

ADHERENCE OF PATIENTS WITH HEART FAILURE TO THE ESTABLISHED THERAPY

ADESÃO DE PACIENTES COM INSUFICIÊNCIA CARDÍACA À TERAPÊUTICA INSTITUÍDA

ADHESIÓN DE PACIENTES CON INSUFICIENCIA CARDÍACA A LA TERAPIA ESTABLECIDA

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Objective: to analyze the relation between the socio-demographic and clinical variables and the adherence of patients with heart failure to the treatment, and to evaluate this adherence. **Method:** a cross-sectional study conducted with 50 patients undergoing outpatient follow-up. A 10-item questionnaire was used to assess adherence to therapy. Descriptive statistics, *Student's t-test* and *one way ANOVA* were used. **Results:** the mean adherence score was 13.36 ± 2.07 points, being unsatisfactory. It was observed that the questions regarding the frequency of body weight and the control of fluid intake had the lowest number of answers in the adherence score. **Conclusion:** the analysis of the relation between the socio-demographic and clinical variables and the adherence of the participants with heart failure showed low adherence to the established therapy.

Descriptors: Heart Failure. Therapy. Patient Cooperation. Cooperation and Adherence to Treatment. Nursing.

Objetivo: analisar a associação entre as variáveis sociodemográficas e clínicas e a adesão de pacientes com insuficiência cardíaca ao tratamento, e avaliar a adesão desses pacientes ao tratamento. *Método:* estudo transversal realizado com 50 pacientes em seguimento ambulatorial. Utilizou-se um questionário composto por 10 itens para avaliar a adesão à terapêutica. Aplicou-se estatística descritiva, teste t de Student e ANOVA one way. *Resultados:* a média do escore de adesão ao tratamento foi de $13,36 \pm 2,07$ pontos, sendo insatisfatória. Observou-se que as questões referentes à frequência do peso corporal e o controle na ingestão de líquidos apresentaram as menores proporções de respostas no escore de adesão. *Conclusão:* a análise da associação entre as variáveis sociodemográficas e clínicas e a adesão dos participantes com insuficiência cardíaca mostrou baixa adesão à terapêutica instituída.

Descritores: Insuficiência Cardíaca. Terapêutica. Cooperação do Paciente. Cooperação e Adesão ao tratamento. Enfermagem.

Objetivo: analizar la asociación entre las variables sociodemográficas y las clínicas y la adhesión al tratamiento de pacientes con insuficiencia cardíaca, además de evaluar dicha adhesión. *Método:* estudio transversal realizado con 50 pacientes en seguimiento ambulatorio. Se utilizó un cuestionario compuesto por 10 puntos para evaluar

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la adhesión a la terapia. Se aplicó estadística descriptiva, la prueba t de Student y ANOVA one way. Resultados: la media del puntaje de adhesión al tratamiento fue de $13,36 \pm 2,07$ puntos, y se la consideró satisfactoria. Se pudo observar que las preguntas referentes a la frecuencia del peso corporal y al control de la toma de líquidos presentaron menores proporciones de respuestas en el puntaje de la adhesión. Conclusión: el análisis de la asociación entre las variables sociodemográficas y las clínicas y la adhesión de los participantes con insuficiencia cardíaca indicaron una escasa adhesión a la terapia establecida.

Descriptor: Insuficiencia Cardíaca. Terapia. Cooperación del Paciente. Cooperación y Adhesión al Tratamiento. Enfermería.

Introduction

Heart Failure (HF) is defined as a systemic disease. In this condition, the heart is unable to fill or pump blood to meet the metabolic and tissue needs caused by structural or functional disorders. It is considered the final route of most heart diseases⁽¹⁾.

In Brazil, HF is the first cause of hospitalization in patients over 60 years of age, and is associated with high morbidity and mortality rates. It is estimated that 26 million people have HF, and 2 million new cases are diagnosed each year worldwide⁽²⁾.

In this context, it is essential that measures of adherence to the therapy established for HF be incorporated into the lifestyle change required for the control of the disease. With this procedure it is possible to achieve clinical stability and keep functional capacity, in addition to reducing advances in cardiac remodeling and unfavorable clinical outcomes⁽¹⁻²⁾.

Therapeutic adherence can be defined as the concordance between an individual's behavior and the guidance of a health care professional. This refers to the use of medication, following a diet, a change in lifestyle or the adoption of protective health behaviors⁽³⁾.

Measures of therapeutic adherence for patients with HF include pharmacological and non-pharmacological management. Non-pharmacological measures mostly include sodium and water restriction, regular physical activity, daily weight management, early recognition of decompensation signs and symptoms and correct use of pharmacological therapy⁽⁴⁾.

Evidence in the literature indicates that patients with HF have a reduced quality of

life due to non-adherence to therapeutic recommendations^(2,5-6). Therefore, it is up to the nurse, together with the multidisciplinary team and the patient's family, to plan/work on strategies to improve adherence and, consequently, the quality of life of this population at risk.

Thus, health professionals, especially nurses, should conduct research studies to identify the factors that may contribute to or hinder adherence to therapy. It is possible to support care technologies to reduce episodes of decompensation, readmission and, consequently, reducing treatment costs.

In this sense, the relevance of this study relates to the need to expand the state-of-the-art on the subject, incipient in the local and regional scenario. Studies designed to assess HF patients' adherence to therapy were found to be concentrated in the South⁽⁷⁾ and Southeast regions of Brazil⁽⁸⁻⁹⁾.

The objectives outlined for the study were the following: to analyze the relation between the socio-demographic and clinical variables and the adherence of patients with HF to the treatment, and to evaluate their adherence.

Method

A cross-sectional study conducted in a cardiology outpatient clinic of two public institutions, linked to the Unified Health System (*Sistema Único de Saúde*, SUS) of the city of João Pessoa, Paraíba. This study was conducted between October 2017 and March 2018.

The target population of the study involved patients with medical diagnosis of HF confirmed

in medical records, seen at the selected institutions. A non-probabilistic convenience sample was used according to the pre-established data collection period (five months), taking the demand into account.

The inclusion criteria eligible for the study were the following: patients aged ≥ 18 years old, male and female, in outpatient clinical follow-up at the selected institutions.

The exclusion criteria were the following: patients in the first outpatient visit or with less than 48 hours of being discharged after hospitalization in the medical/cardiac clinic unit, with cognitive dysfunction or with comprehension and communication obstacles; in addition to cancer patients and recent postoperative period (up to 60 days) of any surgical intervention. These conditions interfere with the usual behavior of adherence to HF treatment. Thus, the final sample consisted of 50 patients.

To characterize the socio-demographic and clinical variables, an instrument used in a previous study in patients with HF was applied⁽⁵⁾; this instrument was the result of the activities of the Chronic Disease Research Group of the Federal University of Paraíba (*Universidade Federal da Paraíba*, UFPB), with the following variables: age, gender, schooling, marital and professional status, family income, etiology of HF, functional class according to the criteria of the *New York Heart Association* (NYHA), comorbidities, left ventricular ejection fraction (LVEF) in a transthoracic echocardiography report and drug therapy. Preserved LVEF was considered when patients had LVEF $\geq 50\%$; and reduced LVEF, when this value was below 50%.

Adherence to therapy was assessed using a 10-item questionnaire developed and validated in Brazil⁽¹⁰⁾. The questions included items related to medication use, weight control, eating habits, fluid intake, alcohol consumption, and attendance at scheduled appointments. The total score of the questionnaire ranged from 0 to 26 points; the higher the score, the higher the adherence⁽¹⁰⁾. Although the questionnaire did not have a defined cut-off point, as a satisfactory adherence to analyze the results of this

investigation, scores ≥ 18 points were adopted, an index adopted in previous investigations carried out in the Brazilian scenario^(7,11).

The information was obtained through a structured researcher/interviewee interview, after medical appointment, and the data collection instrument was completed by the researcher in a private environment.

The data obtained were entered into a database in *Microsoft Excel*, containing a dictionary (CODEBOOK). They were then compiled and analyzed through the *Statistical Package for Social Sciences* (SPSS) program, version 21.0.

For continuous variables, the mean and standard deviation were calculated; for categorical variables, the calculation was made using absolute and relative frequencies. Data normality was demonstrated using the *Kolmogorov-Smirnov* test; the relation between the means of self-care score and the variables with only two categories was tested using the *Student's t-test*; for variables with three or more categories, the *one way ANOVA* test was applied; the significance level adopted was 0.05.

The study met the formal requirements of national and international regulations governing research with humans. The research project was approved by the Research Ethics Committee of the Lauro Wanderely University Hospital, with Opinion No. 1,255,863 and CAEE: 49420015.9.0000.5183.

Results

Fifty HF patients participated, with a mean age of 59.64 ± 13.07 , ranging from 22 to 85 years old. It was observed that 56% were male; 66% were married or had a domestic partnership; had a mean of 4.98 ± 3.95 years of schooling; 68% had non-ischemic etiology; and 54% were categorized as functional class I. The mean left ventricular ejection fraction was 40.34 ± 14.39 , ranging from 15 to 69%. The drugs most used by the participants and recorded in medical records were diuretics (40.2%). The socio-demographic and clinical characteristics of the study participants are presented in Table 1.

Table 1 – Socio-demographic and clinical characteristics of patients with heart failure. João Pessoa, Paraíba, Brazil – 2018 (N=50)

Variables	n (%)
Origin	
João Pessoa	33 (66%)
Other municipalities	17 (34%)
Sex	
Male	28 (56%)
Female	22 (44%)
Age (mean value±standard deviation)	59.69±13.07
Schooling (mean value±standard deviation)	4.98±3.59
Self-declared skin color	
Caucasian	20 (40%)
Non-Caucasian	30 (60%)
Family constitution	
Single	6 (12%)
Married/Stable union	33 (66%)
Separated/Divorced	6 (12%)
Widower/Widow	5 (10%)
Professional situation	
Active	2 (4%)
Inactive	48 (96%)
Family income (minimum wages)	
< 1	2 (4%)
1 to 2	43 (86%)
≥ 3	5 (10%)
Etiology	
Ischemic	16 (32%)
Non-ischemic	34 (68%)
Functional class (New York Heart Association)	
I	13 (26%)
II	27 (54%)
III	10 (20%)
Left Ventricular Ejection Fraction (mean value±standard deviation)	40.34±14.39
Pharmacotherapy	
Diuretics	41 (40.2%)
Beta blockers	37 (36.3%)
Antihypertensives	16 (15.7%)
Cardiac glycosides	6 (5.9%)
Antiarrhythmics	2 (2%)

Source: Created by the authors.

In the questionnaire used to assess HF patients' adherence, it was observed that the mean adherence score was 13.36 ± 2.07 points, ranging from 8 to 17 points, showing low adherence to the established therapy. It was identified that no participant reached the established cutoff point of satisfactory adherence (score ≥ 18 points), the index adopted in this investigation.

Table 2 shows the relation of the research participants' social conditions with their adherence to therapy. Regarding adherence scores, a lower mean value was found for the male and economically active groups, showing low adherence among the analyzed variables.

Table 2 – Relation between the social conditions and the adherence to therapy for patients with heart failure. João Pessoa, Paraíba, Brazil – 2018 (N=50)

Social variables	Adherence score	p-value
Age*		
< 60 years old	13.26±2.32	0.759
≥ 60 years old	13.44±1.88	
Sex*		
Male	12.96±2.13	0.131
Female	13.86±1.93	
Race*		
Caucasian	13.20±2.33	0.661
Not white	13.97±1.92	
Marital status**		
Single	13.33±1.63	
Married/Stable union	13.15±2.34	0.646
Separated/Divorced	13.67±1.50	
Widower/Widow	14.40±0.89	
Professional situation*		
Active	12.00±1.41	0.350
Inactive	13.42±2.09	
Schooling*		
< 9 years	13.45±2.16	0.546
> 9 years	13.00±1.76	

Source: Created by the authors.

* Student's *t*-test;

** one way Anova test

Table 3 shows the relation between the clinical conditions and the adherence measurement. It was observed that the patients with functional

class III and more than one comorbidity had lower scores, showing low adherence to the treatment.

Table 3 – Relation between the clinical conditions and the adherence to the treatment of patients with heart failure. João Pessoa, Paraíba, Brazil – 2018 (N=50)

Clinical variables	Adherence score	p-value
Etiology*		
Ischemic	13.44±2.33	0.859
Non-ischemic	13.32±1.98	
New York Heart Association**		
Class I	13.62±1.75	
Class II	13.67±2.07	0.142
Class III	13.20±2.25	
Comorbidities*		
1 comorbidity	13.53±2.18	0.443
>1 comorbidity	13.06±1.89	
Left Ventricular Ejection Fraction*		
Reduced	13.13±2.20	0.585
Preserved	13.55±1.86	

Source: Created by the authors.

* Student's *t*-test.

** one way Anova test.

Additionally, the number of answers was analyzed for each variable in the treatment adherence score, as shown in Table 4. It is possible to note that the questions related to body weight frequency (Q2) and fluid intake control (Q6; Q7; Q8) had the lowest numbers of answers, evidencing low adherence to

these recommendations. It can be noticed that questions regarding medication use as prescribed (Q1), non-drinking (Q9), and attending medical appointments and scheduled examinations (Q10) exhibit the best numbers of answers equivalent to satisfactory adherence among measures established for the treatment of HF.

Table 4 – Distribution of the frequency of answers according to items of the treatment adherence instrument. João Pessoa, Paraíba, Brazil – 2018 (N=50)

Items	Answer	n (%)
1. Did you use the medicines in the last 15 days, according to the medical prescription?	Always	47 (94%)
2. How often do you check your weight?	I do not	37 (74%)
3. Do you add salt in your food?	When cooking food (A little)	21 (42%)
4. Do you add ready-made seasoning such as Sazon Chicken Seasoning in food preparation?	I do not use (Any)	21 (42%)
5. Do you eat out or at home disregarding salt restriction?	Never	22 (44%)
6. In the recommended daily amount of liquid, do you also consider soups, ice cream, gelatin, juice, milk, tea, coffee and non-alcoholic beverages?	Never	41 (82%)
7. Have you decreased your fluid intake as directed by your doctor or nurse?	Never	37 (74%)
8. Do you consider fruit liquid (juice) in the daily amount of liquid recommended to you, such as oranges, melon, watermelon, pineapple, coconut water, mandarin, etc.?	Never	43 (86%)
9. Do you drink any alcohol?	Never	42 (84%)
10. Have you missed any medical appointments or scheduled examinations in the last 15 days?	Never	41 (82%)

Source: Created by the authors.

Discussion

Analyzing adherence to the established therapy and verifying the relation between social and clinical conditions of HF patients are strategies to identify possible factors that may compromise the established treatment plan and the survival of this population in the face of clinical decompensation crises.

This study revealed a relative distribution balance between men and women, mostly self-reported white, married or in a domestic partnership, with low level of schooling, economically inactive and low family income. Clinically, non-ischemic HF, functional class I, with associated comorbidities and decreased left ventricular ejection fraction prevailed. These

data are similar to the profile of patients with HF in the national context⁽⁸⁻¹¹⁾.

Concerning the social conditions, a lower mean adherence score was observed for males. Although there is no consistent evidence on adherence behavior between genders, this finding may be explained by the higher prevalence in males of risk factors associated with HF, such as dyslipidemia, smoking and alcohol consumption, which may favor low adherence to recommendations on clinical management of the disease⁽¹⁾.

It was found that most patients who declared themselves married or in a domestic partnership had lower scores when compared to the others. This fact draws attention, as family support is considered extremely important for the recovery

and maintenance of the clinical condition and stability of the patients with HF⁽¹²⁾.

In this aspect, it is assumed that a conflicting family relationship may compromise adherence to treatment. Therefore, before proposing strategies for family involvement in the care of the patient with HF, it is suggested that health professionals check the family support patients have. However, it is emphasized that family support is indispensable for the motivation of self-care actions, which are essential for the maintenance of health in patients with chronic diseases⁽¹²⁾.

In agreement with this, a study conducted in two specialized clinics for chronic HF patients, accompanied by nurses, showed that those who lived with their families had higher adherence scores⁽⁹⁾. Thus, it is recommended that nursing interventions be conducted in order to involve family members in the care strategies. The purpose is to strengthen them to better cope with the physical and psychological symptoms inherent to the disease, as well as to provide therapeutic adherence and well-being.

Regarding schooling, the findings were homogeneous. There was no difference in the scores when compared by the average years of study. However, individuals with better schooling levels are expected to have a better understanding of the disease, as well as better access to health care and, therefore, better adherence to the treatment.

According to this statement, a study conducted with 82 patients with decompensated HF found a significant correlation between self-care and education, showing that a longer length of study improves self-care management⁽¹³⁾.

A high number of economically inactive individuals stood out in the sample. It is believed that the low adherence to therapy may have contributed to the exacerbation of symptoms and physical limitations inherent to HF, leading to early retirements and, consequently, to a burden for the public financial system, as the average age of the interviewees is below the one set by the social security body in the country.

Considering the clinical conditions, it was observed that those investigated in functional class III and with reduced ejection fraction had a lower adherence to therapy scores. It is known

that patients with these clinical conditions are characterized by symptoms triggered by activities less intense than daily activities, or in small efforts⁽⁶⁾. However, the adherence levels were low for the three functional classes identified in the study. These findings are worrisome, considering that patients with no symptoms were poorly compliant with the therapy.

In this sense, the study indicates the need to identify the difficulties to implement the self-care measures essential for maintaining clinical stability. Thus, it is suggested that systematic health educational measures based on scientific evidence are taken to minimize progressions in cardiac remodeling due to lack of adherence to therapy. Moreover, the empowerment of these clients is essential for the implementation of self-care measures essential to health.

In this study, low adherence was found in the evaluation of the established therapy, that is, the absence of participants with satisfactory adherence (score ≥ 18 points). The results are similar to those of research studies carried out in the national scenario^(7,9). Another study conducted in Colombia – aimed at determining the prevalence of adherence to the pharmacological and non-pharmacological treatment of HF patients – showed that 80.2% of the participants were frequently adherent, and that only 3.73% were adherent to the treatment⁽¹⁴⁾.

A study with a qualitative approach, intended to identify the beliefs related to the factors that hinder adherence to the treatment in patients with HF, showed lack of access to medical services, delay in the schedule of medical appointments and difficulties in transportation/locomotion to the health services as main factors of poor adherence to therapy⁽⁸⁾.

A longitudinal study conducted in five Brazilian regions found that 63.7% of the patients with decompensated HF received guidance on the correct drug treatment at hospital discharge. Only 34.9% and 16.2% were instructed, respectively, to follow a low sodium diet and to engage in regular physical activity. These recommendations are essential for maintaining clinical stability and for preventing unwanted hospital readmissions⁽¹⁾.

These findings relate to the reflections on the care offered, making it a challenge for the health teams and the patients to incorporate, in their lifestyle, the pharmacological and non-pharmacological adherence measures necessary to maintain functional capacity and clinical stability. Many of these situations require disruptions of cultural and social paradigms.

In addition, there is the absence of specific public health policies for the follow-up of these patients, the specialized care being responsible for the management of health care, causing a delay in the diagnosis and beginning of the therapeutic approach. Thus, the reorganization of the health care network is indicated as a possible strategy for improving the care of patients with HF.

The results found in this investigation were lower than the mean score of a study conducted with 340 patients in two regions of the country, which was 16 ± 4 points. The authors state that only 36.5% of the patients had an adherence rate equal to or higher than the established cutoff point (≥ 18 points)⁽⁹⁾.

Regarding the proportion of answers related to the variables that make up the treatment adherence score, it was found that body weight control and fluid intake were the least adherent recommendations. These data corroborate the Brazilian multi-center study that showed that, among non-pharmacological measures, fluid restriction was the least taken⁽¹⁵⁾.

It is known that patients with HF should be advised to restrict the daily amount of fluid to around 1,000 to 1,500 ml. However, this recommendation should be made according to the clinical conditions and drug therapy, especially the use of diuretics⁽¹⁶⁾.

Additionally, it was identified that body weight control is another recommendation with low adherence, and its purpose is to monitor the appearance of signs and symptoms of clinical decompensation, such as fluid accumulation in the body. In this sense, these measures are instituted in order to direct the pharmacological therapy. It is imperative that these measures be clarified for the target audience. This may occur through a systematic education supported

by questioning methodologies, aiming to favor adherence and minimize negative prognoses.

In contrast, the use of medication as prescribed, non-ingestion of alcoholic beverages and going to medical appointments and scheduled examinations were evidenced as the treatment adherence measures with higher frequencies of satisfactory answers. However, these results raise the hypothesis that although users attend previously scheduled appointments, it is assumed that there are gaps that need to be addressed. The examples include lack of knowledge/understanding of the disease, the professional/patient relationship or external factors that influence non-adherence to the established therapy.

Regarding salt reduction in the diet, a lower proportion of patients stated to follow this instruction. This recommendation has been studied in the literature, and the evidence found indicates low adherence to a low-sodium diet in HF patients⁽¹⁶⁻¹⁷⁾.

In agreement with this information, a survey conducted in Canada with 237 patients found that self-report adherence to a low-sodium diet has poor reliability, since HF patients associate the idea of following a low-sodium diet mainly by not using salt for meal preparation or seasoning, rather than reducing the frequency of eating high-sodium processed foods⁽¹⁷⁾.

It is important to note that, during the research, it was observed that the participants were not monitored by nurses, or by a multidisciplinary team integrated in the specialized care to the patient with HF. However, it is understood that the nurse, as a member of the health team, is perceived as a facilitator in the educational process needed to understand the health/disease process⁽¹⁵⁾. In addition, nursing interventions have been used to implement non-pharmacological management measures, which are essential to minimize exacerbations of clinical symptoms and to promote self-care.

Several pieces of evidence indicate the prominent role played by nurses in the therapeutic approach to patients with HF. A study with 32 patients corroborates this assertion; its objective was to verify HF patients' adherence

to the treatment after hospital discharge, and it evidenced, through nurses' home educational visits, the significant increase in the adherence scores, from 16.0 ± 2.6 points at the first visit to 20.4 ± 2.7 points at the third visit ($p=0.001$)⁽⁷⁾.

Thus, the need to implement nursing monitoring programs for patients with HF is evident, especially in primary health care, since strategies such as home visits⁽¹¹⁾ and telephone monitoring⁽¹⁸⁾ are low-cost care tools and show satisfactory results for the success of the established therapy, survival and better perception of the quality of life. Thus, it is suggested that care technologies, based on the local context, should be delineated in order to address any knowledge gaps that negatively impact adherence to treatment.

It is noteworthy that the results found are limited by the cross-sectional design, which prevents the establishment of cause-effect relationships. Longitudinal studies should be conducted with larger samples (to compare groups by gender) and with the scope to ratify or refute the evidence raised in this investigation. It is also clarified that the evidenced findings cannot be generalized since the measure of adherence to treatment is self-reported. In addition, the sample size can be highlighted, which could have been larger considering the operational problems in the investigated service, which eventually affected data collection and may have influenced the absence of significant statistical results. From this perspective, it is suggested that future prospective and behavioral theory-based investigations be conducted to explore the determinant factors in HF patients' adherence to the treatment.

Conclusion

The results revealed that the participants had low adherence to the established therapy. Economically active male patients in functional class III with more than one comorbidity associated with HF showed lower adherence scores. Non-pharmacological management measures, such as body weight control and restriction of fluid intake, had a lower

proportion of adherence among the evaluated patients. The use of prescribed drugs, non-ingestion of alcohol and attending appointments and scheduled examinations have the best frequencies of answers, indicating a satisfactory adherence among the measures established for the therapeutic management of HF.

For the nursing practice, the results of this study indicate the need to implement interventions, such as nursing appointments, home visits and remote monitoring, in order to enhance adherence to the therapy and, therefore, favor the reduction in morbidity and mortality rates of this population.

Collaborations:

1 – design, analysis and interpretation of data: Mailson Marques de Sousa and Simone Helena dos Santos Oliveira;

2 – writing and relevant critical review of the intellectual content: Mailson Marques de Sousa, Rhaira Pereira Campos, Jacira dos Santos Oliveira and Simone Helena dos Santos Oliveira;

3 – final approval of the version to be published: Mailson Marques de Sousa and Simone Helena dos Santos Oliveira.

References

1. Albuquerque DC, Souza Neto JD, Bacal F, Rohde LEP, Bernardez-Pereira S, Berwanger O, et al. I Brazilian Registry of Heart Failure - Clinical Aspects, Care Quality and Hospitalization Outcomes. *Arq Bras Cardiol.* 2015 Jun;104(6):433-42. doi: 10.5935/abc.20150031
2. Mesquita EV, Jorge AJL, Rabelo LM, Souza Jr CV. Understanding hospitalization in patients with Heart Failure. *Int J Cardiovasc Sci.* 2017;30(1):81-90. DOI: 10.5935/2359-4802.20160060
3. Organización Mundial de La Salud. Adherencia a los tratamientos a largo plazo: Pruebas para la acción. Ginebra; 2004.
4. Jaarsma T, Stromberg A, Gal TB, Cameron J, Driscoll A, Duengen HD, et al. Comparison of self-care behaviors of heart failure patients in 15 countries worldwide. *Patient Educ Couns.* 2013;92(1):114-20. DOI:10.1016/j.pec.2013.02.017.

5. Sousa MM, Oliveira JS, Soares MJGO, Bezerra SMMS, Araújo AA, Oliveira SHS. Association of social and clinical conditions to the quality of life of patients with heart failure. *Rev Gaúcha Enferm.* 2017;38(2):e65885. DOI: 10.1590/1983-1447.2017.02.65885
6. Hoekstra T, Jaarsma T, van Veldhuisen DJ, Hillege HL, Sanderman R, Lesman-Leegte I. Quality of life and survival in patients with heart failure. *Eur J Heart Fail.* 2013;15(1):94-102. DOI: 10.1093/EURJHF/HFS148
7. Mantovani VM, Ruschel KB, Souza EM, Mussi C, Silva ERR. Treatment adherence in patients with heart failure receiving nurse-assisted home visits. *Acta Paul Enferm.* 2015;28(1):41-7 DOI: 10.1590/1982-0194201500008
8. Lucas TC, Stuchi RAG, Arreguy-Sena C, Cordeiro AF. Heart failure and difficulties in treatment adherence. [Internet] 2017;7:e1871. DOI: <https://doi.org/10.19175/recom.v7i0.1871>.
9. Silva AF, Cavalcanti ACD, Malta M, Arruda CS, Gandin T, Fé A, et al. Treatment adherence in heart failure patients followed up by nurses in two specialized clinics. *Rev Latino-Am Enfermagem.* 2015;23(5):888-94. DOI: <http://dx.doi.org/10.1590/0104-1169.0268.2628>
10. Bocchi EA, Cruz F, Guimarães G, Pinho Moreira LF, Issa VS, Ayub Ferreira SM. Long-term prospective, randomized, controlled study using repetitive education at six-month intervals and monitoring for adherence in heart failure outpatients: the REMADHE trial. *Circ Heart Fail.* 2008;1(2):115-24. DOI: <http://dx.doi.org/10.1161/CIRCHEARTFAILURE.107.744870>
11. Mussi CM, Ruschel K, Nogueira A, Lopes M, Trojahn MM, Paraboni CC, et al. Visita domiciliar melhora conhecimento, autocuidado e adesão na insuficiência cardíaca: ensaio clínico randomizado HELEN-I. *Rev Latino-Am Enfermagem.* 2013;21:1-9 DOI: <http://dx.doi.org/10.1590/S0104-11692013000700004>
12. Saldaña DMA, Sánchez AR, Castro NMT, Mora ALB, Beltrán NXN, Florez PD. Skills of family caretakers to care for patients with heart failure. *Rev Cuid.* 2017;8(3):1721-32. DOI: <http://dx.doi.org/10.15649/cuidarte.v8i3.407>
13. Linn AC, Azollin K, Souza EM. Association between selfcare and hospital readmissions of patients with heart failure. *Rev Bras Enferm.* 2016;69(3):500-6. doi: <http://dx.doi.org/10.1590/0034-7167.2016690312i>
14. Rojas Sánchez LZ, Echeverría Correa LE, Camargo Figueroa FA. Adherence to pharmacological and non-pharmacological treatment in patients with heart failure. *Enferm glob [Internet].* 2014 [cited 2018 Jun 11];13(36):15-25. Available from: http://scielo.isciii.es/pdf/eg/v13n36/en_clinica1.pdf
15. Rabelo ER, Aliti GB, Costa Linch GFC, Sauer JM, Mello AMFS, Martins SM, et al. Non-pharmacological management of patients with decompensated heart failure: a multicenter study – EMBRACE. *Acta Paul Enferm.* 2012;25(5):660-5. DOI: <http://dx.doi.org/10.1590/S0103-21002012000500003>
16. Philipson H, Ekman I, Forslund HB, Swedberg K, Schaufelberger M. Salt and fluid restriction is effective in patients with chronic heart failure. *Eur J Heart Fail.* 2013;15(11):1304-10. DOI: <https://doi.org/10.1093/eurjhf/hft097>
17. Colin-Ramirez E, McAlister FA, Woo E, Wong N, Ezekowitz JA. Association between self-reported adherence to a low-sodium diet and dietary habits related to sodium intake in heart failure patients. *J Cardiovasc Nurs.* 2015;30(1):58-65 DOI: <http://dx.doi.org/10.1097/JCN.0000000000000124>
18. Bashi N, Karunanithi M, Fatehi F, Ding H, Walters D. Remote Monitoring of Patients With Heart Failure: An Overview of Systematic Reviews. *J Med Internet Res.* 2017;20;19(1):e18. DOI: 10.2196/jmir.6571

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