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Self-Care Practice and Associated Factors among Ambulatory Heart Failure Patients in Selected Public Hospitals of Sidama Regional State Ethiopia, 2022

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Abstract
Background: Heart failure (HF) is a new issue that is significantly undergoing epidemiological change in low to middle income nations. Proper self-care is linked to better overall health and quality of life, improved clinical results, lower healthcare expenditures, and prevention or early identification of health issues in people with chronic conditions like Heart Failure (HF). Unfortunately, inadequate self-care is frequent among heart failure patients, and individuals find it extremely challenging to undertake self-care**.Objective:** The study was conducted to assess the Self-care Practice and Associated factors among Ambulatory Heart Failure Patients in Public Hospitals of Sidama Regional State, Ethiopia, 2022.**Methods:** Institution based Cross-sectional study was conducted in Public Hospitals of Sidama Regional State, Ethiopia from April, 2022 to May, 2022. The data was collected from Eligible participants by face-to-face interview while they are visiting a cardiac clinic to attend their follow ups using pre-tested structured questionnaire. Systematic Random Sampling method was employed to obtain the desired Sample Size. Data was coded and entered into Epi-data version 4.62 then exported to SPSS version 25.0.A Bivariate and Multivariable Logistic Regression Analysis was used to check the significant association of factors with the outcome variables.**Results**: The overall Prevalence of Good self-care Practice was 136 (52.7%) at 95% CI: (46.6, 58.7). The heart failure patients who had poor level of knowledge about self-care practice [AOR=2.434, 95% CI (1.086, 5.453)], Current alcohol drinker [AOR=3.681, 95% CI (1.075, 12.600)], Co-morbidities [AOR=2.463, 95% CI (1.150, 5.276)], were associated with poor or inadequate self-care practice as recommended as compared to their counter parts.**Conclusion:** Nearly half of the heart failure patients had poor self-care practice. Being current alcohol drinker, having Co-morbidity and Inadequate knowledge were predictors of self-care practice. As a result, nursing intervention programs regarding knowledge on heart failure are recommended for enhancing self-care practices.
Keywords: Self-care practice, Heart failure knowledge, Associated factors,sidamma.
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INTRODUCTION

Self-care practice with heart failure is referred to as methods in which patients take part in their care and make decisions about managing the symptoms and seeking help when symptoms occur, adherence to medication, low salt diet, exercise, as well as daily weighing most of these processes are done at home, patients are responsible for a major part of taking care of themselves. (1)

Self-care is a very broad notion. Patient self-care for heart failure necessitates adherence to demanding medical protocols. Without training and assistance, patients and caregivers could find it challenging to carry out these tasks. Self-care does not appear to be simple to adhere to, especially for the elderly, even though it helps stabilize patients' conditions and prevent exacerbation in cases of heart failure. (2)

Heart failure (HF) is an epidemic illness syndrome that is spreading quickly and causes substantial morbidity and mortality worldwide. Previous research on the condition found that over 26 million people globally suffer from heart failure (3). Annually, almost 1 million new cases are diagnosed, and by 2030, that number is projected to increase by 46%.

According to World Health Organization (WHO) estimates, about 60% of deaths in the world are now caused by chronic non communicable diseases. the burden of chronic diseases remains stable in high income countries, while it is increasing in low- and middle-income countries as a result of the epidemiological transition (4).

In Africa compared to Western nations, HF patients have a three to four time's greater mortality rate. Due to its high prevalence and effects on young, economically active people, HF is especially important for public health in Sub-Saharan Africa. These effects include considerable disability, premature death, and lost productivity(5).

According to research done in Ethiopia, between 30 and 40 percent of people with heart failure pass away within a year(6). Additionally, the majority of HF patients in Ethiopia had a poor quality of life in terms of their health and had mental issues as a result of inadequate self-care habits (7) ;(8)

Heart failure can result in significant medical costs for the patient and his or her family as well as physical,

emotioal, and functional disability. In earlier research, individuals with heart failure who adhered to s\elf-care prevented symptoms from getting worse and affected whether they were admitted or readmitted to a hospital. According to a different study, participating in heart failure self-care programs shortened hospital stays. (2)

There is a lack of information regarding heart failure patients' self-care behavior adherence in the African context. However, according to some research, patient education regarding HF is subpar, and patients also have limited knowledge of HF medications and care. Due to inadequate management of chronic non-communicable illnesses (CNCDs), especially chronic heart failure, acute communicable diseases received more attention in Ethiopia. Only a few studies on the self-care practices and associated factors of patients with heart failure have been undertaken in various regions, including Jima, Gondar, and Bahir Dar, to the best of the researchers' knowledge, despite the fact that problems in Ethiopia are getting worse.(Tefera Belachew *et al.,* 2014 ; MacAbasco-O'Connell *et al.,* 2011).

More information is required about the relationship between self-care behavior in HF patients and associated personal and environmental factors because the impact of individual factors on patients' ability to take care of themselves is understudied and the literature that is currently available is still inconclusive (11).

Good self-care practices have been shown to enhance patients' quality of life, lessen financial and personal responsibilities, aid in the early identification of clinical issues, and lower the likelihood of HF re-hospitalization. Despite the significance of excellent self-care, many patients struggle to engage in it and lead morbidity-preventive lifestyles (3). HF is occasionally on the rise in Ethiopia; however, there are few studies that specifically focus on the prevalence of self-care practices and associated factors in the study environment.

It is not yet known how well HF patients in Ethiopia adhere to the recommended gold-standard, non-pharmacological & pharmacological therapy and self-management practices Therefore, the purpose of this study was to Assess the self-care practices and associated characteristics of patients with heart failure in a public hospital of Sidama Regional State, Ethiopia

METHODS AND MATERIALS

Study area

The study was carried out in the Sidama Regional State's Public Hospitals, The Oromia Region Borders the region on the south, the Bilate River separates it from the Wolayita zone on the west, and the Oromia region borders the region on the north and east. The distance between Addis Ababa and the region's capital is 273 km. According to a report from Sidama region health department, the total population of the Sidama region is estimated to be 5,499,683. There are 18 public hospitals ,130 health centers and 522 health posts.

Study Design and Period

Institutional based cross-sectional study was conducted from April, 2022 up to May, 2022 in Public Hospitals, Sidama Region, Ethiopia.

Population

Source Population

All Ambulatory Heart Failure Patients in selected Public Hospitals of Sidama Regional State, Ethiopia

Study population

Selected Adult Ambulatory Heart failure Patients who are attending their follow-up at Public Hospitals in Sidama Region during the data collection period

Inclusion and Exclusion Criteria

Inclusion criteria

All Adult Heart Failure patients diagnosed with HF, who were on active follow up and receiving treatment as outpatients and were willing to participate in the study.

Exclusion criteria

Patients who are unable to communicate (seriously ill / unconscious patients)

Sampling

Sample Size Determination for the first objective

Sample size is determined by using the formula for single population proportion with the assumption of 0.05% marginal error, 95% confidence interval ($Z_{1/2}$=1.96) using the P – is the estimated proportion of CHF patients with poor self-care practice = 44.2% from study conducted in Tigray (12)

$$n = \frac{Z^2 \times P\,(1-P)}{d^2}$$

n – The sample size required estimating the proportion of patients with Poor HF self-care practice?
Z – The 95% confidence interval (standard value of 1.96) P – is the estimated proportion of CHF patients with poor self-care practice = 44.2% (13)
d – is the margin of error (precision error) = ±5%
Were
$n= (1.96)^2\times (0.542)\ (1-0.542)/\ (0.05)^2$
n=381

Sample size determination for the second objective

Variable	Confidence interval	Power	Percent of outcome		AOR	Sample size		Total
			In unexposed	In exposed		Unexp	Expo.	
Co-morbidity	95%	80%	(28.5%)	47.1%	2.23	117	117	234
Clinical stage of HF	95%	80%	(28.5%)	50.2%	2.53	88	88	176
Poor knowledge	95%	80%	(28.5%)	46.1%	2.15	122	122	244

The total population is **873**
Since source population is <10,000, population correction formula is applied as follows;
nf=ni/(1+(ni/N)) where
nf=final adjusted sample size nf=381/(1+(381/873)
ni=minimum sample size is nf =241
By adding 10% of non-response rate, the total sample size was **265**.

Sampling Techniques and Procedure
The Sidama Region has Eighteen Public Hospitals, of which four Hospitals were selected randomly (HUCSH, Adare Hospital, Yirgalem Hospital and Bona Hospital). Then, sampling frame was prepared by using patient register. Finally, a systematic random sampling procedure was used to choose the study participants. The number of patients was proportionally distributed among the hospitals chosen. The first patient was chosen by lottery method.

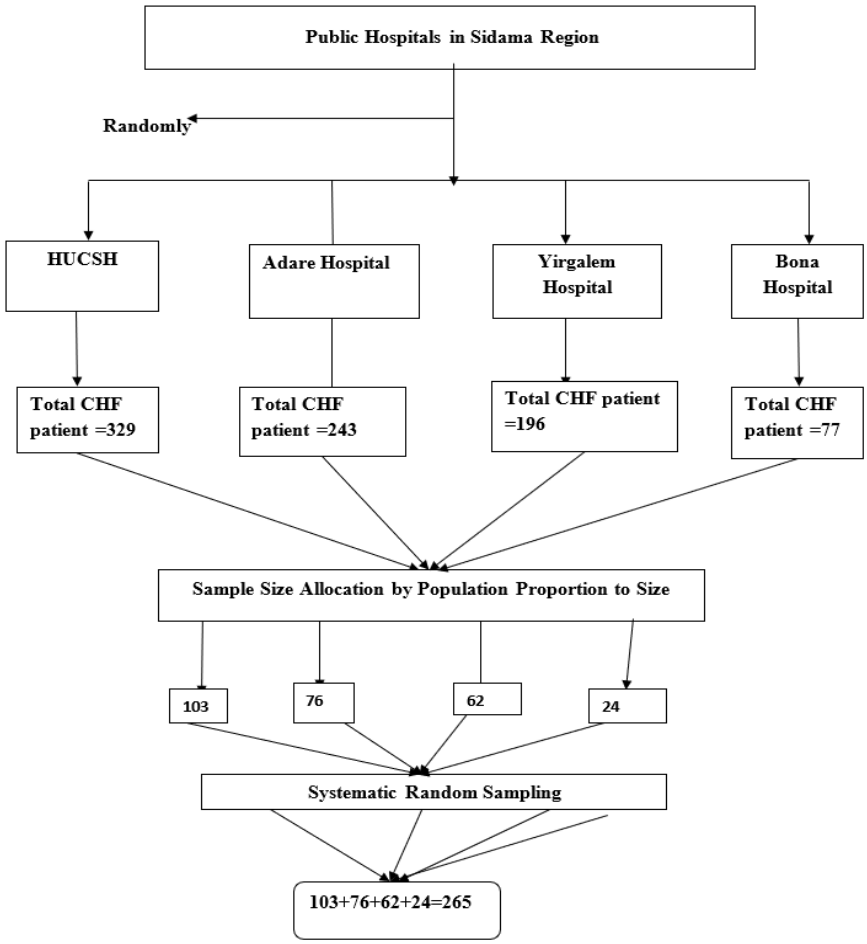

Figure 1: Schematic Representation of the sampling procedure of the study participants

Variables

Dependent Variables

Heart Failure Self-care practices

Independent Variables

Age
Gender
Marital status
Place of resident
Level of education
Occupation of the patient
Patient support
Clinical stage of HF
Co-morbidity
Knowledge about heart failure self-care
Smoking
Alcohol intake
Duration of HF follow up

Operational definitions

Self-care: with heart failure is referred to as methods in which patients take part in their care and make decisions about managing the symptoms and seeking help when symptoms occur.

Good self-care practice: Heart failure patients who scored ≥ (44-55) from fiftieth five adherences to self-care related question.

Poor Self-care Practice: Heart failure patients who scored < (11-43) from fiftieth five adherence to self-care related questions.

Heart failure good knowledge: A Heart failure patient who correctly answered ≥75% of knowledge related questions.

Heart failure poor knowledge: A patient with heart failure who correctly answered 75% of questions.

Co- morbidity: In addition to heart failure, patients may also have hypertension, diabetes mellitus liver disease, renal illness, anemia, hyperthyroidism, HIV, etc.

Data collection and Analysis

Data Collection Instruments

Data was collected using structured questionnaire and medical chart review; the structured questionnaires were originally prepared in English then translated to Amharic and re-translated back to English to check the consistency of the instrument. The tools classified into

Five parts

Part I: Socio-demographic variables such as age, marital status, and place of residence, degree of education, occupation, and religion are assessed by using structured questionnaires.

Part II: European Heart Failure Self-care Behavior Scale (EHFSCBS). The 11 items on this interviewer-assisted questionnaire provide details on the self-care practices of HF patients, including daily weighing, symptom management, and interaction with healthcare providers. For each item, the data collectors recorded responses of the study subjects on a 5-point Likert scale from 1 (“I do not agree at all”) to 5 (“I completely agree”). The total score ranges from 11 to 55 and was calculated by summing the scores for each item. A higher score indicates good self-care behavior. Which is categorized as good SCB if EHFSCBs scored (44–55) and poor SCB if EHFSCBs scored (9). The reliability of EHSCBS was pre-tested and it was good (Cronbach’s alpha = .822).

Part III: Used to evaluate behavioral and lifestyle traits including smoking habit ("yes" or "no") and alcohol status ("drinker"—nondrinker) ("FMHACA, Standard Treatment Guidelines for General Hospital, 2014).

Part IV: Dutch Heart Failure Knowledge Scale (DHKS) Consists of 11 multiple choice questions about knowledge of HF (3 items), HF treatment (4 items), and symptom recognition (4 items). A score of one was given for each correct answer and zero was given for incorrect answers. The total score ranged from 0 to 11. A score of DHKS, who correctly answered ≥75% was used as a cut off for good knowledge (14). The internal consistency and reliability for the scale for each item was done using Cronbach’s reliability test and was found to be 0.86.

Part V: Medical chart review used to identify clinical profiles of the patient obtained from medical records. These include: Duration of the disease, New York Hear failure Association functional (NYHA) class, comorbid disease, and previous hospitalization.

Pre-testing

The instruments to be used in the study were pre-tested on similar populations (5% of the actual sample size) which were not included in the study. During pre- testing, the questionnaire was assessed for its clarity, understandability, length, completeness, validity and reliability. At the same time the, Performance of the data collectors was assessed and modifications on questionnaire were made accordingly. The internal consistency and reliability for the scale for each item was done using Cronbach’s reliability test and was found to be 0.84. The questionnaire was then utilized to interview the participants face to face on one-to-one basis for approximately 20

minutes duration.

Data Collection Process

The data collection was carried out by four trained Nurses. Patients were enlisted during their regularly scheduled clinic appointments. The patients who would be interviewed were chosen by the data collectors, and then invited them into a private room so they could complete an informed consent form and perform the interview. Socio-demographic data and HF-specific health history (New York Heart Association class, number of years following HF diagnosis, presence of co-morbidity) were recorded during the interview using a pretested structured questionnaire.

Data quality control measures

Training was given by the principal investigator to data collector as well as the supervisor. A pretest was conducted in 5% of the sample size before the actual data collection period outside of the study area. These participants were not including in the total study sample. But this was used only for quality control purposes. Data collectors were instructed to check the completeness of the instrument just after its completion. The principal investigator was check out the questionnaire for completeness each night. Moreover, the collected data was coded, cleaned, and explored before analysis to check the completeness and consistence of the collected data.

Data Processing and Analysis

The collected data was checked for completeness, coded, and entered into Epi-Data version 4.6.2 and was exported to SPSS Version 25 for analysis. Descriptive statistics like frequencies and percentage were used to summarize the data. Bivariate and multivariate analyses were done to examine the relationship between the outcome variable (practice) and the predictor variables that have a p-value less than 0.25 upon bivariate analysis were exported into the multivariable logistic regression. Adjusted odds ratios (AOR) and their 95 % confidence intervals (CIs) were used as indicators of the strength of association. Statistical significance was set at p value of less than 0.05. The results of the study were presented in the form of texts/word explanations, tables, frequency, percentage, and charts**.**

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the institutional review board (IRB) of Hawassa University and permission letter (Ref-No IRB P003/22-04)) was given to Sidamma regional Administration office and wrote a letter to the outpatient cardiac unit. The study participants were taken informed consent regarding the objectives study. And each study participant was asked to sign on written informed consent form before data collection began. The participants were informed of their full right either to leave or discontinue from the study at any time. In addition, patient identification code was used rather than name to identify patients. Privacy and confidential issue of the patient was protected. All methods were done with valuable guidelines and regulations (declaration of Helsinki).

Consent for publication

Not applicable.

Competing interests

All authors declared that they have no competing interest

RESULTS

Socio-demographic Characteristics

A total of 265 participants were interviewed yielding a response rate of 97.4%. Majority 128(49.6) of the participants were in the age category of 18-35 years old. Half of the studied participants 139 (53.9%) were female and 87 (33.7%) were single and 119 (46.1%) were married. The majority of the study participants, 234 (90.7%) were live with others and 187 (72.5%) were rural resident. In addition to this majority 193 (74.8%) were at the age of the below 55 years old when they diagnosed the Heart failure. About, 16 (6.2%) had elementary school, 27 (10.5%) junior high school, 53 (20.5%) senior high school, 72 (27.9%) TVET/college diploma and 57 (22.1%) had university degree or above. In addition to this, regarding to the occupational status of the participants 56 (21.7%) were unemployed/housewife, 44 (17.1%) farming, 30 (11.6%) government employed and 64 (24.8%) were merchants (Table 1).

Table 1: Socio-demographic characteristics of the study participants among heart failure patients in public hospitals, Sidama regional state, Ethiopia 2022

Variables	Responses	No. (%)
Age of the respondent	18-35	128 (49.6)
	36-65	114 (44.2)
	>66	16 (6.2)
Gender of the respondents	Male	119 (46.1)
	Female	139 (53.9)
Marital status of the patient	Single	87 (33.7)
	Married	119 (46.1)
	Widowed	34 (13.2)
	Divorced	10 (3.9)
	Separated	8 (3.1)
Living arrangements	Alone	24 (9.3)
	With Others	234 (90.7)
District of Residence in last 5yrs	Urban	71 (27.5)
	Rural	187 (72.5)
Age of the patient at the time of Heart failure diagnosis	<55 years	193 (74.8)
	55-64 years	44 (17.0)
	65-74 years	18 (7.0)
	>=75 years	3 (1.2)
Occupation of the patient	Unemployed/Housewife	56 (21.7)
	Farming	44 (17.1)
	Government employed	30 (11.6)
	Merchants	64 (24.8)
	Daily Laborer	5 (1.9)
	NGO	17 (6.6)
	Self employed	38 (14.7)
	Others	4 (1.6)
Educational status of the patient	Unable to read/write	14 (5.4)
	Able to read/write	19 (7.4)
	Elementary school	16 (6.2)
	Junior high school	27 (10.5)
	Senior high school	53 (20.5)
	TAVET/Collage Diploma	72 (27.9)
	University Degree or above	57 (22.1)
Duration of HF follow up	< 6months	24 (9.3)
	6 - 12 months	67 (26.0)
	1-5years	79 (30.6)
	5-10 years	41 (15.9)
	> 10 years	47 (18.2)

Clinical and Behavioral Characteristics

From the total study participants who had heart failure patients, regarding behavioral factors, 47 (18.2%) were use any tobacco products, 5 (10.6%) were current cigarette smokers and 38 (80.9%) were smoked for more than three years. Among this majority were stop smoking due to the 19 (45.2%) advised from health professionals, 7 (16.7%) self-volition, 2(4.8%) no reason and 14 (33.3%) because of heart failure diagnosis. Regard Alcohol consumption, 86 (33.3%) was ever drunk alcohol and 18 (20.9%) were currently drinking alcohol. Regarding to the clinical status, the current cardiac functional state (NYHA) was categorized; 47 (18.2%) were stage I,118 (45.7%) were stage II and 93 (36%%) were stage III. Out of the 258 participants 232 (89.9%) were on the medication and 131 (50.8%) were admitted for HF. (Table 2)

Table 2: Clinical and Behavioral factors among heart failure patients in selected Public Hospitals, Sidama Regional State, Ethiopia 2022

Variables	Responses	No.	(%)
Have you ever smoked	Yes	47	(18.2)
	No	211	(81.8)
Still currently smoke cigarette	Yes	5	(10.6)
	No	42	(89.4)
Why did you stop	No reason	2	(4.8)
	Advised	19	(45.2)
	Self-Volition	7	(16.7)
	Because of HF	14	(33.3)
The average number of cigarettes smoke/day	1-4	13	(27.7)
	5-9	16	(34)
	10-14	9	(19.1)
	15-19	5	(10.6)
	20-24	2	(4.3)
	>=25	2	(4.3)
The duration of the smoking	<=3years	9	(19.1)
	> 3 years	38	(80.9)
Ever drink alcohol	Yes	86	(33.3)
	No	172	(66.7)
Still drink alcohol	Yes	18	(20.9)
	No	68	(79.1)
When did you stop drink alcohol	Years ago,	49	(72.1)
	Months ago,	19	(27.9)
Why did you stop	No reason	5	(7.4)
	Advised because of HF	54	(79.4)
	Self-Volition	9	(13.2)
Type of alcohol most frequently consumed	Beer	36	(41.9)
	Wine	13	(15.1)
	Wisk	8	(9.3)
	Other	29	(33.7)
The duration of the drinking alcohol	<5 years	21	(24.4)
	5-10years	28	(32.6)
	> 10 years	37	(43.0)
Current cardiac functional state (NYHA)	Class I	47	(18.2)
	Class II	118	(45.7)
	Class III	93	(36%)
Are you on HF medication	Yes	232	(89.9)
	No	26	(10.1)
Prior hospital admissions for HF	Yes	131	(50.8)
	No	127	(49.2)
If yes, No. of prior admissions	1-2	84	(64.1)
	3	33	(25.2)
	>=4	14	(10.7)
Co-morbidity	Yes	84	(32.6)
	No	174	(67.4)

Level of Knowledge on Heart failure Self-care practice

As shown in the table below, knowledge on heart failure self-care practice, majority reported that 153 (59.3%) were knew what heart failure means 194 (75.2%) knew the cause of heart failure 146 (56.6%) the frequency of the weighting with severe HF and 169 (65.5%) knew when He/she contact the doctor. In addition to this, 166 (64.3%) Importance of regular weight monitoring, 142 (55.0%) knew the importance of regular exercise, 182 (70.5%) aware about the cause of rapid worsening of heart failure symptoms and 182 (70.5%) knew the daily recommended fluid intake (Table 3).

Table 2: The Knowledge on Heart failure Self-care Practice among Heart failure patients in Public Hospitals, Sidama Regional State, Ethiopia 2022

The Knowledge on Heart failure Self-care practice	No		Yes	
	Freq.	(%)	Freq.	(%)
What does heart failure mean? * That the heart is unable to pump enough blood around the body	105	(40.7)	153	(59.3)
What are the main causes of heart failure? * Myocardial infarction and high blood pressure	64	(24.8)	194	(75.2)
How often should patient with sever heart failure weight themselves? * Every day	112	(43.4)	146	(56.6)
Which statement about weight increase and heart failure is true? *In case of an increase of over 2 kilograms in 2 or 3 days, you should contact your doctor or nurse	89	(34.5)	169	(65.5)
Why is it important that patients with heart failure should weigh themselves regularly? * To check whether the body is retaining fluid	92	(35.7)	166	(64.3)
Which statement about exercise for people with heart failure is true? * It is important to exercise at home and to rest regularly in between	116	(45.0)	142	(55.0)
What can cause a rapid worsening of heart failure symptoms? * A cold or the flu	76	(29.5)	182	(70.5)
How much fluid are you allowed to take at home each day? *1.5 to 2.5 liters at the most	76	(29.5)	182	(70.5)
Why should someone with heart failure follow a low salt diet? * Salt promotes fluid retention	87	(33.7)	171	(66.3)
Which of these statements is true? *It is important that I take my heart failure medication regularly	78	(30.2)	180	(69.8)
What is the best thing to do in case of increased shortness of breath or swollen legs? * Calls the doctor or the nurse	118	(45.7)	140	(54.3)

As figure showed below the overall level of knowledge on self-care practice scored the mean 7.1 and standard deviation (±2.66), out of the 11 knowledge on heart failure self-care practice questions. The overall level of knowledge on heart failure self-care practice 151 (58.5%) of the study participants had poor/ an inadequate level of knowledge (Figure 3).

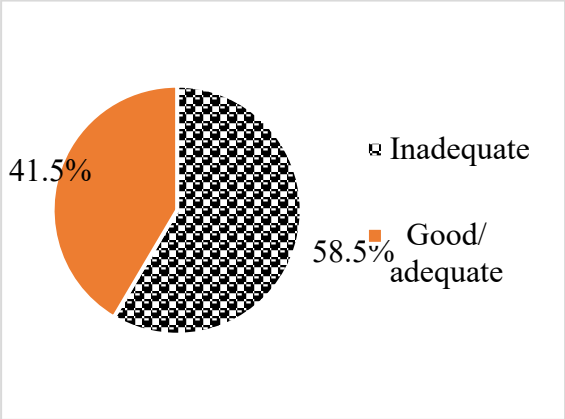

Figure 1: The overall level of knowledge on self-care practice of heart failure patients in selected public hospitals Sidama Regional state, Ethiopia 2022.

Level of Heart failure patients' self-care practice

The study result showed that the overall prevalence of good self-care practice was 136 (52.7%) at 95% CI: (46.6, 58.7). while the rest 122 (47.3%) had poor self-care practices (Figure 4).

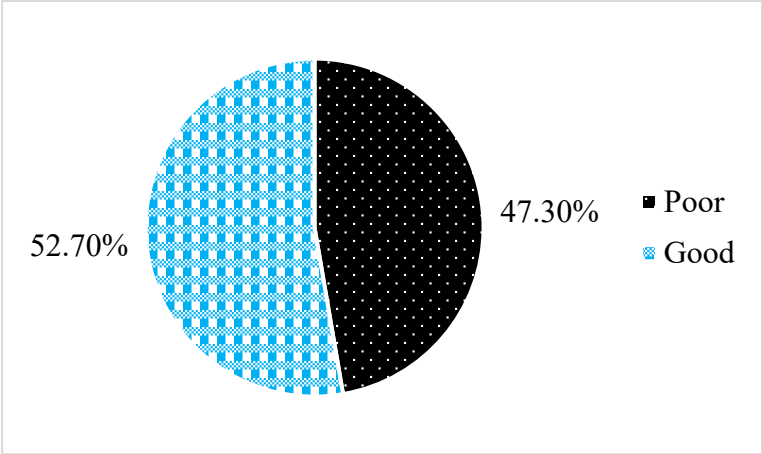

Figure 2: Level of self-care practice of heart failure patients in selected Public Hospitals, Sidama Regional State, Ethiopia 2022.

According to the table below, majority of the participants were answer for each question agree and strongly agree, when shortness of breath increase, I contact my doctor or nurse, agree 102 (39.5%) and strongly 88 (34.1%), and on the leg/feet becomes more swollen, patients agree 83 (32.2%) and strongly agree 116 (45.0%). In addition to this 85 (32.9%) agree and 45 (17.4%) strongly agree were reported if they gain 2kg in 3 days, they will contact and doctor or nurse, also they limit the number of fluids that they drink agree 79 (30.6%) and strongly agree 50 (19.4%) and 73 (28.3%) agree and 112 (43.4%) strongly agree that when they experienced fatigue, they will contact a doctor or nurse (Table 4).

Table 3: Level of self-care Practice of Heart Failure Patients in Public Hospitals, Sidama Regional state, Ethiopia 2022

	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
Variables	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**	**No. (%)**
I weigh myself daily	29 (11.2)	35 (13.6)	77 (29.8)	80 (31.0)	37 (14.3)
If my shortness of breath increase, I contact my doctor or nurse	15 (5.8)	16 (6.2)	37 (14.3)	102 (39.5)	88 (34.1)
If leg/feet become more swollen, I contact a doctor or nurse	21 (8.1)	19 (7.4)	19 (7.4)	83 (32.2)	116 (45.0)
If I gain 2kg in 3 days, I contact and doctor or nurse	17 (6.6)	35 (13.6)	76 (29.5)	85 (32.9)	45 (17.4)
I limit the number of fluids I drink (not more than 1 1½-2 liter/day)	20 (7.8)	29 (11.2)	80 (31.0)	79 (30.6)	50 (19.4)
If I experience fatigue, I contact a doctor or nurse	16 (6.2)	17 (6.6)	40 (15.5)	73 (28.3)	112 (43.4)
I eat a low-salt diet	18 (7.0)	23 (8.9)	21 (8.1)	57 (22.1)	139 (53.9)
I take my medication as prescribed	17 (6.6)	16 (6.2)	29 (11.2)	48 (18.6)	148 (57.4)
I exercise regularly	29 (11.2)	40 (15.5)	56 (21.7)	73 (28.3)	60 (23.3)
I Plan rest times during my day	4 (1.6)	7 (2.7)	17 (6.6)	64 (24.8)	166 (64.3)
I put my feet up when I sit in a chair	3 (1.2)	7 (2.7)	75 (29.1)	102 (39.5)	71 (27.5)

Associated Factors for level of the Self-Care Practices

The factors in the bivariate logistic regression analysis that had an association (p-value 0.25) were recruited as candidates for the multivariate logistic regression analysis. These variables included residence in the previous five years, level of knowledge, social support, current alcohol consumption, duration of illness, and co-morbidities'.

Level of knowledge about self-care practice, the presence of co-morbidities and current alcohol consumption were found to be significant predictors of the prevalence of self-care practices among heart failure patients in the multivariate analysis.

This study result shows that the study participants who had good level of the knowledge about self-care practice of heart failure patients were about 2.4 times more likely had good self-care practice as recommended [AOR=2.434, 95% CI (1.086, 5.453)] as compared to the who had inadequate knowledge patients. In addition to this, the heart failure patients who had current alcohol drinker [AOR=3.125, 95% CI (1.0880, 9.039)] and Co-morbidities [AOR=2.463, 95% CI (1.150, 5.276)] were associated with poor or inadequate self-care practice as recommended as compared to their counter parts (Table 5).

Table 4: Bivariate and multivariable logistic regression analysis for self-care practice of heart failure patients public hospitals, Sidama regional state, Ethiopia 2022

	Self-care practice				
	Poor No. (%)	Good No. (%)	COR, (95% CI)	AOR, (95% CI)	P-Value
Residence in last 5yrs					
Rural	94 (51.1)	90 (48.9)	1	1	
Urban	28 (37.8)	46 (62.2)	1.716(0.988, 2.979)	1.782(0.932, 3.409)	0.081
Level of knowledge					
Poor	97 (64.2)	54 (35.8)	1	1	
Good	25 (23.4)	82 (76.6)	5.892(3.373, 10.293)	2.434(1.086, 5.453)	0.031*
Level of social support					
No	47 (62.7)	28 (37.3)	1	1	
Yes	75 (41.0)	108 (59.0)	2.417(1.391, 4.202)	1.566(0.819, 2.994)	0.175
Current alcohol drinker					
No	109 (45.4)	131 (54.6)	3.681(1.075, 12.600)	3.125(1.0880, 9.039)	0.038*
Yes	13 (72.2)	5 (27.8)	1	1	
Duration of illness, months					
≤ 12	39 (42.9)	52 (57.1)	1.926(1.063, 3.489)	1.941(0.965, 3.903)	0.063
13–59	31 (39.2)	48 (60.8)	2.237(1.203, 4.158)	1.521(0.735, 3.151)	0.259
> 59	52 (59.1)	36 (40.9)	1	1	
Co-morbidities					
No	63 (36.2)	111 (63.8)	4.158(2.374, 7.284)	2.463(1.150, 5.276)	0.020*
Yes	59 (70.2)	25 (29.8)	1	1	

NB: ** statistically significant on multivariate analysis p-value (<0.05),* ***COR:*** *crude odds ratio,* ***AOR:*** *adjusted odds ratio,* ***CI:*** *confidence interval,* ***1:*** *reference,*

DISCUSSION

This study explored the self-care practice and associated factors among adult heart failure patients in public hospitals, Sidama, Regional State, Ethiopia, and found that 52.7% of adult heart failure patients in Public Hospitals, in Sidama Region had good self- care practice. This result shows a low level of self-care practice among adult heart failure patients. The proportion of good self-care practice among adult heart failure patients in this study was consistent with report from study done in South East Ethiopia(5), which shows the prevalence of good self-care practice among Congestive Heart failure patients was (53.6%). Similarly the current study was supported by the study conducted in Kenya (49.2%) and Iran, (49.1%) ((15) ; (16) respectively. This may be due to similarity in study design and usage of similar data collection tools.

However, the proportion of self-care is higher when compared with the study conducted in Zimbabwe which reported that the prevalence of good self-care practice was (46.2%)(17) And also, in Jima Ethiopia (40.8%) (9), Another study conducted in Gondar in prevalence of good self -care practice was (37.7%), (8). In Tigray also the good self -care practice was 45.8%.(12). In Addis Ababa and Hawassa the prevalence of good self- care practice was 28% and 34.1% (18) ; (19) respectively ,in Addis Ababa Public Hospitals also the Prevalence of good self-care practice was (32.7%).(20)

This discrepancy in prevalence of good self-care practice might be due to the difference in the study setting, study population, study design, socio-cultural, sociodemographic context of study participants and health care availability and accessibility as well as measurement tools.

This study identified that co-morbidity; alcohol drinkers and knowledge about heart failure have an association with self-care recommendations practices among adult heart failure patients. This study revealed that heart failure patients who had no co-morbidity were found more likely associated with good self-care practice compared to participants who presented with co-morbidity with (AOR=2.463, 95% CI.150–5.276) (P<0.020*). This study results were similar with the study conducted in Tigray (12) Japan,(21). Iran, and Jima University (12)(16)(9) respectively.

Another research conducted in Gondar university referral hospital insights similar results indicating co-morbidity has negative impact on self-care practice of heart failure patients(22). This similarity might be because patients with co-morbid conditions may not check worse symptoms to differentiate heart failure from other chronic conditions. Besides, the presence of co-morbidities contributes to difficulty in self-care practice.

In this study, another modifiable factor associated with self-care practice was knowledge about heart failure. Those participants who had good knowledge about heart failure had good adherence to self-care practice than those who had poor knowledge about heart failure self-care practice (p<0.031*). This finding is in agreement with the Studies conducted in Addis Ababa, (6). Tigray, (13).Japan,(Kato *et al.*, 2013)Vietnam, and Jima University

((23) (9) respectively. Similar studies conducted in USA(24)(25) and a meta-analysis done in UAE(23).Also in Addis Ababa public hospitals patients of indicates that knowledge and self-care are related (20).

This might be due to good knowledge about the disease may provide an opportunity to increase the knowledge about self-care behavior and to promote patients to give more emphasis on self-care practice. Also, due to related to the fact that those patients who know well about heart failure, its signs and symptoms, and self-care behavior may perform more self-care than those patients who didn't know. Prospective studies are also needed to determine the effects of knowledge about heart failure on adherence to self-care recommendations among adult heart failure patients.

This study shows that heart failure patients who had not drinking alcohol was associated with good self-care practice (P<0.038*). Nevertheless, the finding of this study contradict with the claims of ((26)(27) Craig *et al,* 2017) that Alcohol consumption was inversely associated with morbidity or mortality in ambulatory heart failure patients in both men and women compared with light drinkers. This might be related to the fact that there is a difference in the study population, study design and measurement tools.

STRENGTH AND LIMITATION OF THE STUDY

Strength of the study

- The study assessed predictor of self-care practice among heart failure by controlling potential confounders.
- The findings of this study will be used as a baseline for newly coming researchers, since it is the first study done in Sidama Regional State.
- Wider scope of the study setting and population were included in the study.

Limitations of the study

- Since the study is cross sectional, it may not be strong to demonstrate direct cause and effect relationship between risk factors and outcome.
- Still 2.6 % of the patients not enrolled in the study from the estimated hospital, this might lead to selection bias, since it did not give equal chance to select.
- During interview, there might be a potential for recall bias, which affect the result

CONCLUSION AND RECOMMENDATION

Conclusion

The results showed that nearly half of the heart failure patients had poor self-care practice.

However, good self -care practice is very important for patients with HF to prevent and minimize the adverse outcomes of Heart failure. The study also demonstrated that, being current alcohol drinker, having Co-morbidity and inadequate knowledge were independently predictors of self-care practice.

Recommendations

Based on the findings of this study the following recommendations are forwarded for Concerned bodies.

For Ministry of Health

- Health planer and policy makers needs to develop and implemented formal, written protocol detailing the specific procedures for self-care practices in heart failure patients.
- Better to work more on implementation and follow up for heart failure patients.

For Health Professionals

- They need to be motivated and interested for successful for health education for patients regarding the self-care practice of heart failure patients.
- Patient Assessment and management of heart failure should be part of routine medical care for enhancing self-care practice.
- Self-care strategies should target especially, for patients with poor knowledge and alcohol drinkers and patients those who have co-morbidity.

For Researchers

- Further studies need to account to explore barriers of self-care practices.

To Non-governmental organizations

- Non-Governmental organizations those working on non-communicable disease should give training for heart failure patients.

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