

Health Related Quality of Life in Patients with Coronary Heart Disease: Psychological and Socio-Demographical Determinants

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Article information	Abstract
<p>Article history: Received: 14 July 2013 Accepted: 23 Aug 2013 Available online: 14 Sep 2013 ZJRMS 2014 Oct; 16(Suppl 1): 40-45</p> <p>Keywords: Distress Quality of life Coronary heart disease</p> <p>*Corresponding author at: Department of Clinical Psychology, Semnan University, Semnan, Iran. E-mail: i_rahimian@semnan.ac.ir</p>	<p>Background: 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 heart disease in Iran.</p> <p>Materials and Methods: In this cross-sectional descriptive design, 205 patients with coronary heart disease among the patients diagnosed with coronary heart disease in Shahid Rajayee heart hospital were selected by compliance sampling and were completed the demographical questionnaire, The WHOQOL-BREF, Tehran-Stockholm marital stress scale (TSMSS) and Mental Health Inventory (MHI-38). Then, data analyzed by stepwise multiple regression analysis by using of the PASW-18.</p> <p>Results: Findings revealed that psychological wellbeing and socio-economic status had significantly positive predictive role on health related quality of life and marital stress, psychological distress, and gender had negatively significant predictive role on health related quality of life ($p < 0.001$). There was no significant role at prediction of health related quality of life in terms of patient's age.</p> <p>Conclusion: It concluded that adverse socio-economic status, female gender, decreased psychological well-being, higher psychological distress and higher marital stress might make patients with coronary heart disease more prone to decreased health related quality of life. Thus, it is important to emphasize the worth of tailored intervention for addressing these issues in therapeutic and rehabilitation agendas. Likewise, the identification and treatment of psycho-social correlates in these patients could be very important.</p> <p>Copyright © 2014 Zahedan University of Medical Sciences. All rights reserved.</p>

Introduction

Coronary heart disease (CHD) is the most common cause of morbidity and death worldwide [1, 2]. Correspondingly, cardiovascular diseases are the leading factor of morbidity and mortality in Iran [3]. Despite the fact that there is an inclination to decrease in deaths affected by heart diseases, prevalence of CHD and related complications is still expanding in Iran [4, 5]. Coronary heart disease is connected with poor patient health status and important deterioration of health-related quality of life [6, 7]. Health related quality of life (HRQoL) as a multidimensional construct demonstrates functional dimensions, patient's subjective understanding of his biopsychosocial health status, and productivity affairs [5, 8]. The measurement of the factors influencing the HRQoL may assist us to enhance rehabilitative capacities and to sustain the proper HRQoL in the patients with coronary heart disease [8, 9].

Among these factors, socio-demographic variables associated with the self-reported HRQoL of patients with coronary heart disease [5]. Prior studies have revealed that age and gender are some possible predictors of HRQoL in patients with CHD [2, 10]. Disturbed HRQoL of CHD was increased with older age, was reduced with higher levels of education and income, and was elevated

among women than men [10]. Among patients with CHD, those reporting less proper HRQoL are women, elderly persons with low social support, patients with depression and anxiety, persons living with disparities, single persons, and patients with elevated severity of CHD [11, 12]. On the other hand, one study recently showed that there were no significant differences in HRQoL regarding to gender, age and treatment among patients with coronary diseases [13]. Researches indicated that higher socioeconomic status (SES) leads to improved outcomes in HRQoL after diagnosis by coronary heart disease [14, 15]. Likewise, women with CHD are older, have a costly burden of comorbid diseases and HRQoL is more unfavorable in women than in men [16]. In sum, SES inequalities and socioeconomic disparities and worse income are strongly correlated with HRQoL in CHD patients [17, 18].

In addition, psychological distress and psychopathological co-occurrences is related with unfavorable and deteriorated health related quality of life in CHD patients [19, 20]. Psychosocial factors, social support and psychological distress has important role in HRQoL in patients with heart diseases [21, 22]. Researchers found that familial and marital stress was

going together with the higher risk and the adverse prognosis in coronary disease, so that familial stress deteriorates the HRQoL [23]. Higher emotional wellbeing, low psychological distress and lack of marital stress predict better prognosis and higher HRQoL of heart diseases [24]. It is essential to enhance the understanding of the main socio-demographic and psychological factors in HRQoL in men and women. Therefore, in regard with significance of planning the tailored interventions for patients with coronary artery disease, this study aimed to evaluate the psychological and socio-demographical factors associated with the health related quality of life in patients with coronary heart disease in Iran.

Materials and Methods

The study was planned as a cross-sectional descriptive design. Among the patients diagnosed with coronary heart disease in Shahid Rajayee heart hospital from June 2012 to December 2012 and in the 4 months period, 205 patients with CHD who age ranged from 31 to 62 with mean age of 45.8 ± 7.3 years were selected by compliance sampling and enrolled in the study. The diagnosis was established by cardiologists based on the diagnostic criteria. Interest and active participation in the study and fully completion of scales are including criteria. Also, prior percutaneous coronary intervention such as angioplasty or stenting, first cardiac catheterization and coronary artery bypass surgery outside the prior 6 months was other inclusion criteria. Patients with a history of unstable angina pectoris, severe heart failure and acute myocardial infarction within the previous 6 months, CHD patients with serious accompanied pathologies such as other chronic diseases, morbid obesity, severe anemia or renal failure, present surgical actions during the study and patients who underlying the invasive medical care were excluded from the study. The research design was based on ethical considerations and guidelines of ethics committee. In agreement with research ethics according with the declaration of Helsinki, informed consent has been obtained from the participants.

Participants completed socio-demographical questionnaire, WHOQOL-BREF, Tehran-Stockholm marital stress scale (TSMSS) and Mental Health Inventory (MHI-38). Socio-demographical questionnaire was structured by researchers and used for gathering socio-demographic characteristics of age, gender, socio-economic status, marital status, literacy, living place and financial and occupational status, disease and treatment specific factors (previous hospitalization, onset and duration of disease, hypertension, hyperlipidemia, diabetes mellitus, previous myocardial infarction, kind and dose of medication, previous interventions, diet regimen, and daily dysfunction because of cardiac complaints), and social support systems throughout the disease. Validity of the Socio-demographical questionnaire was confirmed by 5 experts and internal consistency with Cronbach's alpha for this questionnaire was 0.90 in this study. Data about the participants were gathered in face to face method.

The WHOQOL-BREF has 26 items scale on a 5-point Likert, which composed of two the whole aspects about quality of life and health, respectively, and twenty four items relating to 4 domains of physical, psychological, social and environmental quality of life. This instrument is attainable in more than 40 languages such as Persian [25, 26]. The Iranian version of the WHOQOL-BREF demonstrated good discriminate validity, criterion validity and internal consistency [25]. All domains of the WHOQOL-BREF have Cronbach's alpha from 0.76 to 0.82 which are satisfactory [25].

Marital stress was assessed by Tehran-Stockholm Marital Stress Scale (TSMSS) that composed of the quality of the marital relationship such as confidentiality, friendly, loving, problematic relationship, managing of leisure time in home, crisis periods in home and the related factors including poor health, abuse, infidelity, socio-economic problems [27, 28]. Higher score revealing higher marital stress (range 0-30). Marital stress was classified as absent or mild in lowest quartile (scores 0-1) and moderate in 3 upper quartiles (scores >1). Construct validity, test/retest reliability and internal consistency were satisfactory and internal consistency with Cronbach's alpha was adequate ($\alpha=0.77$) [28].

The Mental Health Inventory (MHI-38) has 38-item that including two subscales of psychological distress and psychological well-being [29]. Psychological distress is including three factors about loss of behavioral and emotional control, anxiety, and depression. Psychological well-being is including two factors of emotional ties and general positive affect. Test-retest reliability for psychological distress and psychological wellbeing were 0.87 and 0.89 for the normal group and 0.82 and 0.77 for the patient group in Iranian sample, respectively. Also, internal consistency with the alpha coefficients for psychological distress and psychological well-being were 0.89 and 0.91 for the Iranian normal group and 0.89 and 0.85 for Iranian patients group respectively [30]. Concurrent and discriminate validity of the MHI-38 in accord with the General Health Questionnaire (GHQ) total score was satisfactory [30].

Finally, descriptive statistics (mean and standard deviation, frequency and percent) and multiple linear regression analysis were used in the data statistical analysis by using of the PASW-18 to identify predictors of quality of life in these patients. This statistical analysis is the best method for predictive consideration among several predictors and one continuous criterion variables [31]. *p*-value in a downward direction from 0.05 was stated as significant.

Results

Age range of participants expanded from 31 to 62 years old with mean age of 45.8 ± 7.3 years. Among all participants, 110 (53.6%) patients were male and 95 (46.4%) patients were female. Also, 80 (38.9%) patients have low socio-economic status, 71 (34.6%) patients have moderate socio-economic status, and 54 (26.5%) patients have higher socio-economic status.

Table 1. Correlation matrix and Mean±SD among study variables (N=205)

Variables	1	2	3	4	5	6	7
1. Gender	-						
2. Socio-economic status	-0.23**	-					
3. Age	0.07	-0.37**	-				
4. Psychological wellbeing	0.08	0.16	0.07	-			
5. Psychological distress	-0.16*	-0.13*	0.08	-0.57**	-		
6. Marital stress	0.18*	-0.11*	-0.06	-0.62**	0.56**	-	
7. Health related quality of life	-0.24**	0.18*	0.07	0.55**	-0.31**	-0.64**	-
Mean±SD	-	-	48.10±7.45	28.12±9.11	27.25±8.21	63.28±10.06	68.42±9.14

* $p < 0.01$, ** $p < 0.001$ **Table 2.** Coefficients of the stepwise regression model for prediction of health related quality of life (N=205)

	Variables	B	SE B	β	p-Value
Step 1	Constant	97.32	1.43		
	Marital stress	-0.567	0.026	-0.84	0.001
Step 2	Constant	72.21	2.35		
	Marital stress	-0.412	0.038	-0.62	0.001
	Psychological distress	-0.367	0.069	-0.33	0.01
Step 3	Constant	51.39	4.11		
	Marital stress	-0.402	0.049	-0.48	0.001
	Psychological distress	-0.371	0.054	-0.30	0.01
	Psychological wellbeing	0.352	0.077	0.21	0.05
Step 4	Constant	42.13	4.07		
	Marital stress	-0.316	0.042	-0.48	0.001
	Psychological distress	-0.341	0.058	-0.31	0.01
	Psychological wellbeing	0.407	0.074	0.27	0.05
	Socio-economic Status	1.308	0.319	0.13	0.05
Step 5	Constant	35.89	4.02		
	Marital stress	-0.299	0.041	-0.47	0.001
	Psychological distress	-0.312	0.057	-0.32	0.01
	Psychological wellbeing	0.417	0.077	0.28	0.01
	Socio-economic Status	1.372	0.315	0.19	0.05
	Gender	-1.870	0.867	-0.11	0.05

Initially, preliminary analyses were carried out about violation of the statistical assumptions of normality and homoscedasticity, linearity, multicollinearity and collinearity that findings showed no violation according to these indices. Initially, correlations between variables used in the study were presented in table 1.

In this associations, the Pearson correlation coefficients among age, psychological wellbeing, psychological distress and marital stress with health related quality of life was ($r=0.07$), ($r=0.55$, $p=0.001$), ($r=-0.31$, $p=0.01$) and ($r=-0.64$, $p=0.001$) respectively. Also, biserial correlation between categorical predictor of gender and socio-economic status with health related quality of life by correlation coefficients of -0.23 and 0.18 is statistically significant ($p < 0.01$). Significant predictors come into the stepwise regression model in 5 steps. Marital stress was entered at step 1, explaining 73% of the variance in health related quality of life ($F_{1, 203}=320.31$, $p < 0.001$). In the step 2, marital stress and psychological distress were entered that explaining 77% of the variance of health related quality of life ($F_{2, 202}=267.20$, $p < 0.001$). In the step 3, marital stress, psychological distress and psychological wellbeing were entered that together explaining 80% of the variance of health related quality of life ($F_{3, 201}=201.42$, $p < 0.001$).

Marital stress, psychological distress, psychological wellbeing and socio-economic status were entered in the step 4 that together explaining 81% of the variance of

health related quality of life as a whole ($F_{4, 200}=189.73$, $p < 0.001$). After entry of all significant predictors (marital stress, psychological distress, psychological wellbeing, socio-economic status and gender) at step 5, the total variance of health related quality of life explained by this model as a whole was 84%, $F_{5, 199}=136.23$, $p < 0.001$, R^2 change=0.02, F change $_{5, 199}=4.341$, $p < 0.001$.

Among all variables (6 predictors) that entering the model, the five predictive variables of marital stress, psychological distress, psychological wellbeing, socio-economic status and gender respectively by entering this model significantly predict the quality of life. Amount of $F_{5, 199}$ for step 5 (final model) was 136.23, $p < 0.001$. In this regression model using the stepwise method, R^2 was 0.73, 0.76, 0.79, 0.80, and 0.82 for steps 1, 2, 3, 4 and 5 respectively. Also, $\Delta R^2=0.09$, 0.07, 0.04 and 0.02 for steps 2, 3, 4 and 5 respectively ($p < 0.05$). In this model, the variable of age was be excluded variable and did not significant role in prediction of health related quality of life.

Discussion

The results demonstrate that patients' HRQoL was associated with a variety of socio-demographic and psychological factors. Among these variables, socio-economic status, gender, psychological wellbeing,

psychological distress and marital stress has significant role in prediction of HRQoL in patients with CHD.

Similar to the prior reports [14, 15, 17], socioeconomic status was strictly associated with the HRQoL in these patients. The patients with better socioeconomic status had higher HRQoL scores than those with poorer socioeconomic status. There is some interpretation for these results. Similar to the results from prior reports, psychological distress in these patients after diagnosis and during the reoccurring symptoms are explaining lower HRQoL [21, 24].

Similarly with other researches [24, 32], we discovered that psychological well-being is associated with a higher HRQoL in these patients. It may be arguing that psychological well-being as a positive indicator increased the global HRQoL and is a significant correlate of HRQL for both men and women. Also, it is important to noting that psychological distress were related to depressive feelings that accompanied with decreased psycho-social functions and so related to diminished HRQoL in CHD. On the other hand, perceived lack of well-being was related to state of having a limited life span, decreasing in social functioning and worse HRQoL for patients with CHD.

Finally, in accordance with previous studies [23, 28], marital status extremely is the chief determinant for the HRQoL in patients with coronary heart disease in our research. Also, other studies showed that the patients living alone had worse quality of life scores [15]. As Orth-Gomer et al. reported impaired familial relationship and having difficulty in home works due to marital stress decreased the HRQoL significantly [28]. In the other explanation, marital status independently of gender, age, depression level and beta-blockers was related with lower heart rate variability that in turn associated with HRQoL [33].

Other authors have revealed that gender is the one frequent risk factor for worse HRQoL. It can be suggesting that for females in contrast with male, psychological distress is more characteristic of them [24, 34].

But, interestingly in contrast to numerous previous studies [23, 28], age did not have any significant impact on the HRQoL. In contrast to abundant previous studies reporting that older persons had unfavorable HRQoL [5, 14], age was not a main determinant for HRQoL in these patients in this study. In opposing results, a study by Kramer et al. revealed that older age were main predictor of HRQoL in patients with coronary heart disease [5]. It claimed that age were no significant predictor of HRQoL for this study unlike the other studies, because of restricted age range, lower sample size, cultural differences, methodological difference from the other studies and special study design.

To the better application of our outcomes, the present study is the firstly investigation that seeks to discover the

associations between socio-demographic and psychological correlates with HRQoL in sample of Iranian patients with coronary heart disease. However, the findings of this research should be interpreted from the standpoint of a number of shortcomings.

As a result of study design and sample size, the representativeness of the findings might be limited. In addition, WHOQOL-BREF is a general scale to measure the HRQoL and may have not tailored the domains of HRQoL which is specific to CHD. Therefore, this self-report scale in assessment of HRQoL requires to be administrated with clinical measurement. Because of practical considerations we included patients with a common CHD while incident patients were neglected; this might have impacted the results. Therefore, future researches will disclose the greater realities. Eventually, investigating the factors predicting HRQoL can assist to designing of randomized clinical trials in the direction of improvement of HRQoL in these patients.

According to the results in accordance with bulk of studies, socio-economic status, gender, psychological wellbeing, psychological distress and marital stress has significant role in prediction of HRQoL in patients with CHD. Eventually, we can deduce that adverse socio-economic status, female gender, higher psychological distress, deceased psychological well-being and higher marital stress might make CHD patients more prone to decreased HRQoL. Thus, these factors should be addressed in planning of tailored interventions for improvement of HRQoL in CHD. Also, as an outcome in this study, it is important to emphasize the worth of tailoring the intervention and the components of rehabilitation agendas. Likewise, the identification and treatment of psychological disorders in patients with CHD could be very important.

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

The authors declare no conflict of interest.

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