



Cardiovascular Disease Patient's Quality of Life in Tabriz City in Iran in 2018

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ABSTRACT

Introduction: Recently, Cardiovascular Disease (CVD) is one of the most common causes of mortality all around the world. Achieving the high Quality of Life (QOL) is considered to be important for these patients. Therefore, the objective of the present study is to investigate the quality of life among patients with CVD in Tabriz Province.

Methods: This study was conducted in Tabriz University of Medical Sciences in 2018. In this study, 180 patients were selected using convenience sampling method. World Health Organizations QOL-brief (WHOQOL-BREF) modified questionnaire was used for data collection. Questionnaire was consisted of 26 questions about different aspects of patients' QOL. Descriptive statistics analysis including frequency, percentage and mean \pm standard deviation was used to analyses the data. Independent samples T-test and One Way ANOVA was also used for data analysis by SPSS.16. P-value less than 5% was considered as statistically significant.

Results: Most participants (about 80%) were in the age group of 50-69. Among the participants, about 30% of the participants were satisfied with their health status and only 12% expressed that they can afford their needs. Less than half of the participants stated that they are satisfied with their ability in running their daily affairs. Mean (SD) score of QOL among the participants was 81.37 (11.88), with a minimum and maximum of 52 and 105, respectively. There was statistically significant relationship between age, place of residence, education and income with QOL ($p < 0.05$). QOL

Conclusion: The results showed that QOL is low in patients with CVD in Iran. Therefore, further studies are needed on the above-mentioned factors in order to plan for improving the QOL in these patients.

Keywords: Cardiovascular diseases, Quality of Life, WHOQOL-BREF

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Introduction

Recently, Cardiovascular Disease (CVD) is one of the most common causes of death around the world (1, 2). Given the increasing expansion of urbanization, industrial lifestyle, inadequate physical activity, and socioeconomic conditions morbidity and mortality caused by these diseases are still on the rise (3, 4). According to statistics, about 30% of total deaths are now caused by CVD, and also approximately 10% of women and 33% of men are afflicted with these diseases before they reach the age of 60, and unfortunately most of whom do not recover (5-7). In addition to extensive and severe physical complications, CVD put huge burden of economic costs on the health system and society. For example, it has been estimated that the costs resulting from these diseases in the U.S. is amounted to 300 billion dollars in 2000 (8-10). The prevalence of CVD and especially coronary heart disease (CHD) is sharply increasing in China, India, Pakistan, and the Middle East, including Iran (8). Among developed countries, death resulting from CVD shows a high, moderate, and low rate in countries of the former Soviet Union, namely the U.S., the Europe, and Japan, respectively (11-13). In addition to death, disability, and high disease burden, CVD causes serious problems in mental, psychological, and social aspects of patients' life (14, 15). Hence, the proper approach to take care of these patients must cover various aspects of their life (16). The health status and the QOL are important indicators of health-related QOL to investigate the adaptability of the patients in chronic diseases (17, 18). The concept of QOL was firstly used as the traditional concept of health and the useful functional status, but QOL is defined as people's understanding of life, values, goals, standards, and interests now. Studies have also shown that QOL can be considered as one of the most important components of health care quality (19-21). Therefore, the objective of the present research is to study QOL among patients with cardiovascular disease in Tabriz Province.

Methods

This cross-sectional study was conducted to determine QOL of CVD patients in Tabriz

University of Medical Sciences in 2018. All CVD patients referred between 1st of June to 30th of September 2018 to the department of Heart Specialty of Shahid Madani Hospital in Tabriz (The largest referral hospital in northwestern Iran) who had inclusion and exclusion criteria were included in the study. Inclusion criteria included the following items:

- ❖ CVD patients older than 18
- ❖ CVD patients without comorbidity
- ❖ Patients with the ability and wellness to participate in the study

Cochran's formula was used to determine the sample size. According to the statistical population of the hospital and the possibility of their participation in the study (about 255 patients), the sample size was 150 persons. Also, to increase the power of the study and reduce the effect of sample loss, 20% was added to the sample size and finally the sample size was calculated as 180. Patients were selected using convinced sampling method.

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N} \left[\frac{z^2 pq}{d^2} - 1 \right]}$$

World Health Organizations quality of life-brief (WHOQOL-BREF) modified questionnaire was used for data collection. Validity and reliability of the questionnaire were confirmed using content validity and test-retest methods ($r=0.82$). Questionnaire was consisted of 26 questions which measure QOL in four dimensions (physical health (7 questions), psychological health (6 questions), social relationships (3 questions), environment (8 questions) and 2 general questions which assess overall health condition with five-point likert scale (1=Not at all to 5=Completely) about different aspects of patients' QOL. The highest and lowest scores were 130 and 26, respectively.

The questionnaire was filled out using two trained questioner through the interview with the patients. The normality of the data (quantitative variables) was measured using Kolmogorov-Smirnov test. Descriptive statistics (frequency,

percentage, mean \pm SD), two independent samples T-test, One Way ANOVA, Spearman's correlation coefficient and linear regression model were used for data analysis by SPSS version 16 software. P-value less than of 5% was considered as statistically significant. All moral considerations including confidentiality of the information were observed in this study. Ethical consent was obtained from participants in this study and the option was given to them to withdraw and leave the study whenever they want.

Results

In the present study, most participants (about 80%) were in the age group of 50-69 and 66% of them were male. Also, most of them who were 75 had an academic degree (41.5%) above high school diploma and 127 were married (70.6%). Expenditure for health in 45% of participants was more than of their income. In addition, duration of affliction was 6 to 12 months in most participants. Other demographic characteristics of participants are shown in Table 1.

Table 1. Demographic characteristic of included CVD patients referred between 1st of June to 30th of September 2018 to the department of Heart Specialty of Shahid Madani Hospital in Tabriz (n=180)

Variables	Groups	Number (%)
Gender	Female	119 (66/1)
	Male	61 (33/9)
Age	<50 year old	7(3/9)
	50 to 69 years old	143(79/4)
	More than 70 years old	30(16/7)
Duration of disease	6 to 24 month	59(32/8)
	25 to 44 month	65(36/1)
	45 to 120 month	22(12/2)
	More than 121 month	34(18/9)
Marital status	Single	53(29.4)
	Married	127(70/6)
Living site	Urban	104(57/8)
	Rural	76(42/2)
Occupation	Unemployed	68(38/8)
	Employed	112(62/2)
Level of education	Under diploma	54(30)
	Diploma	51(28/3)
	Higher education	75(41/5)

Among the participants in the present study, about 30% were satisfied with their health status and only 12% expressed that they can afford their needs. Less than half of the participants stated that they are satisfied with their ability in running their

daily affairs. Table 2 shows frequency distribution of various aspects of QOL among the studied patients. Mean \pm SD score of QOL among the participants was 81.37 ± 11.88 , with a minimum and maximum of 52 and 105, respectively.

Table 2. Frequency distribution of CVD patients' responses to the questions of World Health Organizations quality of life-brief questionnaire (N=180)

Statements	Very little*	Little	Moderate	Good	Very good
How do you evaluate your quality of life?	9(5)	32(17/8)	72(40)	45 (25)	22(12/2)
How much are you satisfied from your health conditions?	8(4/4)	59(32/8)	60(33/3)	45(25)	8(4/4)
How much physical pain does prevent you from doing your desired tasks?	5(2/8)	52(28/9)	55(30/6)	50(27/8)	18(10)
How much do you need medical treatments to do your routine activities?	0	40(22/2)	50(27/8)	58(32/2)	32(17/7)
How much do you enjoy your life?	9(5)	36(20)	70(38/9)	55(30/6)	10(5/6)
How meaningful is your life?	11(6/1)	34(18/9)	64(35/6)	55(30/6)	16(8/9)
How much can you focus on your affairs?	8(4/4)	23(12/8)	75(41/7)	50(27/8)	24(13/3)
How much do you feel secure in your daily life?	3(1/7)	23(12/8)	71(39/4)	71(39/4)	12(6/7)
How healthy is your surrounding environment?	7(3/9)	28(15/6)	64(35/6)	58(32/2)	23(12/8)
Are you sufficiently energized for your daily life?	6(3/3)	29(16/1)	62(34/4)	66(36/7)	17(9/4)
Can you accept your physical appearance?	16(8/9)	27(15)	51(28/3)	56(31/1)	30(16/7)
Do you have enough money to meet your needs?	17(9/4)	76(42/2)	65(36/1)	18(10)	4(2/2)
How much daily required information is available to you?	16(8/9)	47(26/1)	79(43/9)	29(16/1)	9(5)
How much do you have access to recreational activities?	20(11/1)	54(30)	74(41/1)	24(13/3)	8(4/4)
How do you evaluate your briskness and alacrity?	22(12/2)	40(22/2)	79(43/9)	30(16/7)	9(5)
How much are you satisfied from your sleep condition?	14(7/8)	41(22/8)	57(31/7)	49(27/2)	19(10/6)
How much are you satisfied from your daily activities?	14(7/8)	41(22/8)	57(31/7)	49(27/2)	19(10/6)
How much are you satisfied from your occupational capacity?	6(3/3)	40(22/2)	70(38/9)	50(27/8)	14(7/8)
How much are you satisfied from yourself?	11(6/1)	40(22/2)	48(26/7)	58(32/2)	23(12/8)
How much are you satisfied from your personal relations?	10(5/6)	26(14/4)	68(37/8)	57(31/7)	19(10/6)
How much are you satisfied from your sexual relations?	16(8/9)	40(22/2)	65(36/1)	34(18/9)	25(13/9)
How much are you satisfied from your friends' support?	4(2/2)	31(17/2)	55(30/6)	64(35/6)	26(14/4)
How much are you satisfied from your residency conditions?	10(5/6)	25(13/6)	78(43/3)	54(30)	13(7/2)
How much are you satisfied from the availability of health-treatment services?	11(6/1)	30(16/7)	74(41/1)	51(28/3)	14(7/8)
How much are you satisfied from your traffic conditions?	9(5)	36(20)	74(41/1)	45(25)	16(8/9)
How much do you feel offended, hopelessness, anxiety, and depression?	5(2/8)	43(23/9)	61(33/9)	48(26/7)	23(12/8)

Table 3 demonstrates that the correlation between demographic variables (Age, Gender, Living site, Occupation, Education, Income, Duration of disease and Marital status) and

participant's QOL. As it can be seen in table 3, there is a significant correlation between age, living site, education and income with QOL ($p < 0.05$).

Table 3: Correlation coefficients matrix between demographic variables of CVD patients and the mean score of the quality of life

Demographic Variable		Age	Gender	Living Site	Occupation	Education	Income	Duration Of Disease	Marital Status
Quality of life	P-value:	0.040	0.12	0.01	0.52	0.004	0.001	0.153	0.389
	R	-0.78	0.36	0.85	-0.42	0.83	0.89	-0.53	0.38

Discussion

In line with the findings of the present research, many studies around the world and in Iran have shown that CVD occur in men more than women (7, 22-25). This can be attributed to the stresses and tensions in the men's workplace, risky behaviors such as smoking, invasive and violent behaviors in men, negligence of health, the role of androgens, and social factors. Previous studies conducted in developed countries show that the rate of mortality between men and women has lowered comparing to the recent years (26).

In the present study, mean score of QOL among the participants was relatively low. In a review study conducted by Yaghubi et al., it was shown that the QOL in Iranian patients with CVD is relatively low and effective interventions are required in order to improve this important variable (27).

Additionally, many studies have been conducted around the world on the measurement of QOL in the patients with CVD, some of which have systematically reviewed previous studies (26-29). The results of the present study are consistent with the findings of another study which assessed the QOL in patients with CVD (30-32). Furthermore, studies carried out by Brown in England (33), Norekval in Norway (34), Rubenach in Australia (35), Bengtsson in Sweden (36), and others have corroborated the low QOL in patients suffering from CVD.

Despite the consistency between the present study and other ones in terms of low QOL in patients with cardio vascular diseases, some studies conducted in some parts of the world indicate good QOL in these patients. For instance, Veenstra et al. (37) showed that QOL is desirable in patients after myocardial infarction. The study conducted by Folcoze in France also suggests this improvement (38). One reason for the low QOL among patients in our country could be the low quality of services offered to patients with CVD and the lack of economic and social support of such patients. Therefore, it is essential to improve the quality of the services provided for these patients and to increase the supports for them.

In this study, age, place of residence, education background, and income showed a significant relationship with QOL. In most of the similar studies, gender has been considered as an important factor in QOL, as some of the studies showed a significant relationship between gender and QOL, with higher QOL in men than women in most of the aspects. This is more prominent in the aspects of physical and mental performance (21, 39- 46). Although many studies have reported a significant relationship between gender and QOL, such a relationship was not found in some other studies (47, 48). In addition, a significant relationship has been observed between age and QOL in many studies, as the QOL significantly decreases in patients with the increase in their age (39, 40, 44, 49). Similarly to gender; age showed no significant relationship with QOL in some other studies (47, 50). Higher education, employment, and being married have been shown to be significantly associated with the improvement in some aspects of QOL among patients with CVD (39, 40, 50), when no significant relationship has been observed between these variables and QOL in some other studies (48).

Conclusion

The results of the present study showed that QOL is low in patients with CVD in Iran. Therefore, further studies are needed on the above-mentioned factors in order to make proper plans for improving the QOL in these patients. Additionally, due to the low level of physical and mental aspects, the necessary actions should be taken for providing adequate health insurance, more and cheaper welfare services, and more appropriate social and mental supports for patients with CVD. Finally, it can be stated that assessment of the quality of services provided for these patients and proposal of solutions for improving them can be a good area of research for future studies.

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Authors Contribution

S, A-A & N, D. designed the study and analyzed the data; H, GH gathered the data and prepared the first draft, M-H, A&S, A-A consulted and supervised the work, and critically revised the

draft, and N, D & H, GH has done the management and proofing.

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Conflict of Interest

Authors have no conflict of interest.

References

1. Azami-Aghdash S, Ghaffari S, Sadeghi-Bazargani H, et al. Developing Indicators of Service Quality Provided for Cardiovascular Patients Hospitalized in Cardiac Care Unit. *Journal of cardiovascular and thoracic research*. 2013;5(1):23-8.
2. Azami-Aghdash S, Ghojzadeh M, Naghavi-Behzad M, et al. Perspectives of Cardiac Care Unit Nursing Staff about Developing Hospice Services in Iran for Terminally ill Cardiovascular Patients: A Qualitative Study. *Indian journal of palliative care* 2015;21(1):56-60.
3. Charney P. Coronary artery disease in women. In Hurst's *The Heart* 11 ed. New York: McGraw-Hill; 2004.
4. Nathan D, Henry R, Julius M. Preventive cardiology. 1, editor: McGraw-Hill Inc; 2000.
5. Abbasi SH, Kassaian SE. Women and coronary artery disease. Part I: Basic considerations. *Journal of Tehran University Heart Center*. 2011;6(3):109-16.
6. Ahangar AA, Vaghefi SBA, Ramaezani M. Epidemiological evaluation of stroke in Babol, Northern Iran (2001-2003). *European Neurology*. 2005;54(2):93-7.
7. Zobel C, Doeringhaus M, Reuter H, et al. Mortality in a cardiac intensive care unit. *Clinical Research in Cardiology*. 2012;101:521-4.
8. Reddy K. Cardiovascular Disease in Non-Western Countries. *New England Journal of Medicine*. 2004;350(24):2438-40.
9. Rutten-Jacobs LC, Arntz RM, Maaijwee NA, et al. Cardiovascular Disease Is the Main Cause of Long-Term Excess Mortality After Ischemic Stroke in Young Adults. *Hypertension*. 2015;26(114):04895.
10. World Health Organization. Cardiovascular diseases. 2010.
11. Bolandparvaz S, Mohammadzadeh A, Amini A, et al. Cardiopulmonary arrest outcome in Nemazee Hospital, southern Iran. *Iranian Red Crescent Medical Journal*. 2009;11(4):437-41.
12. Ashraf H, Rashidi A, Noshad S, et al. Epidemiology and risk factors of the cardiometabolic syndrome in the Middle East. *Expert Review of Cardiovascular Therapy*. 2011;9(3):309-20.
13. Vojvodic Z, Stimac D. Trends in statin consumption and cardiovascular mortality in Croatia 2004-2012. *Coll Antropol*. 2014;2:73-8.
14. Mendis S, Lindholm LH, Anderson SG, et al. Total cardiovascular risk approach to improve efficiency of cardiovascular prevention in resource constrain settings. *Journal of Clinical Epidemiology*. 2011;64(12):1451-62.
15. Bagherian R, Saneai H, Baghbanian A. Myocardial infarction and depression. *Journal of Isfahan Medical School*. 2011;29(127).[Persian]
16. Babaee G, Keshavarz M, Hidarnia A, et al. Evaluation of quality of life in patients with coronary artery bypass surgery using controlled clinical trial. *Acta Medica Iranica*. 2007;45(1):69-75.
17. Howland LC, Storm DS, Crawford SL, et al. Negative life events: risk to health-related quality of life in children and youth with HIV infection. *Journal of the Association of Nurses in AIDS Care*. 2007;18(1):3-11.
18. Vahdat K, Hadavand F, Rabieian P, et al. Study of daily quality of life in patients living with HIV in Bushehr province. *Iranian South Medical Journal (Iran South Med J) Bimonthly*. 2012;15(2):119-26.[Persian]
19. Najafi M, Sheikhatvan M, Montazeri A, et al. Quality of life in coronary artery disease: SF-36 compared to WHOQOL-BREF. *Journal of Tehran University Heart Center*. 2008;3(2):101-6.
20. Hatmi ZN, Shaterian M, Kazemi MA. Quality of life in patients hospitalized with heart failure: A novel two questionnaire study. *Acta Medica Iranica*. 2007;45(6):493-500.

21. Taghipour HR, Naseri MH, Safiarian R, et al. Quality of life one year after coronary artery bypass graft surgery. *Iranian Red Crescent Medical Journal*. 2011;13(3):171-7.
22. Windi AA. Prevalence of self-reported chronic diseases in relation to sociodemographic characteristics, work place and complaint symptoms: Epidemiological study among healthy workers in Kurdistan, Iraq (ESHWKI). *Journal of Chinese Clinical Medicine*. 2011;6(2).
23. Saitto C, Ancona C, Fusco D, et al. Outcome of patients with cardiac diseases admitted to coronary care units: a report from Lazio, Italy. *Medical care*. 2004;42(2):147-54.
24. Zimmermann S, Ruthrof S, Nowak K, et al. Short-term prognosis of contemporary interventional therapy of ST-elevation myocardial infarction: does gender matter? *Clinical research in cardiology*. 2009;98(11):709.
25. Adel SM, Ramezani AA, Hydare A, et al. Gender-related differences of risk factors among patients undergoing coronary artery bypass graft in Ahwaz, Iran. *Saudi medical journal*. 2007;28(11):1686-9.
26. Levi F, Lucchini F, Negri E, et al. Trends in mortality from cardiovascular and cerebrovascular diseases in Europe and other areas of the world. *Heart*. 2002;88(2):119-24.
27. Yaghoubi A, Tabrizi J-S, Mirinazhad M-M, et al. Quality of life in cardiovascular patients in Iran and factors affecting it: A systematic review. *Journal of cardiovascular and thoracic research*. 2012;4(4):95.
28. Lü M, Zhang H, Zhang Z, et al. Measurement of health-related quality of life in coronary heart disease: a review. *Zhong xi yi jie he xue bao= Journal of Chinese integrative medicine*. 2011;9(12):1277-85.
29. Sbruzzi G, Dal Lago P, Ribeiro RA, et al. Inspiratory muscle training and quality of life in patients with heart failure: systematic review of randomized trials. *International journal of cardiology*. 2012;156(1):120-1.
30. Elliott VJ, Rodgers DL, Brett SJ. Systematic review of quality of life and other patient-centred outcomes after cardiac arrest survival. *Resuscitation*. 2011;82(3):247-56.
31. Liu Z, Doan QV, Blumenthal P, et al. A systematic review evaluating health-related quality of life, work impairment, and health-care costs and utilization in abnormal uterine bleeding. *Value in health*. 2007;10(3):183-94.
32. Juenger J, Schellberg D, Kraemer S, et al. Health related quality of life in patients with congestive heart failure: comparison with other chronic diseases and relation to functional variables. *Heart*. 2002;87(3):235-41.
33. Jaarsma T, Halfens R, Huijter Abu-Saad H, et al. Effects of education and support on self-care and resource utilization in patients with heart failure. *European heart journal*. 1999;20(9):673-82.
34. Wielenga RP, Erdman RA, Huisveld IA, et al. Effect of exercise training on quality of life in patients with chronic heart failure. *Journal of psychosomatic research*. 1998;45(5):459-64.
35. Brown N, Melville M, Gray D, et al. Quality of life four years after acute myocardial infarction: short form 36 scores compared with a normal population. *Heart*. 1999;81(4):352-8.
36. Norekvål TM, Wahl AK, Fridlund B, et al. Quality of life in female myocardial infarction survivors: a comparative study with a randomly selected general female population cohort. *Health and Quality of Life Outcomes*. 2007;5(1):58.
37. Veenstra M, Pettersen KI, Rollag A, et al. Association of changes in health-related quality of life in coronary heart disease with coronary procedures and sociodemographic characteristics. *Health and quality of life outcomes*. 2004;2(1):56.
38. Falcoz PE, Chocron S, Laluc F, et al. Gender analysis after elective open heart surgery: a two-year comparative study of quality of life. *The Annals of thoracic surgery*. 2006;81(5):1637-43.
39. Beyranvand M-R, Lorvand A, Parsa SA, et al. The quality of life after first acute myocardial infarction. *Pajoohandeh Journal*. 2011;15(6):264-72.[Persian]
40. Esmaeili Z, Ziabakhsh Tabari S, Vazezzadeh N, et al. Investigation of quality of life after open heart surgery in Sari. *Journal of Mazandaran University of Medical Sciences*. 2007; 17(61):170-4.[Persian]
41. Taghadosi M, Gilasi H. The general and specific quality of life in patients with Ischemia in Kashan. *Iranian Journal of Nursing Research*. 2008; 3(8): 39-46.[Persian].
42. Montazer Ghaem S, Asar O, Safaei N. Assessing patient's quality of life after open hart surgery in Bandar Abbass, Iran. *Bimonthly Journal of Hormozgan University of Medical Sciences*. 2012;15(4):254-9.[Persian]
43. Yousefi P, Sabzevari S, Mohammadalizade S, et al. Study of quality of life in heart failure hospitalized patients in Kerman medical university hospital in 2008. 2011; 6(21): 59-67.[Persian].
44. Shojaei F. Quality of life in patients with heart failure. *Journal of hayat*. 2008; 14(2): 5-13.[Persian]

45. Abedi H, Yasaman AM, Abdeyazdan GH. Quality of life in heart failure patients referred to the Kerman outpatient centers, 2010. *Journal of Shahrekord Uuniversity of Medical Sciences*. 2011; 13(5): 55-63.[Persion].
46. Hatmi Z, Shaterian M, Kazemi MA. Quality of life in patients hospitalized with heart failure: a novel two questionnaire study. *Acta Medica Iranica*. 2007;45(6):493-500.
47. Hsanpour-Dehkordi A, Nazari AA, Heidar-Nejad MS, et al. Factors influencing quality of life in patients with myocardial infraction. *Iran Journal of Nursing*. 2009; 22(57): 43-52.[Persion].
48. Hsanpour-Dehkordi A, Delaram M, Forouzandeh N, et al. A survey on quality of life in patients with myocardial infarction, referred to Shahrekord Hagar hospital in 2005. *Journal of Shahrekord Uuniversity of Medical Sciences*. 2007; 9(3): 78-84.[Persion].
49. Abbasi A, Asayesh H, Hosseini A, et al. The relationship between functional performance in patients with heart failure and quality of life (QOL). *Iranian South Medical Journal*. 2010; 13 (1) :31-40.[Persion].
50. Rahnavard Z, Zolfaghari M, Kazemnejad A, et al. An investigation of quality of life and factors affecting it in the patients with congestive heart failure. *Journal of hayat*. 2006;12(1):77-86.[Persian].