing negative emotions builds up these emotions in the person and reduces the quality of life of the individual as previously mentioned. Also due to the fact that these people are unable to create effective relationships, they are unable to

create a proper treatment relationship and so they will not be able to access sufficient information on the diseases and consequently understand the diseases and they cannot follow the treatment advices very well which reduces their quality of life [26].

There were certain limitations in the present research such as data collection via self-reporting by the examinees. This methodology is always influenced by numerous factors including tendency of respondents to give society-pleasing responses. Furthermore, the number of individuals analyzed in such research works is limited due to problems associated with special diseases and also finding the patients.

The present research was not also an exception, and hence, the sample size is small for the same reason. Since psychological interventions for changing unhealthy behavioral pattern along with main physical treatments leads to reduction of damages and health promotion in the respective patients, it is recommended to incorporate psychological interventions in the medical protocol of coronary artery disease (CAD) patients for controlling and mitigating the damaging parameters.

In addition, the studies shall be carried out on psychological and life quality variables before and after surgery aimed at

determining a comprehensive model of treatment process which provides the needed information for awareness of the physicians and patients. The present research was conducted as a sectional study. Accordingly, it is advisable to perform similar longitudinal studies for better comprehension of the factors affecting life quality level and also to analyze the role of the variables under study in life quality via experimental researches. Ultimately, codification of training workshops of life quality as well as general psychological and physical rehabilitation programs following surgery might be other effective steps to promote health condition of such patients.

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