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Predictors of Successful Heart Failure Self-Care Maintenance in the First Three Months after Hospitalization

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Predictors of Successful Heart Failure Self-Care Maintenance in the First Three Months after Hospitalization

Abstract

Objective

The objective of this study was to replicate a prior study of predictors of self-care in heart failure (HF).

Design

A non-experimental, correlational replication study retested a model of 7 variables: social support, symptom severity, comorbidity, education, age, gender, and income; the last variable, income, was tested in the prior study but was excluded in this study because of missing data. The model was tested at baseline and 3 months after hospitalization.

Setting

Participants were enrolled from 2 hospitals in southern California.

Patients

A convenience sample of 66 patients with chronic HF were studied. The sample was elderly, primarily female, and educated at the high school level or above. Approximately half of the patients had systolic HF, and most were functionally compromised.

Outcome measure

Self-care maintenance, a component of self-care, was measured with the maintenance subscale of the Self-Care of Heart Failure Index.

Results

At baseline, the model was significant (F = 2.61, *df* = 7,58, *P* = .02) and explained 14.8% of the variance in HF self-care. Significant predictors of self-care were higher age and male gender. Three months later, when baseline self-care maintenance scores were controlled in the analysis, the model explained 45.3% of the variance in HF self-care. Most of the variance was explained by the baseline self-care score, but male gender and low comorbidity added an additional 6% of the variance (F = 6.9, *df* = 9,56, *P* < .0001).

Conclusions

Elderly men and those with fewer comorbid illnesses were most successful at HF self-care.

Disciplines

Cardiology | Cardiovascular Diseases | Critical Care | Critical Care Nursing | Medical Humanities | Medicine and Health Sciences | Nursing | Preventive Medicine

PREDICTORS OF SUCCESSFUL HEART FAILURE SELF-CARE MAINTENANCE IN THE FIRST THREE MONTHS AFTER HOSPITALIZATION

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Abstract

Objective: To replicate a prior study of predictors of self-care in heart-failure.

Design: A nonexperimental, correlational, replication study retested a model of seven variables: social support, symptom severity, comorbidity, education, age, and gender. Income, tested in the prior study, was excluded because of missing data. The model was tested at baseline and 3-months after hospitalization.

Setting: Participants were enrolled from two hospitals in southern California.

Patients: A convenience sample of 66 patients diagnosed with chronic heart failure was studied. The sample was elderly, primarily female and educated at the high school level or above. About half had systolic heart failure. Most were functionally compromised.

Outcome Measure: Self-care Maintenance, a component of Self-Care, was measured with the maintenance subscale of the Self-Care of Heart Failure Index (SCHFI).

Results: At baseline, the model was significant ($F=2.61, df=7,58, p=.02$) and explained 14.8% of the variance in heart failure self-care. Significant predictors of self-care were higher age and male gender. Three months later, when baseline self-care maintenance scores were controlled in the analysis, the model explained 45.3% of the variance in heart failure self-care. Most of the variance was explained by baseline self-care score but male gender and low comorbidity added an additional 6% ($F=6.9, df=9,56$), $p < .0001$).

Conclusions: Elderly men and those with fewer comorbid illnesses were most successful at heart failure self-care.

Although significant progress has been made in the past two decades in the medical management of heart disease, the prevalence of chronic heart failure (HF) continues to rise.[1] Each year about 550, 000 new cases are diagnosed. Outcomes associated with HF are poor. Hospitalization rates remain high, with discharges rising from 377,000 in 1979 to 962,000 in 1999. It is estimated that 25% to 50% of discharged HF patients will be readmitted within the ensuing 3- to 6-month period.[2] Less than 50% of people with HF will survive more than five years.

Poor self-care has been identified as a major contributor to the poor outcomes associated with this diagnosis.[3, 4] Teaching people with HF how to care for themselves has become one of the most important strategies for improving outcomes. Patients who fail to follow the treatment plan suffer repeated hospitalizations.[5] Conversely, those who adhere to the treatment plan, monitor themselves routinely for changes in signs and symptoms, and take responsibility for changes when they occur are able to avoid frequent rehospitalizations.[6] Interestingly, some people seem to master HF self-care relatively easily while others struggle to care for themselves. The purpose of this study was to explore the individual and illness characteristics useful in predicting which patients will be successful at HF self-care maintenance, one component of self-care. Specifically, we replicated and expanded a previous study by Rockwell and Riegel[7] to determine if similar results were found in another sample and if the model they confirmed at baseline was stable at 3-months.

Rockwell and Riegel [7] tested a model of individual characteristics as predictors of self-care in persons with HF. The researchers combined Connelly's Model of Self-Care in Chronic Illness (MSCCI)[10] and clinical experience to select seven likely predictors of HF self-care: comorbidity, educational level, age, socioeconomic level, gender, social support, and severity of symptoms. In that study, 209 participants were enrolled during a hospitalization for HF.

Participants' demographic information supplied gender, age, educational level, and socioeconomic status by income level. Comorbidity was measured by using the self-report version of the Charlson Index.[18] Symptom severity was measured with the Specific Activity Scale (SAS) to determine individual ability to perform activities of daily living in spite of symptoms.[19] Self-care was measured using items from the *Self-Management of HF* scale[12] measuring symptom evaluation ability, another component of self-care. Two predictors—education level and symptom severity—were identified as predictors of self-care explaining 10.3% of the variance. Persons with more formal education and with greater symptom severity were more likely to be knowledgeable about important symptoms of HF.[7] In their discussion of the findings it was suggested that the relationships between the independent variables and self-care may change over time. It was this suggestion of a possible dynamic relationship between individual characteristics and self-care that triggered this study.

Background

Self-care, the oldest and most universal individual form of health-related behavior, is widely practiced as a predominant form of primary care.[8, 9] By definition, self-care is an active, deliberate, cognitive decisional process[10] that is lay–initiated and self-determined.[11] In the context of a chronic illness, the process of self-care can be divided into two major categories: maintenance and management.[12] Self-care maintenance refers to a process of routine symptom monitoring and treatment adherence. People with HF who are high in self-care maintenance are those who weigh daily, eat a low-salt diet, exercise or remain active, maintain a normal body weight, avoid alcohol, get routine vaccinations, keep medical appointments, and take medications as prescribed. Self-care management goes beyond treatment adherence to address the decision-making inherent in symptom recognition, symptom evaluation, symptom treatment, and treatment evaluation. The goal of self-care management is to respond to symptoms before

decompensation and hospitalization occur.

Patients with HF continually balance between physiologic compensation and decompensation. Monitoring for subtle yet significant symptoms should trigger a cognitive process that requires both attention and knowledge. When symptoms are recognized, they must be interpreted and a plan devised addressing relief of the symptoms. In HF, many signs and symptoms, such as a small weight gain, can be addressed through self-care. However, not all persons with HF engage in true self-care. The reasons for individual variability in HF self-care may be lack of knowledge, sociodemographic or situational differences, previous experiences, or other factors. Patient teaching cannot be assumed to be sufficient to promote self-care. For example, in one study of 113 people with HF, most (66%) recalled receiving written and/or verbal education about HF; however, 37% reported that they knew "little or nothing" about their diagnosis.[13]

Most people with HF need to improve their ability to adhere to prescribed lifestyle changes, to monitor for symptoms, to recognize them and to respond early.[14] If clinicians could predict which patients will need the most assistance in learning and which ones are likely to master self-care on their own, limited resources for patient education could be better allocated. Generic educational programs could be offered to those with characteristics predictive of successful HF self-care. Individualized programs with more intense provider assistance could be offered to those patients who may need extra encouragement to gain expertise in HF self-care.

METHODS

Design

A nonexperimental, correlational study was conducted employing secondary analysis of data obtained from a prospective investigation of a HF intervention program. The purpose of this study was to replicate and extend the earlier study by Rockwell and Riegel[7] that sought to

identify individual and illness characteristics as predictors of HF self-care. The same variables used by Rockwell and Riegel were used in this study except for income, which was missing on a significant number of participants. Income was not significant in the previous study, so its deletion was not deemed problematic.

Another modification made in this study was the use of different instruments to measure self-care, social support, and symptom severity. Self-care was measured in the prior study with items measuring symptom evaluation from the *Self-Management of HF* scale. In this study, one subscale (self-care maintenance) of the revised *Self-Care Heart Failure Index* (SCHFI) was used. The *Self-Management of HF* scale and the SCHFI are based on the same conceptual model of self-care but the SCHFI incorporates more components of the full self-care process. Only one subscale was used because some patients had been asymptomatic in the prior three months so data were missing on their self-care management abilities. The SCHFI has adequate internal consistency and construct validity.[6]

In the prior study, the level of social support was determined through an analysis of responses to three questions: marital status, availability of a confidant, and overall perceived level of support. In this study, the University of California at Los Angeles Social Support Inventory (UCLA-SSI), a standardized instrument with discriminant and construct validity and adequate reliability (alpha = .71) (personal communication, Christine Dunkel-Schetter, 1990) was used to measure social support.

The Rockwell and Riegel study used the Specific Activity Scale to determine functional status. That same instrument was used in this study but the NYHA classes were added as well. Both instruments were used because employing different strategies to measure the same construct can strengthen internal validity.

The study from which these data were obtained tested an intervention meant to positively

influence HF self-care so the influence of that intervention was controlled in the 3-month analysis. The intervention involved pairing two HF patients as mentor and mentee for the purpose of determining whether individuals with HF benefit from helping and being helped by another person with the same illness.[15] Each mentor was given three to five training sessions on how to coach another patient in HF self-care. Group differences in self-care and social support were assessed after 3-months. All other demographic and clinical data were collected only at the time of enrollment.

Sample

A convenience sample was enrolled from two southern California hospitals. Inclusion criteria included a physician diagnosis of chronic HF, age of at least 18 years, and ability to speak, read and write English. Exclusion criteria included acute, transient HF (e.g., acute myocardial infarction), disorientation or confusion, severe renal failure requiring dialysis, enrollment in another HF study or HF disease management program, and discharge to a long-term care facility. Only those 66 participants with data at baseline and 3-months were used for this study. Institutional review board approval was granted prior to initiation of the parent study and before this secondary analysis was initiated.

Instrumentation

Educational level in categories (e.g., <high school, high school, at least some college), age in years, and gender were collected through a demographic questionnaire designed for the parent study. In measuring comorbidity, patients were queried about preexisting diseases (e.g., ulcer disease, diabetes).[16] Most conditions are scored with 1 point although some (e.g., hemiplegia, cirrhosis) are assigned >1 point. Responses are summed and categorized as low, moderate, or high comorbidity. Raw scores can range from 0 to 34 but every study participant had a score $\geq$1 because of their HF. Validity was demonstrated by the instrument authors when

comorbidity category predicted mortality, complications, acute care resource use, length of hospital stay, discharge disposition, and cost.[16] Therefore, comorbidity categories rather than raw scores were used in the analysis.

Physical functioning was measured at baseline using both the Specific Activity Scale (SAS)[17] and the NYHA functional classification system. The SAS is a standardized interview in which patients are queried about their abilities to perform various activities (e.g., shower without stopping).[18] Patients are categorized into one of four functional groups according to metabolic load associated with the most strenuous activity they can perform.[17] The instrument authors demonstrated validity by comparing SAS results with exercise test results. The NYHA functional classification system was used to measure self-reported limitations in physical activity due to symptom severity. Research assistants used standardized methods to collect these data.

The satisfaction subscale of the UCLA-Social Support Inventory (UCLA-SSI) was used to measure social support in this study. The UCLA-SSI is a 69-item, 5-point Likert-type measure of perceived and received social support. Internal consistency of the satisfaction subscale was .87 in this sample.

Self-care maintenance was measured with the Self-Care Heart Failure Index (SCHFI), a 15-item self-report scale measuring self-care maintenance and management.[6] Three subscales are available from the SCHFI—maintenance, management, and self-confidence but self-care management and total scores can only be calculated if patients are symptomatic. Therefore, to maximize sample size for this analysis, only the self-care maintenance subscale was used in these analyses. When psychometric testing of the SCHFI was conducted with 760 HF patients, construct validity and adequate internal consistency (coefficient alpha .76) were demonstrated. Scores on each subscale are transformed to 100 for ease of interpretation. Higher scores reflect relatively better self-care.

Data Analysis

Descriptive statistics were used to provide a demographic and clinical profile of the sample. Hierarchical linear regression analysis was used to test the hypothesis that education and symptom severity would be significant predictors of HF self-care, as found by Rockwell and Riegel.[7] Two separate analyses were run for each time interval (baseline and 3-months). Seven variables (age, gender, education, comorbidity, satisfaction with social support, physical performance (SAS), symptom severity (NYHA functional status)) were entered simultaneously as potential predictors. Self-care maintenance scores were significantly correlated over time ($r=.64$, $p<.0001$). So, at 3-months, a two-step analysis was run using the same approach except for the addition of baseline self-care maintenance score and group assignment (intervention versus control in the parent study) in a separate preliminary step. These variables were added to control the effect of baseline scores and the intervention on self-care at 3-months.

The only independent variable measured at both intervals was social support satisfaction, which was significantly related over time ($r=.38$, $p=.001$). The results of the 3-month analyses did not change when baseline or 3-month social support satisfaction scores were used in the analysis. The 3-month results reported here reflect social support satisfaction at baseline. Statistical significance was preset at 0.05.

RESULTS

The sample was elderly and predominately female (56.1%) (Table 1). Most were unmarried (56.1%) due to widowhood, divorce, separation, or remaining unmarried. Most (87.9%) had completed high school or more formal education. Most of these participants had retired from paid employment (78.8%). A large proportion (43.9%) reported an annual household income of <$20,000.

All HF types were represented in the sample but those with systolic HF made up the

largest group (55.2%) (Table 2). Most (57.6%) participants were experienced with the HF diagnosis at enrollment. A moderate (31.8%) or high (16.7%) levels of comorbid conditions was common. Most were symptomatic (59.1% NYHA class III or IV) and functionally compromised (69.7% SAS class III or IV).

The sample in this study was very similar to that in the study by Rockwell and Riegel in terms of age, marital status, income, functional status and social support. However, more of those patients were male (51% vs. 43.9%) and the education level of the prior sample was significantly lower; 46.9% had less than a high school education but only 12.1% of these patients had an education level that low. Otherwise the samples were comparable.

Self-Care Maintenance

Self-care maintenance improved significantly over time (64.8 ± 18.6 to 73.3 ± 17.1) ($F=20.9$, $df=1,65$, $p<.0001$). The effect size for that level of improvement was small to moderate (partial $eta^2 = .24$).

The model of seven variables was significant at baseline ($F=2.6$, $df=7,58$, $p=.02$) and it explained close to the same amount of the variance in HF self-care (14.8%) as the model proposed by Rockwell and Riegel (Table 3). Significant predictors of self-care maintenance were age (.03) and gender (.01). Specifically, being an older male was a predictor of relatively better HF self-care maintenance. The hypothesis that education and symptom severity would be significant predictors of HF self-care was not supported.

When the same model of seven variables was assessed at 3 months with baseline self-care maintenance and the intervention controlled in the analysis, the model was again significant ($F = 6.9$, $df = 9,56$, $p < .0001$). Significant predictors of HF self-care maintenance at 3 months included self-care maintenance at baseline, gender, and comorbidity. This model explained 45.3% of the variance in HF self-care (Table 3) but most of the variance was explained by

baseline self-care maintenance, which was entered during step one of the equation. An additional 6% of the variance in HF self-care was explained by the sociodemographic and clinical predictors. Specifically, men, those with fewer comorbid conditions, and those who had mastered HF self-care at baseline were most successful at self-care 3 months following hospitalization for HF.

DISCUSSION

This study was a replication of a prior study of seven variables proposed as predictors of successful HF self-care.[7] In that study, only two of the seven variables—education and symptom severity measured with the Specific Activity Scale—were significant predictors, explaining 10.3% of the variance in HF self-care at the time of hospitalization. The results of that prior study suggested that better educated persons and those with more severe symptoms would have relatively better HF self-care. In this study, when different measures were used to test the model at two different intervals in a sample that was better educated and more likely to be male, the percent of variance in HF self-care was similar to that found in the Rockwell and Riegel study at baseline but the variables explaining that variance differed. Instead of education and symptom severity explaining self-care at baseline, age and gender explained self-care maintenance at the time of hospitalization and enrollment. At 3-months, self-care at baseline accounted for most of the variance but gender and comorbidity also contributed to self-care maintenance.

Increasing age was associated with relatively better HF self-care maintenance at baseline in this study. Prior studies of age and self-care have yielded contradictory results. In studies by Levanthal and Prohaska,[19] the elderly, defined as those 60 years and older, tended to attribute symptoms such as fatigue and weakness to normal aging. In persons with HF, attributing fatigue and weakness to age rather than fluid overload would be evidence of poor self-care. Conversely, Spitzer, Bar-tal, and Ziv[20] found that older patients were more likely to depend upon themselves

for solutions to their health problems and feel greater satisfaction with their solution, provided the severity of symptoms was not too great. Further research is needed to explain why increasing age was associated with better HF self-care and if symptom severity interacts with age as a predictor of HF self-care.

Gender is another factor rarely studied as a contributor to HF self-care but the results of this study are inconsistent with other results. In a study by Riegel and Gocka,[21] women reported taking better care of themselves than men. In two other studies—Kart and Engler[22] and Ni et al,[13] older females were found to be more likely than older men to express confidence in their capacity for self-care. The difference in findings may simply reflect the fact that confidence in the ability to care for oneself is not the same as the behavior of monitoring symptoms and changing ones' lifestyle to accommodate a HF diagnosis.

Comorbidity has rarely been studied as a potential predictor of self-care but these results are consistent with those of Nagy and Wolfe who previously demonstrated that persons with fewer symptoms demonstrate greater treatment adherence.[23] It may be that patients with more comorbid conditions are more compromised and challenged in managing their health. This logic is consistent with the growing body of evidence demonstrating the high number of comorbid conditions experienced by HF patients[24] and the challenges that these patients face in sorting out the symptoms of one illness from another.[25]

One might assume that persons with several chronic diseases would be more inclined to closely monitor their health in order to avoid decompensation or hospitalization than persons with few other illnesses. Multiple chronic conditions should sensitize individuals to the appearance of new symptoms and motivate them to monitor their health closely. However, it may be that individuals with several comorbid conditions are so overwhelmed with the complexities of managing their health that they are fatigued. In one study, persons who were

seriously ill with multiple symptoms were noncompliant, presumably because their energies were divided among the need to maintain daily routines, manage symptoms, and cope with negative emotions such as fear, anxiety, and anger.[23] Faced with the possibility of greater disability, chronically ill individuals are likely to suffer from depression that can interfere with their motivation to care for themselves.[26]

For a person with several comorbidities, self-care can become complex, especially when certain comorbidities share similar symptoms (e.g., chronic pulmonary diseases and HF both cause shortness of breath and difficulty breathing). Thus, it may be confusing for such a person to distinguish which of several illnesses is responsible for the symptoms. It may also be that an individual with several comorbidities lacks the confidence to manage over-lapping symptoms. For instance, the person may have considerable difficulty determining whether to use an inhaler to improve ventilation or an extra diuretic to reduce fluid overload in response to shortness of breath.

We were surprised that social support was not a significant predictor of HF self-care, based on the main or direct effect hypothesis of social support.[27] The main effect hypothesis states that support enhances health irrespective of stress level. That is, support is likely one of the mechanisms that has a direct impact on changing health promoting behavior and therefore, outcomes. Several studies of persons with HF have suggested that social support should be a significant predictor of HF self-care.[28] For example, Happ et al[5] found that absence of strong social support contributed to poor treatment adherence. In a recent study, Dunbar and colleagues found HF self-care, especially diet adherence, to be better in patients randomized to a family-centered educational intervention.[29] In a qualitative study, Simpson et al[30] found that support from family and friends was an important influence on adherence. However, others have not found social support to predict self-care or treatment adherence.[7, 23, 31] In this study social

support was not a predictor of self-care. Lack of variability in support satisfaction would have explained our inability to see an effect with this variable, but this was not the case. Raw satisfaction scores ranged from 12 to 35. Although the mean was high (27.94), the standard deviation was large (6.4) suggesting sufficient variability in social support. Other measures of support should be used in future research to determine if this is a measurement artifact.

Replication studies are considered by some to be essential for validating research and building evidence to change practice, improve outcomes, and better utilize resources.[32] The current investigation closely followed the study by Rockwell and Riegel.[7] Considering both studies, we can be relatively confident that the model of individual and illness characteristics proposed will explain only a small percentage of the variance in self-care early after a HF hospitalization. Other variables must be considered as possible predictors of HF self-care. At three months, the best predictor of self-care was self-care at baseline. This suggests that early intervention is needed to get patients participating in their self-care immediately. The variables derived from Connelly's model of self-care in chronic illness—comorbidity, educational level, age, socioeconomic level, gender, social support, and severity of symptoms—were predictors of HF self-care but a large proportion of the variance remained unexplained. Clearly, other variables need to be studied.

This study was limited by the use of a small nonrandom sample and a correlational design. However, the study was strengthened by the measurement of self-care at two different time periods and better instruments to measure self-care, social support, and physical functioning. This strategy produced results that differed from those of Rockwell and Riegel, but a consistent and important finding was that the model of individual and illness variables explained only a small amount of the variance at the time of hospitalization. Replication of this study strengthens confidence in these conclusions. Further research is needed to identify why

the predictors of HF self-care change over time. The fact that more than half of the variance in HF self-care remains unexplained at 3-months underscores the need for further research into other variables such as hardiness, depression, optimism, and/or faith.

Implications of this study include the need to provide extra instructional support and follow-up for elderly female HF patients and those with several comorbid conditions.

Table 1. *Demographic Characteristics of Subjects (N =66)*

Characteristic	**Mean**	**Standard Deviation**
Age (years) (range: 35 - 92**)**	71	13.3
	Number	Percent
Gender		
Male	29	43.9
Female	37	56.1
Marital Status		
Married	29	43.9
Single	14	21.2
Divorced or Separated	1	1.5
Widowed	22	33.3
Education		
< High School	8	12.1
High School	28	42.4
> High School	30	45.5
Work Situation		
Homemaker	4	6.1
Work Full Time	6	9.1
Work Part Time	4	6.1
Retired Due to Health	22	33.3
Retired for Non-health Reasons	30	45.5
Income		
< $10,000	8	14.0
$10,000-14,999	6	10.5
$15,000-19,999	11	19.3
$20,000-29,999	10	17.5
$30,000-44,999	12	21.1
$45,000+	10	17.5
Declined to Answer	9	

Table 2. Clinical Characteristics of Subjects (N = 66)

Characteristic	Number	Percent
Experience with Heart Failure		
New diagnosis < 2 months prior	38	57.6
Diagnosis ≥ 2 months	28	42.4
Left Ventricular Ejection Fraction		
40% or less	32	55.2
41%-49%	4	6.9
50% or greater	32	37.9
Type of Heart Failure		
Diastolic	25	37.9
Systolic	31	47.0
Mixed	3	4.5
Unable to Determine	7	10.6
Symptom Severity/Function Status:		
Functional Status—NYHA Class		
Class I	7	10.6
Class II	20	30.3
Class III	27	40.9
Class IV	12	18.2
Functional Performance—Specific Activity Scale (SAS)		
Class I	6	9.1
Class II	14	21.2
Class III	34	51.5
Class IV	12	18.2
Comorbidity Categories		
Low (1-2)	34	51.5
Moderate (3-4)	21	31.8
High (5+)	11	16.7
Social Support Satisfaction	**Mean**	**Standard Deviation**
Social Support Score at Baseline (range 2.4 to 7.0)	5.59	1.3
Social Support Score at 3 Months (range 1.0 to 7.0)	5.27	1.5

Table 3. *Multiple Regression Analysis of Characteristics Associated with Self-Care Maintenance in Heart Failure Patients at Baseline and Three Months (N=66)*

Predictor Variables	***Unstandardized Coeffients***		***Standardized Coefficients***		
Baseline	**B**	**SE**	**Beta**	**t**	**Sig**
Age	.369	.167	.263	2.215	.03
Gender	-11.040	4.397	-.296	-2.511	.01
Education	-.796	3.243	-.029	-.246	.81
Comorbidity	-.227	1.481	-.018	-.153	.88
Social Support Satisfaction	.942	1.795	.065	.525	.60
Specific Activity Scale	-.774	3.988	-.035	-.194	.85
NYHA Class	-5.234	3.907	-.253	-1.340	.19
3-Month	**B**	**SE**	**Beta**	**t**	**Sig**
Baseline Self-Care Maintenance score	.503	.096	.551	5.229	<.001
Group assignment (experimental or control	-.658	1.794	-.037	-.367	.715
Age	-.021	.127	-.017	-.169	.87
Gender	-7.048	3.433	-.207	-2.053	.045
Education	1.002	2.382	.040	.421	.67
Comorbidity	-2.780	1.091	-.246	-2.549	.01
Social Support Satisfaction	-.153	1.338	-.012	-.114	.91

Specific Activity Scale	-4.932	2.927	-.246	-1.685	.10
NYHA Class	.960	2.950	.051	.325	.75

Baseline Model: R = .490; R Square = .240; Adjusted R Square = .148; SE = 17.22

3-Month Model 1 (with baseline self-care maintenance score and group assignment): R = .641; R Square = .411; Adjusted R Square = .393; SE = 13.29; Model 2: R = .727; R Square .529; Adjusted R square .453; SE = 12.62.

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