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Assessment of Self-Care Heart Failure Index among Heart Failure Patients in Sulaimani Cardiac Hospital

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ABSTRACT

Heart failure is a prolonged and progressive syndrome that leads to low quality of life and hospital readmissions. Avoiding or early recognizing health problems in heart failure is associated with proper self-care and recovering overall health-related quality of life. To describe the self-care behaviors and association of sociodemographic and clinical factors that affect patients' quality of life. The quantitative, cross-sectional convenience sample technique was used to collect 200 patients diagnosed with heart failure admitted to Sulaimani Cardiac Hospital, Iraq, from January to May 2022. The data were collected through direct interviews, a validated questionnaire, and the Self-Care of Heart Failure Index. About 50% of the participants were aged 62- 77 years, 65.5% were males, 66% were illiterate, and 65.5% had a low economic state. According to the classification of the New York Heart Association, 48% of them were class III heart failure. The mean scores of 1.67, 1.56, and 1.80 were observed on self-care confidence, poor self-care management, and poor self-care maintenance using the Self-Care of Heart Failure Index without significant difference ($p \leq 0.05$). The outcomes of this study demonstrated that most patients had inappropriate scores in self-care maintenance, management, and confidence subscales. The study also found that higher scores were associated with certain factors, such as age group, residence, number of recent hospital admissions for heart failure, and severity of heart failure.

1. Introduction

The primary cause of mortality is staying cardiovascular diseases [1]. The heart's inefficacy typifies heart disease in adequately pumping blood to satisfy the physiological demands of the body, leading to a diminished ejection fraction that falls below 40%. Heart failure (HF) is a prevalent cardiac disorder [2] that is characterized by high rates of morbidity and death, with HF accounting for one-eighth of all fatalities [3]. HF can result in a range of clinical manifestations, including dyspnea, exhaustion, swelling, hypertrophy,

and deviation of the cardiac muscle towards the left side of the body [4]. HF is chronic and progressive and adversely impacts patients' quality of life (QoL). This condition leads to hospital readmissions, early death, incurs, and high expenditures for the healthcare organization [5], [6]. The global prevalence of HF is estimated to affect over 60 million individuals, leading to a substantial decline in their health-related QoL [7].

According to several research studies, adopting self-care behaviours significantly influences patients' QoL [8], [9]. The concept of self-care comprises 3 fundamental theories; self-care maintenance, self-care observation, and self-care management [10]. Inadequate self-care practices have been associated with adverse health consequences and recurrent hospitalizations [11], [12]. Self-care in the context of HF entails regulating one's dietary and medicinal intake, imposing limitations on sodium and fluid consumption, consistent weight monitoring, engagement in physical activity, and vigilant observation of indications and manifestations of disease exacerbation [13], [14]. However, numerous obstacles impede self-care, including insufficient self-management assistance, restricted financial means, absence of medical coverage, and inadequate access to appropriate healthcare. These factors can result in unfavorable outcomes for individuals with HF [15], [16]. The Self-Care of Heart Failure Index (SCHFI) measure evaluates self-care as a cognitive process that includes choosing actions that support physiological stability and immediately attending to symptoms [17]. Despite the critical role that self-care plays in managing HF, much research has yet to be done in Sulaimaniyah City to look at how well-versed HF patients are in self-care and how that relates to their QoL. In a study done in Sulaimaniyah City in 2020, Mustafa and Amen discovered that patients with HF performed poorly in terms of self-care, with parameters including age, sex, education level, and the severity of HF having a significant impact on participants' self-care performance [18]. This study aimed to address the knowledge gap by assessing the self-care behaviors of HF patients using the SCHFI and analyzing their clinical and sociodemographic information.

2. Patients and Methods

Study setting

This descriptive study was conducted at Sulaimani Cardiac Hospital, Iraq, from February to May 2022 on 200 patients with HF through convenience sampling.

Inclusion criteria

Patients, regardless of gender, diagnosed with HF (classes I-IV) by cardiologists according to the New York Heart Association (NYHA) during the last 3 months, admitted to a coronary care unit, able to communicate, and willing to participate.

Exclusion criteria

Patients under 18 years or those with other chronic diseases such as chronic obstructive pulmonary disease (COPD), renal/hepatic failure or cancer and those with severe mental issues were excluded from this study.

Ethical considerations

The study received ethical approval from the College of Medicine, the University of Sulaimani (No. 176 on Sep 19, 2021-UoS). Written consent was obtained from participants before data collection.

Questionnaire

It consists of 3 parts; the first part contains the patient’s sociodemographic and clinical characteristics such as age, gender, education, residence, economic status, NYHA classification, smoking status, and family

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history of HF. The second part used the Brazilian version of the SCHFI to evaluate self-care behavior. In contrast, the third part examined the relationship between sociodemographic and clinical data and each subscale of the SCHFI.

Study protocol

The self-care behaviors of patients with HF were evaluated using the validated SCHFI measure. The SCHFI has 22 inquiries that can be separated into three subscales, each of which assesses various elements of behavior related to self-care. The self-care maintenance subscale comprises 10 items; each scored on a 4-point scale; higher scores indicate greater self-care compliance. On an international scale, the range of self-care maintenance scores is 10-40. The Self-Care Management and Self-Care Confidence subscales consist of 6 items each, and their score ranges from 6-24. Prior research has established the dependability and accuracy of the SCHFI, which is assessed individually and graded on a scale of 0-100. Attainment of satisfactory self-care is deemed accomplished when the scores exceed 70 points.

Rating and scoring

The sections of SCHFI, Personal Care Maintenance, Personal Care Management, and Personal Care Confidence were measured. These subscales were evaluated via 22 inquiries, which were responded to by 200 participants. The responses were assessed using a 4-point scale that ranged from "Never" to "Always." The subscale scores were computed, and the questionnaire's overall score spanned from 22 (minimum) to 88 (maximum). The prescribed methodology entailed assigning numerical values ranging from 1-4 to denote the degree of adherence to the recommended protocol, whereby a score of 1 was attributed to the response option "Never" and a score of 4 was attributed to the response option "Always".

Data analysis

The research analyzed data utilizing Excel and SPSS (Version 26). The study assessed participants' sociodemographic and clinical data by determining frequency, percentage, and chi-square tests. The SCHFI scores were done using a significance level of ≤0.05 to establish statistical significance.

3. Results

Table 1 shows that 50.0% of patients were aged 62-77 years, and most of them (65.5%) were males, (66.0%) Illiterate, (91.0%) lived in urban, (65.5%) had a low economic state, (73%) had a family history of first-degree HF. Whereas 32.5% were current smokers, and 41.5% of the HF patients were admitted to the cardiac hospital twice during the last three months for HF problems. Then, 48.0 % of them were in class III of HF according to the NYHA classification.

Table 2 indicates that 91.5% of patients did never measure their body weight, 79.5% did never check their ankles for swelling, 68.5% did never try to avoid getting sick, 71.5% never did do any physical activity, 51% never were assiduous in consulting the doctor or nurse, 46% did never eat a low salt diet, 48.5% always forgot to take one of their medications, and 79% did not use a system to assess them and remember them to assume their medications.

Table (1): Sociodemographic and clinical characteristics of the study sample.

Variable	Group	Frequency	%
Age (Years)	30 – 45	5.0	2.5
	46 - 61	49	24.5
	62 - 77	100	50.0
	78 - 93	44	22.0
	> 93	2.0	1.0

Gender	Male	131	65.5
	Female	69	34.5
Level of education	Illiterate	132	66.0
	Primary school	34	17.0
	Secondary school	23	11.5
	Institute/College	11	5.5
	Postgraduate	0.0	0.0
Residence	Urban	182	91.0
	Rural	18	9.0
Economic status	Income < Expenditures	131	65.5
	Income = Expenditures	57	28.5
	Income > Expenditures	12	6.0
Smoking status	Current smoker	65	32.5
	EX smoker	48	24.0
	Passive smoker	23	11.5
	Never smoking	64	32.0
Family history of heart failure (First degree)	No	43	21.5
	Yes	146	73.0
	I don't know	11	5.5
How many times have you been admitted to the hospital during the last three months for heart failure problems	None	19	9.5
	One-time	51	25.5
	Two times	83	41.5
	≥ three-times	47	23.5
The severity of heart failure, according to the New York Heart Association (NYHA) classification	II	61	30.5
	III	96	48.0
	IV	43	21.5
Total		**200**	**100.0**

Table (2): Distribution of the study sample according to Self-Care maintenance.

Self-Care Maintenance	**Never**	**Sometime**	**Frequently**	**Always**	**Mean±SD**
	Frequency	**Frequency**	**Frequency**	**Frequency**	
	%	**%**	**%**	**%**	
Measure body weight	183	16.0	1.0	0.0	1.09±0.30
	91.5	8.0	0.5	0.0	
Look at ankles for stiffness	159	34.0	5.0	2.0	1.25±0.55
	79.5	17.0	2.5	1.0	
Make an effort not to get sick	137	46.0	14.0	3.0	1.42±0.69
	68.5	23.0	7.0	1.5	
Practice any physical activity	143	36.0	19.0	2.0	1.40±0.70
	71.5	18.0	9.5	1.0	
It is prudent to have a conversation with a doctor or nurse	102	73.0	25.0	0.0	1.62±0.69
	51.0	36.5	12.5	0.0	
Eat a low-salty food	92	64.0	36.0	8.0	1.80±0.87
	46.0	32.0	18.0	4.0	
Exercising for 30 minutes every day	13	43.0	24.0	3.0	1.50±0.76
	65.0	21.5	12.0	1.5	
Missed using one of the medications	3.0	48.0	52.0	97.0	3.22±0.86
	1.50	24.0	26.0	48.5	
Whenever you consume food outside or visit others, request a low-salt diet	68.0	45.0	84.0	3.0	2.11±0.90
	34.0	22.5	42.0	1.5	
Apply a system that assists in remaining on top of taking medications	158	25.0	15.0	2.0	1.31±0.65
	79.0	12.5	7.5	1.0	

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Total	1269	434	271	26.0	1.67±0.70
	63.5	21.7	13.6	1.3	

Table 3 shows that 80% of patients never recognize the symptom of HF, 70.5% did never reduce the salt in their diet, 78% did never reduce fluid intake, 67% did never take diuretic medications, and 51% sometimes phoned or visited their doctor or nurse for guidance.

Table (3): Distribution of the study sample according to Self-Care Management.

Self-Care Management	**Never**	**Sometime**	**Frequently**	**Always**	**Mean±SD**
	Frequency	**Frequency**	**Frequency**	**Frequency**	
	%	**%**	**%**	**%**	
Recognize the manifestation of heart failure quickly	160	37.0	2.0	1.0	1.22±0.47
	80.0	18.5	1.0	0.5	
Decrease the salty diet in the daily meal	141	31.0	24.0	4.0	1.46±0.78
	70.5	15.5	12.0	2.0	
Decrease fluid intake daily	156	28.0	13.0	3.0	1.32±0.66
	78.0	14.0	6.5	1.5	
Use diuretics	134	40	23.0	3.0	1.48±0.76
	67.0	20.0	11.5	1.5	
Visit or call medical staff for direction	55.0	102	41.0	2.0	1.95±0.72
	27.5	51.0	20.5	1.0	
Consider a feature from the abovementioned list if you experience breathlessness or ankle edema. Are you sure this feature is assessed?	48.0	125	25.0	2.0	1.91±0.63
	24.0	62.5	12.5	1.0	
Total	694	363	128	15.0	1.56±0.67
	57.8	30.3	10.7	1.3	

Table 4 indicates that 55% of the patients sometimes kept their selves free of HF symptoms, 51% followed their treatment advice, and 62.5% periodically evaluated the importance of their symptoms. In comparison, 56%, 60.5%, and 57.5% recognized any changes in their health, did something to relieve their symptoms, and evaluated how well their treatment worked.

The mean for the HF index subscales presented in Table 5 corresponds to low participant self-care confidence (1.80), poor self-care management (1.56), and poor self-care maintenance (1.67). The study found that higher scores were associated with certain factors, such as age group (mean score of 14.2, p=0.006), place of residence (mean score of 9.4, p=0.004), number of recent hospitalizations due to HF (mean score of 10.6, p=0.000), and the self-care management subscale (mean score of 9.8, p=0.000) and the severity of HF as measured by the NYHA classification (mean score of 15.8, p=0.003).

Table (4): Distribution of the study sample according to Self-Care Confidence.

Self-Care Confidence	**Never**	**Sometime**	**Frequently**	**Always**	**Mean±SD**
	Frequency	**Frequency**	**Frequency**	**Frequency**	
	%	**%**	**%**	**%**	
Protect yourself free from symptoms of heart failure	75.0	110	14.0	1.0	1.71±0.62
	37.5	55.0	7.0	0.5	
Observe the medical advice that has been given to you	80.0	102	18.0	0.0	1.69±0.63
	40.0	51.0	9.0	0.0	
Determine how important your symptoms are	41.0	125	34.0	0.0	1.97±0.61
	20.5	62.5	17.0	0.0	
Find out whether there are any	58.0	112	30.0	0.0	1.86±0.65

changes in your health	29.0	56.0	15.0	0.0	
Do anything to get your symptoms under control	62.0	121	17.0	0.0	1.78±0.59
	31.0	60.5	8.5	0.0	
Assess the action of your medicine	65.0	115	20.0	0.0	1.77±0.61
	32.5	57.5	10.0	0.0	
Total	381	685	133	1.0	1.8±0.62
	31.8	57.1	11.1	0.1	

Table (5): Compares the mean of Self-care heart failure index subscales with patient sociodemographic and clinical data.

Variable	Self-care Maintenance		p-value	Self-care Management		p-value	Self-care Confidence		p-value
	Mean	SD		Mean	SD		Mean	SD	
Age (Years)									
30 – 45	18.0	3.67	0.134	10.0	1.22	0.25	14.2	1.78	0.006*
46 – 61	15.38	3.63		9.85	2.86		11.0	2.80	
62-77	15.4	2.93		9.22	1.93		10.66	1.96	
78-93	14.63	2.69		8.90	1.98		10.40	1.71	
> 93	13.0	1.41		8.5	0.70		10.0	1.41	
Gender									
Male	14.95	3.29	0.047*	9.19	2.30	0.255	10.87	2.27	0.342
Female	15.86	2.63		9.56	2.0		10.56	2.08	
Level of education (Graduated)									
Illiterate	15.27	2.91	0.61	9.27	2.12	0.701	10.52	2.13	0.071
Primary school	15.0	3.07		9.26	2.39		11.17	2.11	
Secondary school	15.95	4.41		9.82	2.72		11.69	2.51	
Institute/College	14.63	2.20		9.09	1.44		10.63	2.29	
Residence									
Urban	15.31	3.22	0.533	9.46	2.21	0.004*	10.73	2.18	0.493
Rural	14.83	1.50		7.88	1.49		11.11	2.47	
Economic status									
Income < Expenditures	15.03	3.28	0.217	9.42	2.47	0.256	10.65	2.35	0.271
Income = Expenditures	15.87	2.58		9.28	1.56		11.14	1.95	
Income > Expenditures	14.91	3.20		8.33	1.30		10.25	1.42	
Smoking status									
Current smoker	14.89	2.98	0.412	9.07	2.32	0.718	10.69	2.47	0.701
EX smoker	15.02	2.89		9.54	2.03		11.02	2.02	
Passive smoker	15.78	2.98		9.43	2.33		11.0	2.27	
Never smoke	15.65	3.40		9.35	2.18		10.57	2.04	
Family history of heart failure (First degree)									
No	14.46	2.94	0.15	8.88	2.86	0.297	10.20	2.12	0.073
Yes	15.51	3.08		9.46	2.01		10.98	2.22	
I don't know	15.18	3.68		9.09	1.57		10.09	1.92	
How many times have you been admitted to the hospital during the last three months for heart failure problems									
None	15.63	3.33	0.53	8.84	1.92	0.00	11.10	1.69	0.665
One-time	14.72	2.72		8.45	2.25		10.58	2.21	
Two times	15.40	3.00		9.19	1.81		10.66	2.41	
≥ three-times	15.46	3.56		10.68	2.31		11.02	2.01	
The severity of heart failure, according to the New York Heart Association (NYHA) classification									
II	14.50	2.52	0.03*	8.42	1.76	0.00	11.18	1.93	0.191
III	15.83	3.50		9.85	2.504		10.65	2.41	
IV	15.09	2.69		9.39	1.60		10.44	2.02	

*: Significant difference using chi-square test

4. Discussion

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This descriptive study assessed the self-care of clients admitted to the Sulaimani Cardiac Hospital in Iraq. The results of characteristics variables demonstrated that more than half of the study participants with HF were males, illiterate, with low income and elderly (62-77 years). These results align with the studies of [19], [20] who mentioned that HF participants were males > 50 years.

Moreover, the results indicated that 75% of the subjects had a familial background of HF, which is acknowledged as a significant risk element for the ailment [21]. Also, we revealed that nearly half of the patients were categorized as NYHA class III. This outcome agrees with another study in Taiwan [22], which mentioned that more than half of their patients were males in class III of the NYHA classification, while another study indicated that less than a quarter of the patients were in class III; and 31.4% was the highest level of their education [23].

According to the findings of this study, fewer than half of the participants with HF were hospitalized twice in the cardiac hospital within the last three months due to HF issues. Common reasons for repeated hospitalization for HF problems are often related to delays in symptom recognition, knowledge deficit and inabilities in competent self-care [20]. Furthermore, nearly three-quarters of patients were current, passive and EX smokers (32.5%, 11.5%, and 24%, respectively). There is a strong link between cigarette smoking and coronary heart disease, mainly including enhanced atherogenesis and increased platelet aggregation with the formation of a thrombus that contains approximately 4000 different chemical substances with sizes from atoms to particulate matter [23].

The SCHFI (version 6.2) was used in this investigation to evaluate the mean scores, and the maintenance, management, and self-confidence scales' mean scores were < 70 points, the lowest threshold for scores denoting good self-care. This means the clients in this study did not reach the cut point for acceptable self-care practice. These outcomes are nearly similar to that found by Mustafa and Rashid, 2021 in Iraq [18] and Medeiros & Medeiros, 2017 in Brazil [26], who found the most miniature threshold score indicative of adequate self-care. The self-care maintenance scale deals with actions like weighing that preserve physiological homeostasis, testing symptoms, avoiding further problems, acting daily physical activity, asking a physician or the nurses, and stability medications which are continuity of care because of age-related, physical, and cognitive problems following these things such as using drugs, restriction of water and some food for an extended period without curing are so hard for patients with the HF for a long time [27]. In addition, self-care confidence is declined by chronic disease, which might lead to patients' disappointment regarding this treatment. The present research outcomes revealed that the participants scored poorly on the self-care maintenance, management, and confidence scale, except for one item in self-care keeping that had a fair level related to asking for low-salt food while eating out or visiting others. These findings are consistent with Vellone et al., 2017 who found that the participants had lower levels of education, more cognitive and physical impairment, lower QoL, and higher hospitalization rates [24]. The lack of knowledge about the disease and adequate care among patients can be predicted, and controlling symptoms is a common approach in different contexts, which could explain the results of the self-care maintenance scale. Therefore, multidisciplinary programs should be encouraged to promote self-care among HF patients, especially in chronic diseases such as diabetic mellitus and hypertension [25], [35].

The participants of this study experienced poor levels of regular daily physical activity for 30 minutes on the self-care maintenance subscale items, consistent with previous research that showed low levels of regular exercise among HF patients despite possible cultural differences [22], [29], [30]. Therefore, guidance on physical activity for HF patients should be personalized based on age and the degree of HF to avoid negative physiological and psychological consequences of inactivity. A home walking program could

be suitable for encouraging daily physical activities. In addition, HF patients should be educated to recognize the symptoms of shortness of breath (SOB) and fatigue to perform physical activities and gradually begin exercise without medical restrictions [26]. The researchers suggest that inadequate physical activity among HF patients could be due to activity intolerance, exacerbation of clinical manifestations during effort, and a lack of plans and programs to encourage physical activities from childhood in the Kurdistan region of Iraq. Also, we indicated that nearly half of the patients forgot to take one of the medicines; the researchers return this condition to the old age of the patients and the low level of their education and lack of health awareness.

Self-care management deals with the signs and symptoms, quickly recognizing the symptoms of HF, restriction of salt and fluid, and; taking an extra water pill [24]. The first step to completely embracing and developing an effective self-care plan self-care is gaining a better understanding of HF, which includes information about the clinical manifestation of HF, keeping a log and daily measurement of body weight, how each medication helps the heart and its probable side effects, when necessary to contact the medical team such as nurse and cardiologist [31].

In the subscale self-care management of SCHFI, the present study demonstrated inadequate or poor self-care in all items. In the subscale, self-care management is associated with the behavior of patients when symptoms occur. The items reducing fluid intake and salt in daily foods are considered the most critical points for patients with HF; however, 78% and 70% of them never restricted them, respectively. More than half of the participants sometimes knew the item of evaluating the work of the treatment in self-care confidence; the researcher believed that these issues related to lack of health education and awareness because more than half of them were illiterate, as well as this result is higher than a study done in Italy as 37.7% of their participants sometimes evaluate the work of the treatment [30].

None of the sociodemographic and clinical data examined in the current study showed significant associations with all three subscales, except for age group in self-care confidence, the severity of HF according to NYHA classification in self-care maintenance and self-care management, and several hospital admissions in self-care management ($p \leq 0.005$). These findings highlight the urgent need for interventions to improve self-care among HF patients, as the study showed poor self-management among participants. Nurses in coronary care units have a crucial role in promoting the health of HF patients by receiving training and education in self-care. This would empower them to sustain their health and improve the QoL for HF patients. Nurses can effectively contribute to adopting adaptive strategies that maintain patients' independence in self-care, which is a fundamental approach in managing HF patients. Improvements in HF patients' QoL include taking responsibility for their behaviors and making them more active in decision-making about their lifestyle. More than half of the HF patients in the current study were illiterates because they lacked information about the disease, leading to low QoL with HF disease. Previous studies have also emphasized the need for self-care interventions and training for HF patients regarding heart disease [30-34].

5. Conclusions

In the current study, with a sample of Iraqi HF patients in Sulaimani Cardiac Hospital, all three subscales of self-care confidence, management, and maintenance were inadequate (<70 points), the lowest limit score of appropriate self-care. So, the researchers recommended that the outcomes of this study will be suitable for promoting and improving HF patients through appropriate nursing interventions at Sulaimani Cardiac Hospital. Also, it can allow patients to identify the clinical manifestations of HF and manage themselves with HF. Also, cardiac hospital nurses must be capable of making informed judgments based on study

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outcomes rather than simply personal skills and experience.

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