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Quality of life in angina pectoris patients: Assessing with the Seattle Angina Questionnaire (SAQ)

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ABSTRACT

Aims: Angina pectoris with impaired function in bearing activity reduces patients' quality of life of the. Studying specific quality of life is an important measure in impact of disease, treatment and other variables affecting patients' lives. The aim of this study was to determine different dimensions of the specific quality of life of the patients with angina pectoris and its related factors.

Methods: In this study, 200 inpatients or outpatients with angina pectoris referring to two selected educational-treatment centers of Qum were selected via convenience sampling method in 2012. Seattle Angina Questionnaire (SAQ) and demographic Questionnaires were used as data collection tools. Data analysis was done in SPSS 16 software environment by using descriptive statistical, Pearson correlation coefficient, independent t-test, ANOVA and ANCOVA.

Results: The highest and the lowest scores of life quality were related to the treatment satisfaction with mean and standard deviation of 66.34±17.32, and mean and standard deviation of angina stability was 38.92±24.02. There was significant difference between gender, occupation, marital status, number of hospitalizations, CCS classification, angina severity and type of treatment with dimensions of quality of life ($p<0.05$).

Conclusions: Quality of life of the patients with angina pectoris is not appropriate regarding angina stability and disease understanding. It seems necessary to pay more attention to nursing and treatment cares to enhance and improve the quality of life for these patients.

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1. Introduction

Nowadays, cardiovascular diseases are counted as the main cause of death and disability all over the world. Annually about four hundred to five hundred thousand of new cases of angina pectoris are diagnosed in The United States of America and among 9.8 million people suffering from angina; 785 thousand

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myocardial infarction and 470 thousand recurrent coronary attacks are happening [1]; also in Iran, these disease are the main cause of death with 46% of death in 18 cities of the country [2]. Among artery coronary diseases, angina pectoris is the most common one and it includes most cases of admission in the general, surgery and emergency units of the hospital [3]; this disease is determined by the feeling of the chest pain as the result of blood and oxygen supply-demand imbalance following coronary artery stenosis by atherosclerosis [4]. Patients with angina pectoris are suffering from anxiety, fear, and limitations in daily activities and reduced work capacity [5]; in addition, recurrence of angina attacks leads to hospitalization in CCU which makes remarkable economic costs for the country's health system in every time of admission and it is a big stress for the patient [6].

In addition to clinical and economic burden, this disease has threatened patient's related health quality of life and it shows the importance of studying quality of life in these patients. Quality of life is used widely in measuring the outcome of coronary artery disease. Finally what is remained following a medical or surgical treatment for the patient is the best and the most basic measure for judging the amount of the effectiveness of that treatment [7]. There are two methods of general and specific tools available for studying quality of life. Specific questionnaires are tools for studying a group of people with a clear disease that mostly are aimed at clinical course of disease [8]. Among the advantages of this questionnaire, it can be said that since it includes a clear dimension of the disease, answering to that is easy, so the patient doesn't have to do any hard work and the amount of answering to that is high in the researches. In addition specific tools related to specific groups of disease are mostly responsible for main changes of health [9]. Among specific questionnaires, SAQ angina scale is a specific tool for cardiac patients and it is used widely in many researches and it has appropriate validity and reliability [10, 11].

Considering daily increase of angina pectoris and its impacts on patients' lifestyle, studying quality of life of the patients with angina pectoris is very important. There are many studies regarding this issue by the researchers in different countries of the world [12,13,14], but in Iran, there is only one study regarding quality of life of the patients with Ischemic heart disease and it is not possible to compare since the scales of that study are said qualitatively [15]. There are also some studies which assessed patient's quality of life after heart attack and heart surgery by using short form general questionnaire (SF-36) [16,17,18]. It seems necessary to conduct some studies by using specific tools for clarifying different dimensions of quality of life in these patients based on several definitions. Therefore this study had been done with the aim of determining specific quality of life of the patients with angina pectoris and its related factors to be able to improve their quality of life through achieving knowledge regarding these patients' quality of life and performing care program.

$$n = \frac{(z_{1-\alpha/2})^2 p(1-p)}{d^2}$$

2. Methods

The present cross-sectional descriptive-analytic study was conducted in 2012. The study population was patients with angina pectoris hospitalized in Post CCU and outpatients that referred to the clinic of two selected educational-treatment centers of Qum. Sample size was determined 150 people via formula of determining sample size based on the pilot study by considering 48% quality of life, 8% accuracy and 95% test power. Two hundred patients higher than 18 years old were chosen through convenience sampling. Other inclusion criteria included the ability of speaking Persian, passing at least one month of definite diagnosis of the disease, lack of suffering from known

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mental disease and cognitive disorders and satisfaction for participating in the study. After achieving permission from the deputy of research of Shahed Medical Science University and presenting that to the authorities of educational treatment centers the researcher took required permissions for performing the study and after explaining the aims of the study, oral satisfaction for participating in the study was taken from the chosen patients. The questionnaires were anonymous and the information except for being used in the study was kept confidential. Data collection included two parts that were completed by the researcher through interview. The first part which was related to the personal information included social-demographic and economic variables including; age, gender, marital status, residential status, race, religious, education level, economic status, occupation, history of smoking, history of heart disease in the family and the first degree relatives, duration of heart disease, number of hospitalization, history of angiography, angioplasty and cardiac surgery and ejection fraction.

For measuring specific quality of life, SAQ questionnaire was used. This questionnaire includes 19 phrases which measure 5 dimensions of coronary artery diseases: physical constraint (9 phrases), angina stability (1 question), angina severity (2 phrases) treatment satisfaction (4 phrases) and perceiving disease (3 questions).the questions are in 5 and 6 Likert form. Scores on each scale from zero to one hundred vary that zero is the worst and one hundred is the best situation in the considered scale. Reliability and validity of the original version (ten) and also the Persian version of the questionnaire was confirmed with 0.59 to 0.85 Chronbach's alpha and retest reliability coefficient was confirmed 0.90 [11].

Data of this study were analyzed through SPSS 16 software by using descriptive statistic tests and independent t-test, ANOVA, Pearson correlation coefficient and ANCOVA. Significant level was considered less than 0.05 in all the tests.

3. Results

The mean and standard deviation of the patients' age was 59.46±11.24 and 57% of them were women. 87% of the participants were living in the city and 13% of them were living in the country. All the participants were Muslims and Shia. In terms of education, most of the patients (40.5%) were illiterate. Descriptive findings related to personal and disease components are also in (table 1).

The mean and standard deviation of the subscales of the quality of life of the patients with angina pectoris are in table 2. According to the achieved results, patients of the study had the highest score regarding treatment satisfaction (66.34±17.32) and they had the lowest score regarding angina stability (34.92±28.02).

Quality of life based on the peoples' gender was differences and on the whole quality of life of the women was significantly less than men in all the dimensions except treatment satisfaction (table 2).

In terms of marital status, in all the dimensions of the mean except physical constraints and treatment satisfaction, quality of life of the married patients was significantly higher than other cases ($p<0.05$).

Comparing quality of life based on the occupation by using ANOVA test showed that those who were employed had significantly higher quality of life in all the dimensions except treatment satisfaction ($p<0.05$).

Also there was significant relationship between number of hospitalization and all the dimensions of quality of life except physical constraints; patients with less hospitalization times had higher quality of life ($p<0.05$).

Results of the ANCOVA test in assessing relationship between angina severity and quality of life of the patients with angina pectoris after omitting the effect of gender

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variables, marital status, occupation and number of hospitalization showed that quality of life mean score was decreasing significantly in all the dimensions except treatment satisfaction along with increase of the function class (table 3).

In studying relationship of quality of life and type of treatment after omitting the effect of other variables, those who achieved drug treatment had higher quality of life regarding angina stability, and those who had coronary artery bypass (Angioplasty and drug treatment) had better quality of life regarding understanding disease ($p<0.05$) in compare with other treatments.

4. Discussion

Assessing quality of life of the patients of the study showed that among five dimensions of quality of life, the highest score of quality of life was for treatment satisfaction with the mean of 66.34 and the lowest score was for angina stability with the mean of 38.92. There is only one study in Iran that assessed quality of life of the patients with heart ischemic disease but because of inappropriate scoring and presenting the findings in qualitative form instead of quantitative form, comparing is not possible [15].

In the study of Andrell et al., the highest and the lowest score of quality of life in patients with refractory angina were respectively related to treatment satisfaction with the mean of 66.9 and disease understanding with the mean of 46 [19].

Also Wong et al. in their study achieved this result that patient's candidate for angioplasty had less problem regarding treatment satisfaction [20].

High quality of life regarding treatment satisfaction can be due to patients' satisfaction of the provided services. Jackson in his study assessed patients'

Table 1: Demographic and disease features of the samples of the study.

Features		Frequency (percent)
Age 59.46±11.24	44-25	17 (8.5)
	64-45	117 (58.5)
	85-65	66 (33)
Sex	Male	85 (42.5)
	Female	115 (57.5)
Marital status	Married	169 (84.5)
	Single	2 (1)
	Divorced	4 (2)
	Widow or widower	25 (12.5)
Occupation	Housewife	103 (51.5)
	Retired	30 (15)
	Unemployed	37 (18.5)
	Worker	20 (10)
	Employed	8 (4)
	Clergyman	2 (1)
Education level	Illiterate	81 (40.5)
	Primary	64 (32)
	Secondary	23 (11.5)
	High school	25 (12.5)
	University	7 (3.5)
Residential status	Owner	165 (82.5)
	Tenant	35 (17.5)
Living place	City	174 (87)
	Country	26 (13)
Economic status	Adequate	106 (53.5)
	Inadequate	93 (46.5)
Smoking	Yes	18 (9)
	Has left	33 (16.5)
	No	149 (74.5)
Hospitalization times	Less than three times	170 (85)
	More than three times	30 (15)
function class	I	59 (29.5)
	II	89 (44.5)
	III	50 (25)
	IV	2 (1)
History of blood pressure		103 (51.5)
History of diabetes		78 (39)
History of hyperlipidemia		95 (47.5)
Family history of heart disease		81 (40.5)
History of angiography		124 (62.3)
History of angioplasty		32 (16)
History of cardiac surgery		16 (8)
History of myocardial infarction		30 (15)

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Table 2: Comparing dimensions of quality of life based on gender.

Quality of life	(standard deviation) mean	Male (standard deviation) mean n =85	Female (standard deviation) mean n =15	P-value Independent t-test
Physical constraint	52.36(22.02)	60.71(22.39)	46.18(19.92)	p=0.004
Angina stability	34.92(28.02)	40.58(29.11)	29.13(26.26)	0.000
Angina severity	61.75(25.31)	66.82(23.51)	58(26.02)	0.01
Treatment satisfaction	66.34(17.32)	68.23(16.72)	64.94(17.69)	0.18
Perceiving disease	38.92(24.02)	47.05(25.54)	32.91(20.99)	0.000

Table 3: Comparing dimensions of quality of life based on the function class.

Variable	Class 1 M(SD)	Class 2 M(SD)	Class 3 M(SD)	Class 4 M(SD)	*p*-value ANCOVA
Physical constrain	61.43(25.02)	52.7(17.64)	37.62(17.01)	6.94(9.83)	0.000
Angina stability	51.47(20.25)	33.23(25.40)	11.95(20.90)	0(0.0)	0.000
Angina severity	87.05(15.27)	58(19.92)	42.17(20.53)	15(7.07)	0.000
Treatment satisfaction	68.95(15.13)	66.93(19.04)	63.17(18.32)	50(0.0)	0.43
Perceiving disease	54.12(25.53)	36.76(21.25)	25.90(18.69)	29.16(5.89)	0.007 (CCS classification)

Class I, dyspnea or chest pain only with severe activity
Class II, dyspnea or chest pain related to longer or harder activities than the usual ones
Class III, dyspnea or chest pain with the usual daily activities
Class IV, dyspnea or chest pain in resting mode

satisfaction, he states that; doctors and nurses' polite and appropriate behavior does not only provide a background for patients' cooperation and follow-up in every stage of treatment but also it makes the necessary motivation for recommending others [21].

The reason of low stability of the patients of the study is also probably because of recurrent nature of angina and lack of appropriate control of the disease symptoms.

Findings indicate that in all the dimensions of quality of life, women's quality of life is significantly less than men's which is in consistent with the results of the present study [22,23].

Similarly, Pragodpol states female gender as a negative predictor of quality of life in heart patients [24].

Although quality of life of the women in the society is reported less than men [25], about the patients of our study, this difference is clearer. Significant difference of women and men's quality of life is not completely clear [26]. Some researchers believe that demographic factors or different understanding of the women of the disease symptoms and health scales are important in this regard [27] and some believe that; it may be because of depression, ADT Comoros or low social support [28,29,30,31].

In terms of relationship between marital status and quality of life, married patients had high quality of life in all the mean dimensions except physical constraints and treatment satisfaction. Results of the study of Christen et al. also showed that married people have higher quality of life in compare with single patients [32].

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Luttik et al. states that; supporting sources are very important in disease conditions for survival and adaptation; heart patients who are living alone have inappropriate quality of life [33].

Presence of the spouse as a support can be effective in decreasing tension, disability and adaptation with the disease.

Also there was significant relationship between times of hospitalization with all the dimensions of quality of life except physical constraints; it means more times of hospitalization leads to more inappropriate quality of life.

Shojaei has also found significant relationship between these two variables in his research [34].

Janasou et al. states that in patients with low quality of life, risk of repeated hospitalization is higher, since these patients experience more several and severe symptoms over time and hospitalization is more necessary [35].

Results of the study indicate that there was significant relationship between disease severity and all the dimensions of quality of life except treatment satisfaction, in this way that by increasing function class patients' quality of life decreased. Results of the study of Jones et al. showed that there is significant relationship between angina severity and quality of life [36]. Jenier et al. also stated that by increased severity of the disease leads to significant decrease of quality of life [37].

According to the findings of this study in assessing relationship of quality of life and type of treatment, those who achieved drug treatment had higher quality of life in terms of angina stability and those who had coronary artery bypass had better quality of life in terms of perceiving disease in compare with other treatments (angioplasty and drug treatment). Considering sample limitation in angioplasty groups and artery coronary bypass, lack of significant relationship in other dimensions is important. Results of the study of Roumsfold et al. showed that patients undergoing treatment with angioplasty are likely to suffer from angina recurrent and they need to repeat surgery [38].

Also Wong et al. in his study states that; three months after angioplasty, patients suffer from decreased quality of life regarding angina stability [20].

5. Conclusions

Quality of life of the patients with angina pectoris was not in appropriate level in some dimensions. Considering changes in different dimensions of quality of life of this group of the patients, more focus and attention in treatment and nursing cares for improving quality of life of this group of the patients seems necessary. Among the limitations of the study, it can be pointed out to that; this study was done periodically; therefore longitudinal study of the quality of life in the same group of the patients is recommended. Non-random sampling and limited size of the samples also decrease generazibility of the findings and doing this study with higher sample size (heart patients of some cities) can be effective in improving this limitation. There are also many other variables such as; physical activity, social support, anxiety, depression and cardiac symptoms that are not assessed in our study and doing some studies in this regard can provide more comprehensive findings for the researcher. Also it is recommended to conduct intervention studies for improving quality of life of heart patients.

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References

1. Roger VL, Go AS, Lloyd-Jones DM, Benjamin EJ, Berry JD. Heart disease and stroke statistics-2012

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update: a report from the American Heart Association. Circulation. 2012;125(1):2-220.
2. Beyranvand MR, Emami MA, Aliasgari A, Kolahi AA. One-year outcome of patients with acute myocardial infarction. J Teh Univ Heart Ctr. 2007;4:229-32.
3. Kucia AM, Beltrame JF. Presentations of Acute Coronary Syndromes. Blackwell Publishing Ltd.2010.
4. www.heart.org/HEARTORG/Conditions/HeartAttack /SymptomsDiagnosisofHeartAttack/Angina-Pectoris - UCM-437515-Article. JSP. 2012.
5. Mayou R. The patient with angina; symptoms and disability. Postgrad Med J.1973; 49: 250-254.
6. María Dueñas, Alejandro Salazar, Begoña Ojeda and Inmaculada Failde. Health Related Quality of Life in Coronary Patients, Recent Advances in Cardiovascular Risk Factors, Prof. Mahnaz Atiq (Ed.), ISBN: 978-953-51-0321-9, InTech, [Available from: http://www.intechopen.com/books/recent-advances-in-cardiovascularrisk- factors/health-related-quality-of-life-in-coronary-patients]. 2012.
7. Shidfar M.R, Shojaizadeh D, Hosseini M, Assasi N, Majlesi F. [Knowledge, attitude and lifestyle of patients with unstable angina in Mashhad, Iran]. Sci J School Public Health & Institute Public Health Res. 2004;2(3):65-82. [Persian]
8. Yılmaz E, Eser E, Şekuri C, Kültürsay H. The psychometric properties of the Turkish version of Myocardial Infarction Dimensional Assessment Scale (MIDAS). Anadolu Kardiyol Derg. 2011;11(5):386-401.
9. Sayari AA, Gary D, Asadi Lari M. [Evaluation quality of Life, International experiences and the necessity of action in Iran]. Teb va Tazkiyeh. 2001;41:30-5. [Persian]
10. Spertus JA, Winder JA, Dewhurst TA, Deyo RA, Prodzinski J, McDonell M, Fihn SD. Development and evaluation of the Seattle Angina Questionnaire: a new functional status measure for coronary artery disease. J Am Coll Cardiol. 1995;25(2):333-41.
11. Taheri Kharame Z, Heravi-Karimooi M, Rejeh N, Hajizadeh E, Montazeri A [Translation and validation study of the Iranian version of Seattle Angina Questionnaire]. Payesh. 2013;12(1):79-87. [Persian]
12. Borrás X, Garcia-Moll X, Gómez-Doblas JJ, Zapata A, Artigas R. Stable angina in Spain and its impact on quality of life. The AVANCE registry. Rev Esp Cardiol. 2012;65(8):734-41.
13. Bainey KR, Norris CM, Gupta M, Southern D, Galbraith D, Knudtson ML, Graham MM. Altered health status and quality of life in South Asians with coronary artery disease. Am Heart J. 2011;162(3):501-6.
14. Spertus JA, Salisbury AC, Jones PG, Conaway DG, Thompson RC. Predictors of quality-of-life benefit after percutaneous coronary intervention. Circulation. 2004 Dec 21;110(25):3789-94.
15. Taghadosi M, Gilasy HR. The general and specific quality of life in patients with Ischemia in Kashan. IJNR. 2008;3(9):39-46. [Persian]
16. Beyranvand MR, Lorvand A, Alipour Parsa S, Motamedi MR, Kolahi AA. The quality of life after first acute myocardial infarction. 2011;15(6):264-72. [Persian]
17. Hayes DK, Greenlund KJ, Denny CH, Neyer JR, Croft JB, Keenan NL. Racial/ethnic and socioeconomic disparities in health-related quality of life among people with coronary heart disease, 2007. Prev Chronic Dis. 2011;8(4):1-12.
18. Babaee J, Keshavarz M, Haidarnia A, Shayegan M. Effect of a Health education Program on quality of life in patients undergoing coronary artery bypass surgery. Acta Media Iranica. 2007;45(1):69-74. [Persian]
19. Andréll P, Ekre O, Grip L, Währborg P, Albertsson P, Eliasson T, Jeppsson A, Mannheimer C. Fatality, morbidity and quality of life in patients with refractory angina pectorisInt J Cardiol. 2011;147(3):377-82.
20. Wong MS, Chair SY. Changes in health-related quality of life following percutaneous coronary intervention: a longitudinal study. Int J Nurs Stud. 2007;44(8):1334-42.
21. Jackson JL, Chamberlin J, Kroenke K. Predictors of patient satisfaction. Soc Sci Med. 2001;52(4):609-20.
22. Urizar GG, Sears SF. Psychosocial and cultural influences on cardiovascular health and quality of life among Hispanic cardiac patients in South Florida. J Behav Med. 2006;29(3):255-68.
23. Jamieson M, Wilcox S, Webster W, Blackhurst D, Valois RF, Durstine L. Factors influencing health-related quality of life in cardiac rehabilitation patients. Prog Cardiovasc Nurs. 2002;17(3):124-31.
24. Pragodpol P, Ryan C. Critical review of factors predicting health-related quality of life in newly diagnosed coronary artery disease patients. J Cardiovasc Nurs. 2013;28(3):277-84.
25. Montazeri A, Goshtasebi A, Vahdaninia M, et al. The short form health survey (SF-36): translation and validation study of the Iranian version. Qual Life Res. 2005;14(3):875-82.
26. Van Jaarsveld C, Sanderman R, Ranchor A, Ormel J, van Veldhuisen D, Kempen G: Gender-specific changes in quality of life following cardiovascular disease: a prospective study. J Clin Epidemiol. 2002; 55(11):1105-12.

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27. Dueñas M, Ramirez C, Arana R, Failde I. Gender differences and determinants of health related quality of life in coronary patients: a follow-up study. BMC Cardiovasc Disord. 2011;11(24):1-11.
28. Brink E, Grankvist G, Karlson BW, Hallberg LR: Health-related quality of life in women and men one year after acute myocardial infarction. Qual Life Res. 2005;14(3):749-57.
29. Lane D, Carroll D, Ring C, Beevers DG, Lip GY: Mortality and quality of life12 months after myocardial infarction: effects of depression and anxiety. Psychosom Med. 2001;63(2):221-30.
30. Norris CM, Spertus JA, Jensen L, Johnson J, Hegadoren KM, Ghali WA. Sex and gender discrepancies in health-related quality of life outcomes among patients with established coronary artery disease. Circ Cardiovasc Qual Outcomes. 2008;1(2):123-30.
31. Emery CF, Frid DJ, Engebretson TO, Alonzo AA, Fish A, Ferketich AK, Reynolds NR, Dujardin JP, Homan JE, Stern SL: Gender differences in quality of life among cardiac patients. Psychosom Med. 2004; 66(2):190-7.
32. Christian A, Cheema AF, Smith SC, Mosca L. Predictors of quality of life among women with coronary heart disease. Qual Life Res. 2007;16(3):363-73.
33. Luttik ML, Jaarsma T, Veeger NJ, van Veldhuisen DJ. For better and for worse: Quality of life impaired in HF patients as well as in their partners. Eur J Cardiovasc Nurs. 2005;4(1):11-4.
34. Shojaei F. [Quality of Life in Patients with Heart Failure]. Hayat, Journal of Faculty of Nursing and Midwifery, Tehran University of Medical Sciences. 2008;14(2):5-13. [Persian]
35. Johansson P, Dahlström U, Broström A. Factors and interventions influencing health-related quality of life in patients with heart failure: a review of the literature. Eur J Cardiovasc Nurs. 2006;5(1):5-15.
36. Lloyd-Jones D, Adams RJ, Brown TM, et al. Heart disease and stroke statistics-V2010 update. A report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. 2010.
37. uenger J, Schellbery D, Kraemer S, Haunstetter A. Health related quality of life in patients with conestive heart failure: comparison with other chronic diseases and relation to functional variables. Heart. 2002;87(3):235-41.
38. Rumsfeld JS, Magid DJ, Plomondon ME, Sacks J, Henderson W, Hlatky M, Sethi G, Morrison DA. Heart-Related Quality of life after percutaneous coronary Intervention Versus CABB in high-Risk Patient with medically Refractory Ischemia. JACC 2003;41(10):1732-8.

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