WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 1, 1473-1485. Research Article ISSN 2277–7105

ASSESSMENT OF SELF-CARE BEHAVIOR AND RELATED FACTORS AMONG PATIENTS WITH HEART FAILURE IN A TERTIARY CARE HOSPITAL, KERALA

Chithra A. Valsan[1], K. T. Moly[2]* and Anjana A. P.[3]

[1]Principal, [2]Professor Cum Principal, [3]Assistant Professor, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India.

Article Received on
20 November 2024,

Revised on 10 Dec. 2024,
Accepted on 30 Dec. 2024

DOI: 10.20959/wjpr20251-35205

***Corresponding Author**
K. T. Moly
M.Sc. Nursing Student,
Amrita College of Nursing,
Amrita Vishwa
Vidyapeetham, Kochi,
Kerala, India.

ABSTRACT

Introduction: Heart failure (HF) is a chronic progressive debilitating cardiovascular disorder which demands lifetime treatment and better self-care adherence to maintain the best possible well-being. The main objective of the study was to assess self-care behaviour and related factors in patients with HF and prepare a self-care guide for patients with HF based on the identified related factors. **Methodology:** A quantitative descriptive design was used to collect data from 160 HF patients using a convenience sampling technique. Socio-demographic data, clinical data and knowledge on HF were collected using structured questionnaires while self-care behaviour and depression were assessed using EHFSc Behaviour Scale-9 and PHQ-9, respectively. **Results:** The mean self-care behaviour was found to be good (21.08 ± 5.998) in patients with HF. Among the nine components of self-care behaviour, the highest self-care adherence was found in regular medication (1.13±0.51) and the lowest, in daily weighing (3.53±1.02) and regular exercise (3.21±1.33). The knowledge of HF and depression were the two factors studied in detail. The majority of the subjects (78.12%) had average knowledge on HF with 18.13% poor knowledge and 3.75% good knowledge on HF. Mild to moderate depression was noticed in 53.74% of subjects. Nearly half of the subjects (46.25%) had no depression. A statistically significant association was found between self-care behaviour and depression ($p \leq 0.05$). **Conclusion:** Although the self-care behaviour was found good in the study subjects, the two areas of poor adherence (daily weighing and regular exercise) need further exploration in terms of feasibility and mental status. No statistically significant

association was found between HF knowledge and self-care behaviour. Even though nearly half of the subjects had no depression, a statistically significant association was observed.

KEYWORDS: Heart failure, Self-care, Depression, Knowledge.

INTRODUCTION

Heart Failure (HF) is a chronic progressive debilitating disorder that results from a variety of cardiovascular conditions (e.g., coronary artery disease (CAD), chronic hypertension, valvular diseases) and other conditions (e.g., anaemia, hyperthyroidism, emphysema) that can damage the heart muscle or heart valves. Certain behaviours like smoking, alcohol consumption, high fat intake, physical inactivity, obesity, and a sedentary lifestyle can also increase the risk of developing HF.[1]

The HF burden is increasing at an alarming rate. The worldwide prevalence of HF in 2017 was estimated as 64.34 million cases.[2] Globally, the lifetime risk for HF is one in five.[3] Approximately 50% of HF patients die within five years of the onset of symptoms. Excessive delay in seeking medical care for HF symptoms may influence patient outcomes. Thus, optimal treatment improves symptoms and slows down the disease progression.[4]

The treatment depends on the type of HF and the underlying conditions. HF management encompasses a complex treatment regimen that is challenging to manage. Successful treatment is mainly rooted in the patient's willingness for better adherence to self-care. Effective HF self-care improves cardiac performance and promotes general wellbeing through key self-care domains such as consumption of key medications, behavioural or lifestyle management (including smoking cessation, salt and fluid restriction, and weight management), timely use of health services, regular physical activity, and good social relationships.[5-10]

Most of the studies on self-care showed inadequate self-care behaviour in HF patients. Even though they were better adhered to taking regular medications and following appointments while the poorest adherence was reported in regular exercise, weight monitoring, and fluid restriction. The factors that may influence self-care behaviour in these patients are, (1) personal and environmental factors or socio-demographic factors (2) clinical condition and therapy-related factors (3) psychological and behavioural factors (4) healthcare system

factors, and (5) social and economic factors. Moreover, lower HF knowledge and varying degrees of depression were highlighted in such patients.[5,6,11-19]

Hence, it is important to understand self-care behaviour and related factors in HF patients. Therefore, the health care professional can take further need-based interventions in the future to achieve better self-care and reduce the risk of complications among HF patients.

MATERIALS AND METHODS

A quantitative descriptive design was used to collect data from 160 HF patients who attended the cardiology OPD and were admitted to the cardiology ward of AIMS, Kochi using a convenience sampling technique. Socio-demographic data, clinical data and HF knowledge were collected using structured questionnaires while self-care behaviour and depression were assessed using standardized questionnaires like EHFSc Behavior Scale-9 and PHQ-9, respectively.

The sample size was estimated based on the pilot study with 5% level significance and 90% power using software Sigma-plot 11 and the minimum sample size required was 121. It was decided to take 160 subjects.

Sample selection criteria

Patients who were diagnosed with HF and who can write and read Malayalam or English were included. HF patients with cognitive impairment or critically ill were excluded.

Data collection instruments

Tool I: Socio-Demographic and Clinical Data (self-developed questionnaire)

Socio-demographic data included age, gender, education, occupation, income, marital status, type of support system, area of residence and habits. Clinical data consisted questions on NYHA classification, EF, duration of diagnosis, frequency of follow-up, frequency of previous hospitalization, comorbidities, type of medicines, frequently occurring health problems and cost of medicines.

Tool II: The European Heart Failure Self-care Behaviour Scale – 9 (EHFScBS-9)

The 9-item scale (EHFScB-9) developed in 2009 was used. These nine items are scored on a 5-point Likert scale, a score from 9 to 45 with the higher score indicating worse self-care. The reliability ranged between 0.77 and 0.95.

Tool III: Structured questionnaire to assess the knowledge of HF (self-developed)

The knowledge on HF has been categorized into meaning, risk factors, pathophysiology, clinical manifestations, treatment, complications of HF and self-care behaviour. It included 30 multiple-choice questions with a total score ranging from 0 to 30. The scores on knowledge were interpreted as Poor (0 – 11), Average (11 – 20) and Good (21 – 30). The content validity index obtained was 0.93. The reliability was found to be 0.99 using split half method.

Tool IV: Patient health questionnaire -9 (PHQ-9)

PHQ-9 is the depression module, which scores each of the nine DSM-IV criteria as "0" (not at all) to "3" (nearly every day). The severity of depression is interpreted as None (0-4), Mild (5-9), Moderate (10-14), Moderately Severe (15-19) and Severe (20-27). PHQ-9 has a high internal consistency and reliability coefficient (Cronbach's alphas of two different study populations) ranging from 0.86 and 0.89.

Ethical Clearance

The research proposal was approved by the Research Committee of Amrita College of Nursing and ethical clearance was granted from the Institutional Review Board of AIMS. Formal administrative permission was obtained from the Heads of the Department of Cardiology units. The informed consent was taken from the subjects and the tools were administered.

Theoretical Framework

Orem's theory of self-care deficit was used as the theoretical framework.

Data collection procedure

The data collection period was from 27.07.2021 to 29.09.2021. Subjects were included as per the inclusion criteria. Informed consent was obtained from each patient before data collection. Clinical data such as NYHA classification, EF and current medications were taken from the electronic medical records. Statistical analysis was done using SPSS version 20. Sample characteristics were computed using descriptive statistical methods. Mann-Whitney U test and Kruskal-Wallis test were applied to find the association between the self-care behaviour and selected variables.

RESULTS

Sample characteristics

Table 1: Distribution of subjects based on Socio-demographic Characteristics

n=160.

Demographic Variables	Frequency (f)	Percentage (%)
Age (in years)		
< 35	2	1.25
35 – 50	16	10
51 – 65	68	42.5
≥ 66	74	46.25
Gender		
Male	119	74.4
Female	41	25.6
Transgender	0	0
Educational status		
Primary	23	14.4
High school	83	51.9
Higher secondary	30	18.7
Technical	11	6.9
Undergraduate	10	6.2
Postgraduate and above	3	1.9
Type of work		
Sedentary	91	56.9
Moderate	34	21.25
Heavy	35	21.87
Marital status		
Married	145	90.6
Unmarried	4	2.5
Widow/Widower	11	6.9
Separated/Divorced	0	0
Type of support system		
Family	160	100
Friends	0	0
Living alone	0	0
Area of residence		
Urban	48	30
Rural	112	70

Table 2: Distribution of Subjects based on Clinical Variables.

n=160

Clinical Variable	Frequency (f)	Percentage (%)
NYHA Classification		
NYHA Class I	40	25.0
NYHA Class II	82	51.3

NYHA Class III	37	23.1
NYHA Class IV	1	0.6
Ejection Fraction (EF)		
Normal EF (50% - 75%)	52	32.5
Below normal EF (36% - 49%)	56	35.0
Low EF (≤35%)	52	32.5
Duration of diagnosis		
< 1 year	36	22.5
1 – 3 years	30	18.8
3 – 5 years	42	26.3
> 5 years	52	32.5
Hospitalization due to HF		
Yes	74	46.3
No	86	53.8
Frequency of previous hospitalization		
1 – 2 times/ month	3	1.9
1 – 3 times/ year	70	43.8
> 3 times/ year	1	0.6
Frequency of follow-up		
Monthly	19	11.9
Every 3 months	45	28.1
Every 6 months	73	45.6
Yearly	21	13.1
Occasionally	2	1.3
Co-morbidities		
Hypertension	126	78.8
DM	104	65.0
Kidney disease	54	33.8
Liver disease	7	4.4
Thyroid problems	23	14.4
Dyslipidaemia	131	81.9
COPD	10	6.3
Any other	45	28.1
Current medication		
Antihypertensive	158	98.8
Diuretics	142	88.8
Digoxin	28	17.5
Vasodilator	84	52.5
Anticoagulant	139	86.9
Hypolipidemic	134	83.8
Antiarrhythmic	35	21.9
Frequent health problems		
Hypotension	6	3.8
Dizziness	22	13.8
Swelling	106	66.3
Breathing problems	118	73.8
Gastric problems	11	6.9
Urinary problems	7	4.4

Dry cough	53	33.1
Cost of medicines per month (in rupees)		
< 1000	2	1.3
1000 – 3000	33	20.6
3000 – 5000	71	44.4
>5000	54	33.8

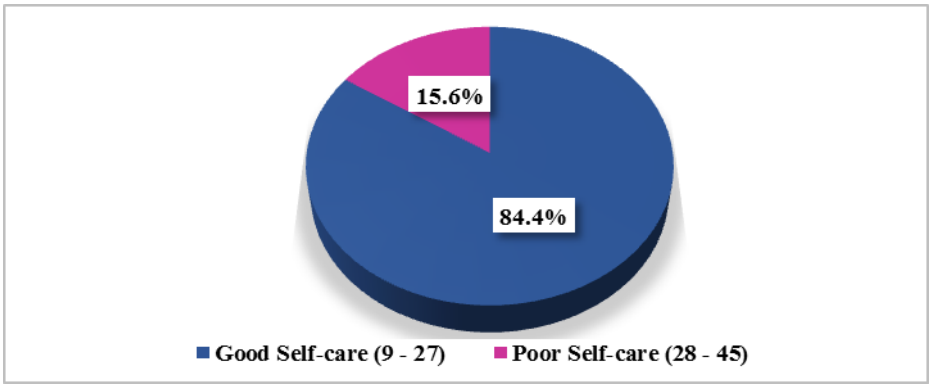

Figure 1: Distribution of subjects based on their Self-care Behaviour.

From figure 1, it is clear that 84.4% of subjects had good self-care behaviour.

Table 3: Component-wise Mean score of Self- Care Behaviour among the sample.

n = 160

Sl. No.	Items	Mean	SD
1.	I weigh myself every day	3.53	1.02
2.	If my shortness of breath increases, I contact my doctor or nurse	1.24	0.65
3.	If my feet/legs become more swollen than usual I contact my doctor or nurse	2.07	1.33
4.	If I gain 2 kilos in one week, I contact my doctor or nurse	2.94	1.55
5.	I limit the amount of fluids I drink (not more than 1½ - 2L/ day)	2.06	1.23
6.	If I experience increased fatigue, I contact my doctor or nurse	2.68	1.29
7.	I eat a low salt diet	2.22	1.11
8.	I take my medication as prescribed	1.13	0.51
9.	I exercise regularly	3.21	1.33

SD, Standard Deviation.

Table 3 shows that among the nine components of self-care behavior, the highest adherence was related to regular medication (mean=1.13±0.51) whereas the lowest adherence was in daily weighing (mean=3.53±1.02) followed by regular exercise (mean=3.21±1.33).

Table 4: Mean and SD of Self-care Behaviour, HF Knowledge and Depression among the sample.

n = 160

Variable	Possible range	Actual range	Mean	SD
Self-care Behaviour	9 - 45	9 - 41	21.08	5.998
HF Knowledge	5 - 25	0 - 30	14.03	3.953
Depression	0 - 14	0 - 27	5.19	3.408

HF, Heart Failure; SD, Standard Deviation

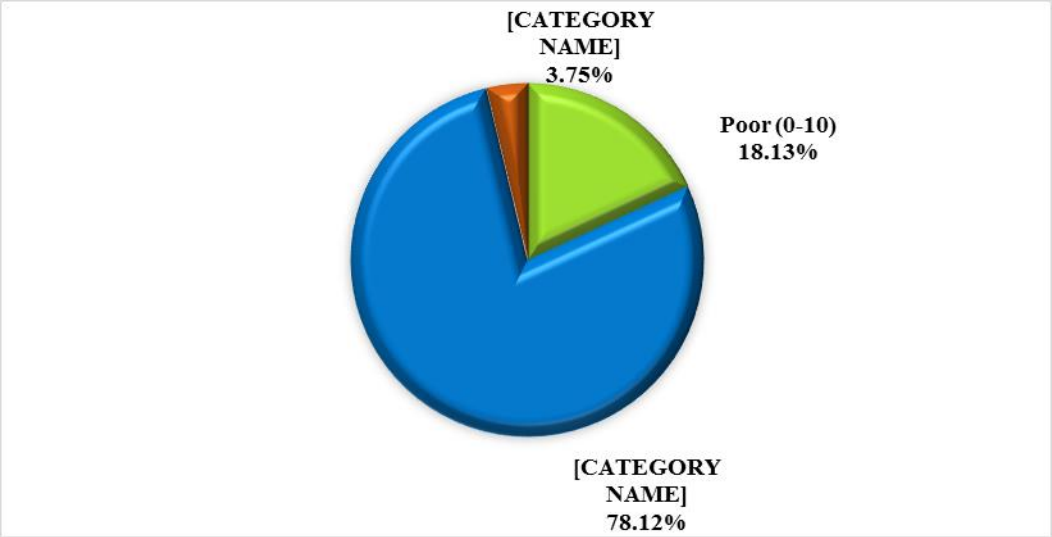

Figure 2: Distribution of sample based on HF Knowledge.

Figure 2 shows that the majority of the subjects (78.12%) had average knowledge of HF whereas 18.13% had poor knowledge BS 3.75% subjects had good knowledge of HF.

Among the five areas of HF knowledge, the highest scores obtained were knowledge related to HF-specific self-care behaviour (5.59±1.844), pathophysiology and clinical manifestations (4.09±1.403). The lowest knowledge scores were in the areas of meaning and risk factors of HF (1.94±1.183), treatment (1.48±1.009), and complications (0.93±0.789).

Depression among Patients with HF

Mild and moderate depression were found in 65 (40.62%) and 21 (13.12%) of subjects respectively. Nearly half of the subjects 74 (46.25%) were not depressed. None of the subjects were in the category of moderately severe and severe depression. The mean score of depression in the subjects was 5.19 ± 3.408.

A statistically significant association was found between depression and self-care behaviour (p=0.001). However, there was no statistically significant association between HF knowledge and self-care behaviour (p=0.168). There was a statistically significant association found between self-care behaviour and selected socio-demographic variables like age (p=0.042), gender (p=0.022), and area of residence (p=0.019) and clinical variables like duration of diagnosis (p=0.051), dyslipidaemia (0.037), anti-arrhythmic medication (p= 0.035), and cost of medicine (p=0.004).

DISCUSSION

In the current research, the overall self-care behaviour was found to be good in patients with HF. Specifically, among 160 subjects, most of them 135 (84.4%) had good self-care behaviour (score range: 9-27) while poor self-care behaviour (score range: 28-45) was obtained only in 25 (15.6%) of subjects. In terms of the nine components of EHFScBS-9, taking regular medication was the better-followed self-care while the least followed self-care was daily weighing, regular exercise, and contacting health professionals in case of sudden weight gain. The study findings were supported by a previous study done by Son YJ, et.al., in which the overall self-care behaviour was found to be appropriate (18.07±3.56). Adherence in two components was similar i.e., the highest adherence in regular medication (4.57±0.86) and the lowest in contacting health professionals in case of weight gain (1.05±0.51).[22] Almost similar findings were found in an investigation done by Bagheri SM, et.al, in which an average level of self-care behaviour (39.54±7.22) was reported among the subjects. Adherence in the two components continued to be similar i.e., the frequently followed self-care behaviour was regular medication (2.02±0.4), and the poorest adherence in daily weighing (4.06±0.9). High adherence to a low salt diet (2.46±0.4) and poor adherence to influenza vaccination (4.82±0.4) and regular exercise (4.36±0.9) were also found.[14]

In light of the above studies, it is evident that the extent of adherence to self-care behaviour in HF patients mostly varied from moderate to good as in the present study. Component-wise adherence to self-care activities was also congruent with the current study findings i.e., the highest adherence in regular medication and the poorest adherence in daily weighing and regular exercise.

The high adherence to regular medication may be due to the perceived significance attributed to medications by HF patients and their significant others. The poorest adherence to daily weighing and regular exercise may be due to the lack of facilities at home for daily weighing,

related fatigue in HF, activity intolerance, anxiety on recurrence of symptoms, and depression. But it is worth noting that symptoms of fluid overload are found as one of the main reasons for rehospitalisation in HF patients although the significance of associated diseases is also highlighted.[24]

The poorest adherence to daily weighing and regular exercise in the present study as well as in several other studies vividly shows that patients still experience difficulties in observing and performing them despite the research evidence on the benefits of self-care in heart failure.[25]

The demographic variables related to self-care behaviour in the current study were family support 100% (160), marital status i.e., 90.6% (145) were married, and level of HF knowledge i.e., 125 (78.12%) had average HF knowledge. In this study, the overall HF knowledge was found to be average in HF patients. Subjects had better knowledge about HF-specific self-care behaviour while patients scored poorly as regards treatment and complications of HF. The present study result was consistent with a study done by Seid M A, et.al., in 2017 in which HF patients had average knowledge of HF (8.4 ± 3).[12]

In this study, 65 (40.62%) of subjects had mild depression and 21 (13.12%) subjects had moderate depression. The mean score of PHQ-9 was 5.19 ± 3.408. The present study results were consistent with the results of the mixed-method study by Dickson VV, McCarthy MM, and Katz SM in which 40% of subjects had depressive symptoms with the PHQ-9 mean score of 7.59±5.29.[21]

Self-care behaviour was not significantly associated with knowledge ($p = 0.168$). However, contrasting results were observed in several studies. One among them was the cross-sectional study done by Sitotaw E, et.al., in which good self-care behaviour was associated with good HF knowledge ($p = 0.003$).[22]

The association of self-care behaviour with depression was found to be statistically significant ($p = 0.001$). Similar findings were observed in a correlational study conducted by Freedland KE, et.al., in which the symptoms of depression were found to be independently associated with poor self-care maintenance ($p=0.05$), management ($p=0.01$), and confidence ($p=0.01$) in HF patients.[19]

Statistically significant associations were also found between self-care behaviour and selected socio-demographic variables like age (p=0.042), gender (p=0.022), and area of residence (p=0.019) and clinical variables like duration of diagnosis (p=0.051), dyslipidaemia (0.037), anti-arrhythmic medication (p= 0.035), and cost of medicine (p=0.004). The study findings were consistent with a similar study done by Fetensa G. et al., in which duration of HF, side effects of medication, gender, presence of co-morbidity, and area of residence were significantly associated with self-care in HF patients (p<0.05).[25] Identical findings were seen in another study conducted by Holzapfel N, et.al., in which age (p<0.001), LVEF (p=0.001), multimorbidity (p=0.01) and family support (p=0.02) were significantly associated with self-care.[17]

CONCLUSION

Although the self-care behaviour was found good in the study subjects, the two areas of poor adherence (daily weighing and regular exercise) need further exploration in terms of feasibility and mental status. No statistically significant association was found between HF knowledge and self-care behaviour. In spite of the fact that nearly half of the subjects had no depression, a statistically significant association was observed.

ACKNOWLEDGEMENT

The researchers would like to acknowledge Dr. Tiny Jarsmma for granting permission to use EHFScBS-9 in the study. Also, we are deeply obliged to all study participants, who willingly participated in the study.

REFERENCES

1. Bui AL, Horwich TB, Fonarow GC. Epidemiology and risk profile of heart failure. Nature Reviews Cardiology, 2011 Jan; 8(1): 30-41.
2. Lippi G, Sanchis-Gomar F. Global epidemiology and future trends of heart failure. AME Med J., 2020 Jun 25; 5(15): 1-6.
3. Savarese G, Lund LH. Global public health burden of heart failure. Cardiac failure review., 2017 Apr; 3(1): 7.
4. Chaturvedi V, Parakh N, Seth S, Bhargava B, Ramakrishnan S, Roy A, Saxena A, Gupta N, Misra P, Rai SK, Anand K. Heart failure in India: the INDUS (INDia ukieri study) study. Journal of the Practice of Cardiovascular Sciences, 2016; 2(1): 28-35.

5. 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. Current heart failure reports, 2017 Apr; 14(2): 71-7.
6. Riegel B, Jaarsma T, Strömberg A. A middle-range theory of self-care of chronic illness. Advances in Nursing Science, 2012 Jul 1; 35(3): 194-204.
7. Salehzadeh A, Rahmatpour P. Self-care behaviors and related factors in patients with heart failure referring to medical &educational center of heart in Rasht.. Journal of Holistic Nursing and Midwifery, 2013 Sep 10; 23(1): 22-9.
8. Beker J, Belachew T, Mekonin A, Hailu E. Predictors of adherence to self-care behaviour among patients with chronic heart failure attending Jimma University Specialized Hospital Chronic Follow up Clinic, South West Ethiopia. Journal of Cardiovascular Diseases & Diagnosis, 2014 Oct 23.
9. Riegel B, Lee CS, Dickson VV, Carlson B. An update on the self-care of heart failure index. The Journal of cardiovascular nursing, 2009 Nov; 24(6): 485.
10. Kadhem AH, Muhabes FJ. Self-Care Maintenance of Heart Failure Patients in Babylon Teaching Hospitals. EXECUTIVE EDITOR, 2018 May; 9(5): 433.
11. Blake I. Heart failure hospital admissions rise by a third in five years. Beat heartbreak forever. British Heart Foundation, 2019 Nov 4. Available from https: //www.bhf.org.uk/what-we-do/news-from-the-bhf/news-archive/2019/november/heart-failure-hospital-admissions-rise-by-a-third-in-five-years.
12. Seid MA, Abdela OA, Zeleke EG. Adherence to self-care recommendations and associated factors among adult heart failure patients. From the patients' point of view. PLoS One, 2019 Feb 7; 14(2): e0211768.
13. Zeng W, Chia SY, Chan YH, Tan SC, Low EJ, Fong MK. Factors impacting heart failure patients' knowledge of heart disease and self-care management. Proceedings of Singapore Healthcare, 2017 Mar; 26(1): 26-34.
14. Bagheri–Saweh MI, Lotfi A, Salawati Ghasemi S. Self-care behaviors and related factors in chronic heart failure patients. International Journal of Biomedicine and Public Health, 2018 Jan 18; 1(1): 42-7.
15. Hailu Gebru T, Kidanu Berhe K, Tilahun Tsehaye W, Hagos Mekonen H, Gemechu Kiros K, Gebreslassie Gebrehiwot T, Teklebrhan Gebrehiwot G, Hailesilassie Teka Y, Maeruf Mohammed H. Self-Care Behavior and Associated Factors among Heart Failure Patients in Tigray, Ethiopia: A Cross-Sectional Study. Clinical Nursing Research, 2021 Jun; 30(5): 636-43.

16. Tawalbeh LI, Al Qadire M, Ahmad MM, Aloush S, Abu Sumaqa Y, Halabi M. Knowledge and self-care behaviors among patients with heart failure in Jordan. Research in nursing & health, 2017 Aug; 40(4): 350-9.
17. Holzapfel N, Löwe B, Wild B, Schellberg D, Zugck C, Remppis A, Katus HA, Haass M, Rauch B, Jünger J, Herzog W. Self-care and depression in patients with chronic heart failure. Heart & Lung, 2009 Sep 1; 38(5): 392-7.
18. Kolasa J, Lisiak M, Grabowski M, Jankowska EA, Lelonek M, Nessler J, Pawlak A, Uchmanowicz I. Factors Associated with Heart Failure Knowledge and Adherence to Self-Care Behaviors in Hospitalized Patients with Acute Decompensated Heart Failure Based on Data from "the Weak Heart" Educational Program. Patient preference and adherence, 2021; 15: 1289.
19. Freedland KE, Skala JA, Steinmeyer BC, Carney RM, Rich MW. Effects of depression on heart failure self-care. Journal of cardiac failure, 2021 May 1; 27(5): 522-32.
20. Son YJ, Kim SH, Kim GY. Factors influencing adherence to self-care in patients with chronic heart failure. Korean Journal of Adult Nursing, 2011; 23(3): 244-54.
21. Dickson VV, McCarthy MM, Katz SM. How do depressive symptoms influence self-care among an ethnic minority population with heart failure? Ethnicity & Disease, 2013; 23(1): 22-8.
22. Sitotaw E, Tsige Y, Boka A. Practice of self-care behaviours and associated factors among patients with heart failure. British Journal of Cardiac Nursing, 2022 Jan 27: 1-0.
23. Fetensa G, Fekadu G, Turi E, Tolossa T, Wakuma B, Etefa W, Habte A, Yadecha B, Bekele F. Self-care behaviour and associated factors among chronic heart failure clients on follow up at selected hospitals of Wollega zones, Ethiopia. International Journal of Africa Nursing Sciences, 2021 Jan 1; 15: 100355.
24. Felker GM, Teerlink JR. Management of the patient with acute heart failure. Braunwald's heart disease: a textbook of cardiovascular medicine, 2014: 493-509.
25. Dellafiore F, Arrigoni C, Pittella F, Conte G, Magon A, Caruso R. Paradox of self-care gender differences among Italian patients with chronic heart failure: findings from a real-world cross-sectional study. BMJ open, 2018 Sep 1; 8(9): e021966.
26. Moly KT, Shajan S, Johny S. Quality of Life and Depression in Obese. Indian Journal of Public Health Research & Development, 2019 Sep 1; 10(9).
27. Dharan DR, KT Moly. Factors influencing compliance to therapeutic regimen among patients with hypertension. Asian J Pharm Clin Res, 2017; 10(12): 286-9.