HEALTH RELATED QUALITY OF LIFE IN PATIENTS WITH CORONARY DISEASE: PSYCHOLOGICAL AND SOCIO-DEMOGRAPHICAL DETERMINANTS

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ABSTRACT

Purpose: Coronary heart disease is the universal principal cause for decreased quality of life, morbidity, and mortality in adulthood. This study seeks to indicate the psychological and socio-demographical determinants of the health related quality of life in patients with coronary disease in Tetovo.

Methodology: The research instrument used consists of socio-demographic questions and four tests: Cohen's stress measurement questionnaire, Beck's depression measurement questionnaire, Beck's anxiety measurement questionnaire and the quality of life measurement questionnaire (WHOQOL-Breef). The sample of the study consists of N=100, including patients with heart coronary diseases treated in Clinical Hospital in Tetovo.

Results: Findings revealed that psychological variables (stress, depression and anxiety) indicates significant negative correlations with quality of life and its dimension. In terms of demographic variables, duration of disease is in significant correlation with QOL and psychological variables, type of duration is in significant correlation with QOL, age is in negative significant correlation with stress and QOL. There was no significant role at prediction of health related quality of life in terms of patient's age, gender, residence, employed, education and marital status.

Conclusion: It concluded that duration of disease, the oldest age, decreased psychological well-being, higher psychological distress might make patients with coronary heart disease more prone to decreased health related quality of life.

Keywords: Coronary disease, quality of life, stress, depression and anxiety.

INTRODUCTION

According to the data of Institute for Public Health (2015), from all chronic diseases in the country, the largest share take people with coronary disease (93 833). Coronary heart disease (CHD) is the most common cause of morbidity and death worldwide (Duenas et all, 2011). Diagnosis with a coronary disease can deeply impact the person and his family. Changes arising from the disease can affect the quality of life of the individual, affecting the way he chooses to face the situation. The disease causes changes in personality, its social and family environment and views for the future. Very often, adaptation to the disease is difficult to achieve. Studies show that it takes at least a year to overcome the idea and the presence of the disease, which causes changes in the emotional state and behavior of the person, indicating symptoms of anxiety, depression and influence how this person will face the disease (Morris, 2008).

The homeostasis theory assumes that the impact of disease on the quality of life on a patient it's not very dominant if the disease itself doesn't last long and it is difficult to cure, but in the

case of chronic diseases and diseases with heavy pain, a non proper psychological management it can disequilibrate and reduce opportunities for a quality life (Cummins, 1995 to 2003). Thus, a more accurate observation of emotional reactions at chronic diseases should be conducted, in order to understand what kind of emotions are experienced. Based on studies of Joki-Begi, Tadinac, Lauri Korajlija and Hromatko (2004), in which was reported stress, depression and anxiety, can be assumed that those are the factors that affect the quality of life, even though it's outlined the: purpose of the study, analysis of the relationship between stress, depression, anxiety and quality of life in patients with coronary diseases and those with diabetes; and the question of whether there are differences in the level of stress, depression, anxiety and quality of life of both groups with relevant diseases.

METHODOLOGY

The aim of this study is to recognize the quality of life on patients with coronary disease under the influence of stress, depression and anxiety. The logic of this study is based on the fact that during coexistence with a coronary disease, patients very often psychologically can not manage the disease, and thus tend to have stress, depression and anxiety, which reduces their life quality.

The world literature counts a number of studies that have analyzed the psychological aspects and the quality of life on patients with chronic diseases (Dickrns, McGowen, Percival, 2006; Durmaz, Odzemir, Akyunak, 2009; Paile, Wahlbeck, Eriksson, 2007; Lewko, Misiak, 2015), while similar studies are not found in Tetovo area and nationwide. Due to this incentive, this study will be one of the first studies for the corresponding area.

The dependent variable in this study is the quality of life and its dimensions: physical health, mental health, social relations and the environment. Independent variables are divided into two categories in general demographic characteristics and psychological constructs. General demographic characteristics include the following variables: gender, age, residence, employment, education, economic status, marital status, duration of disease and the type of disease. On the other hand, psychological constructs analysis include: stress, depression and anxiety.

Inclusion and exclusion criteria
An important issue on the selection of the sample for this study was to define the diagnosis by medical specialists in the field of cardiology.

Inclusion criteria
The participation criteria on the study, were as follows;The patient has to be from Tetovo and its area (Tetovo's villages);Have a concrete diagnosis from a medical specialist of the field; On age between 30 to 70 years; Patients which have experienced myocardial infarction for the first time; Patients with disease duration up to 5 years; Patients with a single diagnosis, non comorbid diagnosis of diseases;

Exclusion criteria
A criteria for exclusion from this study was the duration of the disease and its type. Excluded from the research were patients with other types of coronary disease, beside those with myocardial infarction and angina pectoris. Only these two diseases were selected, because they are more frequent comparing with other types of heart diseases, and their rough symptomatology compared with diseases such as inflammation of the heart muscle (pericarditis), born anomalies of the heart etc.

As regards to the duration of the disease, from the research were excluded patients with disease duration more than 5 years. The duration of disease criteria, was set in conversation with medical specialists which are familliar with the course of disease and prognosis. In order to having a second myocardial infarction and appearance of secondary disease, was set the cohabitation with the disease of 5 years.

Table 1. Demographic data, related to patients suffering from coronary disease

		Frequency	Percentage	Total
Gender	Male/Female	50 / 50	50% / 50%	100%
Age	30-40 / 41-50 51-60 / 61-70	28 / 27 35 / 10	28%/27% 35%/10%	100%
Residency	Country/city	32 / 68	32% / 68%	100%
Civil status	Single/Married/ Divorced/widowed	15 / 75 10 / 0	15% / 75% 10% / 0%	100%
Education	Non-educated/primary school/secondary school/ university/postgraduate	0 / 15 / 54 31 / 0	0% / 15% / 54% 31% / 0%	100%
Employment	Yes/No	55 / 45	55% / 45%	100%
Economic class	Low/Middle /High	14 / 72 / 14	14% / 72% / 14%	100%
Disease duration	Up to 6 months/6 m.-1yr. /1 yr. -5 yr.	54 / 33 / 13	54% / 33% /13%	100%
Disease type	Miocardial infarction/ angina pectoris	50 / 50	50% / 50%	100%

Study procedures
The research was conducted at Tetovo's Clinical Hospital, respectively on the relevant ambulances (units) for endocrine and cardiology diseases, within October 2014 until April 2015. Purposeful sample was selected. The entrance at the hospital, and the eased procedures to establish communication with the medical staff, were facilitated by a special permit from the director of the hospital.

Questionnaires were managed by the petitioner, and in a few cases by other interviewers (doctors or nurses) trained in advance by the petitioner. The researchers followed medical visits, a recent work model in hospitals of the Republic of Macedonia, which operates according to the rule "visit date", where patients at first are examined by the primary care provider (PCP) and through the electronic system are directed to a relevant medical

specialist. Afterwards, the system application of Ministry of Health, messages the patients about the date and time of appointment. Thereby, we tried to choose a purposful sample.[1]
Research tools

Cohen's stress perception questionnary
Cohen's stress perception questionnary (PSS, Cohen, Kamarach, Mermelstein, 1983) it is one of the most popular tools for the measurement of psychological stress. It is a self reporting questionnaire, which is scheduled to measure the degree to which each individual estimates stressful situations in his life (Cohen, Janicki, 2007). PPS questionnaire assesses the degree to which the individual believes that his life was unpredictable, uncontrollable and overloaded during the last month. The questionnaire contains 10 questions in total with one answer from the alternatives offered. Questions are coded from 0 (never) to 4 (very often).

Beck's deppression assessment questionnaire (BDI)
This questionnaire was found on 1961, by Aron Beck, and finds an extensive use in the daily work with patients during clinical treatment, as well as in researches of chronic diseases (Beck, Guth, Steer and Ball, 1997 & Steer, Cavalieri, Leonard, Beck, 1999). This questionnaire observes the mood disorders, diminished hope, the feeling of abandonment, guilt feeling, the need for punishment, self-blame, thoughts and suicidal bents, weeping, harassment, breaking relations with others, the negative picture for yourself, inability to work, sleep disruption, decreased appetite, hypochondria and decreased libido. The questionnaire contains 21 questions with four answer responding alternative, scaled from 0 to 3.

Beck's questionnaire for the determination of anxiety (BAI). Beck questionnaire for the determination of anxiety is designed from the same materia, that Beck used to determine the depression scale. At first, the questionnaire was found to serve as a facilitator for the classification of symptoms of anxiety neurosis, but today BAI is used for tracking the changes of anxiety at any stage of the participants (Beck, 1997). It contains 21 data, which cover somatic symptoms (12 questions) and subjective evaluation of anxiety (9 questions).

Bref's questionnaire (World Health Organization Quality of Life - Bref). Bref's questionnaire is a short version of Whoqol's (0-100), a self-guide that contains 26 questions, which evaluate the quality of life in four dimensions/aspects (WHOQOL, 1998):
1.*physical health (7 units)*;2. *mental health (6 units)*;3. *Social relations (3 units)* ;*4. environment (8 units).*

Analysis of credibility
The credibility of a translated questionnaire can be tested by checking the internal consistency and test-retest credibility. Cronbach's alpha or coefficient of credibility, can be used to measure the internal credibility. As a rule, the Cronbach's alpha over 0.70 is considered as an acceptable credibility coefficient.

The higher is alpha or the credibility coefficient, the more reliable is the generated degree. In this study, the questionnaires showed an acceptable internal consistency, because the coefficient of Cronbach's alpha has a minimum value of .841 minimum, and a maximum

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[1]Law on health insurance, official gazette ofRepublic of Macedonia, nr. 25/2000, 96/2000, 113/2004.

value of 943. The value of Cronbach's alpha of all questionnaires is .811, which can be considered as relatively high.

Table 2. *Analysis of credibility*

Questionnaire	Number of questions	Cronbach's alpha
COHEN	10	.841
BDI	21	.943
BAI	21	.926
WHQOL	24	.936
Total analyze	78	.811

Study design
The study was designed as quasi-experimental (almost an experiment), a method of applied research which serves to measure the impact of the independent variable on the dependent variable. The quasi experiment takes place when the researcher does not have full control of the independent variable and the control group is not equivalent to the experimental group (Goodwin, 2010). Quasi experiments are used as one of the most prevalent forms of psychology research (Campbell, 1963).

RESULTS
At 77% of patients with coronary disease were noticed high levels of stress, at 21% moderate level and only in 2% a slight stress, Accentuated levels of depression are found at 40% of patients, while high levels are found at 41% and at 3% light level of depression, 2% of pattients werw in normal state (wihtout depression). High anxiety levels are found in 76% of patients and only 3% noticed light levels. 58 % of patients with coronary disease self-reported moderated quality of life, 2% lower life quality and 39% ranked on good quality of life.

Table 3. Categories of stress, depression, anxiety and quality of life at study group

Stress	Slight	Moderate	High	Total		
Frequency	2	21	77	100		
Percentage	2%	21%	77%	100%		

Depression	Normal state	Light	Moderate	High	Accentuated	Total
Frequency	2	3	14	41	40	100
Percentage	2%	3%	14%	41%	40%	100%

Anxiety	Light	Moderate	High	Total		
Frequency	3	21	76	100		
Percentage	3%	21%	76%	100%		

QOL	Very low	Low	Moderate	Good	Very good	Total
Frequency	0	2	58	39	1	100
Percentage	0%	2%	58%	39%	1%	100%

Correlations analyzed between independent variables (stress, depression and anxiety) and the dependent variable: quality of life along with its dimensions (table 4). Patients with coronary disease resulted with a significant negative correlation between stress and the quality of life (r =.-277, p <005), stress and mental health (r=-228, p<001), stress and social relations (r=290, p<.001), thus a low connection strength is found between stress and the environment (r = 277, p <.001), while there is significant statistical correlation between stress and physical health. The correlative analysis table shows that stress is in positive correlation with mental health (r = .228, p <.005) thus a moderated strength connection is found between stress and social relations (r = 277, p <.001).

Depression indicates significant negative correlations with quality of life (r = -243, p <001), while the connection strength is small. Depression results to have also low significant negative connection with dimensions of quality of life, which means there is a negative relation between depression and physical health (r=-237, p<.005); mental health (r=-225, p<.005); and social relations (r = -232, p <.005). The greater depression is, the lower will be physical health, mental health and social relations.

Anxiety doesn't indicates significant correlation with quality of life (r=-.176, p<0.05), but it is on negative important significance with the physical health (r = - 265, p <.001); and mental health (r = -.224, p <001). In these cases, the connection value is moderated.

Table 4. Correlative relation of stress, depression, anxiety and quality of life at the study grou

	Stress	Depression	Anxiety
Quality of life	-.277*	-.243*	-.176
Physical health	-.067	-.237*	-.265**
Mental health	.-228*	-.225*	-.224**
Social relations	.290**	-.232*	-.183
Enviroment	.277**	-.147	-.171

Correlation relation between demographic variables and study variables at coronary disease patients

We have also analyzed the relationship between independent demographic variables (gender, age, education, residence, employment, economic status, duration of illness and type of illness) and study variables stress, depression, anxiety, quality of life and its dimension. We will interpret the statistically significant correlation founded between these two groups. Of all other demographic variables, stress shows significant correlations with age, the power of the report was average, (r = -315, p<001), where it is observed the youngest age manifests the highest degree of stress, and the duration of the disease (r=-250, p<001) patients diagnosed in the first 6 months of the disease manifest a higher degree of stress. Stress shows a positive correlation with the residence, the power of the report was average (r= 286, p<001), patients living in the city have the highest degree of stress.

 Anxiety shows significant negative correlations only with the duration of the disease (r=-232*, p< 001), the power of the report was average, and with none of the other demographic variables in patients with coronary disease. In patients with coronary disease, depression shows significant correlations with the type of disease, (r = 242, p < 001), and the duration of the disease (r = 243, p<005), with coexistence with the disease the level of depression increasest. The power of the report was small.

Quality of life shows significant negative correlations with ages, the power of the report was average, (r=-361, p<001); the deeper age manifests lower values of the quality of life; the duration of the disease, the power of the report was small (r= -213, p<001), patients living with coronary disease from 1 to 5 years have a lower quality of life; and with type of disease, the power of the report was average (r= - 447, p<001), patients with myocardial infarction manifest lower quality of life. The quality of life shows a positive correlation with the economic status, the power of the ratio was average (r=314, p<001), patients with higher economic status have better life quality.

Table 5. Correlation relation between demographic variables and study variables at coronary heart disease patients

	Stress	Depression	Anxiety	Quality Of Life
Gender	.050	.176	.194	-.94
Age	-.327**	-.089	-.109	-.361**
Residence	.275**	.111	-.056	.156
Marital status	-.039	.192	.116	.028
Employed	.066	.100	.136	-.194
Education	.000	-.091	-.050	.195
Economic status	.090	-.138	-.049	.314**
Duration of disease	-.256*	.243*	.-232*	-.213*
Type of disease	.125	.242*	.178	-.470**

Hierarchical linear regression for the study group

In order to examine the influence of study variables on the quality of life in the study group, it is used the regressive hierarchical analysis, modeled in 3 steps. In table 18, at first were grouped   the demographic variables (gender, age, residence, employment, marital status, economic class), the coefficient of the variance explains 40% of the general results in the quality of life, of the demographic variables of great significance is the age ((β=-.301, t=-.201, p< .001), education (β= .271; t=4.785, p<. 001), economic class (β= 266; t=5.238, p< .001) gender (β= -264, t=-4.212, p< .001). At second, besides the demographic variables, in the analysis is also included the variable of disease, in this case the coefficient of the variance explains 57% of the cases, where it can be noticed the highest significance of the disease (β=.430,p< .001), economic class (β=.264; p< .001) age (β=-.206; p< . 001) and gender (β= -198; p <.001) in the quality of life.

At third, were grouped the demographic variables, the variables of disease and was also included stress, depression and anxiety. On the model of regression, the variance explains 67% of cases, where depression has the highest significance (β=-8.361; p < 001), the

economic class continues to remain (β= 4958; p< .001) age (β= -4.594; p< .001) and anxiety (β= -2.413; p< .001).

Table 6. The model of regression with a dependent variable in the quality of life and independent variables at the study group

Model	B	Standard error	Beta	t	Sig.	R/Square
1. (Step 1)	80.380	6.889		11.667	.000	.417
Gender	-6.676	1.532	-.264	-4.212	.000	
Age	-4.957	.823	-.301	-.201	.000	
Residence	-.136	.584	-.083	-1.043	.052	
Marital status	1.753	.601	-.111	-1.344	.050	
Employment	1.868	1.745	.056	1.071	.285	
Education	5.137	1.073	.271	4.785	.000	
Economic Class	7.549	1.441	.266	5.238	.000	
2. (Step 2)	59.788	6.254		9.560	.000	.571
Gender	-6.573	1.316	-.198	-4.993	.000	
Age	-3.382	.724	-.206	-4.672	.000	
Residence	-1.115	1.377	-.032	-.810	.419	
Marital status	-.242	1.418	-.007	-.171	.864	
Employment	.778	1.503	.023	.517	.605	
Education	3.109	.944	.164	3.295	.001	
Economic Class	7.504	1.239	.264	6.058	.000	
Disease	8.756	.857	.430	10.217	.000	
3. (Step 3)	89.521	7.064		12.674	.000	.669
Gender	-1.546	1.306	-.046	-1.183	.238	
Age	-2.978	.648	-1.81	-4.594	.000	
Residence	-.292	1.227	-.008	-.238	.812	
Marital/status	.371	1.256	.030	.521	.603	
Employment	.694	1.333	.021	.521	.603	
Education	1.562	.862	.082	1.813	.071	
Economic Class	6.566	1.123	.196	4.958	.000	
Disease	2.270	1.230	.111	1.846	.066	
Stress	-.103	.115	-.043	-.898	.370	
Depression	-.525	.063	-.418	-8.361	.000	
Anxiety	-.173	.071	-.130	-2.413	.016	

DISCUSSION

The main purpose of this research was to ascertain whether stress, depression, anxiety in the quality of life of coronary disease patients, and we also wanted to see changes in the presence

of stress, depression, anxiety, and quality of life in comparison with gender, age, residence, civil status, degree of education, employment and socio-economic status.

World studies report gender differences at the level of psychological aspects as well as quality of life (Baum dhe Grunberg, 1991), whereas in our study there are no major changes in the male-female relationship with respect to the emotional state of patients with coronary disease. Gender differences in patients with coronary artery disease have not been encountered either by researchers as well De Groot-i, Botsma-i dhe Wall-i (2003).

Mean score of the stress in patients with coronary disease was higher at age 30-40, while anxiety was higher in younger patients. Anxiety in coronary heart disease is associated with the fear of experiencing a new stroke, so it is normal for a young adult to show a higher degree of anxiety over two other group ages. While a lower lifestyle is manifested at age 61-70. A similar result has been achieved by other studies (Wreen et all, 2013).

On the other hand, with the rise of the major period there is also a linear reduction of living satisfaction. But, for this reason, no significant statistical change is present in comparison with the expression of anxiety and depression of respondents with cardiovascular disease (compared to age). Thus, even world studies emphasize the sensitivity of this age to the illness (Zhao, Chen dhe Lin, 2006). This is explained by the fact that coronary disease, although it causes the individual to be afraid, disturbs emotional stability and increases the feeling of loneliness, he is again able to relize his needs. This coincides with Esch's results and collaborators (2002), which in their study confirm that stress with its pato-physiological mechanisms is the most dangerous factor for the occurrence of coronary diseases.

Social capacity is a multi-dimensional term that can be used to describe social interactions between committees within the group. Also, social capacity is supposed to affect health through psycho-social pathways that encourage an individual to adapt to a disaster (Onyx dhe Bullen, 2000). Perhaps this may be a factor in the fact that in patients with coronary illness there is no difference in the manifestation of psychological worries.

There is a clear difference between patients with different levels of education. It is noticed that patients with higher educational levels are better caring for their own health and the psychological management of the disease. Steptoe (2002) and his team, over a three-year period of 1,800 patients, have studied factors that affect mortality after suffering from myocardial infarction. They found that patients with higher educational levels, but with a lower socio-economic status, were more at risk of death than the uneducated. This is explained by the fact that patients with high intellectual capacity, despite inadequate socio-economic conditions, have had a greater inclination to understand their disease and its dangers, and therefore were more vulnerable. But again, the socio-cultural level, education and employment represent a more adequate factor for the occurrence of cardiac syndrome.
There is, however, no significant statistical change regarding stress, anxiety, depression and quality of life in relation to civil status, employment and the level of education of the champion with coronary heart disease. Low economic status is a cause for reducing the quality of life in the sphere of mental health, social interaction and lifestyle

The duration of the disease is an important factor in the psychological aspect of the patients and the quality of their life. Half of patients with coronary heart disease have a duration of up to 6 months. While 33% from 6 months to 1 year. If we analyze the mean scores of stress, depression, anxiety and quality of life, we notice that there are differences in the values of

psychological worries among these categories, and that the onset of the disease is usually associated with more anxiety and stress. But, as can be seen also the period of 6 months to 1 year for patients with coronary disease is of concern. While the period of 1 year to 5 years of life with heart disease is less anxious and more depressing, but with a lower lifestyle quality.

Regarding the duration of coronary illness, what is impressive is the positive correlation between stress and quality of life in the areas of social relations and the environment. The level of stress is higher in patients with coronary heart disease in the first 6 months of the onset of the disease, which is the result of disordered homeostasis. The more that coronary disease lasts, the more the quality of life of our respondents falls (Kristoferzon, Lomfark dhe Carlsson, 2005; Westin, Carlsson dhe Israelsson, 1997). Our study shows the link between the duration of the disease, depression and anxiety and these finds match the global findings (Connerney, Shapiro, McLaughlin, Bagiella dhe Sloan, 2001& Roest, Thombs, Grace, Stewart dhe Abbey, 2011) which means that as long as a patient with heart disease lives, the more depressed it becomes; while the degree of anxiety begins to decline.

CONCLUSIONS

It concluded that duration of disease, the oldest age, decreased psychological well-being, higher psychological distress might make patients with coronary heart disease more prone to decreased health related quality of life.

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