The Role of Perceived Social Support on Quality of Life in Patients with Cardiovascular Diseases in Iran: A Cross-Sectional Study

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Research

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Abstract

Background: Cardiovascular disease significantly impairs quality of life. Inadequate social support has been associated with poor quality of life in patients with Cardiovascular. The aim of this study was to describe social support and explore its association with quality of life among cardiovascular patients.

Methods: This cross sectional study was conducted in 2020 from September to January. We selected 150 cardiovascular patients through convenience sampling. The structured questionnaires included: the Persian version of the WHOQOL-BREF was used to obtain the necessary data on the quality of life, psychometric evaluation of the interpersonal support evaluation list–short form as well as demographic variables were included in each questionnaire. Hierarchical linear regression models were used to explore the association between perceived social support and quality of life.

Results: The demographic variables were able to predict 12.2% of the variance of quality of life in the first step. In the second step, after adjusting control variables, dimensions of social support the predictability increased to 29% of the variance with the addition of variables. All dimensions of social support, excluding tangible assets support, were significant predictors of quality of life in addition to monthly income status. Self-esteem support (β= 0.387) was the higher level of predictor of quality of life in cardiovascular patients.

Conclusion: Overall, the current study revealed that social support is one of the strategies that cardiovascular patients can utilize to improve their quality of life and overcome their disease. It is possible to say that enhancing social support in patients improves their health and quality of life.

Background

Cardiovascular diseases (CVDs) are the number 1 cause of death globally, taking an estimated 18.6 million lives each year [1]. CVD accounts for 45% of all deaths in Europe and 37% of all deaths in the European Union (EU). Also, it is responsible for the loss of more than 64 million DALYs in Europe (23% of all DALYs lost) and 26 million DALYs in the EU (19%). CVD is estimated to cost the EU economy €210 billion a year [2]. The greatest burden of CVD is in low and middle income countries (LMICs), with approximately >75% of cardiovascular deaths occurring in LMICs [3]. Among the 18.6 million CVD deaths worldwide in 2019, 58% occurred in Asia. This disease was the leading cause of death in Asia in 2019, causing 10.8 million deaths, which were approximately 35% of the total deaths in Asia [4]. In Iran, CVD is the first leading cause of mortality and a million disability adjusted life years (DALYs) led to 46% of all deaths and 20%-23% of the burden of disease in Iran [5].

Current global health policy goals include a 25% reduction in premature mortality from non-communicable diseases by 2025 [6].While current strategies for the management of patients with CVD are designed to reduce morbidity and prolong survival, treatment should also be focused on improving patient's QOL by reducing their symptoms, optimizing life's daily functions, and overall well-being [7]. Quality of life is an essential part of the evaluation of health status [8].The World Health Organization

defines QOL as ‘a broad ranging concept affected in a complex way by the person’s physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment [9]. cardiovascular disease has negative effect on the quality of life in such patients and effect on all aspects of patients’ lives [10]. Based on the results of studies, coronary heart disease is significantly associated with impaired QoL [11] and QOL is low in patients with CVD [10, 12–14]. There is evidence that supports the variables such as depression [15], readmission [16], lower educational level and being single [17] and multimorbidity [18] effect on QoL in CVD.

One of the factors effected on the quality of life is social support [19]. Social support refers to the various types of free assistance from a social network, which may be formal and/or informal, including emotional, instrumental, informational and appraisal [20]. Social support is one of the most reliable predictors of disease morbidity and mortality [21] that serves as a buffer to prevent or reduce the harmful longer-term health effects associated with encountering undesirable and traumatic events [22]. Absence of social support is a significant risk factors for poor prognosis in cardiac patients and some evidence supports their independence in predicting adverse outcomes [23]. In examination 300,000 participants from around the globe including the United States, Europe, Asia, and Australia, the results shown that social support overall was associated with a 50% increased likelihood of survival (OR = 1.50) [24]. This wealth of literature supports that low social support portends major adverse cardiac events risk and also indicates that social support has a direct effect on QOL [25].

Given the importance of QoL in cardiovascular patients as well as the impact of social support on QoL, in the current study, the association between Quality of Life and Perceived Social Support among CVDs patients was examined using cross-sectional data.

Methods

This analytical cross sectional study was conducted in 2020. We aimed to investigate associations between QoL and PSS in patients with cardiovascular diseases. The study population was Cardiovascular Patients in Emam Khomeini Hospital of Sarab, Iran. We selected 150 cardiovascular patients through census sampling. Inclusion criteria were the physically and mentally able to participate in the study, and agreement to participate in the study.

In the case of accepting the invitation, the participants were set an appointment in Emam Khomeini hospital. At the beginning of the appointments, the participants were informed about the aim of the study and assured on the confidentiality of data, and finally, all signed a consent form Informed. At the time of appointments, the trained interviewer referred to the hospital and collected data at hospital and those who were illiterate were assisted in completing the questionnaire. In addition, participants were free to withdraw or remain in the study during data collection. Data collection was conducted from September to January.

Measures

Socio-demographic and Health-related Variables

The participants' socio-demographic characteristics, namely, age (<50 years and ≥50), gender, marital status (married and single/ divorced/ widowed), educational level attained (illiterate, elementary, secondary school, high school, associate & bachelor degree and master of degree and above), employment status (employed, unemployed and self-employment), place of residence (urban or rural), number of family members (<4, 5 to 10 and ≥ 10), the family history of disease (yes, no) and monthly income level (lower than 200 dollars and 200 dollars and higher) were obtained.

World Health Organization's Quality of Life Questionnaire (WHOQOL-BREF)

The Persian version of the WHOQOL-BREF [26] contains 26 items was used to obtain the necessary data on the Quality of Life. The instrument assesses the quality of life in four broad areas, ie physical health (7 items; α = 0.70), psychological health (6 items; α = 0.73), social relationships (3 items; α = 0.55), and the environment (8 items; α = 0.84) with five point Likert-type response options. The overall score value for an individual respondent could range from 26–130, with higher scores indicating a better quality of life.

Perceived Social Support

perceived social support was assessed by interpersonal support evaluation list (ISEL-SF) [27], the psychometric properties of the scales are documented [28]. These four subscales are (a) Appraisal Support, the perceived availability of someone to discuss issues of personal importance, (b) Tangible Assets Support, the perceived availability of material aid, (c) Belonging Support, the perceived availability of others to interact with socially, and (d) Self-Esteem Support, the perceived availability of others with whom on compares favorably. The instrument, a four-point Likert-type scaling (definitely true, probably true, probably false, and definitely false; scored 0-3) was adopted. The overall score value for an individual respondent could range from 0–48, with higher scores indicating greater perceived social support.

Statistical Analysis

We performed all the analyses using SPSS 21 (SPSS Inc, Chicago, IL, USA) and presented the data by mean (SD) and frequency (percent) for quantitative and qualitative variables, respectively. We also used Kolmogorov-Smirnov test for testing the normality.

We applied a hierarchical linear regression analysis in two steps. In the first step, we entered the Socio-demographic variables into the analysis using the enter method and in the second step, we entered the Socio-demographic variables with cognitive factors in the analysis using hierarchical linear regression. We considered the level of significance for entry variables in the hierarchical linear regression model as 0.05.

We also used Independent Samples T-Test, One-way analysis of covariance (ANCOVA), Pearson Correlation and Hierarchical linear regression to assess relationship between Socio-demographic and

Health-related Variables with and Quality of Life and Perceived Social Support.

Results

A total of 150 participants with cardiovascular disease took part in the study. The majority of the study participants were men in their 50s and older. According to the findings, there was statistically a significant association between occupational status, education level, and monthly income status with quality of life. Furthermore, only occupational status and monthly status had a statistically significant association with overall social support among the demographic factors. In Table 1 is showed the details in demographic characteristics and their relationship to quality of life and total social support.

Table 1
Demographic characteristics of the study participant and their association with QOL and total social support

Variables		F (%)	Quality of life	p-value	Total social support	p-value
			Mean ± SD		**Mean ± SD**	
Age groups (years)	**50 >**	50 (33.7)	51.74 ± 7.86	0.141	42.26 ± 5.07	0.226*
	50 ≤	100 (66.9)	49.55 ± 8.85		43.33 ± 5.08	
Gender	**Male**	77 (51.3)	50.59 ± 8.62	0.643	43.49 ± 5.36	0.199*
	Female	73 (48.7)	49.94 ± 8.57		42.75 ± 4.75	
Job	**Employed**	39	54.69 ± 6.50	0.001	41.82 ± 5.27	0.042**
	Unemployed	57	49.24 ± 8.68		42.49 ± 4.67	
	Housewife	54	48.18 ±8.76		44.31 ± 5.15	
Marital status	**Married**	135	50.15 ± 8.52	0.596	43.11 ± 5.07	0.298*
	Single	15	51.40 ± 9.24		41.66 ± 5.20	
Level of education	**Illiterate**	45	48.95 ± 9.31	0.006	43.06 ± 4.72	0.214**
	Under diploma	71	49.15 ± 7.97		43.53 ± 5.39	
	Diploma and higher	34	54.38 ± 7.70		41.67 ± 4.79	
Income (monthly)	**200 dollars**	78	47.62 ± 8.67	0.001	43.87 ± 4.79	0.024*
	200 and higher	72	53.15 ±7.52		42.01 ± 5.24	

*p−value based Independent T−test

**p−value based one−way ANOVA test

In Table 2 is showed the dimensions of social support and quality of life as determined by Pearson correlation test. Assessment support (r= 0.176) and self-esteem support (0.327) had a significant positive

correlation with quality of life, according to this test. The strongest correlation between self-esteem support and quality of life was discovered.

Table 2
Bivariate correlation between social support dimensions, and QOL

Variables	1	2	3	4	5	Mean ± SD
1= Appraisal Support	1					11.40 ± 2.07
2= Tangible Assets Support	0.268*	1				10.01 ± 20.8
3= Belonging Support	0.259**	0.250*	1			11.16 ± 1.66
4= Self-Esteem Support	0.032	0.190*	0.383*	1		10.40 ± 2.03
5= QOL	0.176*	0.085	0.132	0.327*	1	50.28 ± 8.57
*Correlation is significant at the 0.05 level (two-tailed).						

The most important factors and changes in quality of life were predicted using hierarchical linear regression analysis (Table 3). The variables were able to predict 12.2 percent changes in quality of life in the first step, which included all demographic variables. Monthly income status is one of the demographic characteristics that can predict quality of life. In the second step of hierarchical regression analysis, dimensions of social support were included to the model to predict quality of life in addition to demographic variables. The predictability increased to 29% with the addition of variables in this step. All dimensions of social support, excluding Tangible Assets Support, were significant predictors of quality of life in addition to monthly income status. Self-esteem Support (β = 0.387) was the most important predictor of quality of life in cardiovascular patients among these variables.

Table3. Hierarchical linear regression of Quality of life onto demographic variables social support

Step/variables	β** (Step 1)	p-value*	β** (Step 2)	p-value*
(1) Age groups	-0.026	0.778	-0.102	0.240
Gender	0.066	0.447	0.01	0.994
Job	0.147	0.213	0.086	0.441
Marital status	0.020	0.818	0.043	0.595
Level of education	0.013	0.917	0.044	0.693
Income (monthly)	0.251*	0.016	0.221	0.021*
(2) Appraisal Support			0.158	0.041*
Tangible Assets Support			0.042	0.596
Belonging Support			0.261	0.002*
Self-Esteem Support			0.387	0.001*
R^2	0.122	0.004	0.290	0.001*
***p<0.05**				
****β is standardized coefficient**				

Discussion

This study investigated the potential association between quality of life and perceived social support among CVDs patients who referring Emam Khomeini Hospital of Sarab. Findings of regression modeling indicated that monthly income status and all dimensions of social support, excluding tangible assets support, were significant predictors of quality of life. We found that self-esteem support as the most important predictor of quality of life in cardiovascular patients among social support dimensions.

According to the literature, social support has a positive and significant association with the heart patients' quality of life and has better outcomes for them [29–32]. Increasing social support in heart patients can reduce depression, hospitalization, and mortality, as well as increase self-care behaviors, health problems management, and overall quality of life [33, 34]. In fact, heart diseases can lead to a wide range of physiological, psychological, socioeconomic, and familial problems [30, 31].These problems can cause frustration and disappointment and negatively affect the patients' quality of life [30]. Patients who receive adequate social support are better able to overcome these problems and better adapt psychologically to their disease[31]. Helgeson (2003) believes that social support improves mood, encourages people to participate in social activities, increases health behaviors and overall improves quality of life. People on a social network persuade each other for healthy behaviors [35]. High perceived

social support leads to enjoyment of recreational activities, a better feeling of life, and life satisfaction [36].

In the present study, self-esteem support was identified as the strongest predictor of quality of life in CVDs'patients. This result was consistent with Helgeson (2003) and Friedman and King (1994) studies [35, 37]. Esteem support that is also known as emotional support or appraisal support, is the provision of empathy, love, affection, trust, acceptance, intimacy, encouragement, and caring from social support sources such as family and friends. Providing emotional support allows the patients to know that they are valuable to others [38]. As a result, they feel valued, loved, and cared for, and are better able to overcome the outcomes of illness and achieve psychological well-being [32].

Studies that have examined the relationship between demographic characteristics of heart patients and quality of life have found that gender, age, education, marital status, employment status, duration of illness, and frequency of hospitalizations affect patients' quality of life. Among the various factors, our study found an association between occupational status, education level, and income status with patients' quality of life. Heart disease changes a person's life as it increases dependence on others for daily and social activities, and reduces financial worries and job opportunities [30]. Unemployment has been associated with increased CVDs burden [39]. Low income, loss of job, or working days due to illness can create a stressful environment for patients and their families [40]. On the other hand, low income reduces the patient's access to costly medical care or increases receiving lower-quality care, and therefore, these negatively influence health and quality of life [39, 40].

In addition, according to the literature, there is an inverse relationship between educational level and heart disease. Educational levels may affect heart patients' health in several ways. Individuals with low education tend to have an increased number of CVD risk factors such as smoking, obesity, physical inactivity, and hypertension. Researchers also found a strong correlation between education and health literacy as a potential contributor to CVD risk. Individuals with poor health literacy are not more likely to be able to adherence their medications properly and thus experience more problems that may be contributing to adverse their health and quality of life [39].

On the other hand, our results indicated that there is an association between occupational and income status with social support. It's obvious individuals with an occupation have a larger social network and therefore receive more social support [41]. In addition, given that, the economic situation of Iran, it is seems that access to more income and having a stable job that guarantees the living expenses and treatment of the patient increases receiving social support from family, friends and relatives.

Conclusion

We recognized the role of perceived social support on quality of life in patients with cardiovascular diseases. We found monthly income status and dimensions of social support such as appraisal support, belonging support and self-esteem support were significant predictors of quality of life in these group of patients. Meanwhile, self-esteem support was as the most important predictor of quality of life in

cardiovascular patients among social support dimensions. Hence, designing educational programs based on individual factors without addressing social factors can't lead to improving quality of life in patients with cardiovascular diseases. In summary, the perceived social support seemed to be an important external factor in CVD management programs and may reduce the emotional burden of disease and health care costs.

Declarations

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Authors' contributions

Khalil Maleki Chollou and Towhid Babazadeh: conceptualized and designed the study, drafted the initial manuscript. **Saber Ghaffari-fam** carried out the statistical analysis, drafted the initial manuscript, and reviewed the manuscript. **Shayesteh shirzadi**: designed, coordinated, and supervised the statistical analysis and reviewed the manuscript. **Soheila Ranjbaran**: reviewed and revised the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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Availability of data and materials

Data are available upon request to corresponding authors.

Declarations

Ethics approval

Ethical approval for the study was provided by Ethics Committee in Sarab Faculty of Medical Sciences (Ethics Code: IR.SARAB.REC.1399.009).

Competing interests

The authors declare that they have no competing interests.

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