Self–Care and Quality of Life in Patients with Heart Failure

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Abstract: Self-care for those with heart failure (HF) is challenging. Despite predictions that better self-care can positively influence quality of life (QOL), there is a lack of evidence supporting this assumption. Further investigation may help identify those vulnerable to a diminished QOL, due to an inability to incorporate self-care in management of their HF. Therefore, this study aimed to describe the self-care process (e.g., self-care maintenance and self-care management) and examine relationships among demographic characteristics, social support, self-care processes, self-care self-confidence and QOL. In addition, demographic and clinical characteristics, as well as social support, were evaluated for their effects on QOL (disease-specific, physical functioning and mental-emotional functioning).

The sample (n=98), for this cross-sectional cohort study, was recruited from the HF/Transplant Program at Virginia Commonwealth University Health System. Subjects were asked to complete six mailed survey questionnaires including a: 1) Demographic Questionnaire; 2) Charlson Co-morbidity Index; 3) Medical Outcomes Study (MOS) Social Support Survey; 4) Self-Care of HF Index; 5) MOS Short-Form-12 Health Survey; and, 6) Living with HF Questionnaire.

The results revealed: 1) better disease-specific QOL was predicted by being less likely to require self-care management strategies, better self-care self-confidence, lower NYHA functional class and less comorbidity; 2) better physical functioning QOL was predicted by lower NYHA functional class, better self-care maintenance, better self-care self-confidence and being less likely to require self-care management strategies; and, 3) better mental-emotional functioning QOL was predicted by lower NYHA functional class and being male.

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Background

According to the American Heart Association, heart failure (HF) constitutes a major health problem, and is a leading cause of morbidity and mortality.[1] HF is the only major cardiovascular health problem that is increasing in incidence and prevalence, and places a growing burden on the

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health care system, in the USA. Between 1979 and 2005, hospital discharges, in the USA, of those with HF rose from 400,000 to 1,084,000, an increase of 171%.[1] Each readmission for HF costs approximately $8,000, while the overall cost to manage the condition is approximately $34.8 billion per year.[1]

Factors identified as contributing to hospital admission (or re-admission) among this patient population include: demographic characteristics, i.e. age (> 65 years);[2-4] social and behavioral factors, the absence of social support;[5-6] single marital status and lower income;[5-7] comorbidities;[4,8-10] and, troublesome symptoms associated with worsening HF.[2, 10-11] Moreover, symptoms experienced with HF have been found to be associated with diminished quality of life (QOL).[11-13] Using appropriate self-care strategies may prevent frequent hospitalization, reduce morbidity associated with HF and improve QOL among this group.[14] Few studies have provided specific information regarding attributes of HF self-care to incorporate as disease management strategies. Even though investigators have described self-care abilities among individuals with HF,[14-15] findings regarding performance of key attributes of self-care remain inconsistent. This may be due to HF patients' difficulty recognizing changes in their signs and symptoms, keeping appointments[14-15] and taking medication as prescribed.[15-16]

Clearly, self-care for those with HF is challenging. Despite predictions that better self-care can positively influence QOL, there is a lack of evidence supporting this assumption. Further investigation of patient's characteristics and the self-care process influencing QOL, in this population, may target those vulnerable to a poor QOL due to inability to incorporate self-care into their efforts to manage their HF. Therefore, the purpose of this study was to describe the self-care process (e.g., self-care maintenance and self-care management), as well as examine the relationships among demographic characteristics, social support, self-care processes, self-care self confidence and QOL. In addition, demographic and clinical characteristics, as well as social support, were evaluated for their effect on QOL (disease-specific, physical functioning and mental-emotional functioning). The empirical model for this study was based on Riegel's model of self care in heart failure [17] **(see Figure 1)**.

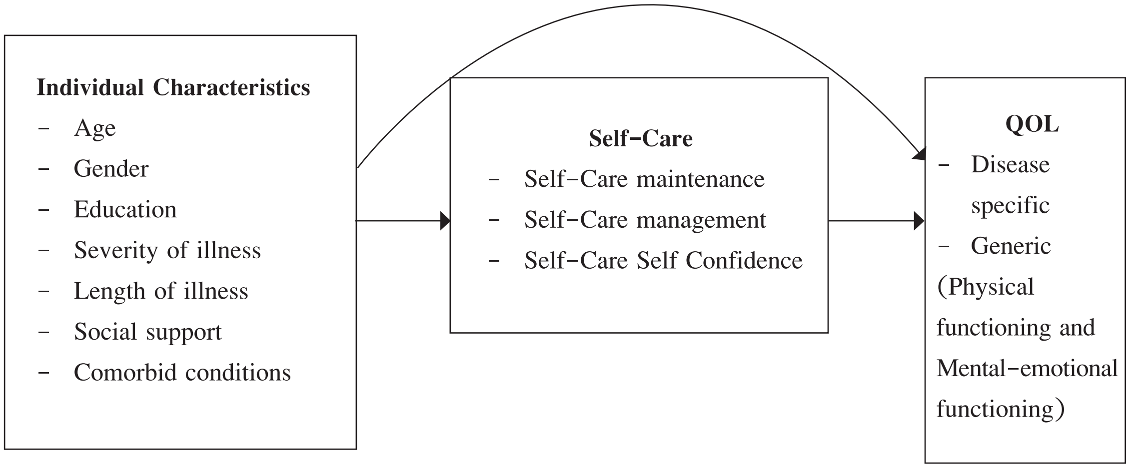

Figure 1 Empirical model of individual characteristics and self-care attributes influencing quality of life

Method

Sample, Design and Setting: The sample (n=98), for this cross-sectional cohort study, was recruited from the Heart Failure/Heart Transplant Program at Virginia Commonwealth University Health System (VCUHS). Prior to implementation, approval to conduct the study was granted by The Virginia Commonwealth University Institutional Review Board (IRB).

The inclusion criteria included individuals who: had been diagnosed with New York Heart Association (NYHA) Class I-IV HF for a period of no less than 3 months; had an ejection fraction of ≤ 40%; we re undergoing medical treatment for HF; were at least 18 years of age; and, could read English. To obtain potential subjects, medical records were reviewed by advanced practice nurses employed in the setting. When a potential subject, who met the inclusion criteria, was found, the name was referred to the investigator. A total of 165 patients were invited to participate

Data Collection Procedure: Using a mailed survey method, data were collected between June 2005 and December 2006. To achieve a higher response rate, Dillman's[18] tailored design method for surveys was used for packet production and survey implementation. Of 165 eligible patients, five declined to participate, 7 deceased, and 23 mailings were undeliverable. Ninety-eight of the remaining 130 returned completed questionnaires (response rate = 75.4%).

Instruments: A total of seven survey instruments were used to obtain data. They included the: Demographic Questionnaire; NYHA Functional Classification of Heart Failure;[19] Charlson Comorbidity Index;[20] Social Support Scale of the Medical Outcomes Study (MOS); [21] Self-Care of Heart Failure Index; [17] Medical Outcomes Study (MOS) Short-Form-12 Health Survey;[22] and, Living with Heart Failure Questionnaire (LHFQ).[23]

The researcher developed the Demographic Questionnaire which obtained data on: age, gender, race/ethnic origin, relationship status, education and approximate yearly household income. It took approximately 1 minute to complete. Participants' clinical characteristics were obtained, by the primary researcher, from their medical records and included their NYHA Functional Classification, ejection fraction and length of illness. The NYHA Functional Classification of HF is based upon a clinical assessment, which assists in evaluating the impact of symptoms on physical activity (Class I [no limitations] through Class IV [symptomatic at rest)].[19]

The Charlson Co-Morbidity Index, developed by Charlson and collegues,[20] is used to identify comorbid conditions. Comorbidity is defined as illness(es) one is diagnosed with in addition to HF. The index uses the number and weighted seriousness of sixteen different reported comorbid conditions of 0 (no comorbid conditions) to 5 (serious or several comorbid conditions), i.e. the weighted seriousness of a malignant tumor is 2 points, while that of serious liver disease is 3. A higher score indicates greater co-morbidity. Reliability of the Charlson Index has been reported to be 0.91,[20] and found, in this study, to be 0.91. It takes approximately 2-3 minutes to complete this self-report questionnaire.

The Social Support Scale of the Medical Outcomes Study (MOS),[21] is a 20-item survey that measures functional dimensions of social support in regards to the emotional (4 items), informational (4 items), tangible (4 items), affectionate (3 items) and positive social interactions (4 items). The respondent is asked in the first item to indicate how many persons are available to provide support for them. The other 19 items are on a five-point Likert-like scale (1 = none of the time; 5 = all of the time) so a respondent can indicate the degree of support provided. For example, tangible support can be estimated by responses to questions about having help if confined to bed or requiring assistance in getting to a doctor's appointment. Informational support can be estimated by responses to questions about having someone to give you information to help you better understand a situation. Subscale scores are calculated by summing responses to the respective questions for each subscale. The total score is calculated by summing responses for all 19 questions, and can range from 19 to 95. Higher scores reflect greater social support. Internal consistency for the overall scale has been reported to be 0.97,[21] with subscale internal consistencies of 0.91to 0.96.[21] The internal consistency reliability of the total scale, in this study, was 0.86. It takes approximately 2 minutes to complete the MOS.

Self-care was measured using the 15-item Self-Care of Heart Failure Index (SCHFI) developed by Riegel and collegues.[17] Self-care is a naturalistic decision making process involving the choice of behaviors that maintain physiologic stability (self-care maintenance) and the response to symptoms when they occur (self-care management).[17] The SCHFI is a well-validated 15-item instrument that includes three discrete subscales, self-care maintenance (5 items) , self-care management (5 items) and self-care self-confidence (5 items), measured on a four-point Likert-type scale. Depending upon the question, possible responses include: never or rarely = 1 to always = 4; not likely = 1 to very likely = 4; not sure = 1 to very sure = 4; not quickly = 1 to very quickly = 4; and, not confident = 1 to extremely confident = 4. Scores for each subscale are calculated by summing responses to the respective questions. Each subscale is standardized on a 0-100 scale for better interpretability, with higher scores indicating better self-care. Total score computation is not recommended. A standardized score of less than 70 on one or more subscales is indicative of poor self-care.[22] In this study, the SCHFI's subscale internal consistency reliabilities: self care maintenance = 0.56; self-care management = 0.70; and, self-care self confidence = 0 .85, were consistent with prior findings.[17] It takes approximately 3 minutes to complete the SCHFI.

Both the MOS Short-Form-12 Health Survey and the Living with Heart Failure Questionnaire commonly are used to measure QOL in heart failure outcomes research.[24] Generic QOL (physical functioning and mental-emotional functioning) was measured through the use of the 12-item Medical Outcomes Study Short-Form-12 Health Survey (SF-12v2) developed by Ware et al.[22] Seven of the items address physical health, while the other five address mental-emotional health. The SF-12 asks for respondents' views regarding their health (how they feel, and how well they are able to do their usual activities). For example, physical functioning is evaluated by responses about how much, in a typical day over the past 4 weeks, one's physical health limited his/her ability to engage in activities such as climbing several flights of stairs, pushing a vacuum cleaner or playing golf. While mental-emotional health can be assessed by questions that ask how one has been over the past 4 weeks, and how much of the time he/she experienced feeling calm and peaceful, having a lot of energy, and being downhearted and blue. Depending upon the question, the possible responses vary.[22] Examples of possible responses include: excellent = 1 to poor = 5; yes, limited a lot = 1 to no, not limited at all = 3; yes = 1 and no = 2; and, all of the time = 1 to none of the time = 6. Total scores for both the physical and the mental-emotional health subscales are determined by summing responses to the respective questions. A total score is obtained by summing responses to all 12 questions. The higher the total score, the better the QOL. The validity and reliability of the SF-12 has been documented in a variety of patient populations, including those with HF.[24-26] In this study, the total score reliability was 0.83, while the physical functioning subscale and the mental-emotional functioning subscale reliabilities were 0.87 and 0.81, respectively. This instrument takes approximately 2 minutes to complete.

The Living with Heart Failure Questionnaire (LHFQ) developed by Rector and Cohn[23] is a 21-item, disease-specific QOL measure that uses a 6-point Likert-like scale (0 = no; 5 = very much). This questionnaire is concerned with how HF has prevented a respondent from living as desired, during the past month, by assessing his/her perception of the influence of HF on physical, socioeconomic and psychological impairments attributed to HF; and, the affect of therapy/treatments being received for HF. For example, one question asks: "Has HF prevented you from living, as you wanted, during the past month by making you: sit or lie down to rest during the day; feel depressed; or, feel you are a burden to your family and friends?" The total score is calculated by summing responses to all 21 questions, and can range from 0 to 105. A lower score reflects better QOL.[23] The internal consistency reliability of the LHFQ, in this study, was 0.93.

Procedure: Once potential subjects were identified, a mailed-survey method was used for data collection. To maximize the response rate, Dillman's tailored design method for surveys was used for packet production and survey implementation.[18] Initially, each potential participant received a letter, from the medical director and nurse coordinator of the transplant unit, which briefly explained the study and introduced the investigators. Two weeks after the mailing of the letter, the investigators sent each potential participant a packet that included a cover letter, a consent form, each of the instruments with instructions for completion, a gift incentive (*Chick-fil-A*® coupon) and two postage-paid return envelopes. The cover letter indicated their decision to participate was voluntary and with minimal risk. If they had questions they were to call the primary researcher at the phone number listed in the letter. To demonstrate agreement to participate, subjects were asked to sign the enclosed consent form and six questionnaires. For confidentiality purposes, subjects were asked to mail the signed consent form to the investigators in one of the two postage-paid envelopes, while returning the completed questionnaires in the other envelope, along with their return address. Upon return of the completed questionnaires, each respondent received $10 as a token of appreciation for participating.

Data Analysis: All variables were summarized, in the descriptive phase, using frequencies and percents for categorical variables and means and standard deviation (SD) for continuous variables. Pearson's product moment correlation coefficient (r) was used to examine relationships among patient characteristics (demographics and clinical characteristics), social support, self-care maintenance, self-care management, self-care self-confidence, and QOL [disease specific and generic (physical functioning and mental-emotional functioning)].

Preliminary analyses were performed according to strategy described by Hosmer and Lemeshow.[27] Initially, relationships among patient characteristics and QOL measures were investigated. Then, relationships between the two self-care strategies and QOL were examined.

A stepwise model building approach, using multiple regression, was applied to examine relationships between self-care strategies, self-care self-confidence and QOL, after co-varying out patient characteristics. The variables found to be significantly related to QOL, during preliminary analysis between covariates and QOL, were entered into the model first. Then the non-significant variables in the model were removed. Finally, self-care maintenance, self-care management and self-care self-confidence were entered into the final model, to test the relationships among the predictors and QOL outcomes. The level of significance was set at $p \leq .05$.

Results

As shown in **Table 1**, the sample consisted of a somewhat equal distribution of middle-aged males and females. More than half were married, had a high school education and an annual income of less than $30,000. According to the NYHA measure, over half of the subjects were functionally impaired (NYHA Class II - IV) and had an ejection fraction ≤ 29%. In addition, approximately 41% had been diagnosed with HF for ≤ 4 years. Although less than one fifth of them only had HF, almost three-quarters had 0-4 comorbidities. Slightly over 70% reported receiving the social support they needed most of the time. Although some subjects (n = 32) reported availability of only a few individuals to provide support, on average,

Table 1 Sample characteristics (n=98)

Variable	Frequency (%)	Mean (S.D.)	Range
Demographics		56.33 (13.65)	27 - 91
Age (years)			
25 - 39	7 (7.1)		
40 - 54	44 (44.9)		
55 - 69	28 (28.6)		
70 - 84	16 (16.3)		
Greater than 84	3 (3.1)		
Gender			
Male	55 (56.1)		
Female	43 (43.9)		
Race			
Caucasian	47 (48.0)		
African-American	45 (45.9)		
Other	5 (5.1)		
Household income ($)			
Less than 10,000	20 (20.4)		
10,001 – 30,000	39 (39.8)		
30,001 – 50,000	16 (16.3)		
50,001 – 70,000	12 (12.2)		
Greater than 70,000	9 (9.2)		
Marital Status			
Never married/Single	15 (15.3)		
Married	54 (55.1)		
Widowed	8 (8.2)		
Separated/Divorced	21 (21.4)		

Table 1 (continued)

Variable	Frequency (%)	Mean (S.D.)	Range
Education			
< high school	16 (16.3)		
High school graduate or GED	71 (72.5)		
> than high school	11 (11.2)		
Clinical Characteristics			
NYHA			
Class I	19 (19.4)		
Class II	57 (58.2)		
Class III	20 (20.4)		
Class IV	2 (2.0)		
Ejection Fraction (%)		25.82 (8.27)	10 - 40
10 - 19	14 (14.3)		
20 - 29	40 (40.8)		
30 - 39	34 (34.7)		
40	10 (10.2)		
Length of illness (years)		5.05 (3.34)	1 - 21
4 or less	40 (40.8)		
5 - 9	52 (53.0)		
10 - 14	3 (3.0)		
15 - 19	1 (1.0)		
Greater than 19	2 (2.0)		
Co-morbid conditions (#)		3.7 (2.62)	1 - 15
Co-morbid categories			
Low (0 - 4)	68 (70.8)		
Moderate (5 - 9)	25 (15.5)		
High (greater than 10)	3 (3.0)		
Co-morbidity by conditions			
Myocardial infarction	46 (46.9%)		
Heart failure ONLY	17 (17.7%)		
Peripheral vascular disease	11 (11.2%)		
Stroke	16 (16.3%)		
COPD	20 (20.4%)		
Ulcers	8 (8.2%)		
Diabetes mellitus	32 (32.6%)		
Renal disease	17 (17.7%)		
Connective tissue disorder	16 (16.3%)		
Cancer	8 (8.2%)		
Social support		71.42 (17.30)	23 - 90
Number of relatives/close friends		9.38 (8.05)	1 - 50

the majority reported having nine relatives and close friends available for support. With respect to gender, race and age, these characteristics were consistent with those reported by the American Heart Association,[1] as well as with findings of prior studies involving patients with HF.[13-15, 28-29]

Descriptive Statistics for Self Care and Quality of Life: Riegel and Dickson[30] suggest a standardized score of self-care of less than 70, on one or more of the three subscales, is reflective of poor self-care. Findings, as shown in **Table 2**, illustrate participants, in this study, reported mean scores of less than 70 on the three subscales, indicating they had poor self-care. With respect to their QOL, they perceived their physical functioning to be fair to good, mental-emotional functioning to be fair to good and HF having minimal effect on their ability to live life as they wanted. In other words, they perceived having a good QOL.

Table 2 Descriptive statistics of self-care and quality of life (n=98)

Variable	Frequency (%)	Mean (S.D.)	Range
Self Care:			
Self care maintenance		69.59 (15.56)	35-100
Self care management		61.69 (19.91)	17-100
Self care self confidence		66.11 (17.02)	25-100
Quality of Life:			
Disease-specific		49.44 (27.82)	0-105
Physical functioning		45.38 (22.47)	6-100
Mental-emotional functioning		53.32 (25.36)	10-100

Relationships among patient characteristics, self-care strategies and self-care self-confidence: In the preliminary analyses, covariates that were significantly related to the dependent variables were retained in the model. Prior to multiple regression analysis, bivariate correlations among patient characteristics, severity of illness, length of illness, social support, co-morbidity conditions, self-care maintenance, self-care management, and self-care self confidence were examined for multicollinearity. None was evident (see **Table 3**).

Predictors of Quality of Life: In terms of the physical functioning aspect of quality of life, severity of illness, self-care maintenance, self-care management and self-care self-confidence together explained 36.1% of the variance (see **Table 4**). The strongest predictor for better physical functioning was found to be decreased severity of illness. In terms of the mental-emotional functioning aspect of QOL, severity of illness and gender (being female) together explained 27.7% of the variance. The strongest predictor of improved mental-emotional functioning was decreased severity of illness (see **Table 5**). Finally, regarding the disease-specific aspect of quality of life, as reflected in **Table 6**, severity of illness, comorbid conditions, self-care management and self-care self confidence together explained 33.4% of the variance. The strongest predictor for improved disease-specific QOL was less use of self-care management strategies aimed at responding to the signs and symptoms of HF.

Table 3 Correlations among Individual Characteristics, Self-care Strategies and Quality of Life (n = 98)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	1												
2 Gender	-.186	1											
3. Education	.247*	-.044	1										
4. Severity of illness	.009	-.155	-.158	1									
5. Length of illness	.156	.011	.088	-.228*	1								
6. Social support	.206*	.056	.072	-.120	.000	1							
7. Comorbid conditions	.057	.064	-203*	.186	-.017	-.060	1						
8. Self-care maintenance	.165	.138	.200*	-.012	-.058	.352**	-.219*	1					
9. Self-care management	-.294**	.296**	-.059	.138	.021	.024	.028	.288**	1				
10. Self-care self confidence	-.042	.060	.003	-.065	.129	283**	.045	.312**	.354**	1			
11. Disease-specific QOL	-.256*	.062	-.131	.322**	-.094	-.208*	.292**	-.119	.284**	-.124	1		
12. Generic QOL: physical functioning	.156	.015	.195	-.377**	.151	.169	-.312**	.223*	-.198	.205*	-.793**	1	
13. Generic QOL: mental-emotional functioning.	.145	-.204*	.050	-.255*	.154	.233*	-280**	.155	-.196	.145	-.750**	.715**	1

*p = 0.05 level (2-tailed); ** p = 0.01 (2-tailed)

Table 4 Multiple regression analysis predicting physical functioning quality of life (n = 98)

Predictor variables	Unstandardized coefficients B	Unstandardized coefficients SE	Standardized coefficients β	*t*	*p*
Severity of illness: NYHA Class	-10.030	2.982	-.309	-3.364	.001
Comorbid conditions	-1.439	.819	-.165	-1.757	.082
Self-care maintenance	.291	.138	.205	2.118	.037
Self-care management	-.417	.819	-.165	-3.395	.000
Self-care self-confidence	.388	.128	.296	3.033	.003

Full model: $F_{(5, 84)} = 9.602$; $R^2 = .361$; $p = 0.001$

Table 5 Multiple regression analysis predicting mental-emotional functioning quality of life (n = 98)

Predictor variables	Unstandardized coefficients B	Unstandardized coefficients SE	Standardized coefficients β	t	p
Social support	.220	.138	.161	1.593	.115
Gender	-9.274	4.594	-.204	-2.019	.047
Severity of illness: NYHA Class	-7.458	3.245	-.229	-2.298	.024
Comorbid conditions	-1.581	.863	-.183	-1.833	.070
Self-care maintenance	.126	.157	.087	.799	.427
Self-care management	-.234	.125	-.208	-1.847	.064
Self-care self-confidence	.244	.145	.178	1.680	.097

Full model: $F_{(7, 83)} = 4.548$; $R^2 = .277$; $p = 0.05$

Table 6 Multiple regression analysis predicting disease-specific quality of life (n = 98)

Predictor variables	Unstandardized coefficients B	Unstandardized coefficients SE	Standardized coefficients β	*t*	*p*
Severity of illness: NYHA	10.049	3.702	.246	2.715	.008
Comorbid conditions	2.571	1.020	.236	2.520	.014
Age	-.371	.197	-.181	-1.886	.063
Self-care maintenance	-.116	.185	-.063	-.626	.533
Self-care management	.454	.150	.320	3.025	.003
Self-care self-confidence	-.422	.164	-.251	-2.569	.012

Full model: $F_{(6, 87)} = 7.269$; $R^2 = .334$; $p = 0.01$

Discussion

Over 58% of the participants were somewhat functionally impaired (NYHA Class II). They were, however, less functionally impaired than subjects in previous studies.[13-14, 29-31] This may be due to the fact that 40.8% of the sample, in this study, had been diagnosed with HF for 4 years or less, and had fewer comorbidities than previously reported. In addition, participants, in this study, reported having less comorbid conditions, than those in other studies.[14] Although the characteristics of the medical regimen were not considered, given the facts that subjects, in this study, were followed at a heart failure/heart transplant center and had less symptom burden, due to having fewer comorbid conditions, may have influenced this finding. Studies controlling for the prescribed medical regimen may provide further insight into this finding.

Self Care: Despite the fact the participants were relatively well-educated and experienced in living with HF, they appeared to have self-care deficits. For example, 79% recognized signs and symptoms of HF they had experienced the previous month, but only 51% quickly responded to them. Although it may be reasonable to expect individuals to respond to cues that suggest deterioration in their health status, some people may not be able to meet this expectation.[32]

Social support is a key determinant in the development of the knowledge, skill and ability to successfully develop and employ self-care strategies.[5-7] The findings of this study suggest participants perceived they had one or more individuals they could count on for support, and reported they usually received the support they needed. Although relationships between social support and disease-specific QOL and mental-emotional functioning QOL suggest individuals with better social support were less affected by their heart failure symptoms and had better mental-emotional functioning QOL, social support was not a predictor of QOL. The effects of social support on self-care were not evaluated. However, Sayers and colleagues[33] suggest the relationship between self-care and social support is important and may explain how social support influences HF outcomes. Recently, Riegel and Dickson[30] described a situation-specific theory of heart failure self-care that suggests social support influences self-confidence and, thereby, improves self-care outcomes. This proposition, as one of four derived from research guided by the *Self-care of Heart Failure* model,[30] appears to require further tested.

Quality of Life: The results suggest participants believed both their physical and mental-emotional functioning QOL was fair to good, and the impact of HF on their daily life was limited. Multiple regression analyses, of predictors of QOL, revealed there were common predictors of these outcomes, as well as some that were unique to specific models.

Improved disease-specific QOL was predicted by the decreased likelihood of use of self-care management strategies, decreased severity of illness, fewer comorbid conditions and better self-care self-confidence. The strongest predictor for improved disease-specific QOL was decreased likelihood of use of self-care management strategies aimed at responses to signs and symptoms of HF (see **Table 4**). Thus, it is not surprising those who were less severely ill (NYHA functional class I or II), as well as those with fewer co-morbid conditions, had improved QOL. These findings are congruent with those of prior studies that have examined the relationship between NYHA functional class and QOL.[34-35]

Less easily explained is the relationship found between QOL and self-care self-management. Findings suggest the participants who were less likely to take additional diuretics, call a nurse or physician for guidance, or reduce their salt intake, had improved disease-specific QOL. Although further exploration of this finding might clarify this interpretation, one can assume they did not need to use these strategies because they experienced fewer symptoms that required decision-making responses. Thus, their HF may have had less of an impact on their QOL.

When considering the self-care process and the impact of HF on QOL, better self-care self-confidence, which is similar to self-efficacy, also was found to have a positive impact on the participants' disease-specific QOL and physical functioning. Self-efficacy has emerged, among various populations, as an important psychosocial attribute in the evaluation of QOL outcomes.[36-38] Prior findings suggest that self-efficacy may be a useful target for improving cardiovascular disease management, found to be related to psychological well-being in both HF and post-myocardial infarction patients, but associated only with QOL among HF patients.[37] In addition, decreases in self-efficacy have been shown to be associated with greater symptom burden, greater physical limitation, worse overall health and worse QOL.[38]

In the disease-specific model, less comorbidities were found to be associated with a decreased impact of HF on participants' daily lives. This finding is congruent with prior findings[34] that reveal those with two or more comorbidities have decreased QOL. Despite the participants' comorbid conditions being negatively correlated with both their physical and mental-emotional functioning QOL, regression analysis revealed their comorbid conditions did not affect their physical or mental-emotional functioning.

Improved physical functioning, a generic attribute of QOL, was predicted by decreased severity of illness, more frequent use of self-care maintenance strategies, less likelihood of using self-care management strategies and better self-care self-confidence. The strongest predictor of improved physical functioning was decreased severity of illness.

The NYHA functional classification of HF categorizes severity of illness based upon the extent of limitations of physical activity experienced that are a result of symptoms. The relationship between severity of illness and physical functioning also has been noted in previous studies of QOL of individuals with HF.[15, 39] Increased physical impairment, determined via use of the SF-36, has been found among individuals determined by NYHA classification to have more severe HF.[39] Similarly, predictors of decreased QOL among females older than 60 years of age, have been shown to include having NYHA functional class III or IV HF, as well as 2 or more comorbidities.[34] Taken together, these findings highlight the impact of illness symptoms on physical functioning, and suggest better symptom management should lead to improved QOL.

Some participants (n = 44) appeared to have difficulty initiating strategies to manage signs and symptoms that suggested exacerbation of their HF. Further exploration may provide insight into reasons for their inability to act and may be related to barriers to self-care not evaluated in this study.

Better mental-emotional functioning was predicted by decreased severity of illness, as well as by gender. The strongest predictor of better mental-emotional functioning was being less severely ill. Although the mental-emotional functioning subscale of the SF-12 (version 2) is not a measure of depression, it helps to characterize the extent to which participants report being downhearted and depressed, as well as the degree to which one's mental-emotional problems have interfered with his/her ability to socialize.[16, 40]

Depression has been found to have comorbidity rates of 15% to 77.5% among those with HF.[16, 40] Findings, in this study, support being male being associated with better mental-emotional functioning, and are consistent with prior findings that suggest women with HF experience poorer QOL than do men with HF.[15, 28-29, 34]

Impaired functional capability was found to negatively impact the mental health or emotional well-being of the women with HF. One may speculate the women not only dealt with HF and other chronic illnesses, but also continued performing activities related to their work in order to earn income, keep up with housework and maintain their role in the family (e.g., wife, mother, grandmother and caregiver). The hardship and complexity of managing their illness along with numerous other responsibilities may have affected their mental health to a greater extent than the men experienced. However, further investigation is needed to determine factors (e.g., role in family) that affect their mental-emotional functioning.

Limitations

A number of limitations must be acknowledged in considering the significance of this study. First, generalizability was limited due to data being gathered from only one setting. Random selection was not used because of the small number of patients eligible to participate in the study. Although the sample size was adequate to measure the study variables, a larger, more diverse sample, from various settings, would have improved the generalizability of the findings. Secondly, QOL was measured only once in a cross-sectional sample. A different perspective might have been obtained through use of serial measurements. Lastly, prescribed medical therapy was not accounted for in this study. Thus, the effect of prescribed medical therapy on the participants' QOL is unknown.

Conclusions and Recommendations

This study explored relationships among individual characteristics, self-care strategies and QOL among individuals with HF, as well as identified predictors of QOL in this population. The findings suggest QOL among those with HF was affected by a number of factors. The participants' disease-specific QOL was affected by their self-care management, self-care self-confidence, severity of illness and comorbid conditions. Their physical functioning QOL was affected by their self-care maintenance, self-care management, self-care self-confidence and severity of illness, while their mental-emotional functioning QOL was affected by their gender and severity of illness. Overall, the results suggest better QOL is influenced by: being male; experiencing less severity of illness; having fewer comorbidities; displaying better performance of self-care activities in order to maintain health (self-care maintenance); being somewhat likely to identify and respond quickly to signs and symptoms of HF (self-care management); and, having confidence in performing self-care strategies.

The outcomes of this study contribute to understanding self-care among those with HF and the influence of self-care behaviors on their QOL. Individuals vulnerable to diminished QOL include: women; those with a higher NYHA functional class of HF (more severe HF) and greater co-morbidity; those who are less confident about their ability to recognize, monitor and manage their heart failure; and, those who do not consistently follow recommendations for maintaining their health status, but need to recognize and intervene due to having symptoms of HF. Based on these results, interventions aimed at reducing the severity of symptoms of HF, as well as improving self-care self-confidence may improve QOL among this population.

Recommendations for future research: Future research may explore different factors that affect self-care decision-making and QOL in patients with HF, i.e. cognitive functioning, level of anxiety, number of medications and complexity of the medication regimen. Study of these variables may help provide a better explanation of QOL in patients with HF. Additional settings, a larger sample size and different instrumentation may be useful in examining the variables' influences on QOL. In addition, further study of factors influencing self-care decision-making and QOL in patients with HF may focus on comparisons between males and females, as well as Caucasians and non-Caucasians. An intervention study targeting significant predictors for QOL also would be useful to investigate how these factors can improve self-care decision-making performance and, thereby, enhance QOL in patients with HF.

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การดูแลตนเองและคุณภาพชีวิตของผู้ป่วยที่มีภาวะหัวใจล้มเหลว

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บทคัดย่อ: การดูแลตนเองเป็นสิ่งท้าทายความสามารถของผู้ป่วยหัวใจล้มเหลว แม้ว่าสามารถทำนายได้ว่าผู้ป่วยที่มีความสามารถในการดูแลตนเองที่ดี จะมีคุณภาพชีวิตที่ดี อย่างไรก็ตามงานวิจัยที่สนับสนุนข้อสรุปนี้มีอยู่จำกัด จึงควรมีการทำวิจัยเพิ่มเติมเพื่อยืนยันข้อสรุปดังกล่าว ดังนั้น การวิจัยนี้มีวัตถุประสงค์ เพื่อศึกษาความสัมพันธ์ระหว่างความสามารถในการดูแลตนเองและคุณภาพชีวิตของผู้ป่วยหัวใจล้มเหลว ตลอดจนศึกษาอำนาจทำนายคุณภาพชีวิตของผู้ป่วยหัวใจล้มเหลว กลุ่มตัวอย่างในการวิจัยแบบพรรณา ครั้งนี้มีจำนวน 98 คน การคัดเลือกกลุ่มตัวอย่างเป็นการเลือกแบบเฉพาะเจาะจง จาก ผู้ป่วยหัวใจล้มเหลวที่มาติดตามการรักษาที่ คลินิกหัวใจล้มเหลว ณ Virginia Commonwealth University Health System เก็บรวบรวมข้อมูลโดยใช้การ ส่งแบบสอบถามทางไปรษณีย์ แบบสอบถาม ประกอบด้วย แบบบันทึกข้อมูลทั่วไป, Charlson Co-morbidity Index, Medical Outcomes Study Social Support Survey, Self-Care of Heart Failure Index, Short-Form-12 Health Survey, และ Minnesota of Living with Heart Failure Questionnaire ผลการวิจัยพบว่า 1) self-care management, self-care self-confidence, สมรรถภาพการทำงานของหัวใจที่ดี และจำนวนโรคประจำตัวน้อย ทำนายคุณภาพชีวิตที่ดีของผู้ป่วยหัวใจล้มเหลว 2) สมรรถภาพการทำงานของหัวใจ, self-care maintenance, self-care self-confidence, และ self-care management ทำนายคุณภาพชีวิตด้านร่างกายที่ดีของผู้ป่วยหัวใจล้มเหลว 3) สมรรถภาพการทำงานของหัวใจ และเพศชาย ทำนายคุณภาพชีวิตด้านจิตสังคมที่ดีของผู้ป่วยหัวใจล้มเหลว

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