ORIGINAL ARTICLE

Predictors of functional independence in elderly patients with heart failure

Preditores de independência funcional em idosos portadores de insuficiência cardíaca

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ABSTRACT

Objective: The aim of this study was to identify the functional independence predictors in elderly patients with heart failure (HF). Design and Methods: Exploratory, descriptive and transversal study with 146 elderly outpatients with heart failure referred to hospitals in São Paulo. Two instruments were used for the data collection: the Sociodemographic and Clinical Instrument and The Functional Independence Measure (FIM). Descriptive and comparative statistical analyses were used (Kruskal-Wallis), as well as univariate and multiple regression analyses. Results: 52.0% of the patients were males, with a mean age of 68.6 (±6.9) years and 3.4(±2.8) years of education, with 3.9 (±1.7) comorbidities, 3.5 (±1.4) symptoms, with a predominance of NYHA class I or II (65%) and 67% with decreased left ventricular ejection fraction (LVEF). High FIM scores were observed, demonstrating the functional independence of the studied patients. The comparison between FIM scores and NYHA classes showed that a worse FIM score correlated with a progression in the NYHA class. The multiple regression analysis showed that the NYHA classes, years of education and age older than 80 years were predictors of functional independence, explaining 35.0% of the FIM variability. Conclusion: The variables NYHA class, age older than 80 years and higher level of education were predictors of functional independence and this fact suggests the importance of interventions that favor the detection and/or control of aging-related functional loss, as well as the maintenance of the functional status in elderly patients with heart failure.

KEYWORDS

heart diseases, aged, activities of daily living

RESUMO

Objetivo: Identificar preditores da independência funcional em idosos portadores de Insuficiência Cardíaca (IC). Método: Estudo exploratório, descritivo, transversal, de campo e correlacional do qual participaram 146 idosos com IC em tratamento ambulatorial em dois serviços de referência do Estado de São Paulo. Para a coleta dos dados foram utilizados dois instrumentos: Caracterização Sociodemográfica e Clínica e a Medida de Independência Funcional (MIF). Foram realizadas análises estatísticas descritivas, de comparação (Teste de Kruskal-Wallis) e Análise de Regressão Univariada e Múltipla. Resultados: Houve distribuição homogênea entre os sexos, sendo 52,0% homens, idade média de 68,6 (±6,9) anos, com 3,4 (±2,8) anos de estudo. A caracterização clínica evidenciou idosos com média de 3,9 (±1,7) co-morbidades, sintomáticos, com média de 3,5 (±1,4) sintomas, com predominância das CF-NYHA I e II e com FEVE rebaixada (67,0%) - média de 0,46 (±0,17). Foram constatados escores médios elevados na MIF indicando independência funcional nos idosos estudados. A comparação entre escores da MIF e CF-NYHA evidenciou que a MIF diminuiu na medida em que houve progressão da CF-NYHA. A análise de regressão múltipla mostrou que as variáveis CF-NYHA, escolaridade e idade ≥ 80 anos foram preditoras da MIF no idoso com IC, explicando 35,0% da variabilidade da MIF. Conclusão: As variáveis, CF-NYHA, idade superior a 80 anos e maior nível de escolaridade foram preditoras da independência funcional, o que aponta para a relevância de intervenções que privilegiem a detecção e/ ou controle de perdas funcionais advindas da senescência, bem como a manutenção do status funcional no idoso com IC.

PALAVRAS-CHAVE

cardiopatias, idoso, atividades cotidianas

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INTRODUCTION

The aging of the world's population is a global phenomenon which, together with the increase in survival related to ischemic diseases, has contributed to the elevated incidence and prevalence of heart failure (HF) among the elderly in the last decades.[1,2,3,4]

The HF is a complex clinical syndrome characterized by the incapacity of the heart to adequately supply the metabolic demands of the tissues, caused by ventricular dysfunction and accompanied by abnormalities in the regulation of several neurohumoral systems.[5]

Its main symptoms, dyspnea and fatigue, have variable and progressive intensity according to the cardiac performance and can restrict or even prevent the activities of daily living (ADL). Among the elderly, these symptoms might not be so evident due to the sedentary lifestyle and are many times reported as asthenia and tiredness and interpreted in clinical practice as alterations caused by the aging process.[5,6,7,8]

In addition to the clinical picture, there are limitations brought on by aging, which become more evident with the passing of time and increase the impairment of independence regarding the ADL.[8,9,10,11,12,13,14,15] For the elderly individuals and the families that have to deal with HF, this condition is a challenge regarding the ADL and the amount of care. A multicenter study showed that 19.2% of the elderly older than 75 years presented limitations regarding the ADL, with women presenting a worse picture.[16] Similarly, studies that evaluated the performance of ADL in elderly individuals with HF showed that there is a decrease in the functional capacity, mainly regarding the motor function, which reflects as an increase in hospital admissions.[17,18]

The measurement of the elderly functionality, i.e., their capacity to perform daily activities, is one of the most important parameters in geriatric assessment and provides relevant information on the elderly health and the need for help from others regarding these activities.[19,20,21] It is often evaluated through generic tools that allow self-reports and generally evaluate what the individual is capable of doing.[22]

In the present study, functional independence is defined as the capacity of performing something by one's own means. It is associated with mobility and functional capacity, where the individual does not need help to perform the activities of daily living, i.e., the independence presumes satisfactory motor and cognitive conditions to perform such tasks.[19] Recently, functional independence has been used as one more health indicator for the elderly population.[23,24] Thus, the determination of the predictors of functional independence based on a tool that favors the performance of daily activities represents an important strategy to subsidize specific intervention measures that comprehend several forms of elderly support and care.

OBJECTIVE

The objective of this study was to identify the predictors of functional independence variables in elderly individuals with HF.

PATIENTS AND METHODS

The present study was an exploratory, descriptive, transversal, field and correlational study.

Subjects

A total of 146 patients with HF, of both sexes, aged 60 years or older, who were being treated on an outpatient basis in two reference hospitals in the state of Sao Paulo, Brazil, and voluntarily agreed to participate in the study, were enrolled according to Resolution 196/96. Patients with difficulty to communicate and express themselves and those submitted to a heart transplant, considering that it is an event that can lead to specific functional limitations, as well as those who refused to participate in the study were excluded.

Sampling process and sample size

All patients that met the inclusion criteria and none of the exclusion criteria and were treated at the aforementioned services from April to August 2005 were included in the study. Considering that the present study is part of the data obtained from the investigation on "Quality of Life and Functional Independence of Elderly Individuals with Heart Failure", the sample size was based on the calculation of Spearman's Coefficients of Correlation between the scores (total and by dimensions) of the tools Minnesota Living with Heart Failure Questionnaire (MLHFQ) and the scores (total and sub-scales) of the Functional Independence Measure (FIM) and between the scores of the MLHFQ and FIM and the Functional Classification of the New York Heart Association (NYHA-FC), obtained from the analysis of the pilot study (n=25). Thus, in order to determine the coefficients of correlation of around 0.30, using $\alpha = 0.05$ and $\beta = 0.20$, a minimum number of 89 subjects was determined. Considering that data collection took place in reference hospitals,* with an elevated number of patients being treated, the number of subjects was increased to n=146, which allowed a better sample representability and higher test power.

Data Collection

The data were collected through patients' files and interviews with the patients, which lasted approximately 25 minutes. The instrument used for the Clinical and Sociodemographic Characterization was designed by the researchers based on the literature and it was later submitted to content validity through the assessment of referees with renowned knowledge in cardiology and geriatrics.

The clinical and sociodemographic variables investigated were: age, gender, schooling, family composition, NYHA-FC (obtained from the patient's records of the medical consultation carried out on the same day), HF etiology, associated clinical conditions and medications used as well as practice of physical activities.

The Brazilian version of the FIM, developed by Riberto et al[25,26] was used to perform the subjects' functional assessment. It is one of the most often used methods to evaluate functionality through the assessment of activities of daily living in impaired individuals. The assessment method for adults was developed in the 80s by a task force organized by the Academy of Physical and Rehabilitation

Medicine and by the American Congress of Rehabilitation Medicine as an attempt to standardize concepts and definitions about impairment and to attain a tool that would allow a global assessment of rehabilitation based on daily activities.[27]

It consists of a set of 18 tasks, divided in two sub-scales: the motor FIM (mFIM) and the cognitive/social FIM (csFIM). The mFIM evaluates the activities related to self-care, sphincter control, mobility and ambulation. The csFIM evaluates communication and social cognition. A value ranging from 1 to 7 is attributed to each item, with 1 corresponding to total dependence and 7, to complete independence. The total score is obtained by adding the scores of the 18 evaluated tasks, with a possible total score ranging from 18 to 126. The highest scores indicate higher functional independence.

The data were submitted to the following analysis: Cronbach Coefficient Alpha to evaluate the reliability of the tool; descriptive analysis (mean and median of the scores, standard deviations, maximum and minimum values and proportions); the Shapiro-Wilk test verified that the sample did not present a normal distribution, which resulted in the use of non-parametric statistical tests; Mann-Whitney test to compare the FIM scores obtained from the samples of the two hospitals, which allowed a single group to be considered; Kruskal- Wallis Test to compare the FIM scores and the NYHA-FC, followed by the post-hoc Dunn test; Univariate Linear Regression, to measure the association between the dependent variable (Functional Independence) and the independent variables (predictors): age, schooling, gender, family composition, associated clinical conditions, physical activity, symptoms/signs, NYHA-FC and number of medications used; as well as Multiple Regression Analysis, using the variables that reached a higher R^2 value at the univariate regression analysis.

The choice of variables for the regression model was based on literature data that point out to the existence of a correlation between the selected variables and functional independence.[28,29,30] The simplest model originated the most complete one, showing the correlation between two or more independent variables and the dependent variable, using the power of correlation between the variables as the criterion for the selection of the variables to be inserted into the statistical model (stepwise).[31]

Statistical significance was set a 5% (p value < 0.05).

Ethical Aspects

The study was approved by the Ethics Committee for the Analysis of Research Projects of the Review Board of Hospital das Clinicas and the School of Medicine of the University of Sao Paulo, during a session held on 04/28/2005 – Resolution 219/05 and the Commission of Education and Research of the Conjunto Hospitalar de Sorocaba, during a session held on 02/03/2005 – Resolution 119/04. The subjects' anonymity was warranted, according to the Resolution 196/96.

RESULTS

Clinical and Sociodemographic Characterization

The clinical and sociodemographic data are shown in Table 1.

The age of the subjects ranged from 60 to 87 years, with a mean of 68.6 (±6.9) yrs, with 52.0% (76/146) of the sample being males. The mean schooling was 3.4 (±2.8) years of study and only 11.6% of the subjects (17/146) lived alone. The number of associated clinical conditions varied from 1 to 8, with a mean of 3.9 (±1.7), with a high incidence of arterial hypertension, 82.1% (120 /146) and an expressive incidence of arthrosis, 56.8% (83/146). Of the total number of elderly subjects, 32.2% (47/146) reported visual impairment and 20.5% (30/146) reported hearing impairment. The mean symptoms/signs reported by the elderly was 3.5 (±1.4), with fatigue, dyspnea and edema being the most prevalent ones; 65.0% (95/146) of the patients presented NYHA-FC I and II and used 5.1 (±1.9) medications a day, ranging from 1 to 12; 55.5% (81/146) used 4 to 6 medications a day.

As shown on Table 2, the means and medians of the scores (total and sub-scales) obtained from these patients were higher than the possible variation mean that could be obtained at the tFIM and sub-scales. Although the means of the scores of the tFIM, mFIM and csFIM were elevated, with a score ≥ 5 for the assessed tasks, the lowest score in the item that evaluates the use of stairs – mean of 1.4 (±1.1), shows the complete dependence of the elderly when performing this task.

The comparison of the FIM and NYHA-FC scores (Table 3) showed a significantly higher score at the mFIM among the elderly classified as NYHA-FC I (p<0.001), when compared with the elderly classified as NYHA-FC II, III and IV. Additionally, mFIM was significantly higher among the elderly classified as NYHA-FC II when compared to those classified as classes III and IV (p<0.001); there was no difference regarding mFIM between the patients classified as NYHA-FC III and IV. These results show that the motor sub-scale of the FIM differentiated the subjects from classes I, II and III. The csFIM detected a difference between the elderly classified as NYHA-FC I and II (p=0.002) and the tFIM, similarly to mFIM, differentiated the elderly classified as NYHA-FC I, II and III (p<0.001).

In order to distinguish the predicting factors of functional independence in elderly with HF, the Univariate Linear Regression (Table 4) and Multiple Linear Regression (Table 5) analysis were performed.

The univariate analysis showed that the isolated predictors of functional independence among the variables selected for the model were: age, schooling, gender, associated clinical conditions, NYHA-FC, physical activity practice and symptoms/signs (dyspnea, fatigue and edema). The Multiple Linear Regression model consisted of the highest values of R^2, i.e., when the variables were analyzed together, only the ones more strongly associated with the tFIM score remained. As the variables were included in the model, the results were adjusted for the others (Table 5).

At the multiple linear regression analysis, the NYHA-FC, schooling and age explained together 35.0% of the FIM variability, with the NYHA-FC being the variable that explained 23.8%, schooling 8.3% and age, 3.0%.

The elderly with HF and NYHA-FC II, III and IV presented a decrease in the total score of -7.3 (±2.1), −10.8 (±2.2), −24.5 (±3.8),

Table 1
Description of the clinical and sociodemographic variables and lifestyle of the 146
studied individuals. São Paulo, Sorocaba, 2005.

Variable	n (%)	Mean (±sd)*	Median	Observed variation
Age (years)		68.6 (±6.9)	67	60-87
Gender				
Male	76 (52.0)			
Female	70 (48.0)			
Schooling (years)		3.4 (±2.8)	4	0-20
Family composition				
Lives alone	17 (11.6)			
w/ family/partner/children	129 (88.4)			
Associated clinical conditions				
SAH	120 (82.2)	3.9 (±1.7)		1 – 8
Arthroses	83 (56.8)			
Sensory deficit **	77 (52.7)			
Myocardial infarction/ angina	67 (45.8)			
Dyslipidemia	64 (43.8)			
Diabetes	58 (39.7)			
Pulmonary disease	28 (19.1)			
Obesity	25 (17.1)			
Encephalic vascular accident	21 (14.3)			
Symptoms/Signs				
Fatigue	120 (82.2)	3.5 (±1.4)		0 – 6
Dyspnea	113 (77.4)			
Edema	88 (60.3)			
Precordialgia	67 (45.9)			
Coughing	64 (43.8)			
Arrhythmia	62 (42.4)			
NYHA-FC***				
FC	49 (33.5)			
FC II	46 (31.5)			
FC III	42 (28.8)			
FC IV	9 (6.2)			
LVEF****				
Decreased	90 (66.7)			
Normal	45 (33.3)			
Number of medications		5.1 (±1.9)		1 a 12
1 to 3	27 (18.5)			
4 to 6	81 (55.5)			
7 to 9	36 (24.6)			
10 or more	2 (1.4)			
Physical activity				
Yes	34 (23.3)			
No	112 (76.7)			

* sd: standard deviation; ** visual impairment (32.2%;47/146) and hearing impairment (20.5%;30/146);
***NYHA-FC: New York Heart Association Functional Class; ****LVEF: left ventricle ejection fraction;, classified
as normal or decreased based on the values considered optimal for each method used.

Table 2
Descriptive statistics and reliability of the FIM* (total and sub-scales) for the 146 elderly
with HF. São Paulo, Sorocaba, 2005.

Variable	Mean	SD	Median	Observed variation	Possible Variation	Cronbach's Alpha
mFIM**	70.8	±9.7	72	27 - 88	13 – 91	0.90
csFIM***	25.6	±4.3	25	15 – 35	5 - 35	0.73
tFIM****	96.4	±12.6	96.5	46 - 121	18 – 126	0.90

*FIM: Functional Independence Measure; **mFIM = motor FIM; ***csFIM = cognitive/social FIM;
****tFIM= total FIM.

Table 3
Comparison of the mean scores of the FIM (total and sub-scales) for the 146 elderly
individuals with HF, according to the Functional Class - NYHA. São Paulo, Sorocaba, 2005.

FIM	CF-NYHA				p-value†
	I (n=49) mean (±sd)	II (n=46) mean (±sd)	III (n=42) mean (±sd)	IV (n=9) mean (±sd)	
mFIM *	76.2 (±6.9)	70.4 (±9.4)	68.6 (±6.8)	53.8 (±12.5)	p<0.001(a)
c/sFIM**	27.4 (±4.5)	24.8 (±.40)	24.2 (±3.7)	26.4 (±2.9)	P=0.002(b)
tFIM***	103.6 (±10.5)	95.3 (±12.4)	92.9 (±9.4)	80.22 (±14.4)	p<0.001(a)

* motor FIM; ** cognitive/social FIM; *** total FIM; †Values regarding Kruskal-Wallis test to compare the
Functional Classes with the post-hoc Dunn's test (a) I # II; I # III; I # IV; II # III; II # IV; (b) I # III.

respectively, starting from the NYHA-FC I score, which demonstrates a significant worsening of the functional independence with each progression of the NYHA-FC.

As the schooling increases, year by year, the FIM score also increases at 1.1 (±0.3) units, indicating an improvement in the functional independence.

Age, from 70 years onward, explained the FIM variability, with an age of 80 years or older determining a loss of –6.6 (±3.2) units and, therefore, the worsening of the functional independence.

DISCUSSION

The profile of the elderly individual delineated in this sample reflects the profound disparities that characterize the contemporary societies, especially in developing countries.

These are elderly individuals with a mean age of 68.6 years, of low socioeconomic status, mostly retired workers, who live in multigenerational households and contribute to the family income.[16,32,33]

Studies have shown that the socioeconomic disparities in Brazil, especially those regarding income and education, are important factors that explain the differences in the risk for functional difficulties among the elderly.

The SABE (Health, Well-being and Aging) project, coordinated by the Pan-American Organization of Health with the objective of collecting information on the living conditions of elderly that live in the urban areas of cities from 7 countries of the Latin America and the Caribbean, and among them, the city of Sao Paulo, presented the SABE report as a conclusion. According to this document, the assessment of the health status is directly associated with the low

Table 4
Results of the Univariate Linear Regression analysis for the FIM scores. São Paulo, Sorocaba, 2005.

Variable	Categories/	p-value	R²	Estimate (S.E.)
Age (ranges)	levels	-	4,2	97.1 (1.3)
	60-69	0.822		0.5 (2.3)
	70-79	0.018		-8.5 (3.5)
Age (years)	≥80 years	0.013	4,2	122.1 (10.2)
	For each year			-0.3 (0.1)
Schooling (years)	For each year	<0.001	8,2	92.0 (1.5)
	-			1.3 (0.3)
Gender	Male	0.021	3,6	103.5 (3.2)
	Female	-		-4.8 (2.0)
Family composition	With family	0.252	0,9	96.0 (1.1)
				3.7 (3.2)
Associated clinical conditions	Alone	0.015	4,06	102.3 (2.5)
	For each disease			-1.49 (0.6)
NYHA-FC	NYHA-FC I	-	23,7	103.06 (1.5)
	NYHA-FC II	<0.001		-8.3 (2.2)
	NYHA-FC III	<0.001		-10.7 (2.3)
	NYHA-FC IV	<0.001		-23.4 (4.0)
Physical Activity	No	-	8,9	94.3 (1.1)
	Yes	<0.001		8.9 (2.3)
Dyspnea	No	-	2,8	100.3 (2.1)
	Yes	0.043		-5.0 (2.4)
Fatigue	No	-	2,7	100.9 (2.4)
	Yes	0.045		-5.4 (2.7)
Edema	No	-	4,4	99.7 (1.6)
	Yes	0.011		-5.4 (2.7)
Number of medications	For each medication	0.199	1,1	100.1 (3.0)
				-0.7 (0.5)

R²=coefficient of determination (% of the variability explained by the variable); S.E.= standard error. Estimate=value of the angular coefficient "b" in the regression line Y=a+bX. "a"= intercept (1st value). Dependent variable: FIM score.

Table 5
Results of the analysis of Multiple Linear Regression for the FIM scores. São Paulo, Sorocaba. 2005.

Variable (steps)	Categories/levels	p-value	R²*	Estimate** (S.E.)***
Intercept	-	<0,001	-	99.6 (±2.1)
NYHA-FC...	CF I	-	23.7	-
	CF II	<0,001		-7.3 (±2.1)
	CF III	<0,001		-10.8 (±2.2)
	CF IV	<0,001		-24.4 (±3.7)
Schooling	At each year	<0,001	8.3	-
Age range	60-79 years	-	3.0	1.1 (±0.3)
	70-79 years	0,394		-
	≥80 years	0,039		1.7 (±2.0)
				-6.6 (±3.1)

R²=coefficient of determination (% of the variability explained by the variable); Estimate=value of the angular coefficient "b" in the regression line Y=a+bX. "a"= intercept (1st value). Dependent variable: FIM score; S.E..= standard error; NYHA-FC... = New York Heart Association Functional Class

health services, starting activities that prioritize health promotion and especially, the correct performance of the procedures related to achieving a better quality of life.

Of the variables pointed out as isolated predictors of functional independence of elderly individuals with HF, the practice of physical activities is one of the modifiable factors and thus, must be the objective of intervention.

According to Brum et al[36] physical exercises currently represent an extremely important alternative in the management of patients with HF. Other studies have demonstrated the benefits and safety of physical conditioning programs directed at patients with mild to moderate degrees of HF, showing a decrease in rehospitalization as well as mortality rates.[37,38]

The elevated number of comorbidities is common in elderly individuals. Systemic arterial hypertension (SAH) and arthrosis/arthritis were the most often reported associated clinical conditions, confirming the findings of other studies involving the elderly population.[39,40] This situation favors the simultaneous intake of many medications (mean of 5.1 in this sample), a fact that was corroborated by a study carried out with Brazilian elderly individuals that showed the intake of 5 or more medications by one-third of the investigated population.[41]

The analysis of the FIM scores showed that the assessed elderly presented elevated FIM scores, indicating little dependence to perform ADLs, which can be explained, in part, by the mean age of the sample and the small number of subjects with NYHA-FC III and IV.

The fact that the FIM is directed essentially to the measurement of the functional performance regarding the basic activities of daily living can also explain the elevated tool score among the elderly with HF. Some reports in the literature show that daily activities are the last ones the elderly stop performing, brought on by the worsening of the health status.[19,42] On the other hand, according to

quality of life, influenced by gender, schooling, age, socioeconomic status and presence of impairment.[16]

Other studies, which obtained results that were similar to the present study, also showed that schooling positively interferes with the ADLs, i.e., the higher the degree of schooling, the higher the functional independence.[1,29,34]

According to Alves,[35] the level of schooling is seen as one of the determinants in the assessment of the self-perception of the health status, being considered a health protection factor, as it influences psychosocial and behavioral factors. Individuals with a higher degree of schooling are less prone to be exposed to risk factors for diseases and to be submitted to inadequate working conditions. Similarly, a better educational level favors access to obtaining information, adopting lifestyle changes and healthy habits, seeking out

Kutner et al,[43] elderly individuals tend to assess their health status with more optimism and have a more favorable perception than allowed by their actual functional status.

The comparative analysis between the FIM scores and the NYHA-FC showed a significant association between the NYHA-FC progression and functional independence, reproducing the findings of previous studies, in which the severity of the disease was associated to the worsening in the performance of daily activities.[11,44,45]

The motor sub-scale and the total FIM differentiated the functional independence among the groups I, II and III, but failed to detect differences between the elderly with functional classes III and IV.

The tasks that require mobility and ambulation (transference and gait) were the most affected due to the presence of fatigue or dyspnea. The cognitive/social sub-scale was able to differentiate the elderly from classes I and III, suggesting that the FIM is little sensitive to the alterations in functional independence in groups with similar levels of disease severity.

Previous studies have demonstrated that older age is related to functional worsening and therefore, to a higher limitation in the ADLs.[16,40,46,47] Regarding the HF, studies have reported that there is an association between disease severity, older age and functional worsening, which might indicate a higher dependence by the elderly to perform ADLs, as well as the need for others' help.[8,14,48,49]

The findings of the present study allow us to suggest that strategies that lead to the prevention of functional losses during the aging process, i.e., the maintenance of the functional status of the elderly for as long as possible, can also lead to higher functional independence. Among them, adherence to drug therapy, symptom relief, regular assessment of the ventricular function and the early identification of decompensation episodes, which are often observed in elderly individuals, can contribute to the maintenance of functional independence in elderly with HF.[4,14,45,50]

Another objective is the support to be developed together with the caregivers, with the aim of establishing a partnership between the health professionals and the people close to the elderly, who are responsible for the necessary direct care of these individuals. This partnership is a more modern and less expensive strategy to maintain and promote the improvement of functional independence among the elderly.[51]

CONCLUSION

The variables that predicted functional independence among the elderly with HF were NYHA-FC, level of schooling and older age. The design of the interventions that lead to the maintenance of the functional status, as well as support strategies for the elderly and their caregivers can contribute to a higher degree of independence in elderly patients with HF. The findings of this study ratify the need to carry out more studies with elderly individuals who are older and with more severe forms of the disease to assess whether

The measures of which outcome is a better management of the symptomatology indeed result in functional independence improvement in elderly individuals with HF.

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