Relationship between perceived social support and self-care of patients with heart failure

Relação entre apoio social percebido e autocuidado de pacientes com insuficiência cardíaca

Relación entre el apoyo social percibido y el autocuidado de pacientes con insuficiencia cardíaca

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Abstract

Objective: To describe perceived social support and self-care of patients with heart failure (HF) and the relationship between these variables.

Methods: An analytical, cross-sectional study. Data were collected from 74 patients hospitalized with HF between April 2019 and March 2020. Perceived social support was measured through the dimensions of the Social Outcomes Study Social Support Scale: emotional/informational; tangible; affectionate and positive social interaction. Self-care was assessed through the dimensions of the Self-Care of Heart Failure Index v 6.2, (self-care maintenance, management, and confidence). The correlation between social support and self-care was evaluated by the Spearman's test.

Results: Most patients were male, with a mean age of 61 years. The mean scores for tangible, affectionate, emotional/informational and positive social interaction were 4.6±0.8, 4.7±0.8, 4.1±1.2 and 4.4±1.0, respectively. Self-care maintenance, management and confidence mean scores were 47.9±15.8, 52.9±18.2 and 73.8±21.8, respectively. The levels of self-care confidence were positively correlated with the levels of social support: social interaction (r=0.32, p <0.01), affectionate (r=0.33, p<0.003) and emotional/ informational (r=0.28, p<0.002).

Conclusion: Although self-care confidence was adequate, self-care maintenance and management were inadequate. Higher levels of affectionate, emotional/informational and social interaction support were correlated with higher levels of self-care confidence. These data can support the planning of interventions that improve both social support and self-care confidence by the healthcare team.

Resumo

Objetivo: Descrever o apoio social percebido e o autocuidado de pacientes com insuficiência cardíaca (IC) e a relação entre essas variáveis.

Métodos: Estudo analítico transversal. Os dados de 74 pacientes hospitalizados com IC foram coletados entre abril de 2019 e março de 2020. O apoio social percebido foi mensurado por meio das dimensões da Escala de Apoio Social *Social Outcomes Study*: emocional/informacional; material; afetivo e interação social positiva. O autocuidado foi avaliado por meio das dimensões da Self-Care of Heart Failure Index v 6.2, (manutenção, manejo e confiança no autocuidado). A correlação entre apoio social e autocuidado foi avaliada pelo teste de Spearman.

Resultados: A maioria dos pacientes era do sexo masculino, com idade média de 61 anos. Os escores médios das dimensões de apoio material, afetivo, emocional/informacional e interação social foram 4,6±0,8, 4,7±0,8, 4,1±1,2 e 4,4±1,0, respectivamente. Os escores médios de manutenção, manejo e confiança no

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do autocuidado foram 47,9±15,8, 52,9±18,2 e 73,8±21,8, respectivamente. Os níveis de confiança no autocuidado tiveram correlações positivas com os níveis de apoio social: interação social (r=0,32, p<0,01), afetivo (r=0,33, p<0,003) e emocional/informacional (r=0,28, p<0,002).

Conclusão: Embora a confiança no autocuidado tenha sido adequada, a manutenção e manejo do autocuidado foram inadequados. Níveis mais altos de apoio afetivo, emocional/informacional e de interação social correlacionaram-se com níveis mais altos de confiança no autocuidado. Esses dados podem servir de apoio para o planejamento de intervenções pela equipe de saúde, de forma a melhorar tanto o apoio social quanto a confiança no autocuidado.

Resumen

Objetivo: Describir el apoyo social percibido y el autocuidado de pacientes con insuficiencia cardíaca (IC) y la relación entre estas variables.

Métodos: Estudio analítico transversal. Los datos de 74 pacientes hospitalizados con IC fueron recopilados entre abril de 2019 y marzo de 2020. El apoyo social percibido fue medido a través de las dimensiones de la Escala de Apoyo Social *Outcomes Study*: emocional/informativo, material, afectivo e interacción social positiva. El autocuidado fue evaluado por medio de las dimensiones del Self-Care of Heart Failure Index v 6.2 (manutención, manejo y confianza en el autocuidado). La correlación entre apoyo social y autocuidado fue evaluada por la prueba de Spearman.

Resultados: La mayoría de los pacientes era de sexo masculino, de 61 años de edad promedio. La puntuación promedio de la dimensión apoyo material fue 4,6±0,8, afectivo 4,7±0,8, emocional/informativo 4,1±1,2 e interacción social 4,4±1,0. La puntuación promedio de manutención del autocuidado fue 47,9±15,8, manejo 52,9±18,2 y confianza 73,8±21,8. Los niveles de confianza en el autocuidado tuvieron correlaciones positivas con los niveles de apoyo social: interacción social (r=0,32, p<0,01), afectivo (r=0,33, p<0,003) y emocional/informativo (r=0,28, p<0,002).

Conclusión: A pesar de que la confianza en el autocuidado haya sido adecuada, la manutención y el manejo del autocuidado fueron inadecuados. Niveles más altos de apoyo afectivo, emocional/informativo y de interacción social se correlacionaron con niveles más altos de confianza en el autocuidado. Estos datos pueden servir para respaldar la planificación de intervenciones por parte del equipo de salud, a fin de mejorar tanto el apoyo social, como la confianza en el autocuidado.

Introduction

Heart failure (HF) is the main cause of hospitalization due to cardiovascular diseases, with high related costs of 1,52 billion Brazilian Reais from January 2017 to December 2021. In Brazil, over 937,000 hospitalizations and around 109,858 deaths from the disease have occurred in the public healthcare system in the same period.[1]

The complex treatment of HF includes multiple medications, in addition to lifestyle changes, comprising fluid and saline restriction, limited ingestion of saturated fat and alcoholic beverages, smoking cessation, balance between activity and rest, flu and pneumonia vaccination.[2] Given the treatment complexity, effective patient self-care is essential. Heart failure self-care is defined as "a naturalistic decision-making process that influences actions that maintain physiologic stability, facilitate the perception of symptoms, and direct the management of those symptoms".[3] Better HF self-care is associated with better outcomes, including fewer readmissions,[4,5] improved quality of life[6,7] and reduced mortality.[4]

Several variables can influence the level of HF self-care, including higher levels of social support, which positively influence self-care confidence,[8,9] and self-care maintenance and management behaviors.[10-12] Perceived social support is defined through two aspects: perceived availability of functional support and perceived availability of structural support. Sherbourne & Stewart[13] define functional support as "the degree to which interpersonal relationships serve particular functions", including five dimensions: emotional support, informational support, tangible support, positive social interaction, and affectionate support.

Emotional support involves expressing positive affect, empathetic understanding, and encouragement of expressions of feelings; informational support includes offering of advice, information, guidance or feedback; tangible support comprises providing material aid or behavioral assistance; positive social interaction indicates the availability of other persons to do fun things with; affectionate support expressions of love and affection. Structural support is defined as "the existence and quantity of social relationships, and the interconnectedness of a person's social relationships or social network". However, Sherbourne & Stewart[13] state that the measurement of structural support might be biased because quantity of social relationships may not indicate a real support (e.g. social relationships or social network might only be related to work activities).

According to the International Center for Self-Care Research, the influence of others (care partners, family, peer supporters, and healthcare professionals) on self-care is a major knowledge gap about self-

care that should be addressed.[14] The relationship between social support and the level of self-care are still scarce, especially in patients with HF.[5] In Brazil, only one study[15] has been found that evaluated the social support of HF patients and its relationship with self-care. Nevertheless, the authors did not measure several aspects of social support through a standardized instrument. These studies could determine which dimensions of social support are most related to self-care behaviors, thereby guiding more predictive and more assertive therapeutic approaches. With the hypothesis that individuals with higher levels of perceived social support are able to perform better self-care, this study aimed to describe perceived social support and self-care of patients with HF and the relationship between these variables.

Methods

A cross-sectional, analytical study, reported according to the STROBE guidelines. The study was carried out in a large teaching hospital in the metropolitan region of São Paulo, SP, Brazil.

The population consisted of patients aged ≥ 18 years, diagnosed with chronic HF, as reported in their medical records. The inclusion criteria of the convenience sample were: being able to read, admitted to the hospital from April 2019 to March 2020. The exclusion criteria were: having a clinical condition incompatible with participation in the study (chest pain, dyspnea and/or symptomatic hypotension) at the time of data collection; being residents of long-term institutions; contact precautions; unable to perform activities of daily living (ADL) due to a stroke or dementia.

Sociodemographic and clinical data were obtained for descriptive purposes upon patient admission through analysis of medical records and interviews. Sociodemographic data included gender, age, self-reported ethnicity, education, marital status, cohabitation status (number of people living in the same residence), number of dependents, employment status, family income, and religion.

The clinical variables included: Mini Mental State Examination (MMSE) – scores range between

1 and 30, with lower scores indicating more severe cognitive problems and a score ≥ 24 considered normal;[16] HF etiology; New York Heart Association functional class; HF staging; hemodynamic decompensation profile; left ventricular ejection fraction; number of hospitalizations due to HF decompensation in the previous year; time since medical diagnosis; Charlson's Comorbidity Index (CCI): 17 comorbidities are assigned a weight from one to six, based on the risk of mortality within one year. The sum of the weighted comorbidity scores results in a summary score.[17]

The ability to perform ADL was measured by the Katz Index, which ranks the independence to perform six functions: bathing, dressing, toileting, transferring, continence, and feeding. A score of 6 indicates full independence, 4 indicates moderate impairment, and 2 or less indicates severe functional impairment.[18]

Functional social support was measured by using the Medical Outcomes Study Social Support Scale (MOS-SSS).[13] The MOS-SSS is a 19-item self-administered questionnaire that covers four dimensions: emotional/informational support (8 items), tangible support (4 items), affectionate support (3 items), positive social interaction (3 items) plus an additional item ("Someone to do things with to help you get your mind off things"). Patients indicate their response in a 5-point Likert-type scale: 1 (None of the time); 2 (A little of the time); 3 (Some of the time); 4 (Most of the time) and 5 (All of the time).[13] The score for each dimension ranges from 1 to 5, higher scores indicating a better support perception. The Portuguese version of the MOS-SSS has adequate reliability[19] and internal structure validity.[20]

Self-care was measured by the Self-Care of Heart Failure Index version 6.2 (SCHFI v. 6.2), which comprises 22 items distributed into three dimensions: self-care maintenance (10 items), self-care management (6 items) and self-care confidence (6 items). The responses to each item range from "never or rarely" to "always or daily" on the self-care maintenance scale, "not likely" to "very likely" on the self-care management scale, and "not confident" to "extremely confident" on the self-care confidence scale.[21] Patients with high self-care main-

tenance levels are considered those who maintain a healthy lifestyle, adhere to treatment and monitor their symptoms. Self-care management, on the other hand, concerns the decision-making process in response to symptoms. Finally, self-care confidence is an important factor influencing the effectiveness of self-care.[21]

The total scores for each dimension are standardized to range from 0 to 100; higher scores reflect greater capacity for self-care. Self-care is considered appropriate when all scales have scores ≥70.[21] The Brazilian version of the SCHFI v. 6.2 showed adequate evidence of convergent validity, internal structure validity and reliability.[22] The authors recommend that each scale is administered separately, and that self-care management scale be administered only to patients who have had dyspnea or lower limb edema in the last month. All instructions for scoring were followed.[21]

The project was approved by the institutional Research Ethics Committee (Protocols no. 3.272.181 and 3.647.549). Anonymity and confidentiality were guaranteed to participants, who signed consent forms.

Data analysis was performed using SPSS version 22.0. Data distribution was analyzed using the Shapiro Wilk test. Qualitative data were summarized by means of absolute numbers and relative frequencies and quantitative data were summarized by means of measures of central tendency (mean or median) and dispersion (standard deviation or interquartile range). Missing data are noted. Because the dimensions of social support and the dimensions of self-care were not normally distributed, the Spearman's correlation test was used to assess for correlation. Correlations with a Spearman's rho of 0.1 to 0.29, 0.30 to 0.49 and ≥ 0.50 were considered weak, moderate and strong, respectively.[23] The level of significance adopted was 0.05.

Results

Ninety-seven patients were assessed for eligibility in the period. Twenty-two were excluded because they were under contact precautions, six were he-

modynamically unstable and three refused to participate. Therefore, our sample was comprised of 74 patients. Their sociodemographic and clinical characteristics are shown in table 1. Most patients were male, with a mean age corresponding to the age group of older adults and ranging from 28 to 87 years old, Caucasian, catholic, married, with up to seven cohabitants, unemployed, widely varying family income and up to four dependents. The main HF etiology was valvular, there was a wide variation in the time elapsed between the diagnosis and data collection, and most were admitted with a B hemodynamic profile. Only 37 patients had information about the HF functional class in their medical records, among most of whom were in functional class III and only 7 had information about the HF stage - most in stage C. The patients had been hospitalized in the previous year up to 4 times and had a low left ventricular ejection fraction. In particular, 67.6% had at least one comorbidity, and the CCI reached up to 5. The median MMSE score was low and most were independent for basic ADL.

The social support results are shown in table 2. The emotional/informational dimension scored the lowest, especially the low frequency with which patients had someone to give them good advice about a crisis. Affectionate support was the dimension with the highest mean score, especially the high frequency with which patients had someone who showed them love and affection, and who loved and made them feel wanted.

The self-care maintenance, self-care management and self-care confidence domains had median scores of 46,6 (IQR 19,9), 50,2 (IQR 25,0) and 77,8 (IQR 23,6) respectively. Eight (10.8%), 17 (23.0%) and 51 (68.9%) patients had self-care maintenance, self-care management and self-care confidence levels ≥ 70, respectively.

Regarding the unfavorable patients' self-care maintenance behaviors, the majority never or rarely weighed themselves (n=34, 45.9%), performed some physical activity (n=50, 67.6%), exercised for 30 minutes (n=53, 71.6%), asked for low salt items while eating out or visiting others (n=60, 81.1%), and always or daily forgot to take one of their medicines (n=60, 81.1%). As favorable behaviors, most

Table 1. Sociodemographic and clinical characteristics of the heart failure patients

Variables	Total
Mage gender, n(%)	50(67.57)
Age, mean±SD	60.86±12.90
Ethnicity, n(%)	
Caucasian	47(63.51)
African-American	20(27.03)
Asian	7(9.46)
Religion, n(%)	
Catholic	45(60.81)
Evangelical	17(22.97)
None	6(8.11)
Spiritism	4(5.41)
African-Brazilian	1(1.35)
Education (years), median (Q1-Q3)[†]	7(4-11)
Family income (R$), median (min-max)[‡]	2.000.00 (600.00 – 18.000.00)
Marital status, n(%)	
Married	48(64.86)
Divorced	17(22.97)
Single	9(12.17)
Unemployed, n(%)	46(62.16)
Etiology[§], n(%)	
Valvular	19(38.78)
Others	11(22.45)
Ischemic	10(20.41)
Hypertensive	5(10.20)
Chagas' disease	4(8.16)
Functional class[‡], n(%)	
III	24(64.86)
IV	13(35.14)
Hemodynamic profile[£], n(%)	
B	27(56.25)
L	11(22.92)
C	9(18.75)
A	1(2.08)
Left ventricle ejection fraction, mean±SD[£]	41.37±15.16
Previous hospital admission, n(%)	
None	55(74.32)
1	11(14.86)
2	2(2.70)
3	5(6.76)
4	1(1.35)
Katz index, n(%)	
0	46(62.16)
1	12(16.22)
2	5(6.76)
3	4(5.41)
4	3(4.05)
Charlson's comorbidity index, median (min-max)	1(0-5)
Time since HF diagnosis (months), median (Q1-Q3)[¶]	78 (4.3-189.0)
Mini Mental State Examination, mean±SD	22.5±4.2

Q1 - First quartile; Q3 - Third quartile; SD - standard deviation. [†]Data from 73 patients; [‡]Data from 37 patients; [§]Data from 49 patients; [¶]Data from 70 patients; [ᴬ]Data from 37 patients; [ᶜ]Data from 48 patients; [£]Data from 59 patients

Table 2. Perceived social support of patients with heart failure (n=74)

MOS-Social Support Survey Instrument items	Mean (SD)	Median (IQR)
How many relatives can you trust to talk to about almost anything?	4.7(5.5)	3.0(3.0)
How many friends can you trust to talk to about almost anything?	3.9(5.6)	2.0(5.0)
How often is each of the following kinds of support available to you if you need it?		
Tangible support	4.6(0.8)	5.0(0.5)
Someone to help you if you were confined to bed	4.5(1.1)	5.0(0)
Someone to take you to the doctor if you needed it	4.6(0.9)	5.0(0)
Someone to prepare your meals if you were unable to do it yourself	4.6(0.9)	5.0(0)
Someone to help with daily chores if you were sick	4.5(1.2)	5.0(0)
Affectionate support	4.7(0.8)	5.0(0)
Someone who shows you love and affection	4.7(0.9)	5.0(0)
Someone who hugs you	4.6(0.9)	5.0(0)
Someone to love and make you feel wanted	4.7(0.9)	5.0(0)
Emotional/informational support	4.1(1.2)	4.6(1.2)
Someone you can count on to listen to you when you need to talk	4.2(1.3)	5.0(2.0)
Someone to give you good advice about a crisis	3.8(1.7)	5.0(3.0)
Someone to give you information to help you understand a situation	4.2(1.3)	5.0(1.0)
Someone to confide in or talk to about yourself or your problems	4.4(1.3)	5.0(0)
Someone whose advice you really want	3.8(1.7)	5.0(3.0)
Someone to share your most private worries and fears with	4.2(1.5)	5.0(1.0)
Someone to turn to for suggestions about how to deal with a personal problem	4.2(1.5)	5.0(1.0)
Someone who understands your problems	4.3(1.4)	5.0(0.3)
Positive social interaction	4.4(1.0)	5.0(1.0)
Someone to have a good time with	4.2(1.4)	5.0(2.0)
Someone to get together with for relaxation	4.4(1.1)	5.0(1.0)
Someone to do something enjoyable with	4.5(1.1)	5.0(0)
Additional item		
Someone to do things with to help you get your mind off things	4.4(1.2)	5.0(0.3)
Total score	4.4(0.9)	4.8(0.8)

SD - standard deviation; IQR - interquartile range

Regarding self-care management, 58 patients (78.4%) had trouble breathing or ankle swelling in the previous month. Of these, 46.6% (n=27) had not recognized them and only 13.8% (n=8) had recognized them immediately. Most patients reported that if they had trouble breathing or ankle swelling, it was very likely that they would reduce the salt in their diet (55.4%) or fluid intake (39.2%) and call their doctors or nurses for guidance (64.9%), but it was not likely that they would take an extra diuretic pill (91.9%). Regarding the medication they had tried the last time they had trouble breathing or ankle swelling, 56.8% of the patients were absolutely sure that it had helped them.

Regarding self-care confidence, 31.1% of the patients were not confident of keeping themselves free

patients always or daily checked their ankles for swelling (n=32, 43.2%), tried to avoid getting sick (n=46, 62.2%), kept their doctor or nurse appointments (n=59, 79.7%), and ate a low-salt diet (n=48, 64.9%).

of HF symptoms, however 28.4% felt very confident in this possibility. Most patients felt extremely confident in following the treatment advice they had been given (71.6%), evaluating the importance of their symptoms (70.3%), recognizing changes in their health if they occurred (66.2%), doing something that would relieve their symptoms (51.4%) and evaluating how well a remedy worked (56.8%).

Table 3 shows the results of the correlation between the SCHFI v. 6.2 domains and the MOS-SSS dimensions. Positive, moderate and significant correlations were identified between the self-care confidence scores and the affectionate and social interaction support scores. A positive, weak and significant correlation was found between the emotional informational domain and self-care confidence scores. Therefore, the higher the level of perceived emotional, affectionate and social interaction support, the greater the level of self-care confidence.

Table 3. Correlation between perceived social support and level of self-care in heart failure patients (n=74)

Dimension of the Medical Outcomes Study Social Support Survey	Dimension of the Self-care of Heart Failure* (Spearman's rho coefficient)		
	Maintenance	Management	Confidence
Tangible	-0.03	0.11	0.35
Emotional/Informational	0.06	-0.07	0.28[†]
Affectionate	-0.05	-0.02	0.33[‡]
Social interaction	0.02	0.01	0.32[§]

[†]p=0.002; [‡]p=0.003; [§]p=0.01; *Dimension of the Self-care of Heart Failure - Index v. 6.2

Discussion

Awareness of the levels of HF self-care and the factors influencing these levels is essential to direct educational interventions and improve health outcomes. Although social support has been identified as a factor related to HF self-care previously,[5,8-11,15] in Brazil, the multiple dimensions of social support, as measured by a validated instrument, and its relationship with self-care have not been explored. In our study, even though most patients were independent for basic ADL and had adequate levels of self-care confidence and social support, maintenance of physiological stability (adherence to self-care measures) and decision-making in response to symptoms when they occur (self-care management) were inadequate. In addition, confidence levels

were significantly correlated with some dimensions of social support.

In the Brazilian study by Conceição et al.,[24] 6.9%, 14.7% and 19.0% of HF patients had adequate levels of self-care maintenance, management and confidence, respectively. Thus, the low proportion of patients with adequate self-care maintenance and management in Brazil is alarming, which was confirmed in our sample. Interestingly, most of our patients had adequate self-care confidence in several aspects, except for keeping themselves free of HF symptoms. As we had a sample of hospitalized patients, their lack of confidence might have been influenced by the high prevalence of trouble breathing or ankle swelling starting the month before the data collection.

Contrary to our study, Buck et al.[25] identified a low level of confidence, associated with decreased levels of maintenance and management. The higher confidence levels in our sample compared to Buck et al.'s[25] may be related to the lower mean age and lower prevalence of comorbidities in our sample, compared to the mean values found by Buck et al.[25] Dickson et al.[26] also found low levels of self-care confidence, maintenance and management among 30 HF patients, whose mean age was similar to that of our sample. The higher levels of confidence in our sample may be due to the fact that most of our patients were independent for ADL, while physical functioning in Dickson et al.'s[26] sample was moderately compromised.

The Brazilian studies by Conceição et al.[24] and Cunha et al.,[25] carried out with 116 and 186 patients with HF, respectively, and also found inadequate levels of self-care maintenance, management and confidence, similarly to what was found by Buck et al.[26] Although the participants in the study by Conceição et al.[2] had a mean age similar to ours, mean education and the mean time since diagnosis were lower compared to the findings in our patients. Notably, individuals with higher levels of education and less time since diagnosis are more likely to adhere to self-care than those with lower educational levels.[27-29]

In addition, the proportion of married patients in our sample was greater than that in

Buck et al.'s[25] study and Conceição et al.'s[24] study. Having a partner is associated with better HF self-care confidence and maintenance.[9,28,29] This could also explain why our patients had a higher level of self-care confidence compared to the study by Buck et al.[25] In the sample by Buck et al.,[26] most patients were economically active, while the majority of our sample was economically inactive, which can be associated with a low level of self-care management.[30]

Our data show that social support was positively correlated with self-care confidence. Chamberlain et al.,[31] likewise, found that confidence was the only variable significantly related to perceived social support among 121 HF patients. Similar to our findings, Fivecoat, Sayers, & Riegel[8] found that the levels of self-care maintenance and management of HF patients did not reach the cutoff level of 70, despite having found acceptable levels of self-care confidence. In addition, these authors found that tangible and emotional support were independently associated with higher means levels of confidence, which is also corroborated by our findings.

Gallagher, Luttik, & Jaarsma[32] found that having a partner and perceiving this partner's support as high are associated with better HF self-care, specifically a greater chance of consulting with healthcare professionals when gaining weight, limiting the amount of fluid intake, taking medications, vaccinating against influenza, and exercising regularly. In Brazil, it has also been shown that living with a partner was significantly associated with strong/moderate family and social support, in addition to greater knowledge about HF and adherence to vaccination.[33] Thus, interventions that strengthen social support increase the levels of HF self-care maintenance and confidence.[12] Because in our sample there was a low proportion of patients who counted on someone to give them good advice about a crisis or someone whose advice they really wanted, interventions including teaching effective communicative skills to family members, friends and patients can improve social support and, consequently, self-care. Particularly, a systematic review shows that important components of dyadic self-care interventions targeting patients with HF and their informal caregivers include having long-standing formal and informal social support throughout the illness trajectory.[34]

Five coat, Sayers, & Riegel,[8] in a 6-month follow-up of 280 patients with HF, identified that patients with better emotional and tangible support had improved confidence and those with emotional support showed improved self-care monitoring and confidence. The authors encourage interventions involving family members and significant others to improve self-care. In fact, other studies have shown that incorporating family members of patients with HF or other significant individuals into educational interventions increases self-care confidence.[35] In Saudi Arabia, perceived self-care of patients with HF was improved by a multidisciplinary social support program. The program included an educational intervention consisting of face-to-face lectures and handouts delivered by healthcare professionals, followed by nurse-led social group interaction with other patients, who shared their feeling, expectations, difficulties, and efforts.[36]

In Brazil, the interventions "Teaching: Disease Process", "Health Education" and "Cardiac Care", of the Nursing Interventions Classification, were implemented face-to-face to patients with HF diagnosed with the NANDA-I diagnosis Ineffective Health Management during six bimonthly nursing appointments. These face-to-face meetings were interspersed with telephone calls. These interventions significantly improved the outcomes "Self-management: Heart Disease" and "Adherence Behavior" from the Nursing Outcomes Classification.[37] Within four months of follow-up, another Brazilian study showed that telephone education was effective in improving HF self-care.[38] Therefore, implementing both face-to-face and telephone education to improve HF self-care is feasible in Brazil.

Particularly, considering the specific self-care deficits in our sample, some educational aspects for caregivers recommended by the American Heart Association would be relevant: encourage disease-stage–appropriate activities, including walk-

ing, balance and strengthening exercises; weigh daily to monitor fluid retention; assist with shopping and cooking of heart-healthy meals; obtain prescription medications from the pharmacy; prepare weekly tablet organizers; remind of and manage tablet refills.[39] Therefore, nurses are required to be aware of the importance of following-up and measuring the level of self-care of patients admitted due to HF decompensation, so that they are able to prepare them for discharge, including their caregivers.[25] In this context, it is relevant to consider that caregivers themselves might have limitations related to health literacy.[40] In addition, in a technological-driven era, in which there are frequent attempts to use mobile and wireless technologies (mHealth-based technology) to promote self-care, it should be noted that the certainty of evidence for the use of tehse technologies with patients with HF is very low, according to a recent systematic review.[41] Nevertheless, further development of patient-oriented apps has been underway, with positive impacts on self-care.[42]

Our results are limited because it was performed in a single center, in the richest region of the country, with a limited sample size, which does not allow for generalization. Some data were missing in the charts, which might have impacted sociodemographic and clinical characterization. In addition, the results of self-care confidence may have been influenced by social desirability. However, this is the first study that investigated the relationship between different dimensions of social support, as measured by a standardized instrument, and self-care in HF patients in Brazil.

Conclusion

Although self-care confidence was adequate, maintenance and management were inadequate. Higher levels of affectionate, emotional/informational and social interaction support were positively correlated with higher levels of self-care confidence. These data support systematic assessment of self-care and social support in patients with HF, active search for patients with inadequate self-care behaviors, as well

as planning and implementation of interventions to improve self-care confidence, including testing of technology-driven delivery of care. While improvements in self-care maintenance and management seem to require manipulation of additional variables, future multicentric studies with larger samples and multivariate analyses should further investigate the relationship between social support and self-care in the Brazilian patients with HF.

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Collaborations

Megiati HM, Grisante DL, D'Agostino F, Santos VB e Lopes CT contributed to the study design, analysis and interpretation of data, writing of the article, relevant critical review of the intellectual content and approval of the final version to be published

References

1. Brasil. Ministério da Saúde. Departamento de Informações do Sistema Único de Saúde (DATASUS). Morbidade hospitalar do SUS. Insuficiência cardíaca. Brasília (DF): Ministério da saúde; 2021 [citado 2021 Jul 17]. Disponível em: http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sih/cnv/nruf.def

2. Cavalcante AM, Lopes CT, Brunori EF, Swanson E, Moorhead SA, Bachion MM, et al. Self-Care Behaviors in Heart Failure. Int J Nurs Knowl. 2018;29(3):146-55. Review.

3. Riegel B, Dickson VV. A situation-specific theory of heart failure self-care. J Cardiovasc Nurs. 2008;23(3):190-6. Review.

4. Lee CS, Bidwell JT, Paturzo M, Alvaro R, Cocchieri A, Jaarsma T, et al. Patterns of self-care and clinical events in a cohort of adults with heart failure: 1 year follow-up. Heart Lung. 2018;47(1):40-6.

5. Graven LJ, Grant JS. Social support and self-care behaviors in individuals with heart failure: an integrative review. Int J Nurs Stud. 2014;51(2):320-33. Review.

6. Vellone E, Fida R, Ghezzi V, D'Agostino F, Biagioli V, Paturzo M, et al. Patterns of Self-care in adults with heart failure and their associations with sociodemographic and clinical characteristics, quality of life, and hospitalizations: a cluster analysis. J Cardiovasc Nurs. 2017;32(2):180-9.

7. Kessing D, Denollet J, Widdershoven J, Kupper N. Self-care and health-related quality of life in chronic heart failure: a longitudinal analysis. Eur J Cardiovasc Nurs. 2017;16(7):605-13.

8. Fivecoat HC, Sayers SL, Riegel B. Social support predicts self-care confidence in patients with heart failure. Eur J Cardiovasc Nurs. 2018;17(7):598-604.

9. Hammash MH, Crawford T, Shawler C, Schrader M, Lin CY, Shewekah D, et al. Beyond social support: Self-care confidence is key for adherence in patients with heart failure. Eur J Cardiovasc Nurs. 2017;16(7):632-7.

10. Chen Y, Zou H, Zhang Y, Fang W, Fan X. Family caregiver contribution to self-care of heart failure: an application of the information-motivation-behavioral skills model. J Cardiovasc Nurs. 2017;32(6):576-83.

11. Koirala B, Dennison Himmelfarb CR, Budhathoki C, Davidson PM. Heart failure self-care, factors influencing self-care and the relationship with health-related quality of life: a cross-sectional observational study. Heliyon. 2020;6(2):e03412.

12. Graven LJ, Gordon G, Keltner JG, Abbott L, Bahorski J. Efficacy of a social support and problem-solving intervention on heart failure self-care: a pilot study. Patient Educ Couns. 2018;101(2):266-75. Erratum in: Patient Educ Couns. 2019;102(8):1575-6.

13. Sherbourne CD, Stewart AL. The MOS social support survey. Soc Sci Med. 1991;32(6):705-14.

14. Riegel B, Dunbar SB, Fitzsimons D, Freedland KE, Lee CS, Middleton S, et al. Self-care research: where are we now? Where are we going? Int J Nurs Stud. 2021;116:103402.

15. Trojahn MM, Ruschel KB, Nogueira de Souza E, Mussi CM, Naomi Hirakata V, Nogueira Mello Lopes A, et al. Predictors of better self-care in patients with heart failure after six months of follow-up home visits. Nurs Res Pract. 2013;2013:254352.

16. Pezzotti P, Scalmana S, Mastromattei A, Di Lallo D; Progetto Alzheimer Working Group. The accuracy of the MMSE in detecting cognitive impairment when administered by general practitioners: a prospective observational study. BMC Fam Pract. 2008;9:29.

17. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. J Chronic Dis. 1987;40(5):373-83.

18. Lino VT, Pereira SR, Camacho LA, Ribeiro Filho ST, Buksman S. Adaptação transcultural da Escala de Independência em Atividades da Vida Diária (Escala de Katz). Cad Saude Publica. 2008;24(1):103–12.

19. Griep RH, Chor D, Faerstein E, Lopes C. Apoio social: confiabilidade teste-reteste de escala no Estudo Pró-Saúde . Cad Saude Publica. 2003;19(2):625–34.

20. Griep RH, Chor D, Faerstein E, Werneck GL, Lopes CS. Validade de constructo de escala de apoio social do Medical Outcomes Study adaptada para o português no Estudo Pró-Saúde. Cad Saude Publica. 2005;21(3):703–14.

21. Riegel B, Lee CS, Dickson VV, Carlson B. An update on the self-care of heart failure index. J Cardiovasc Nurs. 2009;24(6):485-97.

22. Ávila CW. Adaptação transcultural e validação da Self-Care of Heart Failure Index versão 6.2 para uso no Brasil [dissetação]. Universidade Federal do Rio Grande do Sul; 2012.

23. Cohen J. No TiStatistical Power Analysis for the Behavioral Sciences. 2nd ed. New York: Lawrence Erlbaum Associates; 1988. 579 p.

24. Conceição AP, Santos MA, Santos B, Cruz DA. Self-care in heart failure patients. Rev Lat Am Enfermagem. 2015;23(4):578–86.

25. Cunha DC, Rossi LA, Dessote CA, Bolela F, Dantas RA. Evolution of self-care in patients with heart failure at the first outpatient return and three months after hospital discharge. Rev Lat Am Enfermagem. 2021;29:e3440.

26. Buck HG, Dickson VV, Fida R, Riegel B, D'Agostino F, Alvaro R, et al. Predictors of hospitalization and quality of life in heart failure: A model of comorbidity, self-efficacy and self-care. Int J Nurs Stud. 2015;52(11):1714-22.

27. Dickson VV, McCarthy MM, Howe A, Schipper J, Katz SM. Sociocultural influences on heart failure self-care among an ethnic minority black population. J Cardiovasc Nurs. 2013;28(2):111-8.

28. Cavalcante AM, Lopes CT, Brunori EF, Swanson E, Moorhead SA, Bachion MM, et al. Self-care behaviors in heart failure. Int J Nurs Knowl. 2018;29(3):146-55. Review

29. Uchmanowicz I, Jankowska-Pola ska B, Mazur G, Sivarajan Froelicher E. Cognitive deficits and self-care behaviors in elderly adults with heart failure. Clin Interv Aging. 2017;12:1565-72.

30. Jaarsma T, Hill L, Bayes-Genis A, La Rocca HB, Castiello T, elutkien J, et al. Self-care of heart failure patients: practical management recommendations from the Heart Failure Association of the European Society of Cardiology. Eur J Heart Fail. 2021;23(1):157-74.

31. Chamberlain L. Perceived social support and self-care in patients hospitalized with heart failure. Eur J Cardiovasc Nurs. 2017;16(8):753-61.

32. Gallagher R, Luttik ML, Jaarsma T. Social support and self-care in heart failure. J Cardiovasc Nurs. 2011;26(6):439-45.

33. Cavalcante LM, Lima FE, Custódio IL, Oliveira SK, Meneses LS, Oliveira AS, et al. Influence of socio-demographic characteristics in the self-care of people with heart failure. Rev Bras Enferm. 2018;71(Suppl 6):2604-11.

34. Buck HG, Stromberg A, Chung ML, Donovan KA, Harkness K, Howard AM, et al. A systematic review of heart failure dyadic self-care interventions focusing on intervention components, contexts, and outcomes. Int J Nurs Stud. 2018;77:232-42. Review.

35. Jaarsma T, Cameron J, Riegel B, Stromberg A. Factors related to self-care in heart failure patients according to the middle-range theory of self-care of chronic illness: a literature update. Curr Heart Fail Rep. 2017;14(2):71-7. Review.

36. Soofi MA, Jafery Z, AlSamadi F. Impact of a social support program supervised by a multidisciplinary team on psychosocial distress and knowledge about heart failure among heart failure patients. J Saudi Heart Assoc. 2020;32(3):456-63.

37. Oliveira AP, Cavalcante AM, Carneiro CS, Santos VB, Moorhead S, Lopes JL, et al. Health education: the effectiveness of interventions in patients with heart failure. Rev Bras Enferm. 2020;73(2):e20180782.

38. Oliveira JA, Cordeiro RG, Rocha RG, Guimarães TC, Albuquerque DC. Impact of telephone monitoring on patients with heart failure: a randomized clinical trial. Acta Paul Enferm. 2017;30(4):333-42.

39. Kitko L, McIlvennan CK, Bidwell JT, Dionne-Odom JN, Dunlay SM, Lewis LM, Meadows G, Sattler EL, Schulz R, Strömberg A; American Heart Association Council on Cardiovascular and Stroke Nursing; Council on Quality of Care and Outcomes Research; Council on Clinical Cardiology; and Council on Lifestyle and Cardiometabolic Health. Family Caregiving for Individuals With Heart Failure: a Scientific Statement From the American Heart Association. Circulation. 2020;141(22):e864-8.

40. Soares TAM, Brasil VV, Moraes KL, Santos LT, Vila VS, Borges Júnior LH. Health literacy of home caregivers in a Brazilian capital. Acta Paul Enferm. 2021;34:eAPE002255.

41. Allida S, Du H, Xu X, Prichard R, Chang S, Hickman LD, et al. mHealth education interventions in heart failure. Cochrane Database Syst Rev. 2020;7(7):CD011845.

42. Bakogiannis C, Tsarouchas A, Mouselimis D, Lazaridis C, Theofillogianakos EK, Billis A, et al. A Patient-Oriented App (ThessHF) to Improve Self-Care Quality in Heart Failure: from evidence-based design to pilot study. JMIR Mhealth Uhealth. 2021;9(4):e24271.