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COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

POSTGRADUATE PROGRAM

HEALTH-RELATED QUALITY OF LIFE AND ASSOCIATED FACTORS AMONG ADULT PATIENTS WITH HEART FAILURE IN PUBLIC HOSPITALS, ADDIS ABABA, ETHIOPIA: A CROSS-SECTIONAL STUDY

BY:

SEBLEWENGEL FITA (BSc.)

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ADULT HEALTH NURSING.

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Name of investigator	**Seblewengel Fita (BSc.)**
Name of advisors	**Mr. Tefera Mulugeta Asst.Prof. (MSc, Ph. D Fellow)** **Sr. Aklil Hailu Asst. Prof. (MSc)**
Full title	**Health-Related Quality of Life and Associated Factors among Adult Patients with Heart Failure in Public Hospitals, Addis Ababa, Ethiopia: A Cross-Sectional Study**
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Study Area	**Addis Ababa, Ethiopia**
Contact address of investigator	**e-mail: seblewengelfita@gmail.com** **Phone: +251979175805**

MAY, 2024

ADDIS ABABA, ETHIOPIA

APPROVAL SHEET

ADDS ABABA UNIVERSITY

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SCHOOL OF NURSI-NG AND MIDWIFERY

I, the undersigned MSc student, declare that I have submitted my original work on a title health related quality of life and associated factors among adult patients with heart failure in public hospitals, Addis Ababa, Ethiopia,2024: cross sectional study for the examination.

Submitted by:

Seblewengel Fita (BSc.) _____ _____

Name of student Signature Date

This thesis work has been submitted for examination with my approval as an advisor.

Approved by:

1. Mr. Tefera Mulugeta (Asst.Prof. (MSc, Ph.D. Fellow) _____ _____

   Name of Major Advisor Signature Date

2. Sr. Aklil Hailu **(**Asst. Prof. (MSc) _____ _____

   Name of Co-Advisor Signature Date

APPROVAL BY THE BOARD OF EXAMINATION

This thesis by Seblewengel Fita is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of masters in adult health nursing.

EXAMINER:

Mr. Debela Gela (Asst.Prof. (MSc)	_____	_____
Name	Signature	Date

RESEARCH ADVISORS:

Mr. Tefera Mulugeta (Asst.Prof. (MSc, Ph.D. Fellow)	_____	_____
Name of Major Advisor	Signature	Date
Sr. Aklil Hailu **(**Asst. Prof. (MSc.)	_____	_____
Name of Co-Advisor	Signature	Date

DEPARTMENT HEAD:

Dr. Daniel Mengistu (Ph.D. Associate professor)	_____	_____
Name	Signature	Date

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By my signature below, I declare and affirm that this thesis is my own work. I followed all scholarly ethical principles while preparing, collecting, analyzing, and completing this thesis. All scholarly content included in the thesis has been acknowledged through citation. I confirm that I have cited and referenced all sources in this document. Throughout the preparation of this thesis, every effort was made to avoid plagiarism.

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STUDENT

Name: Seblewengel Fita (BSc.) Signature: _____ Date: _____

RESEARCH ADVISORS:

Mr. Tefera Mulugeta (Asst.Prof. (MSc, Ph.D. Fellow) _____ _____

Name of Major Advisor Signature Date

Sr. Aklil Hailu **(**Asst. Prof. (MSc.) _____ _____

Name of Co-Advisor Signature Date

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Abbreviations and Acronyms

AHA- American Heart Association

CHF- Congestive Heart Failure

EHFSc- European Heart Failure Self-care

HF- Heart Failure

HFpEF- Heart Failure with Preserved Ejection Fraction

HFrEF- Heart Failure with Reduced Ejection Fraction

HRQoL- Health Related Quality of Life

INTER-CHF -International Congestive Heart Failure

JHFKS-Japanese Heart Failure Knowledge Scale

MC- Massachusetts questionnaire

MLHFQ- Minnesota Living with Heart Failure Questioner

MMAS- Morisky Medication Adherence Scale

MRCI - medication regiemen complexity index

NYHA- New York Heart Association

OSSS-Oslo Social Support Scale

QoL- Quality of Life

SF-36- The 36-Item Short Form Survey

WHO- World Health Organization

WHOQoL –World Health Organization Quality of Life

Table of Contents

List of Tables

List of Figures

Abstract

Background: Health- related quality of life' (HRQoL) narrows QoL to aspects relevant to health. The influence of critical factors such as medication taking adherence and heart failure (HF) knowledge on the health-related quality of life among heart failure patients has not been thoroughly studied in previous research conducted in Ethiopia.

Objective: The study aimed to assess health related quality of life and associated factors among adult patients with heart failure in public hospitals Addis Ababa, Ethiopia, 2024.

Method: Institution based survey was conducted on 160 study participants, from Feb 19- Mar 19/2024. Structured interview-based questionnaire and medical record review was used for data collection. Samples were selected using a census technique from four public hospitals. Both descriptive and analytical statistical tests were utilized. An ordinal logistic regression analysis was applied. The bivariate analysis was fitted for each explanatory variable and a variable having p-value of <0.25 were included in the multivariable analysis. Variables with p value of < 0.05 were considered as statistically significant.

Result: The study yielded a mean total MLHFQ score of 38.10 (±19.785). The comprehensive analysis unveiled that 67 (41.9%) of the participants fell into the category of poor HRQoL. Socio demographic factors such as (age, unemployment, monthly income level of 0-600 birr &7301-10,899 birr), general health perception, clinical factors such as (HF medications: Lasix & atenolol), social support, medication taking adherence and heart failure knowledge level were significant factors associated with HRQoL of people with HF.

Conclusion and Recommendation: The level of health-related quality of life among adult HF patients in public hospitals, Addis Ababa was considerably found poor around 67 (41.9%), influenced by several factors. Intervention focused on these factors is helpful in order to improve HRQoL of heart failure patients.

Keywords: Heart Failure, social support, medication adherence, heart failure knowledge, Health- related quality of life.

1. Introduction

1.1 Background

Heart failure (HF) is a complex clinical syndrome where the heart is unable to pump sufficiently to maintain blood flow to meet the body's need. It can be either acute and come on suddenly, or a progressive, long-term condition. In heart failure, the ventricles may become too stiff, as a result of the damaged or weakened heart muscle. Over time, the heart can no longer keep up pumping blood to the whole body with a normal capacity to fulfill the body demands (1).

Following a cardiac injury (e.g., myocardial infarction, increased preload or afterload) cellular, structural and neurohumoral modulations occur that affect the phenotype being present. These processes influence the cell function among intra- as well as intercellular behavior. In consequence, activation of the sympatho adrenergic and renin-angiotensin aldosterone-system takes place leading to adaptive mechanisms, which are accompanied by volume overload, tachycardia, dyspnea and further deterioration of the cellular function (vicious circle) (2).

The disease is manifested by several signs and symptoms that include fatigue, dyspnea, edema, rapid heartbeat and cough. It can lead to fluid leaking into the lungs and causing symptoms such as shortness of breath and a persistent cough. The blood returning from the body is unable to enter the heart efficiently and instead backs up in the veins, leading to swelling known as edema. To compensate for this decrease in pumping capacity, the heart may beat faster in an attempt to maintain circulation. Additionally, the body may divert blood away from less vital organs, causing fatigue and tiredness. (3).

Among the various types of heart failure, left-sided or left ventricular heart failure presents a particular challenge as the left side of the heart must exert greater effort to pump the same volume of blood. In cases of systolic failure, or heart failure with reduced ejection fraction (HFrEF), results in an ejection fraction of 40% or less. In Diastolic failure (HFpEF) the left ventricle pumps between 41% and 49% EF. Right-sided or right ventricular heart failure usually occurs as a result of left-sided failure. Congestive heart failure, sometimes called (CHF) causes congestion in the body's tissues and lungs (4).

The New work Herat Association (NYHA) Functional Classification describes the different classes for HF like Class I: No limitation of physical activity. Individuals in Class II may experience slight limitations in physical activity, but are generally comfortable at rest. On the other hand, those in Class III face marked limitations in physical activity, even experiencing symptoms with less than ordinary exertion. Finally, Class IV individuals exhibit symptoms of heart failure even at rest, with any physical activity causing further discomfort. (5).

World Health Organizations defines Quality of Life as an "individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". It is a broad ranging concept incorporating in a complex way the persons' physical health, psychological state, level of independence, social relationships, personal beliefs and their relationships to salient features of the environment (6).

'Health- related quality of life' (HRQoL) narrows QoL to aspects relevant to health. It is an individual's perception of their physical, social, emotional, psychological, and mental functioning (7,8). However, HRQoL is a comprehensive and complex concept for which no universally accepted definition is available (9).

The concept of Quality of Life (QOL) has gained prominence in the fields of health and medicine, serving as a crucial target for research and practice. Understanding QOL is essential for enhancing symptom relief, care, and rehabilitation for patients. QOL assessments also assist in identifying the myriad of challenges that patients may face. This valuable information can be shared with future patients to help set realistic expectations and comprehend the implications of their illness and treatment. Furthermore,it serves as a vital tool in medical decision-making, as it can predict treatment outcomes and offer valuable prognostic insights (10).

1.2 Statement of the Problem

Heart failure (HF) is a complex and serious condition with profound implications, encompassing substantial morbidity and mortality rates, diminished functional abilities, compromised quality of life, and considerable financial burdens. With over 64 million individuals impacted globally, HF presents a significant public health concern. Its prevalence, spanning from 1% to 3% among adults in developed nations, is anticipated to rise significantly. This escalation is attributed to advancements in diagnostic capabilities, facilitating accurate identification, along with the advent of life-extending medical interventions post-HF diagnosis (11). In the international Congestive Heart Failure Study (INTER-CHF) mortality was highest in Africa (34%) (12). In Ethiopia, the in-hospital mortality due to HF is high (24.4%) (13).

Maintaining the higher-level quality of life is an important goal in the heart failure therapy, as many patients value better quality of life with greater longevity (14). Heart failure (HF) patients often experience a wide array of challenging symptoms that can affect both their physical and mental well-being. As the disease progresses to advanced stages, these symptoms can become even more severe, severely impacting patients' ability to carry out daily tasks and affecting various aspects of their lives. This includes their physical health, emotional state, cognitive abilities, relationships, lifestyle choices, and social interactions. The overall result is a significant decline in the patient's quality of life, as HF imposes substantial limitations on various areas of their existence (15).

According to the data analysis of 40 studies, the total QOL score in American individuals was notably higher at 48.0 compared to Europe at 45.5 and Asia at 35.1. Moreover, the Health-Related Quality of Life (HRQOL) in Asian patients with heart failure appeared to be superior to that of American patients, suggesting a lesser impact of the disease on Asian individuals (16).

In a nationwide cohort study of Chinese, Malay and Indian ethnicities. The Chinese participants exhibited a notably lower aggregate score & better HRQOL (29.1 ± 21.6) in contrast to their Malay (38.5 ± 23.9) and Indian (41.7 ± 24.5) counterparts. Additionally, Chinese individuals demonstrated lower levels of both physical and emotional well-being when compared to Malay and Indian patients (17).

In Ethiopia, 54% of individuals with heart failure had poor HRQoL with a mean total score of 48.03±19.73 (18).

Factors such as age, gender, New York Heart Association functional class, depressive symptoms, symptom status, residence, marital status, monthly income, number of hospitalizations, LVEF, disease duration, social support, family size, occupation, recent admission within the past six months, department of treatment, salt intake, and health perception have been identified as important influences on Health-Related Quality of Life (HRQOL) (19–21). Among the recommended approaches, the use of implantable devices and behavioral interventions enhanced QoL. Additionally, exercise training and participation in cardiac rehabilitation programs have proven to be beneficial in enhancing HF self-care and ultimately improving QoL (14).

The influence of critical factors such as medication taking adherence and heart failure (HF) knowledge on the health-related quality of life among heart failure patients has not been thoroughly studied in previous research conducted in Ethiopia. Studies done previously did not specifically address the impact of these factors on the overall well-being of heart failure patients. Moreover, most of the studies were conducted in monocenter approach.

This gap in the literature highlights the need for further investigation into the relationship between medication taking adherence, HF knowledge, and health-related quality of life in this population. Understanding these factors can inform the development of targeted interventions to improve the overall health outcomes of heart failure patients in Ethiopia. Thus, the purpose of this study is to address these gaps by incorporating those factors in the questionnaire in a multicenter approach.

1.3 Significance of the Study

Heart failure is a complex condition that impacts various aspects of patients' well-being, including physical, social, psychological, emotional, and spiritual health. The symptoms associated with the disease can significantly decrease quality of life, causing fatigue, shortness of breath, insomnia, and anxiety. It is crucial to implement interventions that focus on improving the overall quality of life for these patients. These interventions are essential components of the treatment plan for heart failure, aiming to extend life expectancy, enhance quality of life, and prevent disease progression and hospital readmissions (23).

The finding of the study will offer benefit to policy makers, health care practitioners and researchers by providing basic information on the level of health-related quality of life and its associated factors.

Thus, the finding of the study will offer important information to policy makers working in the health care sectors during their decision-making process by providing background data on the level of health-related quality of life and associated factors among adult heart failure patients. Moreover, health care practitioners will be able to recognize factors that positively and negatively affect patients' HRQoL & helps them to adhere to appropriate management and care. Additionally, for the researchers, it will offer baseline data for those who are interested studying this research topic further.

2. Literature Review

2.1 Introduction

The role of the nurses in improving the quality of life of the patients with heart failure is vital as they are more capable to share their knowledge of the concepts of the HRQoL for HF patients. Through which patients would have a better understanding of quality of life and will be capable to cope and maintain normal daily life activities (22).

Literatures that are institution-based, cross-sectional, and focused on health-related quality of life and associated factors among adult patients with heart failures that was measured by using the MLHFQ tool, which are in line with my study objectives are used for the study's review. I have used PubMed and Google Scholar databases. The literatures are arranged according to two main categories: health-related quality of life of patients with heart failure and factors associated with health-related quality of life among heart failure patients; such as, Sociodemographic, general health perception, behavioral characteristics, clinical characteristics, social support, medication taking adherence and heart failure knowledge.

2.2 Health-Related Quality of Life of Patients with Heart Failure

A research conducted in Bahrain revealed that most of the patients had a poor quality of life (74.8%); about 21.6% had a moderate quality of life, while only few patients (3.6%) had a good quality of life (23).

the study conducted in Sub-Saharan Africa, Cameroon the median scores for the Minnesota Living with Heart Failure Questionnaire (MLwHFQ) were generally low with a median score of 22 (11 – 42) in this population (24). Comparable to a study conducted on the health-related quality of life of individuals with heart failure in Ethiopia, the findings showed that over half of all HF patients in Ethiopia had a poor HRQoL; the study participants' average total MLHFQ score was 48.03±19.73, and 54% of participants had poor HRQoL (18).

This is also consistent with a study conducted in the same region of Gondor, Ethiopia, where the overall mean score of HF patients' quality of life was 46.4 ± 22.4. The majority of the study participants 147(51.8%) had poor quality of life (25).

Moreover, findings from research carried out in Wolaita zone reveal that the average levels of physical, emotional, and overall Health-Related Quality of Life (HRQoL) stood at 22.2, 7.7, and 46.37, respectively. Notably, about 50% of the participants were assessed as having a poor quality of life-related to heart failure (21).

2.3 Factors Associated with Health-Related Quality of Life

2.3.1 Sociodemographic characteristics

Sex

Based on Wolaita's zone findings, in the context of a gender-based comparison, women exhibited worst quality of life & an increase in total Health-Related Quality of Life (HRQoL) score of 4.3 (95% CI = 0.96, 7.7) when compared to men (21).

Age

According to a Bahraini study, the quality of life is inversely proportional to the age of the patients with third/fourth degree heart failure ($p < 0.001$), i.e. as age increases, the quality of life becomes worse (23).This is consistent with research conducted in the Sub-Saharan region, Cameroon, which found that young age ($p = 0.039$) was a risk factor for poor life quality (24). A study done in Ethiopia which is also revealed that each extra year of age of participants predicts worst HRQoL & an increase in MLHFQ score by 0.12 ($\beta = 0.12$, CI (0.11, 0.28 ,$p = 0.001$) (18).

However, a Wolita zone study found that for every year of age rise, the physical component of HRQoL increased by 0.04 scores (95% CI = 0.01, 0.08) and the overall HRQoL score increased by 0.1 (95% CI = 0.01, 0.14) which shows low quality of life (21).

Education

According to a study conducted in the Kingdom of Bahrain, there is a significant difference in quality of life and the education of the patients. The lower the education, the lower is the quality

of life ($p < 0.001$), with illiterate patients having a poor quality of life. In contrast, 78.9% of university graduates and those with higher educational levels had a moderate quality of life, 15.8% had a good quality of life and only 5.3% had a poor quality of life (23). Similarly, a Sub-Saharan African, Cameroon study reports that low educational attainment was the risk factor for poor life (24).

Marital Status

According to a study published by the Kingdom of Bahrain, all divorced and widowed patients having a significantly poor quality of life ($p < 0.001$) (23).

Income Level

The Kingdom of Bahrain reports that a positive relationship was found between the monthly income and the quality of life; patients at higher income had better quality of life in all dimensions ($p < 0.001$) (23). A Jordanian study found that low monthly income was associated with significantly lower HRQOL (33). A Sub-Saharan African, Cameroon study found that low monthly income was a risk factor for poor life quality (26).

Employment Status

An Ethiopian study reports that those without employment had an average MLHFQ score that was 2.73 points higher than that of employed individuals ($\beta = 2.73$, CI (0.22, 5.24) & it is negatively associated with HRQoL (18).

Family Size

According to a study cited by the Kingdom of Bahrain, there was a negative correlation between the number of children and quality of life among heart failure patients (23). In a similar vein, a Wollita study reports that for every additional family member, the overall HRQoL score fell by 0.7 (95% CI=−1.21, −0.19) (21).

Residency

According to a study reported in Gondar, Ethiopia poor HRQOL was independently predicted by place of residence. Rural HF patients' quality of life was 2.4 times lower than that of urban HF patients (OR = 2.41, 95% CI, 1.23–4.71) (25).

2.3.2 Health Perception

The findings from a study conducted in Wollita indicate that individuals who rated their health as poor or fair showed poor quality of life & higher total Health-Related Quality of Life (HRQoL) scores by 5.2 (95% CI=1.22, 9.1) and 10.71 (95% CI=1.05, 20.38) points, respectively, compared to those who rated their health as excellent (21).

2.3.2 Lifestyle/Behavioral Characteristics

Cigarette Smoking

Based on a study in Sub Saharan Africa, Cameroon, the risk factors of poor life quality was exposure to tobacco (p =0.005) (24).

Salt Intake

A study as indicated by Wollita zone, Participants who used food containing salt had increased total HRQoL scores; which is poor HRQoL by 4.5 (95% CI=1.5, 7.4) (21).

Alcohol

A recent study conducted in Korea revealed, those who exceeded moderate drinking levels exhibited a 4.90 times greater likelihood of possessing a superior QOL compared to those who adhered strictly to moderate alcohol consumption guidelines (OR ¼ 4.90, 95% CI: 1.77-13.57, P ¼ .002) & concluded that the role of alcohol consumption in QOL among HF patients in Korea needs further exploration (27).

2.3.3 Clinical characteristics

Medications given for heart failure

According to Jordan's study, not using loop diuretics was found to be significantly associated with an improved health-Related Quality of Life (HRQOL) ($P < 0.05$) (26).

Type of comorbidity

A study done in Ethiopia states that people with diabetes had poor quality of life & scored an average 4.47-point higher MLHFQ score than those without diabetes ($\beta = 4.47$, CI (1.41, 7.54), $p = 0.004$) (18).

Number of pills taken per day

A study conducted in the United States found that non-cardiovascular medications saw a sharper rise compared to heart failure-related or non-heart failure cardiovascular medications. Notably, older adults with heart failure predominantly consumed non-cardiovascular medication that had potential adverse effects (28). Similarly, another study in the same country reveals a moderate negative correlation ($r = -0.47$; $p = 0.009$) between changes in Medication Regimen Complexity Index (MRCI) and MLHFQ (29).

2.3.4 Social Support

A study conducted in Ethiopia has revealed a significant association between social support scores and the overall Health-Related Quality of Life (HRQoL) of individuals with heart failure at a significance level of $p \leq 0.05$. The findings indicate that for every 1-unit increase in Oslo social support score, there is a corresponding 1.48-unit decrease in the Minnesota Living with Heart Failure Questionnaire (MLHFQ) score ($\beta = -1.48$, CI = (-1.93, -1.03), $p=0.001$). This suggests that a strong social support system is positively linked with a higher HRQoL in individuals dealing with heart failure (18).

The findings of a study conducted in the Tigray region reveal critical insights into the impact of social support on individuals' well-being. Health-Related Quality of Life (HRQoL) bore a marked correlation with the absence of social support. Impressively, those lacking social backing were 2.52 times more likely to exhibit a diminished HRQoL, compared to their counterparts who received support from their social circles (Adjusted Odds Ratio; 2.52, 95% Confidence Interval; 1.33-4.79, P-value; 0.005) (30).

2.3.5 Medication Adherence

In a study conducted in Jordan, significantly, dissatisfaction with prescribed medications ($P<0.05$) was associated with a notable decrease in the HRQOL of heart failure patients (26).

In a study conducted in Thailand, it was revealed that patients exhibiting poor medication adherence displayed a lesser quality of life in comparison to individuals with moderate or high adherence levels. Notably, medication adherence emerged as the most influential factor in relation to quality of life when compared to other variables examined in the study. (31).

2.3.6 Heart Failure Knowledge

A study conducted in Korea, the findings showcased a distinct advantage for individuals who possessed information about their daily fluid intake, as they exhibited a 3.54 times higher likelihood of experiencing a better quality of life compared to those without such knowledge (OR = 3.54, 95% CI: 1.38-9.09, P = .009) (27).

Additionally, a study done in Brazil states that the mean Health Literacy score was 34.2 ± 15.1 (the majority presenting acceptable or better knowledge). The mean MLHFQ score was 73.5 ± 19.8, the better the HF knowledge the better QoL in hospitalized HF patients (32).

Conceptual framework

Conceptual framework for this study is established after reviewing and adapted from different literatures (18,21,25,33), related to similar socio demographic characteristics of the study population and identified variables as illustrated in the “Fig 1” below, the socio-demographic factors (marital status, age, sex, educational status, family size per household, income level, residence and employment status), behavioral and lifestyle factors such as smoking habit ,alcohol use and salt intake, clinical factors like number of pills taken per day, type of comorbidity and type of medication used for heart failure, health perception, social support, medication taking adherence and heart failure knowledge. The direction of relationship between outcome variable (Health Related Quality of Life) and Explanatory variables are illustrated.

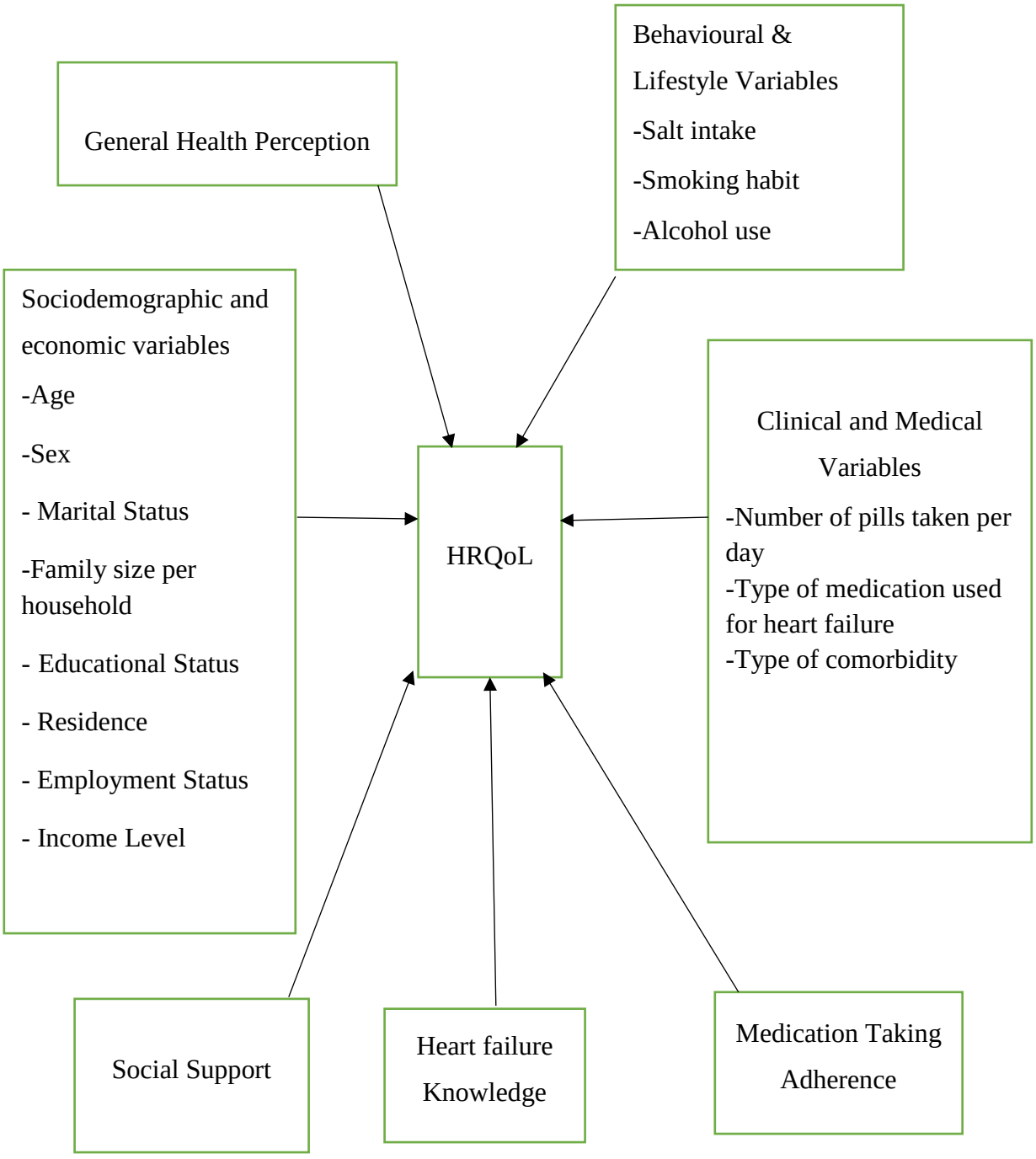

Figure 1: Conceptual Framework for Health-Related Quality of Life and Associated factors among Adult Patients with Heart Failures in public hospitals, Addis Ababa, Ethiopia,2024.

3. Objectives

3.1 General objective

- To assess health related quality of life and associated factors among adult patients with heart failure in public hospitals Addis Ababa, Ethiopia, 2024.

3.2 Specific objectives

- To determine the level of health-related quality of life, among adult patients with heart failure in public hospitals, Addis Ababa, Ethiopia, 2024.
- To identify factors associated with HRQoL among adult patients with heart failure in public hospitals Addis Ababa, Ethiopia, 2024.

4. Methods and Materials

4.1 Study area & Period

This research was carried out in four designated public hospitals within the city administration of Addis Ababa, Ethiopia. Being the largest and most densely populated capital city of Ethiopia, Addis Ababa is home to a significant portion of the country's population. As per the data provided by the World Population Review, the estimated population of Addis Ababa in the year 2024 stands at 5,703,628. Occupying an area of 527 square kilometers, the city boasts a population density of approximately 5,165 individuals per square kilometer (34). Among the array of 13 public hospitals situated in the city, the study specifically focused on Tikur Anbessa Specialized Hospital, Yekatit 12 Hospital Medical College, St. Peter's Specialized Hospital, and Zewditu Memorial Hospitals.

Tikur Anbessa Specialized hospital has been a specialized referral hospital in the country. A large number of patients with heart cases have come from different parts of the country. The cardiac center has had a Cardiac Catheterization Laboratory, Echocardiography, critical care unit of cardiac patients and cardiac ward. Currently, the hospital has independently provided a modern heart treatment device called Cath-lab beyond drug treatment. It has also provided intravenous treatment without open heart surgery.

St. Peter's Specialized Hospital is equipped with a Cardiac Catheterization Laboratory, Echocardiography facilities, a critical care unit dedicated to cardiac patients, an emergency outpatient department, and a specialized cardiac ward. These services are offered in partnership with St. Paul's Hospital Millennium Medical College. The hospital's cardiac outpatient department operates, ensuring that patients receive timely and comprehensive care for their cardiovascular health needs.

Yekatit 12 Hospital Medical College has been one of the biggest public referral hospitals in Addis Ababa. It was under the administration of Addis Ababa city health bureau. It has delivered both clinical and academic services in different specialties. The hospital has provided adult cardiac care with general practitioners, senior doctors & cardiologist at the adult chronic outpatient department.

Zewditu Memorial Hospital was located in center of Addis Ababa, Ethiopia. It has been a teaching and general referral hospital and was under the administration of Addis Ababa city health bureau. The hospital has provided adult cardiac care with senior doctors & cardiologist at the adult outpatient department. The study was conducted from Feb19 - Mar19/2024.

4.2 Study Design

Institution based cross-sectional study design was implemented.

4.3 Source Population

All heart disease patients in public hospitals, Addis Ababa, Ethiopia.

4.4 Study Population

All heart failure patients who had regular follow-up in public hospitals in Addis Ababa, Ethiopia.

4.5. Inclusion and Exclusion criteria

4.5.1. Inclusion criteria

All adults aged >18 years, heart failure patients, receiving health care in regular follow-up at the cardiac outpatient department for at least 1 month during the study period.

4.5.2. Exclusion criteria

Heart failure patients who were critically ill at the time of data collection.

4.6. Sample size

The sample size was calculated using single proportion formula for finite population with the assumptions of 95% confidence interval 5% of marginal error and proportion (p) from a previous study.

$N= (Z\alpha/2)^2 * P\ (1 - P)^2 / D^2)$

The study which is conducted in Ethiopia at St Paul Millennium Medical College & St Peter's Specialized Hospitals, investigated the HRQoL of people with heart failure, 53.26% of participants had poor HRQoL,34.73% had moderate HRQoL and 12.01% had good HRQoL (18).

N= $\{(1.96)^2 * 0.5326\ (1-0.5326)\}/0.05^2$

=383

Since the total population was less than 10,000 a correction formula was used. The number of cases those who had follow up per month in each selected hospital were:

Tikur Anbessa Specialized Hospital = 76,

St Peter's Specialized hospital = 29,

Zewditu Memorial hospital = 35 and

Yekatit 12 medical college = 20.

Corrected sample size formula was used;

nf= $n/(1 + (n/N))$

N= 160

=383/ (1+383/160)

=113

Where, n = initial sample size

nf = corrected sample size

N = total number of heart failure patients who had follow-up per month in the above four hospitals.

Adding Non-response rate of 10%

Total sample size = total sample size determined + (Sample size * 10% Non-response rate)

= (113*10%)

=11.3+113

= 124

Since the total population was not many, all populations were taken completely.

n= 76+29+35+20=160

4.7 Sampling procedures

From 13 Public hospital in Addis Ababa, Ethiopia, Four Public Hospitals were selected by using simple random sampling technique. All samples were taken based on their total population per month from Black Lion Specialized hospital, St, Peter Specialized hospital, Yekatit 12 Hospital Medical College, and Zewditu memorial hospital. Study participants were selected using census technique.

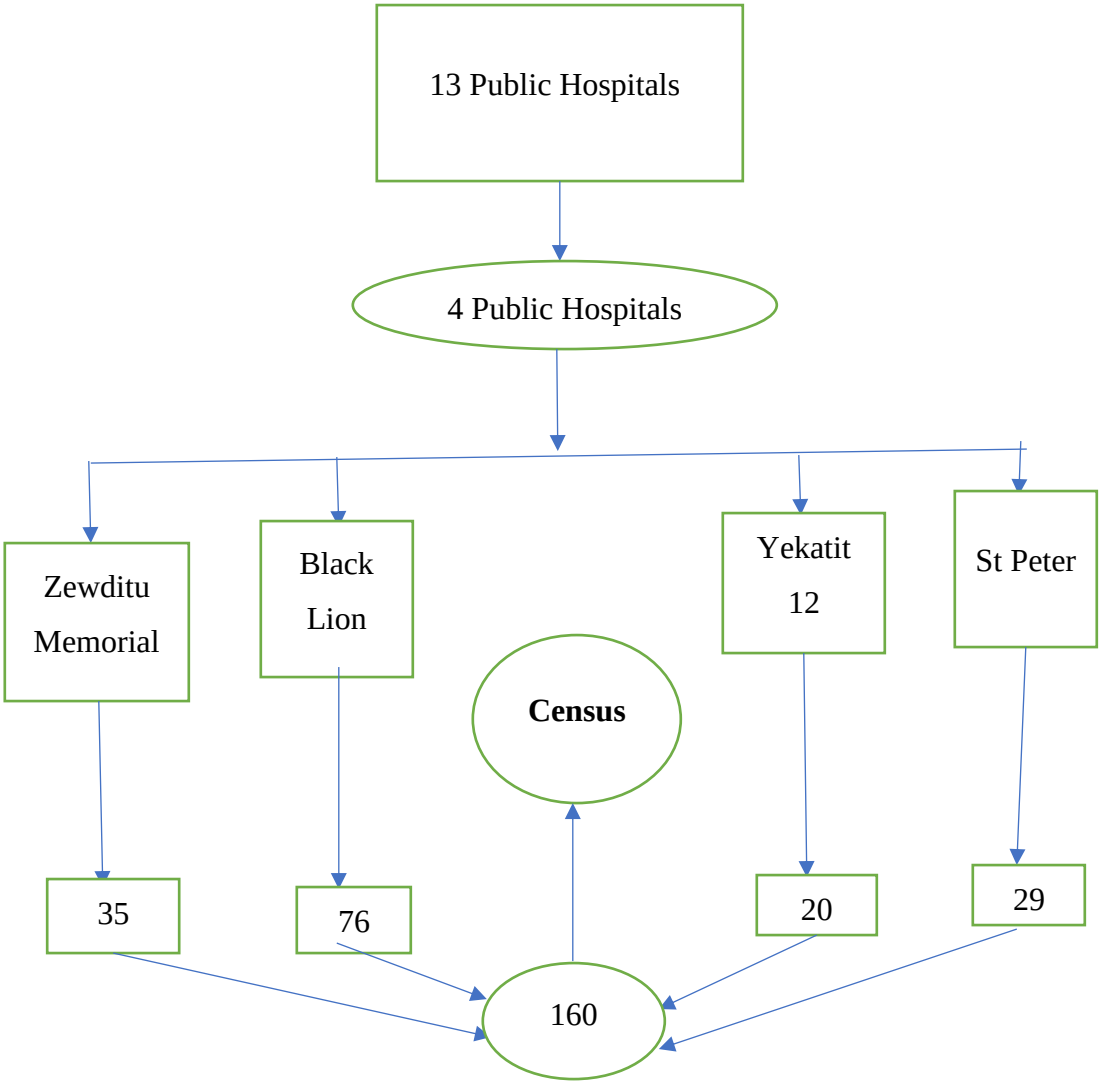

Figure 2: Schematic presentation of the sampling procedure for adult heart failure patients in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

4.8 Operational Definitions

Health-Related Quality of Life: refers to Heart failure patients' QOL, who score less than 24 are labelled as having (Good) HRQoL, 24–45 (Moderate), and greater than 45 as (Poor) HRQOL (35).

General health perception: refers to the patients' verbal response obtained from the patients in terms of:

"very good", "fair" or "poor" (36).

Monthly Income: The amount of income patients has per month in birr, which is got from the 2021G.C finance office of Addis Ababa university health science college. It is classified as 0-600 ETB/month., 601-1650 ETB/ month, 1651-3200 ETB / month, 3201-5250 ETB/ month, 5251-7300 ETB/month, 7301-10,899 ETB/month,>10,899 ETB/month.

Number of pills taken per day: The general counted number of pills patients take per day excluding the dose and frequency.

Social support: The numerical outcome derived from the assessment of the Oslo Social Support Scale (OSSS-3) signifies the extent of social support received. This scale yields scores between 3 and 14, wherein higher scores indicate robust levels of social support, while lower scores denote comparatively weaker levels of social support (37).

Medication adherence: was evaluated through the utilization of the Morisky Medication Adherence Scale (MMAS-8). The scale, which assigned scores ranging from 0 to 8 points, was employed to assess patients' compliance with their medication regimen (38). Total scores ranged from 0 to 8, with scores of 8 reflecting high adherence, 7 or 6 reflecting medium adherence, and <6 reflecting low adherence (39).

Knowledge of heart failure: The assessment of participants' knowledge of heart failure (HF) was conducted utilizing the Japanese Heart Failure Knowledge Scale (JHFKS-15). This scale consists of 15 items, with scores for each item summed to generate a total score ranging from 0 to 15. Higher total scores on the JHFKS-15 indicated a higher level of knowledge pertaining to heart failure (40). The 15 items of JHFKS represented 100% & the classification of the score

was based on Bloom's cutoff categories for the total knowledge as High level- 80%-100% , Moderate level- 60%-79% & < 60% Low level (41).

4.9. Study Variables

4.9.1. Dependent Variables

Health related quality of life.

4.9.2. Independent Variables

Socio-demographic factors (**age, sex, employment status, marital status, residence, educational status, income level, family size per house hold**)

Behavioral and life style factors (**smoking, salt intake, Alcohol use**),

General health perception

Clinical factors (**number of pills taken per day, type of medications taken for the HF, Type of comorbidity)**

Social support,

Medication taking adherence and

Heart failure knowledge

4.10 Data Collection Instrument and Procedures

The study was carried out using structural interview-based questionnaire and clinical data was gathered from patients' medical record. The questionnaire for the HRQoL was adopted from Minnesota Living with Heart Failure Questionnaire (MLHFQ) (42). In this study, the level of social support was assessed utilizing the Oslo Social Support Scale (OSSS-3) (37).While heart failure knowledge was measured using the Japanese Heart Failure Knowledge Scale 15 items (JHFK-15) (40). Medication adherence was evaluated through the Morisky Medication-Taking Adherence Scale 8 items, MMAS (8-item) (43).

The Minnesota Living with Heart Failure Questionnaire (MLHFQ) was employed as a disease-specific Health-Related Quality of Life (HRQoL) assessment tool. The MLHFQ comprises 21 questions encompassing three dimensions: socioeconomic, physical, and emotional. Responses were recorded on a six-point Likert scale (ranging from 0 to 5), with total scores varying from 0 to 105. Higher scores were indicative of a more significant decline in quality of life. Participants were categorized as having either "good," "moderate," or "poor" HRQoL based on scores falling below 24, ranging from 24 to 45, and exceeding 45, respectively. The OSSS-3 scale comprises three items that assess the level of social support based on the number of close confidants, perception of concern from others, and relationships with neighbors, particularly focusing on the availability of practical help. Scores on this scale range from 3 to 14, with higher scores indicating stronger levels and lower scores indicating weaker levels of social support. A score is assigned for each 'yes' response, while 'no' responses receive a score of zero.

Moving on to the MMAS-8, it is a structured self-report measure designed to assess medication-taking behavior. This scale consists of eight questions, with the first seven items requiring a dichotomous answer (yes/no) to indicate adherence or non-adherence. The eighth item allows patients to choose from a 5-point Likert scale to express how frequently they miss taking their medications. Each 'no' response is typically rated as 1, while 'yes' responses are rated as 0, except for item 5 where the scoring is reversed. Total scores on the MMAS-8 range from 0 to 8, with higher scores reflecting high adherence, scores of 7 or 6 indicating moderate adherence, and scores below 6 reflecting low adherences.

Lastly, the JHFKS comprises 15 items designed to evaluate patients' knowledge of heart failure (HF) symptoms, HF-related treatments, and self-care practices. Questions present multiple-choice answers (yes, no, I don’t know), with a correct response being awarded a score of '1' and incorrect responses receiving a '0'. Total scores on the JHFKS range from 0 to 15, with higher scores indicating a greater understanding of HF-related information.

4.11 Data quality control

The tool was initially developed in English before being translated into Amharic. The process involved rigorous revision and both forward and backward translation to ensure that the questions retained their intended meaning and objective. This meticulous approach was taken to maintain the accuracy and effectiveness of the tool in both languages.

Additionally, data quality was ensured by pretesting in 5 % of heart failure patients in St Paul specialized millennium medical hospital two week before the actual data collection. Lastly, proofreading was done to detect any typing, spelling or grammatical errors.

Four data collectors who had BSc and 2 supervisors with MSc was assigned for the data collection. A training was given for data collectors and supervisors by the principal investigator to provide information on the study, questionnaire, and data collection procedure. The collected data was diligently reviewed each day by supervisors and the principal investigator to ensure its completeness. 20-25 minutes was given for study participants to answer all questions appropriately. In case in the meantime if problem faced there was a discussion with data collectors and supervisors. Data was checked again for its completeness before data entry.

The MLHFQ was validated and widely used tool. The adequacy of internal consistency within the MLHFQ subscales, ranging from 0.79 to 0.88, was deemed satisfactory. Confirmatory factor analysis (CFA) substantiated the presence of a three-factor model within the MLHFQ, delineated as the "physical domain," the "social domain," and the "emotional domain," showcasing a model with fitting indices. The analysis yielded commendable results, as indicated by the comparative fit indices (CFI) value of 0.894 and the goodness of-fit (GFI) value of 0.898, signifying a reasonable alignment between the proposed model and the data at hand (44). The validity and reliability of the tool in this study was 0.876 which was in a good range of internal consistency of Cronbach's Alpha.

Cronbach's Alpha reliability was tested for the rest of questions and was 0.714 which was good and acceptable range. Secondly, multicollinearity was tested through examination of tolerance and VIF. The tolerance was **>0.1 & The VIF was<5.** Monthly income had 0.631 tolerance with 1.584 VIF, Lasix 0.946 tolerance with 1.057 VIF, atenolol 0.940 tolerance with 1.064 VIF, social support 0.777 tolerance with 1.286 VIF, medication adherence 0.806 tolerance with 1.241 VIF, heart failure knowledge 0.905 tolerance with 1.105 VIF and general health perception 0.693 tolerance with 1.444 VIF.

4.12. Data Analysis

The information gathered underwent a process of cleaning before being meticulously inputted into Epi-Data version 4.6. Subsequently, it was transferred to SPSS version 25.0 for coding and

comprehensive analysis. Various statistical methods, including descriptive statistics, were utilized to outline the frequencies, percentages, means, medians, and standard deviations across a range of categories such as socio-demographic traits, behavioral patterns, healthcare aspects, overall health perception, adherence to medication, social support levels, understanding of heart failure, as well as scores from the MLHFQ assessment tool. The findings were effectively presented through written summaries, tables, and visual aids like charts and graphs, tailored to suit the nature of the data at hand. Ordinal logistic regression analysis was applied. The dependent variable was ordered in terms of good, moderate and poor. The bivariate analysis was fitted for each explanatory variable and a variable having p-value of <0.25 were included in the multivariable analysis. Variables with p value of < 0.05 were considered as statistically significant at 95% confidence interval. The model fitting information, Goodness of fit, Pseudo R Square and Test of parallel lines are not violated. The model fitting information was significant (0.000) & under goodness of fit Pearson & deviance were non-significant (0.919 & 1.00 respectively) and test of parallel lines (proportion of odds) was 0.511.

4.13. Ethical Consideration

An approval was granted by the institutional review board of Addis Ababa University (IRB-AAU) with a protocol number of **SNM/05/2024**, School of Nursing and Midwifery, Department of Nursing Research Committee. Following this, an official letter of approval from the Department of Nursing was obtained, along with a support letter and a copy of the ethical clearance was provided to each hospital where data collection took place. Furthermore, additional ethical clearance and permissions were obtained from Addis Ababa Health Bureau for hospitals under its jurisdiction, and administrative permission was sought from each hospital. Prior to data collection, informed consent was obtained from study participants after a detailed explanation of the study's objectives, rationale, benefits, risks, and expected outcomes. Written consent was taken to ensure their voluntary participation. Data was collected and stored anonymously, with no use of names or identifiers, and all information obtained was kept confidentially and accessible only to the principal investigator.

4.14 Dissemination of the Study

The conclusive findings of the study were formally presented and submitted to various esteemed institutions, including Addis Ababa University's College of Health Sciences, specifically the School of Nursing and Midwifery, and the Department of Nursing at Tikur Anbessa Specialized Hospital (TASH), as well as the Cardiac OPD and Internal Medicine Department. The report was also shared with Zewditu Memorial Hospital, St. Peter's Specialized Hospital, and Yekatit 12 Hospital Medical College. Following this, the manuscript was then forwarded to scientific journals for evaluation and possible publication.

5. Results

The results section in this chapter is in accordance with the studies objectives. There are six sub-sections in it. The socio-demographic features are covered in the first sub-section, followed by clinical characteristics in the second, general health perception in the third, behavioral characteristics in the fourth, health related quality of life in the fifth, and factors related to health-related quality of life in the sixth final sub-section.

5.1. Socio demographic characteristics of Study participants

One hundred sixty (160) individuals with heart failure took part in this study, achieving a response rate of 100%. The average age of the participants was 56.02 (±15.198) years. The average family size of the participants was 4.47 (±2.246). Among the study participant,74 (46.3%) were female and 86 (53.8%) were male and the majority of them, 114 (71.3%) were married. Minority of the study participants, 11(6.9%) were government employee.41(25.6%) of participants fell in to an income level of 0-600 ETB/month. A total of 45 (28.1%) participants had received elementary education. Almost all participants, 144 (90%), resided in urban areas. Additional socio-demographic characteristics can be found in Table 1.

Table 1: Socio demographic characteristics of study participants in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

Variables	Category	Frequency (n)	Percent (%)
Sex	Male	86	53.8
	Female	74	46.3
Marital status	Married	114	71.3
	Single	17	10.6
	Divorced	10	6.3
	Widowed	19	11.9
Employment status	Unemployed	12	7.5
	Private employee	24	15.0
	Government employee	11	6.9
	Personal work	41	25.6
	Housewife	28	17.5
	Student	6	3.8
	others	38	23.8

Monthly income	0-600 ETB/month	41	25.6
	601-1650 ETB/ month	28	17.5
	1651-3200 ETB / month	31	19.4
	3201-5250 ETB/ month	13	8.1
	5251-7300 ETB/month	11	6.9
	7301-10,899 ETB/month	10	6.3
	>10,899 ETB/month	26	16.3
Educational status	Unable to read and write	27	16.9
	Able to read and write	7	4.4
	Elementary (grades 1-8)	45	28.1
	Secondary (grades 9-10)	24	15.0
	Preparatory (grades 11-12)	22	13.8
	Diploma and above	35	21.9
Residence	Urban	144	90.0
	Rural	16	10.0

ETB, Ethiopian birr, Others, Farmers or retired

5.2. Clinical characteristics of Study participants

In the study conducted, the mean number of pills taken per day by participants was found to be 5 (±2). Among the participants, a significant portion had comorbidities, with 61 individuals (38.9%) having hypertension and 30 individuals (19.1%) having diabetes mellitus. Furthermore, majority of the participants, specifically 119 individuals (74.4%) and 110 individuals (68.8%), were prescribed Lasix and spironolactone as their medications for heart failure, respectively. A comprehensive overview of the clinical characteristics of the study participants can be found in Table 2, providing a detailed insight into the clinical profiles of the individuals involved in the research.

Table 2: Clinical characteristics of study participants in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

Variables	Category	Frequency(n)	Percent(%)
HF medications			
Lasix	Yes	119	74.4%
	No	41	25.6%
Enalapril	Yes	92	57.5%
	No	68	42.5%
Losartan	Yes	15	9.4%
	No	145	90.6%
Atenolol	Yes	7	4.4%
	No	153	95.6%
Bisoprolol	Yes	14	8.8%
	No	146	91.3%
Metoprolol	Yes	95	59.4%
	No	65	40.6%
Amlodipine	Yes	19	11.9%
	No	141	88.1%
Digoxin	Yes	23	14.4%
	No	137	85.6%
Spironolactone	Yes	110	68.8%
	No	50	31.3%
Atorvastatin	Yes	62	38.8%

	No	98	61.3%
Clopidogrel	Yes	11	6.9%
	No	149	93.1%
Aspirin	Yes	53	33.1%
	No	107	66.9%
Dapagliflozin	Yes	34	21.3%
	No	126	78.8%
others	Yes	31	19.4%
	No	129	80.6%
Comorbidity			
Hypertension	Yes	61	38.1%
	No	99	61.9%
Diabetes	Yes	30	18.8%
	No	130	81.3%
Cholesterol	Yes	18	11.3%
	No	142	88.8%
Others	Yes	36	22.5%
	No	124	77.5%

Others, Warfarin
Others, Thyroid disorder, goiter, SLE

5.3. General Health perceptions of Study participants

It was observed that a significant portion of the participants, specifically 69 (43.1%) participants accounting of the total sample reported having fair general health perceptions. While, 60 (37.5%) participants reported having poor general health perception (See figure 3).

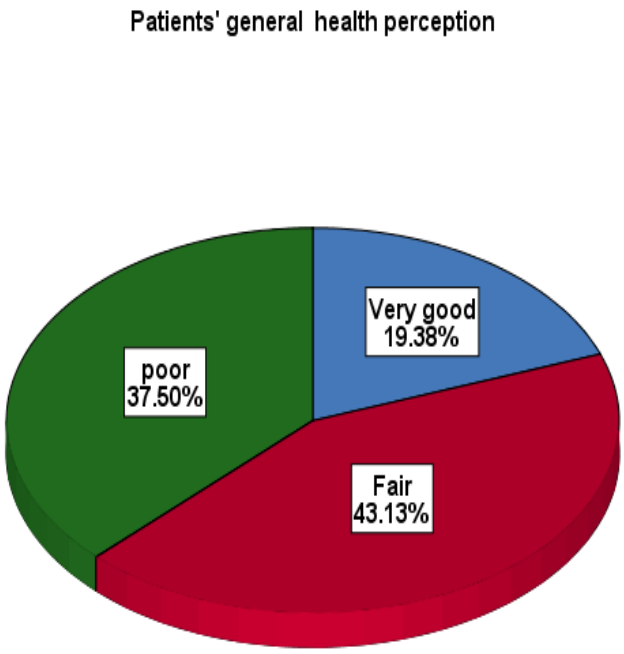

Figure 3: General health perceptions of study participants in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

5.4. Behavioral characteristics/habits of study participants

As indicated in Table 5, it was observed that a significant majority of the participants, specifically 157 (98.1%), were non-smokers. Additionally, a notable proportion, accounting for 110 (68.8%) of the sample, exhibited salt consumption habits. Furthermore, a substantial 137 (85.6%) of the participants reported abstaining from alcohol consumption.

Table 3: Behavioral characteristics of study participants in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

Variables	Category	Frequency (n)	Percent (%)
Salt intake	Yes	110	68.8
	No	50	31.3
Alcohol use	Yes	23	14.4
	No	137	85.6
Cigarette smoking	Yes	3	1.9
	No	157	98.1

5.5. Health-related quality of life of study participants

The study yielded a mean total MLHFQ score of 38.10 (±19.785), where lower scores on the MLHFQ are indicative of a higher quality of life. Further dissection of the results revealed subscale scores of 15.57 (±8.409) for the physical scale, 7.67 (±6.507) for the emotional scale, and 14.46 (±8.826) for the socio-economic scale. Notably, the comprehensive analysis unveiled that 67(41.9%) of the participants fell into the category of poor HRQoL, 45(28.1%) of the participants fell in to moderate HRQoL & 48(30%) of participants fell in to the category of good HRQoL as illustrated in Figure 2.

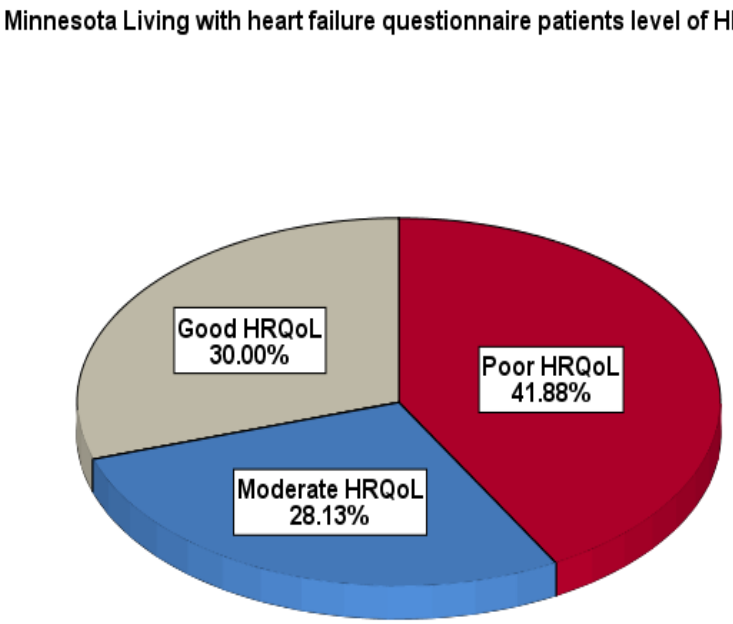

Figure 4: The level of HRQoL of study participants in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

5.6. Factors influencing the HRQoL of people with heart failure

The results of the bivariate analysis indicated that several variables, including age, employment status, monthly income level, general health perception, number of pills taken per day, type of heart failure medications (Lasix, atenolol, digoxin & clopidogrel), social support, medication taking adherence, and heart failure knowledge, were having p-value of < 0.25. These variables were then further analyzed through multivariable analysis, which revealed that age, unemployment, income level of 0-600 birr/month & 7301-10,899 birr/month, general health perception, heart failure medications (Lasix & Atenolol), social support, medication taking adherence, and heart failure knowledge were factors most strongly linked to the overall health-related quality of life (HRQoL) in individuals with heart failure, with a significance level of $p<0.05$. Together, these variables accounted for 76.3% of the variation in MLHFQ scores.

The average total score of social support was 9 (±3), with 78 (48.8%) of the participants experiencing poor social support. Additionally, medication adherence yields an average total score of 6.25 (±1.76), with 67 (41.9%) of participants demonstrating low medication adherence. Furthermore, the comprehension of HF results an average total score of 8 (±3), with 84 (52.5%) participants exhibiting low level of knowledge in this domain, for further information (See table 6).

Table 4: Social support, medication taking adherence & heart failure knowledge of study participants in public hospitals, Addis Ababa, Ethiopia,2024 (n=160)

Variables	Min	Max	Mean	SD	Category	Frequency(n)	Percentage
Social support	4	14	9	3	Poor	78	48.8
					Moderate	35	21.9
					Strong	47	29.4
Medication adherence	2	8	6.25	1.76	Low	67	41.9
					Medium	30	18.8
					High	63	39.4

Heart failure					Low	84	52.5
Knowledge	1	2	8	3	Moderate	64	40.0
					High	12	7.5

In the conducted study, the odds of having good HRQoL for those who were unemployed were 0.101 times lower for participants who were unemployed. (AOR=0.101, CI (0.011,0.915).

The odds of having good HRQoL were 0.164 and 0.096 times lower for participants who had 0-600birr/month and 7301-10,899birr/month respectively. (AOR=0.164, CI (0.028,0.949) & (AOR=0.096, CI (0.012,0.743) respectively.

The odds of having good HRQoL were 0.273 and 0.044 times lower for participants who took Lasix and atenolol respectively. (AOR=0.273, CI (0.092,0.812) & (AOR= 0.044, CI (0.003,0.744) respectively.

As for the general health perception, the odds of having good HRQoL were 59.342 and 32.692 times higher for participants who had good and fair general health perception respectively. (AOR=59.342, CI (12.234,287.839) & (AOR=32.692, CI (8.718,122.602) respectively.

The odds of having good HRQoL were 0.168 times lower for participants with poor social support. (AOR=0.168, CI (0.053,0.529).

As for the medication taking adherence, the odds of having good HRQoL were 0.261 times lower for participants with low medication taking adherence. (AOR=0.261, CI (0.089,0.764).

The odds of having good HRQoL were 0.046 and 0.086 times lower for participants with low and moderate level of heart failure knowledge respectively. (AOR=0.046, CI (0.005,0.434) & (AOR=0.086, CI (0.010,0.781) respectively.

when the age of participants increased by one unit the odds of having good HRQoL decreased by 0.955. (AOR=0.955, CI (0.924,0.988)

The detailed result of ordinal logistic regression analysis is presented in Table 8.

Table 5: Ordinal logistic regression model for factors associated with HRQoL of people with HF in public hospitals, Addis Ababa, Ethiopia, 2024 (n=160).

	B	**95% Confidence Interval for**

		P- value	AOR	AOR Lower	Upper
Poor HRQoL	-7.323	.000	.001	1.901	.023
Moderate HRQoL	-4.037	.018	.018	.001	.499
Unemployed	-2.289	.041*	.101	.011	.915
An employee of private company	-.235	.753	.791	.182	3.425
Government employee	1.216	.209	3.375	.506	22.519
Personal work	-.471	.481	.624	.168	2.314
House wife	-.424	.570	.654	.152	2.826
Student	-.443	.731	.642	.051	8.045
Retired or farmer	0[a]	.	1	.	.
0-600 birr	-1.810	.044*	.164	.028	.949
601-1650 birr	-1.234	.166	.291	.051	1.667
1651-3200 birr	-1.410	.069	.244	.054	1.114
3201-5250 birr	.208	.836	1.231	.173	8.780
5251-7300 birr	-1.008	.286	.365	.057	2.322
7301-10,899 birr	-2.343	.025*	.096	.012	.743
>10,899 birr	0[a]	.	1	.	.
Lasix=Yes	-1.299	.020*	.273	.092	.812
Lasix=No	0[a]	.	1	.	.
Atenolol=Yes	-3.131	.030*	.044	.003	.744
Atenolol=No	0[a]	.	1	.	.
Digoxin=Yes	-.456	.486	.634	.176	2.285
Digoxin=No	0[a]	.	1	.	.
Clopidogrel=Yes	.629	.543	1.876	.247	14.277
Clopidogrel=No	0[a]	.	1	.	.
Very good general health perception	4.083	.000**	59.342	12.234	287.839
Fair general health perception	3.487	.000**	32.692	8.718	122.602
Poor general health perception	0[a]	.	1	.	.
Poor social support scale	-1.785	.002*	.168	.053	.529
Moderate social support scale	-.442	.446	.643	.206	2.001
Strong social support	0[a]	.	1	.	.
Low medication adherence	-1.345	.014*	.261	.089	.764
Medium medication adherence	-.114	.848	.892	.277	2.871

High medication adherence	0[a]	.	1	.	.
Low heart failure Knowledge	-3.068	.007*	.046	.005	.434
Moderate heart failure Knowledge	-2.452	.029*	.086	.010	.781
High heart failure Knowledge	0[a]	.	1	.	.
Age of respondents	-.046	.007*	.955	.924	.988
Number of medicines taken per day	.092	.463	1.097	.857	1.403
(Scale)	1[b]				

Model statistics: $R^2 = 0.763$, β standardized beta coefficients, SE standard error, CI confidence interval, *Statistically significant ($p < 0.05$), ** Highly Statistically significant ($p < 0.01$)

6. Discussion

Heart failure (HF) is a complex and serious condition marked by a range of symptoms and high risk of mortality. It severely impacts the patient's quality of life, functional abilities, and can result in substantial financial burden due to the need for ongoing medical care and treatments (11).

This study delved into the Health-Related Quality of Life (HRQoL) of individuals with heart failure, examining the various factors influencing it. Among the participants, a notable 41.9% were found to have poor HRQoL. The mean total MLHFQ score observed was 38.10, highlighting the significant challenges faced by those with heart failure in terms of physical, emotional, and overall well-being. These results align with prior research, reaffirming the detrimental impact of heart failure on the holistic quality of life (18,21,23). This can be attributed as Heart failure (HF) can have a significant impact on a patient's quality of life. It can decrease independence and make daily life difficult (45,46). Previous research has indicated that individuals with Heart Failure (HF) experience more limitations in their daily activities compared to those with other chronic diseases like diabetes, cancer, or Alzheimer's (46).Additionally, with heart failure, the weakened heart can’t supply the cells with enough blood. This results in fatigue and shortness of breath, and some people experience excessive coughing. Everyday activities such as walking, climbing stairs or carrying materials can become difficult.

Quality of life of CHF patient in Cameroon was relatively better. This difference might be due to some cultural factors which may explain this finding (24). In light of the shifting population demographics and the rising rates of heart failure within diverse communities, it is crucial to prioritize cultural competence in everyday clinical interactions. Since the progression of heart failure is personalized to each patient, healthcare providers must tailor treatment plans and crisis interventions to align with the cultural beliefs and values of those affected. This approach will not only improve patient outcomes but also foster a more inclusive and effective healthcare environment for all individuals (47).

Factors such as higher age, unemployment status, income level, very good and fair health perception, HF medications like Lasix and Atenolol, poor social support, poor medication

adherence, and low level of heart failure knowledge were significantly associated with low HRQoL in people with HF.

The study revealed that as individuals age rise, there is a notable decrease in their HRQoL. These findings are consistent with previous research that has shown a decline in HRQoL as individuals grow older (18,21,23,48). This conclusion stems from the observation that elderly individuals are more prone to physical constraints and psychological issues (49). Also, older adults often have co-occurring conditions like hypertension and diabetes that may impact how they respond to treatment. Other studies have identified a pronounced negative correlation between age and HRQoL, where in younger individuals tend to report lower quality of life (50,51).

With respect to employment status, individuals who were without work exhibited a diminished HRQoL in comparison to those who were gainfully employed. This conclusion is substantiated by the results of several prior research studies that have investigated this relationship (52,53). Unemployment is often linked to individuals experiencing lower economic status and financial difficulties, which can hinder their ability to effectively manage health conditions such as heart failure. The expenses related to medications and healthcare costs can have a detrimental impact on their quality of life and overall well-being (54).

Patients who had a monthly income level of 0-600 birr in this study had poor HRQoL. This was supported in previous studies, higher income level led to good quality of life (23,24,33). This could be due to individuals from communities with a low socioeconomic profile, are more vulnerable to cardiovascular disease than the rest of society (55).

Patients who had very good and fair health perception was significantly associated with better HRQoL. This finding is supported by a study which is done in wollita (21). This could be due to patients' views on the consequences of their illness, their sense of personal control over it, and how it shapes their identity all play a key role in their overall health (56). Also, Perception not only creates our experience of the world around us; it allows us to act within our environment.

Another factor which influenced HRQoL in people with HF was medication taken for the heart failure. Medications like Lasix and atenolol were associated with a poor HRQoL. A similar study showed that Lasix was significantly associated with poor HRQoL in people with HF

(26).However, there is a fact that there is little agreement on how loop diuretic should be used in patients with severe fluid retention, let alone which adjunct to use and when to use it. Additionally, further research, particularly with extended follow-up periods, must be undertaken to ultimately determine the effects of beta-blocker medication on quality of life. Only through rigorous and thorough investigation can a definitive conclusion be reached regarding the impact of beta-blockers on quality of life (57,58). People generally tolerate Lasix well, but may experience side effect like dehydration which include thirst, dry mouse, and fatigue. Lasix also can cause imbalances in electrolytes such as Sodium, Potassium, and Magnesium leading to symptoms such as muscle cramp, weakness, and irregular heart-beat. It can cause a drop-in blood pressure leading to dizziness and light headedness. In some cases, it can lead to kidney problems, allergic reaction like difficulty breathing. Regarding atenolol, it reduces the force of heart muscle contraction and can aggravate symptoms of heart failure.

Studies have demonstrated that individuals with higher levels of social support, particularly in the context of heart failure (HF), experience significantly better HRQoL outcomes (18,59–61). This is in line with this study. This could be due to various social support categories are directly associated with high adherence to appointments, and substance use avoidance. Taking the time to inquire about support systems and possible community referrals may benefit adherence and therefore overall outcomes (62). Moreover. Social support can positively impact on our mood and body, especially when going through stressful tasks and situations also it boosts our immune system.

In the present study, people with poor medication adherence were associated with poor HRQoL. This finding has been reported in many previous studies (26,31). Failure to adhere to prescribed medication regimens often results in exacerbated HF symptoms, diminished physical functionality, and elevated risks of hospitalization and mortality. It is imperative for healthcare providers to address and monitor patient adherence to medication in order to optimize treatment outcomes and quality of life for individuals battling HF (63). Also, non-adherence can exacerbate a patients' health condition, increased the risk of diseases progression, and lead to prolonged hospitalization. The other possible justification is cost which was major barrier to medication adherence in this study of HF patients, even though our government is trying to ensure healthcare access through a health insurance scheme patient are not able to afford all of

the prescribed medications as most of them are not available in those public pharmacy so they are forced to buy outside in private pharmacies that require expensive out of pocket expenses.

In the current study low level of heart failure knowledge predicted lower HRQoL. This finding is consistent with previous studies that reported a strong association between level of heart failure knowledge and HRQoL (32,64). This could be due to an inadequate level of health literacy among HF patients is associated with higher risk of mortality, increased risk of hospitalizations and emergency department visits (65). Also, the more we know about our health, the more empowerment we will feel as we will be able to control certain outcomes a little better. We will be better equipped to identify serious health issues.

7. Strength & Limitations

7.1 Strength

The study aimed to assess the impact of critical factors, such as medication taking adherence and HF knowledge, on a multicenter basis across four public hospitals in Addis Ababa.

7.2 Limitations

However, it is important to acknowledge certain limitations of the study that may affect the interpretation of the results. The cross-sectional design of the study hinders its ability to establish causation, emphasizing the need for future longitudinal research to explore causal relationships in greater depth. Additionally, reliance on self-reported questionnaires may introduce bias into the data, potentially influencing participant responses through recall or Hawthorne effects. Furthermore, the study did not explore factors like left ventricular ejection fraction LVEF, which could have provided more useful insights into the findings.

8. Conclusion and Recommendations

8.1 Conclusion

The comprehensive analysis unveiled that 67 (41.9%) of the participants fell into the category of poor, influenced by several factors. Socio demographic factors such as (age, unemployment, monthly income level of 0-600 birr &7301-10,899 birr), general health perception, clinical factors such as (HF medications, Lasix & atenolol), social support, medication taking adherence and heart failure knowledge level were significant factors associated with HRQoL of people with HF.

8.2 Recommendations

Based on the finding of the study the following recommendation are forwarded to the respective bodies:

- Governmental & nongovernmental organizations: better to cascade periodic HRQoL promotion programs.
- Health care practitioners: awareness creation among patients regarding social support, medication taking adherence and heart failure knowledge.
- Researchers: Run targeted efforts to assess and mitigate reasons for poor health related quality of life. Moreover, the time period for the data collection was one month a greater number of participants were not added to the study, so future researchers are better to consider this factor in their study.

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10. APPENDIX

Annex A: Information Sheet

Hello!

My name is _____. I am here to collect data for the study entitled health related quality of life and associated factors among adult patients with heart failure in public hospitals, Addis Ababa, Ethiopia. The study is carried out by Seblewengel Fita a post graduate student at Addis Ababa University College of Health Science, Department of Nursing and Midwifery. For this study, you will be selected as a participant, and before getting your permission to your participation, you need to know all necessary information related to the study. Thus, this information will be detailed as follows:

Objective: The study will aim to assess Health related quality of life and associated factors among adult patients with heart failure in public hospitals Addis Ababa, Ethiopia, 2024.

Significance of the study: The finding of the study will offer benefit to policy makers, health care practitioners and researchers by providing basic information on the level of health-related quality of life and its associated factors.

Thus, the finding of the study will offer important information to policy makers working in the health care sectors during their decision-making process by providing background data on the level of health-related quality of life and associated factors among adult heart failure patients. Moreover, health care practitioners will be able to recognize factors that positively and negatively affect patients' HRQoL & helps them to adhere to appropriate management and care. Additionally, For the researchers, it will offer baseline data for those who are interested studying this research topic further.

Participants to be included: All heart failure patients who have regular follow-up at selected four public hospitals in Addis Ababa, Ethiopia during the study period.

Confidentiality: All information you give will be kept confidential and won't be accessible to any third party. Your name won't be registered on the question sheet, so you will not be identified.

Risks and Benefits of the Study: The study will be carried out using structural interview-based questionnaire and chart review. The procedure doesn't cause any physical or psychological trauma. Furthermore, you will not be forced to respond to the information you do not know. There is no payment for your participation in the study but participating in the study and giving your information to questions asked will have great input in efforts to improve health related quality of life and associated factors among adult patients with Heart failure in public hospitals, Addis Ababa, Ethiopia.

Consent: Your participation in the study will depend totally on your willingness. You have the right not to participate from the beginning or to stop at any time after starting to participate. You will not be forced to respond to a question you do not know, and you can ask any question you like.

Name of principal investigator (PI): Seblewengel Fita Date: _____

Signature: ___ Address of PI: Mobile: +251979175805.E-mail: seblewengelfita@gmail.com

Data Collector Name: _____Date _____ Signature _____

Supervisor Name: _____Date _____ Signature _____

Annex B: Consent Form

I, the undersigned, is confirming that I am willing to be part of the study as understand the following statements. I understand that the study is owned by Seblewengel Fita, MSc student at AAU. The aim of the study is to assess the health-related quality of life and associated factors among adult patients with heart failure at selected public hospitals, Addis Ababa, Ethiopia, in 2024.

Significance of the study: The finding of the study will offer benefit to policy makers, health care practitioners and researchers by providing basic information on the level of health-related quality of life and its associated factors.

Thus, the finding of the study will offer important information to policy makers working in the health care sectors during their decision-making process by providing background data on the level of health-related quality of life and associated factors among adult heart failure patients. Moreover, health care practitioners will be able to recognize factors that positively and negatively affect patients' HRQoL & helps them to adhere to appropriate management and care. Additionally, For the researchers, it will offer baseline data for those who are interested studying this research topic further.

Confidentiality: All information that I give will be kept confidential and won't be accessible to any third party. my name won't be registered on the question sheet, so I will not be identified.

Risks and Benefits of the Study: The study is prepared in the form of structured interview-based questionnaire & medical record review. The procedure doesn't cause any physical or psychological trauma up on me. Furthermore, I understand that there is no force or coercion to respond to the questions. There is no payment for the participation in the study but participating in the study will have great input to improve health related quality of life and associated factors among adults with Heart failure in public hospitals, Addis Ababa, Ethiopia.

They make sure that there is no harm caused because I am involved in this study, I have also the full right to decline the interview, partly or totally.

I have fully understood the contents, and I have agreed to participate in this research project and confirm it by signature.

Signature _____

Date _____

Thank you for giving us your consent.

Name of data Collector_____ sign_____ Date_____

Annex C: Questionnaire English Version

Table 1. Sociodemographic and economic variables

No.	Parameter	Category
1.	Age	
2.	Sex	1. Male 2. Female
3.	Marital status	1. Single 2. Married 3. Divorced 4. Widowed
4.	How many children do you have?	
5.	Employment Status	1. Un employed 2. Government employee 3. Private employee 4.personal work 5.Housewife 6. Student 7. Other Specify
6.	Monthly income	1.0-600 ETB/month 2. 601-1650 ETB/ month 3. 1651-3200 ETB / month 4. 3201-5250 ETB/ month 5. 5251-7300 ETB/month 6. 7301-10,899 ETB/month 7. >10,899 ETB/month
7.	Educational status	1. Unable to read and write 2. Able to read and write 3. Elementary (grade1-8) 4. Secondary (grade9-10) 5. Preparatory (grade 11-12) 6. Diploma and above
8.	Residence	1. Rural 2. Urban
Table 2. Clinical & Medical Variables		
1.	Number of pills taken per day	

2.	Type of medications taken for the heart failure	**Loop Diuretic** (Lasix, Furosemide) 2. **ACE blockers** (Lisinopril, captopril, enalapril, Ramipril) 3. **Angiotensin-II receptor blockers** (Azilsartan, Candesartan, Irbesartan, Losartan, Olmesartan, Telmisartan, Valsartan) 4.**Beta Blockers** (Atenolol, bisoprolol, carvedilol, labetalol, metoprolol, Propranolol, sotalol) 5. **Vasodialators** (hydralazine, nitroglycerin, minoxidil) 6.**Calcium Channel Blockers** (Amlodipine, Diltiazem, Felodipine, Isradipine, Nicardipine. Nifedipine, Nisoldipine, Verapamil). 7. **Digoxin** 8. **Aldestrone Hormone Antagonist** (Spironolactone, Eplerenone, Finerenone) **9.** Other Specify
4.	Type of comorbidity	1. Hypertension 2. Diabetes 3. Dyslipidemia 4. Kidney disease 5. Cancer 6. HIV/AID 7. Stroke 8. Others Specify_____
Table 3. Health Perception Scale		
1.	What do you perceive about your overall health?	1. Very good 2. Fair 3. poor
Table 4. Behavioral Variables		

1.	Do you take Salt?	1. Yes 2. No
2.	Do you take Alcohol?	1. Yes 2. No
3.	Do you Smoke Cigarette?	1. yes 2. No

Table 5. Severity levels of the MLHFQ

Did your heart failure prevent you from living as you wanted during the past month (4 weeks) by-?

	Items	No	Very Little	Little	Moderate	Much	Very Much
1.	Making your relating to or doing things with your friends or family difficult?						
2.	making your sleeping well at night difficult?						
3.	making you sit or lie down to rest during the day?						
4.	making your working around the house or yard difficult?						
5.	making you short of breath?						
6.	Making your going places away from home difficult?						
7.	making you tired, fatigued, or low on energy?						
8.	Making your walking about or climbing stairs difficult?						
9.	making you feel you are a burden to your family or friends?						
10.	making you feel a loss of self-control in your life?						

11.	Making it difficult for you to concentrate or remember things?						
12.	making you feel depressed?						
13.	making you worry?						
14.	Causing swelling in your ankles or legs?						
15.	making you eat less of the foods you like?						
16.	Giving you side effects from treatments?						
17.	Making your sexual activities difficult?						
18.	Costing you money for medical care?						
19.	making your working to earn a living difficult?						
20.	making your recreational pastimes, sports or hobbies difficult?						
21.	making you stay in a hospital?						

Table 6. Social support Variables

1.	How many people are so close to you that you can count on them if you have great personal problems?	1. none 2. 1–2 3. 3–5 4. 5+
2.	How much interest and concern do people show in what you do?	1. none 2. little 3. uncertain 4. some 5. a lot
3.	How easy is it to get practical help from neighbors if you should need it?	1. very difficult 2. difficult 3. possible 4. easy 5. very easy

Table 7. Medication-Taking Adherence variables

1.	Do you sometimes forget to take your heart failure medication?	1. Yes 2. No
2.	People sometimes miss taking their medications for reasons other than forgetting. Over the past 2 weeks, were there any days when you did not take your heart failure medication?	1.yes 2. No
3.	Have you ever cut back or stopped taking your heart failure medication without telling your doctor because you felt worse when you took it?	1. Yes 2. No
4.	When you travel or leave home, do you sometimes forget to bring your heart failure medication?	1. Yes 2. No
5.	Did you take all your heart failure medication yesterday?	1. Yes 2. No
6.	When you feel like your symptoms are under control, do you sometimes stop taking your medication?	1. Yes 2. No
7.	Taking medication every day is a real in convenience for some people. Do you ever feel hassled about sticking to your heart failure treatment plan?	1. Yes 2. No
8.	How often do you have difficulty remembering to take all your heart failure medication?	Never/Rarely……..... Once in a while…… ……... Sometimes……. Usually……. All the time…….

Table 8. Heart Failure Knowledge Variables

1.	Exchange of oxygen and carbon dioxide occurs in heart	1. yes 2. no 3. I don't know
2.	HF is a condition in which the heart is not able to pump blood through the body in sufficient amounts	1. yes 2. no 3. I don't know
3.	Difficulty in breathing and shortness of breath are symptoms of HF	1. yes 2. no 3. I don't know
4.	One of the symptoms when the lungs become congested with fluid is shortness of breath	1. yes 2. no

		3. I don't know
5.	Some patients with severe HF become breathless when they lie flat and feel much better when they sit up	1. yes 2. no 3. I don't know
6.	Short-term weight gain is one of the signs of worsening HF	1. yes 2. no 3. I don't know
7.	Overwork and stress sometimes cause HF to get worse	1. yes 2. no 3. I don't know
8.	Sodium causes water retention	1. yes 2. no 3. I don't know
9.	Diuretics remove fluids from the body	1. yes 2. no 3. I don't know
10.	HF patients are discouraged from taking medications without food	1. yes 2. no 3. I don't know
11.	HF patients had better drink more water than healthy people	1. yes 2. no 3. I don't know
12.	HF patients had better take a high-salt diet	1. yes 2. no 3. I don't know
13.	Smoking is good for patients with HF because it promotes the circulation of blood	1. yes 2. no 3. I don't know
14.	HF patients should not perform exercise regardless of their severity of HF	1. yes 2. no 3. I don't know
15.	HF patients had better take a hot bath to promote blood	1. yes 2. no 3. I don't know

Thank you for your genuine participation!

Annex D: Information Sheet, Amharic version

አባሪ አንድ፡ የመረጃ ቅጽ

እነሆ እኔ በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በነርሲንግ እና ሚድዋይፈሪ ትምህርት ቤት ከጤና ጋር የተገናኘ የህይወት ጥራት እና ተያያዥ ጉዳዮች በሚል ርዕስ በአዲስ አበባ የህዝብ ሆስፒታሎች የልብ ድካም ችግር ባለባቸው አዋቂ ታማሚዎች ላይ ጥናት በማድረግ ላይ ነኝ። ለዚህ ጥናት እርስዎ እንደ ተሳታፊ ሆነው ይመረጣሉ እና የእርስዎን ፈቃድ ወይም ተሳትፎዎን ከመቀበሌ በፊት ከጥናቱ ጋር የተያያዙ ሁሉንም አስፈላጊ መረጃዎች ማወቅ አለብዎት። ስለዚህ ይህ መረጃ እንደሚከተለው በዝርዝር ይገለጻል።

<u>ዓላማ፡-</u> ጥናቱ በ 2024 አ.ም በኢትዮጵያ አዲስ አበባ ውስጥ ባሉ ሕዝብ ሆስፒታሎች የልብ ድካም ችግር ያለባቸውን አዋቂ ታማሚዎች ከጤና ጋር የተገናኘ የህይወት ጥራትን እና ተያያዥ ጉዳዮችን ለመገምገም ያለመ ነው ።

<u>የጥናቱ አስፈላጊነት፡-</u> የጥናቱ ግኝት በአዋቂ የልብ ድካም ታማሚዎች ላይ በጤና ነክ ዙርያ የህይወት ጥራት ደረጃ እና ተያያዥነት ያላቸውን ነገሮች መረጃ በማቅረብ በውሳኔ አሰጣጥ ሂደት ለሚመለከታቸው የበላይ አካላት ጠቃሚ መመሪያ እና መረጃ ይሰጣል፤ በተጨማሪም ጥናቱ ከአዋቂ ልብ ድካም በሽተኞች እና ከጤና ጋር የተያያዘ የህይወት ጥራትን ለማጥናት ለሚፈልጉ ተመራማሪዎች የመነሻ መረጃን ያቀርባል።

በተጨማሪም የሕክምና ባለሙያዎች በታካሚዎች የዕለት ተዕለት ሕይወት ላይ ተጽእኖ የሚያሳድሩ የልብ ድካም ምክንያቶችን በመለየት ተገቢውን አያያዝ እና እንክብካቤን እንዲከተሉ ይረዳቸዋል ስለዚህ ታካሚዎች ጤንነታቸውን በተሻለ ሁኔታ ለመንከባከብ እና ከህይወት ጋር ያላቸውን እርካታ ለመጨመር በተጨማሪም, በህይወታቸው ጥራት ላይ አዎንታዊ እና አሉታዊ ተፅእኖ ያላቸውን ነገሮች ለመለየት እንዲችሉ ይረዳል፤ ። እንዲሁም ለጤና ተቋሙ የህይወት ጥራት ሳያሻሽሉ ህይወትን ሊያራዝሙ የሚችሉ ውድ መድሃኒቶችንና ህክምናዎችን ከአማራጭ መድኒቶች እና ሕክምናዎች ጋር በማመዛዘን ወጪ ቆጣቢ በሆነ መንገድ ለመምረጥ ያስችላል።

<u>የሚካተቱት ተሳታፊዎች፡-</u> በጥናቱ ወቅት በአዲስ አበባ በተመረጡ አራት የህዝብ ሆስፒታሎች ላይ መደበኛ የተመላላሽ የህክምና ክትትል የሚያደርጉ ሁሉም የልብ ድካም ህመምተኞች ይካተታሉ ።

<u>ምስጢራዊነት</u>፡- እርሶ የሚሰጡት ሁሉም መረጃ በሚስጥር ይጠበቃል እና ለማንኛውም ሶስተኛ ወገን ተደራሽ አይሆንም። ስምዎ በጥያቄ ወረቀቱ ላይ አይመዘገብም፣ ስለዚህ የእርስዎ ማንነት አይታወቅም።

<u>የጥናቱ ስጋቶች እና ጥቅሞች፡-</u> ጥናቱ የሚካሄደው መዋቅራዊ ቃለ መጠይቅን መሰረት ያደረገ መጠይቅን በመጠቀም ነው፤ አሰራሩ ምንም አይነት አካላዊ እና ስነልቦናዊ ጉዳት አያስከትልም፤ በተጨማሪም ለማያውቁት መረጃ ምላሽ ለመስጠት አይገደዱም፤ በጥናቱ ላይ በመሳተፎ ምንም አይነት ክፍያ የለም ነገር ግን በጥናቱ ላይ መሳተፍ እና ለጥያቄዎች መረጃዎን መስጠት በአዲስ አበባ የህዝብ ሆስፒታሎች ላይ የልብ ድካም ችግር ላለባቸው ጎልማሳ ታማሚዎች ከጤና ጋር የተገናኘ የህይወት ጥራታቸውን ለማሻሻል በሚደረገው ጥረት ትልቅ አስተዋፅኦ ይኖረዋል።

<u>ስምምነት</u>፡-በጥናቱ ውስጥ ያለዎት ተሳትፎ ሙሉ በሙሉ በእርስዎ ፍላጎት ላይ የተመሰረተ ይሆናል። ከመጀመሪያው ጀምሮ ላለመሳተፍ ወይም መሳተፍ ከጀመሩ በኋላ በማንኛውም ጊዜ ለማቆም መብት አልዎት። ለማያውቁት ጥያቄ ምላሽ ለመስጠት አይገደዱም እና የሚወዱትን ማንኛውንም ጥያቄ መጠየቅ ይችላሉ።

<u>የዋና ተመራማሪ ስም፡-</u> ሰብለወንጌል ፊጣ ቀን፡ _____ ፊርማ፡ ___ አድራሻ፡ ሞባይል፡ +251979175805.ኢ-ሜይል፡ seblewengelfita@gmail.com

<u>የመረጃ ጥናቱ ሰብሳቢ ስም፡-</u> _____ ቀን _____ ፊርማ _____ **<u>የተቆጣጣሪ ስም፡</u>** _____ ቀን _____ ፊርማ _____

አባሪ ሁለት፡ የስምምነት ቅጽ

እኔ ፊርማዬ ከዚህ በታች የሚገኝ፣ የሚከተሉትን መግለጫዎች ስለተረዳው የጥናቱ አካል ለመሆን ፈቃደኛ መሆኔን አረጋግጣለው፡፡ የጥናቱ ባለቤት በአዲስ አበባ ዩኒቨርስቲ የድህረ ምረቃ ተማሪ የሆነችው ሰብለወንጌል ፊጣ እንደሆነች ተረድቻለው፡፡ ጥናቱ በ 2024 ዓ.ም በኢትዮጵያ አዲስ አበባ ውስጥ ባሉ ሕዝብ ሆስፒታሎች የልብ ድካም ችግር ያለባቸውን አዋቂ ታማሚዎች ከጤና ጋር የተገናኘ የህይወት ጥራትን እና ተያያዥ ጉዳዮችን ለመገምገም ያለመ ነው ።

<u>የጥናቱ አስፈላጊነት፡-</u> የጥናቱ ግኝት በአዋቂ የልብ ድካም ታማሚዎች ላይ በጤና ነክ ዙርያ የህይወት ጥራት ደረጃ እና ተያያዥነት ያላቸውን ነገሮች መረጃ በማቅረብ በውሳኔ አሰጣጥ ሂደት ለሚመለከታቸው የበላይ አካላት ጠቃሚ መረጃ ይሰጣል፤ በተጨማሪም ጥናቱ ከአዋቂ ልብ ድካም በሽተኞች እና ከጤና ጋር የተያያዘ የህይወት ጥራትን ለማጥናት ለሚፈልጉ ተመራማሪዎች የመነሻ መረጃን ያቀርባል፡፡

እንዲሁም የሕክምና ባለሙያዎች በታካሚዎች የዕለት ተዕለት ሕይወት ላይ ተጽእኖ የሚያሳድሩ የልብ ድካም ምክንያቶችን በመለየት ተገቢውን አያያዝ እና እንክብካቤን እንዲከተሉ ይረዳቸዋል ስለዚህ ታካሚዎች ጤንነታቸውን በተሻለ ሁኔታ ለመንከባከብ እና ከህይወት ጋር ያላቸውን እርካታ ለመጨመር እንዲውም, በህይወታቸው ጥራት ላይ አዎንታዊ እና አሉታዊ ተፅእኖ ያላቸውን ነገሮች ለመለየት እንዲችሉ ይረዳል፤ ፤ ከዚህ ባለፈ ለጤና ተቋሙ የህይወት ጥራት ሳያሻሽሉ ህይወትን ሊያራዝሙ የሚችሉ ውድ መድሃኒቶችንና ህክምናዎችን ከአማራጭ መድሀኒቶች እና ሕክምናዎች ጋር በማመዛዘን ወጪ ቆጣቢ በሆነ መንገድ እንዲሰጡ ያስችላል፡፡

<u>ምስጢራዊነት፡-</u> እኔ የምሰጠው መረጃ በምስጢር ይያዛል እና ለማንኛውም ሶስተኛ ወገን ተደራሽ አይሆንም፡፡. ስሜም በጥያቄው ወረቀት ላይ አይመዘገብም, ስለዚህ የእኔ ማንነት አይለይም፡፡

<u>የጥናቱ ስጋቶች እና ጥቅሞች፡-</u> ጥናቱ በተዋቀረ ቃለመጠይቅ እና የታካሚ ካርድ ግምገማ ላይ የተመሠረተ ነው፤ . የአሰራር ሂደቱ ምንም አይነት አካላዊ ወይም ስነ-ልቦናዊ ጉዳት በላዬ ላይ አያስከትልም.፤ በተጨማሪም ከታች ባለው ፊርማዬ ለጥያቄዎች መልስ ለመስጠት ኃይልም ሆነ ማስገደድ እንደሌለ ተረድቻለሁ.፤ ጥናቱን በመሳተፌ ምንም አይነት ክፍያ የለም፤ ነገር ግን ጥናቱ በኢትዮጵያ አዲስ አበባ ውስጥ ባሉ ሕዝብ ሆስፒታሎች የልብ ድካም ችግር ያለባቸውን ጎልማሳ ታማሚዎች ከጤና ጋር የተገናኘ የህይወት ጥራትን እና ተያያዥ ጉዳዮችን ለማሻሻል ትልቅ ግብአት ይኖረዋል፤.በዚህ ጥናት ውስጥ ስሳተፍ ቃለ መጠይቁን, በከፊል ወይም ሙሉ በሙሉ ያለመቀበል ሙሉ መብት አለኝ.፡፡

ስምምነት፡- ይዘቱን ሙሉ በሙሉ ተረድቻለሁ፣ እናም በዚህ ጥናት ለመሳተፍ ተስማምቻለሁ እናም ይህንንም በፊርማ አረጋግጣለው፡፡

ፊርማ ቀን

ፈቃዳችሁን ስለሰጣችሁን እናመሰግናለን።

<u>የመረጃ ጥናቱ ሰብሳቢ ስም</u>፡-_____ ፊርማ _____ ቀን

አባሪ ሶስት፡ የአማርኛ ቃለመጠይቅ

ሠንጠረዥ 1. የማህበራዊ ሁኔታን የሚዳስሱ ጥያቄዎች

1.	ዕድሜ	
2.	ጸታ	1. ወንድ 2. ሴት
3.	የጋብቻ ሁኔታ	1. ያገባ/ች 2. ያላገባ/ች 3. የፈታ/ች 4. የሞተበት/ባት 5. ሌላ ካለ ይገለጽ----------
4.	በቤት ውስጥ ያለ የቤተሰብ ብዛት?	
5.	የቅጥር ሁኔታ	1. የግል ድርጅት ተቀጣሪ 2. የመንግስት ሰራተኛ 3. የግል ስራ 4. የቤት እመቤት 5.ተማሪ 6. ሌላ ካለ ይገለጽ----------
6.	ወርሃዊ ገቢ	1.0-600 ብር / በወር 2. 601-1650 ብር/ በወር 3. 1651-3200 ብር / በወር 4. 3201-5250 ብር/ በወር 5. 5251-7300 ብር/በወር 6. 7301-10,899 ብር/በወር 7. >10,899 ብር /በወር 8. ሌላ ካለ ይገለጽ----------
7.	የትምህርት ደረጃ	1. ማንበብ መጻፍ የማይችል/ የማትችል 2. ማንበብና መፃፍ የሚችል/ የምትችል 3. የመጀመሪያ ደረጃ (ከ1ኛ-8ኛ ክፍል) 4. ሁለተኛ ደረጃ (ከ9ኛ-10ኛ ክፍል) 5. መሰናዶ (ከ11ኛ-12ኛ ክፍል) 6. ዲፕሎማና ከዛ በላይ
8.	የመኖሪያ ቦታ	1. ከተማ 2. ገጠር

ሠንጠረዥ 2. የሕክምና ሁኔታን የሚዳስሱ ጥያቄዎች

1.	በቀን ምን ያክል መድሃኒት ይወስዳሉ	

2.	ለልብ ድካም የሚወሰዱ መድኃኒት ዓይነቶች?	1. **Loop Diuretic** (Lasix, Furosemide) 2. **ACE blockers** (Lisinopril, captopril, enalapril, Ramipril) 3. **Angiotensin-II receptor blockers** (Azilsartan, Candesartan, Irbesartan, Losartan, Olmesartan, Telmisartan, Valsartan) 4.**Beta Blockers** (Atenolol, bisoprolol, carvedilol, labetalol, metoprolol, Propranolol, sotalol) 5. **Vasodialators** (hydralazine, nitroglycerin, minoxidil) 6.**Calcium Channel Blockers** (Amlodipine, Diltiazem, Felodipine, Isradipine, Nicardipine. Nifedipine, Nisoldipine, Verapamil). 7. **Digoxin** 8. **Aldestrone Hormone Antagonist** (Spironolactone, Eplerenone, Finerenone) 9. ሌሎች ካሉ ይገለጹ----------_
3.	የተጓዳኝ በሽታ አይነቶች	1. የደም ግፊት 2. የስኳር በሽታ 3. የኮሌስትሮል 4. የኩላሊት 5. ካንሰር 6. ኤች /አይቪ / ኤድስ 7. ስትሮክ 8. ሌሎች ካሉ ይገለጹ----------

ሠንጠረዥ 3. የጤና ግንዛቤን የሚዳስስ ጥያቄ			
1.	ጠቅለል አድርገው ሲመለከቱት የጤንነቶ ሁኔታ ምን ይመስላል?	1. በጣም ጥሩ 2. ለከፋ አይሰጥም 3. መጥፎ ነው	
ሠንጠረዥ 4. የባህሪ/የኑሮ ዘይቤን የሚዳስሱ ጥያቄዎች			
1.	ጨው ይጠቀማሉ?	1. አዎ	2. አይ
2.	አልኮል ይወስዳሉ?	1. አዎ	2. አይ
3.	ትምባሆ ያጨሳሉ?	1. አዎ	2. አይ

ሠንጠረዥ 5. የሚኒሶታ-21 ጥያቄዎች

ከዚህ በታች የተዘረዘሩት ጥያቄዎች የልብ ድካምዎ ባለፈው ወር (4 ሳምንታት) እነዚን ነገሮች እንደፈለጉ እንዳያደርጉ ከልክሎዎታል የሚል ነው፡፡ መልሶ አዎ ከሆነ መጠኑን እንዴት ይገልፁታል?

1.	ከጓደኛዎ ወይም ከቤተሰብዎ ጋር ያለዎትን ግንኙነት አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
2.	ማታ እንቅልፍ እንዳይተኙ አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
3.	ቀን በሆነ ጊዜ እንዲያንቀላፉ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
4.	በቤት ወይም በግቢ ዙሪያ ስራ ማከናወን አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
5.	ትንፋሽ እንዲያጥርዎ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
6.	ከቤት ወጥተው መሄድን አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
7.	እንዲደክምዎ፤ እንዲዝሉ ወይም አቅም እንዲያጡ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
8.	ደረጃዎችን መውጣት አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
9.	ለቤተሰብዎ ወይም ለጓደኞችዎ ሸክም እንደሆኑ እንዲሰማዎት አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
10.	በህይወቱ ውስጥ ራሴን መቆጣጠር፣ መምራት አልቻልኩም የሚል ስሜት እንዲሰማዎት አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
11.	ነገሮችን ለማስታወስ፣ለማተኮር አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ

12.	የድብርት ስሜት እንዲሰማዎት አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
13.	እንዲጨነቁ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
14.	በቁርጭምጭሚትዎ ወይም በእግርዎ ላይ እብጠት እንዲኖር አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
15.	የምግብ ፍላጎቶ እንዲቀን አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
16.	የህክምና የጎንዮሽ ጉዳቶችን አድርሶቦታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
17.	የግብረ ሥጋ ግንኙነትዎን አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
18.	ለህክምና ወጪ ዳርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
19.	ኑሮን ለማሸነፍ መስራትን አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
20.	የመዝናኛ ጊዜዎን፣የትርፍ ጊዜዎን ማሳለፍ አስቸጋሪ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ
21.	በሆስፒታል ውስጥ ገብትው እንዲተኙ አድርጎታል?	1.አይ፣የለም 2. በጣም ትንሽ 3. ትንሽ	4. መጠነኛ 5. ብዙ 6. በጣም ብዙ

ሠንጠረዥ 6. የማህበራዊ ድጋፍን የሚዳስሱ ጥያቄዎች

1.	ከባድ የግል ችግሮች ቢያጋጥምዎት በቁጥር ምን ያህል ቅርብ ሰዎች በዙሪያዎ አሉ?	1. የሉም 2. 1-2 3. 3-5 4. ከ 5 በላይ
2.	ምን ያክል ሰዎች እርስዎ በሚያደርጉት ነገር ፍላጎት እና ትኩረት ያሳያሉ?	1. የላቸውም 2. ትንሽ 3. እርግጠኛ አይደለውም 5. ብዙ
3.	ከጎረቤቶዎ እርዳታ ሲያስፈልግዎ በቀላሉ ለማግኘት ምን ያህል ነው?	1. በጣም አስቸጋሪ 2. አስቸጋሪ 3. መጠነኛ 4. ቀላል 5. በጣም ቀላል

ሠንጠረዥ 7. መድሃኒትን በትክክል አወሳሰድ የሚዳስሱ ጥያቄዎች

1.	አንዳንድ ጊዜ የልብ ድካም መድሃኒት መውሰድዎን ይረሳሉ?	1. አዎ 2. አይ 3. አላቀውም
2.	አንዳንድ ጊዜ መድሃኒቶን ሳይረሱ ግን በሌሎች ምክንያቶች ሳይወስዱ ይቀራሉ ፤ እርሶ ባለፉት 2 ሳምንታት የልብ ድካም መድሃኒት ሳይወስዱ የቀሩበት ቀናት ነበሩ?	1. አዎ 2. አይ 3. አላቀውም
3.	የልብ ድካም መድሀኒቶን ሲወስዱ የሚብስቦ ከሆነ ለሀኪምዎ ሳይናገሩ አቋርጠው ያውቃሉ?	1. አዎ 2. አይ 3. አላቀውም
4.	አንዳንድ ጊዜ ከቤት ወጥተው ሲጓዙ የልብ ድካም መድሃኒቶን ይዘው መውጣት ይረሳሉ?	1. አዎ 2. አይ 3. አላቀውም
5.	ትላንትና ሁሉንም የልብ ድካም መድሃኒቶን ወስደዋል?	1. አዎ 2. አይ 3. አላቀውም

6.	አንዳንድ ጊዜ ከህመሞ ሲያገግሙ መድሃኒቶን መውሰድ ያቆማሉ?	1. አዎ 2. አይ 3. አላቀውም
7.	በየቀኑ መድሃኒት መውሰድ ለአንዳንድ ሰዎች አይመችም፡፡. እርሶ የልብ ድካም ህክምና በአግባቡ መከታተል ላይ ተቸግረው ያውቃሉ?	1. አዎ 2. አይ 3. አላቀውም
8.	ሁሉንም የልብ ድካም መድሃኒቶን ለመውሰድ ምን ያህል ጊዜ ለማስታወስ ይቸገራሉ?	1. በጭራሽ አለልችገረም 2. አልፎ አልፎ 3. አንዳንዴ 4. አብዛኛውን ጊዜ 5. ሁልጊዜ

ሠንጠረዥ 8. ስለ ልብ ድካም እውቀት የሚዳስሱ ጥያቄዎች

1.	የኦክስጅን እና የካርቦን ዳይኦክሳይድ አየር ልውውጥ በልብ ውስጥ ይካሄዳል	1. አዎ 2. አይ 3. አላውቀውም
2.	የልብ ድካም ማለት ልብ ደምን በሰውነት ውስጥ በበቂ መጠን ማፍሰስ የማትችልበት ሁኔታ ነው	1. አዎ 2. አይ 3. አላውቀውም
3.	የመተንፈስ ችግር እና የትንፋሽ ማጠር የልብ ድካም ምልክቶች ናቸው	1. አዎ 2. አይ 3. አላውቀውም
4.	ሳምባ በፈሳሽ ስትጨናነቅ ከሚታዩ ምልክቶች አንዱ የትንፋሽ እጥረት ነው	1. አዎ 2. አይ 3. አላውቀውም
5.	አንዳንድ ከባድ የልብ ድካም ያለባቸው ታካሚዎች በጀርባቸው በሚተኙበት ጊዜ የትንፋሽ ጸጥ ማለት ስለሚያጋጥማቸው ቢቀመጡ ይሻላቸዋል	1. አዎ 2. አይ 3. አላውቀውም
6.	የአጭር ጊዜ ክብደት መጨመር የልብ ድካም መባባስ አንዱ ምልክት ነው	1. አዎ 2. አይ 3. አላውቀውም
7.	ከመጠን በላይ ስራ እና ጭንቀት ለልብ ድካም መባባስ ምክንያት ናቸው	1. አዎ 2. አይ 3. አላውቀውም

8.	ሶዲየም የሚባለው ንጥረ ነገር የውሃ መጠራቀምን ያስከትላል	1. አዎ 2. አይ 3. አላውቀውም
9.	የሚያሸኑ መድሃኒቶች ፈሳሾችን ከሰውነት ያስወግዳሉ	1. አዎ 2. አይ 3. አላውቀውም
10.	የልብ ድካም ህመምተኞች ያለ ምግብ መድሃኒቶችን እንዲወስዱ አይመከርም	1. አዎ 2. አይ 3. አላውቀውም
11.	የልብ ድካም ህመምተኞች ከጤናማ ሰዎች የበለጠ ውሃ ቢጠጡ ጥሩ ነው	1. አዎ 2. አይ 3. አላውቀውም
12.	የልብ ድካም ህመምተኞች ከፍተኛ የጨው ምግብ ቢወስዱ የሻላል	1. አዎ 2. አይ 3. አላውቀውም
13.	ማጨስ የልብ ድካም ላለባቸው ታካሚዎች የደም ዝውውርን ስለሚጨምር ጥሩ ነው	1. አዎ 2. አይ 3. አላውቀውም
14.	የልብ ድካም ህመምተኞች የልብ ድካማቸው ምንም ይሁን ምን የአካል ብቃት እንቅስቃሴ ማድረግ የለባቸውም	1. አዎ 2. አይ 3. አላውቀውም
15.	የልብ ድካም ህመምተኞች ደማቸው በጥሩ ሁኔታ እንዲዟዟር ሞቅ ባለ ውሀ ገላቸውን ቢታጠቡ ይሻላል	1. አዎ 2. አይ 3. አላውቀውም

ስለ ቅን ተሳትፎዎ አመሰግናለሁ።