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Social Status, Health-Related Quality of Life, and Event-Free Survival in Patients with Heart Failure

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Introduction

Health-related quality of life (HRQOL), morbidity, and mortality are important outcomes in patients with heart failure (HF),¹ and these outcomes are severely affected by HF.^{2–5} Health-related quality of life is defined as patients' subject perceptions about the impact of clinical condition and the treatment on daily living through the impact on physical status and function and emotion.^{6, 7} Health-related quality of life scores in patients with HF were found to be less than one-third of those in individuals without HF.⁵ Patients with HF have high hospitalization and mortality rates. About 43% of patients with HF were readmitted hospitals for cardiac reasons in 90 days,⁸ and about 42% for HF in six months.⁹ In these two studies, the mortality rates were 15% in 90 days and 14% in six months, respectively.

Social status including social support and economic status may be related to HRQOL, mortality, and hospitalization in patients with HF.^{10–12} Social support can be defined as individuals' subjective perceptions about help from significant others or social relationship.^{13, 14} Because patients with HF are asked to follow complicated self-care regimens that include taking a variety of medications, modifying their usual diet, remaining active, and recognizing and managing their symptoms,¹⁵ the availability of social and economic resources is essential. Many patients with HF are elderly, and many have lost a spouse and so do not have spousal social support available.^{12, 16} The relationship between HRQOL and social support has been examined in some studies, but the findings have been inconsistent.^{17–22} The effects of social support on morbidity and mortality have also been examined in some studies, and the findings were inconsistent.^{23–28} One reason for the inconsistency may be that the studies used different instruments.

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Economic status can be an issue among the elderly, and patients with HF report economic hardship because of loss of their jobs and increases in expenses due to the cost of HF medications.²⁹ The impact of economic status, particularly in the context of social status, on HRQOL and clinical outcomes, has been rarely examined in patients with HF.³⁰ Therefore, the purpose of this study was to determine the effects of social status on HRQOL and event-free survival (combined outcome of mortality and hospitalization) in patients with HF. Hypothesis 1 was that higher perceived social support, emotional support, higher economic status, and being married would be related to higher HRQOL after controlling for New York Heart Association (NYHA) functional class, comorbidity status, and age. Hypothesis 2 was that higher perceived social support, emotional support, economic status, and being married would be related to longer event-free survival after controlling for NYHA functional class, comorbidity status, and age.

Methods

Design, sample, and setting

This was a prospective, correlational study. One hundred forty-seven patients with HF were recruited from the outpatient clinics of three hospitals in a Southern city in the United States, using data obtained from the study entitled “mechanisms linking depression with morbidity and mortality in patients with heart failure.” Study methods have been described in detail elsewhere.³¹ Inclusion criteria were: (a) a diagnosis of HF confirmed by medical record review, (b) medical therapy optimized by the patient’s primary provider, and (c) ability to read and speak English. Exclusion criteria were: (a) HF from valvular heart disease or peripartum HF, (b) myocardial infarction or stroke within the 3 months prior to the study, (c) severe cognitive or substance abuse problems, or (d) a coexisting terminal illness.

Measures

Health-Related Quality of Life

Health-related quality of life was defined as a patient’s subjective perception of the impact of a clinical condition or its treatment on the patient’s daily life⁷ and was measured by the Minnesota Living with Heart Failure Questionnaire (LHFQ).⁶ This instrument is commonly used in HF to measure the physical, psychological, and socioeconomic impact of HF on patients’ daily lives.^{6, 32} This instrument consists of 21 items with 6 response options, ranging from 0 (*no impact of HF on HRQOL*) to 5 (*most negative impact of HF on HRQOL*). The total score ranges from 0 to 105, and lower scores mean better HRQOL. The reliability of this instrument^{6, 32, 33} and the construct validity are reported to be acceptable.^{6, 32–34} In the current study, Cronbach’s α was .93.

Event-Free Survival

Event-free survival was defined as the time to the first event (hospitalization or death) from the enrollment date. Data for HF hospitalization were collected by a combination of medical record reviews and patient or family member interviews for an average of 340 days after enrollment. Research associates reviewed medical records to ensure that the data on frequency of hospitalization and reasons for hospitalization were accurate. Even though

hospital records provide the most accurate information about hospitalization, patients might have been admitted to hospitals outside the system, and therefore patients were asked to record all admissions in a hospitalization diary. In addition, a research associate contacted patients or their caregivers every month and obtained information about hospitalization. The research associate was trained to review medical records and interview patients and their caregivers to obtain accurate data.

Cardiac Mortality

Cardiac mortality was defined as death from any cardiac cause. Data for cardiac mortality were collected through a combination of medical record reviews and interviews with patients' health care providers and families. At enrollment, patients were asked to give the research associates contact information for a family member or a close friend to be used if they were unable to be contacted. If we could not contact a patient by telephone, we checked medical records or electronic clinical records to determine if the patient had died. If there was no evidence of the patient's death, the family member or close friend was contacted. Classification of death as cardiac or noncardiac was based on review by a trained member of the research team of all information available from the sources described.

Social Support

In this study, *social support* was operationalized as quality of perceived support, perception of emotional support, and marital status.

Quality of perceived support was defined as patients' subjective perception about the quality of support they received. The following item was used to assess the quality of perceived support: "How would you rate the quality of the support you receive? (The support could be emotional support, information, material help, life errands, etc.)" The response options ranged from 1 (*poor*) to 4 (*very good*). The validity of this instrument was support in a HF study by the significant relationship between social support and self-care.³⁵

Emotional support was defined as patients' subjective perception about emotional support from family, friends, and significant others and was measured using the Multidimensional Scale of Perceived Social Support (MS-PSS).^{13, 36, 37} This measure consists of 12 items rated on a 7-point Likert scale, with responses ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). The possible total score ranges from 12 to 84, and higher scores mean higher level of support. The reliability and construct validity are reported to be acceptable.^{13, 36, 37} Cronbach's alphas for the subscales for family, friends, and significant others in this instrument have ranged were greater than .70.^{13, 38} In the current study, Cronbach's alpha for the total scale was .95.

Marital status was measured using a socio-demographic questionnaire. Patients were divided into two groups: currently married or currently unmarried (divorced, separated, widowed, or single). Marital status has been commonly used to examine the relationship to HRQOL and morbidity and mortality in several HF studies.^{20, 22, 24}

Economic Status

Economic status was defined as patients' subjective perception about whether their income meets their demands. Economic status was measured using a socio-demographic question. The question and response options were: "Considering how well your household lives on its income, financially, would you say you: 1. *are comfortable; have more than enough to make ends meet*; 2. *have enough to make ends meet*; 3. *do not have enough to make ends meet*."

Covariates

NYHA *functional class* and *comorbidity status* were measured using a clinical characteristics questionnaire. NYHA functional class assesses the impact of cardiac disease on patients' daily activities and consists of four classes ranging from I (*no symptoms that have an impact on ordinary daily activities*) to IV (*symptoms occur at rest*).³⁹ Trained research associates measured NYHA functional class through an in-depth interview with patients. The reliability and validity of this interview in patients with HF are acceptable.³⁹ Comorbidity was assessed using the Charlson Comorbidity Index, which was developed to assess the number and the seriousness of comorbidities that may affect the risk of mortality.⁴⁰ Age (years) was assessed using the socio-demographic questionnaire.

Procedures

Appropriate institutional review board approval was obtained. Eligible patients were identified by referral from clinicians at three HF clinics from three hospitals in the Southern United States, and eligibility was confirmed through medical record review by trained nurse research associates. Written, informed consent was obtained from all participants by the investigators or the research associates. Baseline data including HRQOL, social support, functional status, comorbidity status, and age were collected at patients' homes, the clinics, or the general clinical research center of a university-affiliated hospital at enrollment. Rehospitalization and mortality data were collected through medical record reviews and monthly patient or family interviews, and the mean follow-up period was 461 days. The data collection period was from 2004 to 2006.

Data analysis

Data were analyzed using SPSS for Windows (version 17.0, SPSS Inc, Chicago, IL). Descriptive statistics such as means, standard deviations, and percentages were used to describe the demographic and clinical characteristics of the sample. Hierarchical multiple regression analysis was used to test Hypothesis 1, which predicted that higher social support (reflected by perceived support, emotional support, and married status) and higher economic status would be related to better HRQOL. Covariates (NYHA functional class, comorbidity status, and age) were entered in the first block in the analysis; social support variables (marital status, quality of perceived support, and emotional support) were entered in the second block; and economic status was entered in the third block. All categorical variables were dummy coded before the multiple regression analyses were conducted. Survival analyses using Kaplan-Meier and Cox regression methods were used to test Hypothesis 2 that higher social support (reflected by perceived support, emotional support, and marital

status) and higher economic status would be related to longer event-free survival. In the Cox regression analysis, NYHA functional class, comorbidity status, and age were entered in the first block in the analysis; social support variables (marital status, quality of perceived support, and emotional support) were entered the second block; and economic status was entered in the third block. For the categorical variables, simple method was used for contrast. For multivariate analysis, significance was set at $p = .05$, and a two-tailed hypothesis test was used.

Results

Sample Characteristics

The majority of the patients were Caucasian (88.4%) and male (70.1%). About 62% had moderately or severely impaired functional status (NYHA functional class III/IV). Other characteristics are presented in Table 1. Social support status, economic status, HRQOL, and survival status are presented in Table 2.

Impact of Social Support and Economic Status on Health-related Quality of Life

In the hierarchical multiple regression analysis, better functional status, older age, fewer comorbidities, higher quality of perceived support, and better economic status were related to better HRQOL (total) ($F[8,132] = 9.476$, $R^2 = .365$, $p < .001$) (Table 3). Emotional support and being married were not related to HRQOL. Better functional status, fewer comorbidities, and higher quality of perceived support were related to better physical aspect of HRQOL ($F[8,132] = 8.784$, $R^2 = .347$, $p < .001$) (Table 4). Better functional status, older age, fewer comorbidities, and higher quality of perceived support were related to better emotional aspect of HRQOL ($F[8,132] = 6.374$, $R^2 = .279$, $p < .001$) (Table 5).

Impact of Social Support and Economic Status on Event-Free Survival

Figure 1 shows the Kaplan-Meier survival curves for the prediction of event-free survival in the three economic groups: (a) having more than enough to make ends meet (demand < provision), (b) having enough to make ends meet (demand = provision), and (c) not having enough to make ends meet (demand > provision). Higher economic status was related to longer event-free survival. In the survival analyses using multivariate Cox proportional hazards regression analysis, among quality of perceived support, emotional support, marital status, and economic status, only economic status predicted event-free survival after controlling for NYHA functional class, age, and comorbidity ($p = .044$).

Discussion

This study demonstrates the relationship between social status and health outcomes in patients with HF. Patients' perceptions of quality of social support and economic status were related to HRQOL. Only economic status predicted event-free survival after controlling for covariates.

The relationship between economic status and clinical outcomes has been rarely examined in HF. In the largest study to date, Philbin et al.³⁰ analyzed data from 41,776 patients with

HF to determine the relationship between income and clinical outcomes. Patients who lived in lower income residential areas were more often African Americans or women, had more comorbidities, and more often used Medicaid insurance. Among these patients, income was a significant predictor of hospitalization even after controlling for baseline differences and processes of care. In the current study, economic status also predicted event-free survival after controlling for demographic and clinical characteristics and social support. However, how economic status affects clinical outcomes in HF is unclear.

One possible association between economic status and clinical outcomes may be through patients' self-management or health care providers' treatment. In a study of HF,⁴¹ patients in a group at high risk for malnutrition had greater economic difficulties than patients in the no- or low-nutritional risk groups. Blair et al.⁴² reviewed eight clinical studies in which socioeconomic status was examined in HF patients. Lower socioeconomic status was related to more severe illness on admission. In another study of patients with acute myocardial infarction,⁴³ poor patients were less likely to receive treatments such as aspirin or beta-blockers or reperfusion on admission or discharge. Although these studies are suggestive, further studies are needed to determine specifically how economic status affects clinical outcomes.

The findings of previous studies on the relationship between social support and HRQOL in patients with HF are inconsistent. In some previous studies and the current study, perceived social support, changes in social support, and the quality of social support are related to at least some aspects of HRQOL measured by disease-specific instruments. In a pilot study of patients with HF,⁴⁴ social support measured by the Medical Outcomes Study Social Support Survey (MOS-SSS)⁴⁵ was related to the physical aspect of HRQOL measured by a disease-specific instrument. In another study,¹⁷ changes in social support, but not baseline social support, measured by the MOS-SSS predicted changes in HRQOL measured by another disease-specific instrument. However, in other studies,^{22, 44} social support measured by the MOS-SSS was not related to HRQOL measured by a generic instrument. The findings of these studies suggest that the use of different instruments may explain conflicting findings about the relationship between social support and HRQOL.

Social support measured by various instruments was related to clinical outcomes such as hospitalization and mortality in most prior studies. In some studies,^{26–28, 46} different types of social support such as emotional support, social network, living arrangements, and instrumental support predicted hospitalization or mortality in patients with HF. The emotional and instrumental support and social ties were significantly related to fatal and nonfatal cardiovascular outcomes after controlling for demographic and clinical characteristics.²⁶ In this study, emotional support was measured by a single item question and an additional follow-up question if it was necessary, and social ties were measured by marital status, connection with friends and relatives, and membership in religious organizations and voluntary groups. In other studies,^{27, 28} social isolation predicted mortality at 2 and 6 years respectively in patients with HF. Living arrangement was also a strong factor affecting hospitalization in men with HF.⁴⁶ However, in a study,²³ social support measured by the MOS-SSS did not predict hospitalization.

In the current study, none of the social support variables (emotional support as measured by the MS-PSS, perceived quality of support, or marital status) predicted event-free survival. The MS-PSS has been used only rarely to examine the relationship between social support and event-free survival in HF. Perceived quality of support was related to HRQOL but not to event-free survival in the current study. The relationship between social support and clinical outcomes in patients with HF needs to be examined further.

Social support may affect HRQOL and clinical outcomes through its impact on self-care behaviors and emotional well-being. In a meta-analysis,⁴⁷ practical support, family relationships, unidimensional social support, emotional support, living arrangements, and marital status all were related to adherence to treatment regimens. In some other studies,^{48–50} amount of support from family and friends and marital status have been found to be related to adherence. A poor social network has been also reported as a common barrier to medication use.⁵¹

Further studies are needed to determine the most appropriate measures of social support in this population. In previous studies in which the relationship between social support and HRQOL was examined,^{17, 27, 28} several instruments were used to measure social support or HRQOL. Social support including emotional/information support, positive social interactions, affectionate support, and tangible social support were related to the physical subscale score of the LHFQ, but not to the emotional subscale score or the SF-36 score.⁴⁴ In the current study, quality of perceived social support, but not emotional support and marital status, was associated with all aspects of HRQOL including physical and emotional aspects. Thus, attention is needed to patients' perceptions on quality of social support as well as social support itself.

Implications and Recommendations

Further studies are needed to determine which instruments best reflect social support and HRQOL in patients with HF, and whether a causal relationship exists between social support and HRQOL or between economic status and event-free survival. Patients with HF need social support in managing their clinical conditions and daily lives because many of them are elders who live alone, live without a spouse, or with a spouse who also is elderly and also in need of support. Therefore, interventions focusing on social and economic support may be helpful to improve HRQOL and clinical outcomes. The mean age of this sample was relatively young, and younger age was associated with poor HRQOL total and its emotional aspect. Patients with different age groups may need and/or receive different types and levels of social support. Thus, it may be beneficial to study further about types and levels of social support that patients need and receive in different age groups. In addition, researchers and clinicians need to assess how patients perceive the quality of support that they receive and provide interventions to improve patients' perception about quality of support.

Limitations

Caution is necessary in generalizing the results of the current study to patients whose native language is not English, those with substance abuse or cognitive problems, or those whose HF originated from valvular heart disease or in the peripartum period because we excluded

these subgroups of patients. The majority of the subjects were Caucasian, and the mean age was relatively young, and these may limit the generalization of the findings of this study. One more factor limiting the generalization of the findings is that this sample was recruited only from the United States. The nature and impact of social support and economic status on HRQOL and clinical outcomes in different countries may be different. Regardless, the results provide important information for clinicians caring for patients with HF.

Conclusion

Social support and economic status were related to HRQOL in patients with HF; whereas economic status, but not social support, predicted event-free survival. Therefore, attention should be given to those who have lower social support and who have economic difficulties to improve HRQOL and to increase the chances of event-free survival.

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Prediction of Event-Free Survival From Economic Status

Figure 1.
Kaplan-Meier Analysis

Table 1

Sample Characteristics (N = 147)

Characteristics	Mean ($\pm$ SD) or n (%)
Mean age (years)	61.2 ($\pm$ 11.5)
Education level (years)	12.5 ($\pm$ 3.5)
Marital status (% married)	84.0 (57.1)
Living arrangement (% living with someone)	103.0 (70.1)
Gender (% male)	103.0 (70.1)
Ethnicity (% Caucasian)	130.0 (88.4)
Etiology (% ischemic)	87.0 (59.2)
NYHA (%)	
NYHA I	9.0 (6.1)
NYHA II	47.0 (32.0)
NYHA III	69.0 (46.9)
NYHA IV	22.0 (15.0)
Charlson Comorbidity Index score	3.5 ($\pm$ 2.1)
Comorbidity (% having more than heart failure)	127.0 (86.4)
Left Ventricular Ejection Fraction, %	34.6 ($\pm$ 14.0)

Table 2

Social Support, Economic Status, Health-Related Quality of Life, and Event-Free Survival

Variable	Mean ($\pm$ SD) or n (%)
Perceived quality of support	
Very Good, %	68.0 (46.3)
Good, %	40.0 (27.2)
Satisfactory, %	27.0 (18.4)
Poor, %	11.0 (7.5)
Emotional support	65.4 ($\pm$ 19.2)
Economic Status	
Demand < Provision, %	37.0 (25.2)
Demand = Provision, %	75.0 (51.0)
Demand > Provision, %	33.0 (22.4)
Health-related quality of life (total)	43.7 ($\pm$ 24.8)
Physical subscale	19.8 ($\pm$ 11.7)
Emotional subscale	7.6 ($\pm$ 7.3)
Event-free survival, days	340.3 ($\pm$ 286.5)

The total may be not 100% due to missing data. Marital status was not included because it was included in Table 1.

Table 3

Factors Associating With Health-Related Quality of Life (total)

	Variables	Unstandardized Beta	95% confidence interval	R ²	R ² Change	F	P value
Model 1	NYHA functional status (I/II vs. III/IV)	21.59 [†]	14.2, 29.0	.275		17.338	< .001
	Age	-0.56 [*]	-0.88, -0.23				
	Comorbidity	2.19 [*]	0.35, 4.02				
Model 2	NYHA functional status (I/II vs. III/IV)	20.99 [†]	13.81, 28.18	.341	.066 [*]	11.557	< .001
	Age	-0.56 [*]	-0.88, -0.23				
	Comorbidity	2.13 [*]	0.34, 3.92				
	Perceived quality of support ^a	16.68 [*]	6.08, 27.27				
	Emotional support	0.10	-0.17, 0.36				
	Marital status (married vs. not-married)	-4.89	-12.27, 2.50				
Model 3	NYHA functional status (I/II vs. III/IV)	20.21 [†]	13.05, 27.36	.365	.024	9.476	< .001
	Age	-0.42 [*]	-0.77, -0.07				
	Comorbidity	2.28 [*]	0.49, 4.07				
	Perceived quality of support ^a	15.28 [*]	4.73, 25.84				
	Emotional support	0.12	-0.14, 0.38				
	Marital status (married vs. not-married)	-6.31	-13.74, 1.11				
	Economic status (1) ^b	5.35	-3.29, 13.98				
	Economic status (2) ^c	12.57 [*]	1.36, 23.78				

Note.

^a = very good and good vs. satisfactory and poor.

^b = demand < provision and demand > provision vs. demand = provision.

^c = demand = provision and demand < provision vs. demand > provision. NYHA = New York Heart Association

* : p < .05.

†: p < .001.

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Table 4

Factors Associating With Physical Subscale of Health-Related Quality of Life

	Variables	Unstandardized Beta	95% confidence interval	R ²	R ² Change	F	P value
Model 1	NYHA functional status (I/II vs. III/IV)	11.12 [†]	7.64, 14.61	.281		17.875	< .001
	Age	-0.13	-0.28, 0.02				
	Comorbidity	1.07 [*]	0.21, 1.94				
Model 2	NYHA functional status (I/II vs. III/IV)	10.82 [†]	7.40, 14.23	.331	.050 [*]	11.072	< .001
	Age	-0.12	-0.28, 0.04				
	Comorbidity	0.99 [*]	0.14, 1.85				
	Perceived quality of support ^a	6.71 [*]	1.67, 11.75				
	Emotional support	0.02	-0.10, 0.15				
	Marital status (married vs. not-married)	-0.70	-4.22, 2.81				
Model 3	NYHA functional status (I/II vs. III/IV)	10.47 [†]	7.05, 13.90	.347	.016	8.784	< .001
	Age	-0.07	-0.24, 0.10				
	Comorbidity	1.08 [*]	0.22, 1.94				
	Perceived quality of support ^a	6.17 [*]	1.12, 11.22				
	Emotional support	0.03	-0.09, 0.16				
	Marital status (married vs. not-married)	-1.27	-4.82, 2.28				
	Economic status (1) ^b	1.21	-2.92, 5.34				
	Economic status (2) ^c	4.63	-0.74, 10.00				

Note.

^a = very good and good vs. satisfactory and poor.

^b = demand < provision and demand > provision vs. demand = provision.

^c = demand = provision and demand < provision vs. demand > provision. NYHA = New York Heart Association

* : p < .05.

[†] : p < .001.

Table 5

Factors Associating With Emotional Subscale of Health-Related Quality of Life

	Variables	Unstandardized Beta	95% confidence interval	R ²	R ² Change	F	P value
Model 1	NYHA functional status (I/II vs. III/IV)	4.05*	1.76, 6.34	.210		12.161	< .001
	Age	-0.24 [†]	-0.34, -0.14				
	Comorbidity	0.54	-0.02, 1.11				
Model 2	NYHA functional status (I/II vs. III/IV)	3.87*	1.63, 6.12	.266	.056*	8.105	< .001
	Age	-0.24 [†]	-0.34, -0.13				
	Comorbidity	0.54	-0.02, 1.09				
	Perceived quality of support ^d	4.27*	0.96, 7.58				
	Emotional support	0.02	-0.06, 0.10				
	Marital status (married vs. not-married)	-1.68	-3.99, 0.62				
Model 3	NYHA functional status (I/II vs. III/IV)	3.70*	1.44, 5.95	.279	.012	6.374	< .001
	Age	-0.21 [†]	-0.32, -0.10				
	Comorbidity	0.57*	0.01, 1.14				
	Perceived quality of support ^d	3.97*	0.64, 7.30				
	Emotional support	0.02	-0.06, 0.10				
	Marital status ^b	-1.99	-4.34, 0.35				
	Economic status (1) ^c	0.99	-1.74, 3.71				
	Economic status (2) ^d	2.66	-0.88, 6.20				

Note.

^a = very good and good vs. satisfactory and poor.

^b = currently married vs. currently not married.

^c = demand < provision and demand > provision vs. demand = provision.

^d = demand = provision and demand < provision vs. demand > provision. NYHA = New York Heart Association

* : p < .05.

*: $p < .001$

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Table 6

Cox Regression Analysis: Factors Affecting Event-free Survival

	Variables	Odds Ratio	95% confidence interval	p value	Overall χ^2	p value	Change in χ^2	p value
Model 1	NYHA functional status (I/II vs. III/IV)	0.62	0.28, 1.35	.226	1.585	.663		
	Comorbidity	1.00	0.84, 1.19	.978				
	Age	1.00	0.96, 1.03	.752				
Model 2	NYHA functional status (I/II vs. III/IV)	0.67	0.30, 1.47	.313	7.692	.262	5.811	.121
	Comorbidity	0.96	0.80, 1.16	.684				
	Age	1.00	0.97, 1.04	.981				
	Perceived quality of support ^a	1.26	0.45, 3.49	.659				
	Emotional support	0.99	0.97, 1.02	.522				
	Marital status ^b	0.45	0.21, 0.97	.042				
Model 3	NYHA functional status (I/II vs. III/IV)	0.69	0.31, 1.50	.346	15.135	.057	6.235	.044
	Comorbidity	1.00	0.84, 1.21	.964				
	Age	1.02	0.98, 1.06	.428				
	Perceived quality of support ^a	1.22	0.44, 3.36	.703				
	Emotional support	1.00	0.98, 1.02	.953				
	Marital status ^b	0.55	0.25, 1.21	.138				
	Economic status (1) ^c	0.23	0.06, 0.83	.025				
	Economic status (2) ^d	0.39	0.16, 0.94	.035				

Note.

^a = very good and good vs. satisfactory and poor.^b = currently married vs. currently not married.^c = demand > provision vs. demand < provision.^d = demand > provision vs. demand = provision. NYHA = New York Heart Association.