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COLLEGE OF HEALTH SCIENCES
DEPARTMENT OF PUBLIC HEALTH



**Health-Related Quality of Life and Associated Factors among Hypertensive Patients
Attending Asella Referral and Teaching Hospital**

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ABBREVIATION AND ACRONYMS

AOR	Adjusted Odds Ratio
BP	Blood Pressure
CI	Confident Interval
DALYs	Disability-Adjusted Life Years
DBP	Diastolic Blood Pressure
EQ-5D	EuroQol 5 Dimension
EQ-VAS	EuroQol 5 Dimension Visual Analog Scale
EFY	Ethiopian Fiscal Year
FMOH	Federal Ministry of Health
HBP	High Blood Pressure
HIV	Human Immunodeficiency Virus
HRQOL	Health-Related Quality of Life
HTN	Hypertension
LIC	Low-Income Countries
LMIC	Low and Medium-Income Countries
mmHg	millimeter(s) of mercury
NCD	Non-Communicable disease
OHB	Oromia Health Bureau
OR	Odds Ratio
QoL	Quality of Life
RECRB	Research & Ethics Committee Review Board
SBP	Systolic Blood Pressure
SPSS	Statistical Package for Social Science
USA	United States of America
WHO	World Health Organization

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ABSTRACT

Background: Hypertension, which is a risk factor for cardiovascular disease, affects the quality of life of patients, especially elderly patients. Although a few studies have determined the quality of life of hypertensive patients in Ethiopia, there is a lack of studies that have estimated the utility index to assist the economic evaluation of hypertension management interventions.

Objectives: To evaluate the health-related quality of life and associated factors among hypertensive patients attending Asella Referral and Teaching Hospital.

Method: A facility-based cross-sectional study was conducted among 404 hypertensive patients who were attending Asella Referral and Teaching Hospital from March 10, 2025, to April 10, 2025. Data was collected by using structured questionnaires and validated EuroQol 5-dimensional-5 levels (EQ-5D-5L) questionnaires. Differences in health-related quality of life scores between patient subgroups were tested by the Mann-Whitney U or the Kruskal-Wallis test. A binary logistic regression will be used to examine the association between independent variables and outcome variables. All variables with a p-value < 0.25 in the logistic regression will be entered into the multivariable logistic regression to identify factors independently associated with the outcome variable. An odds ratio along with a 95% Confidence Interval at p-value < 0.05 was used to measure the strength of the association.

Results: The magnitude of affected HRQOL among hypertensive patients was 44.3 % (95%: 39.4, 49.3). The mean EQ-5D index score of hypertensive patients was 0.899 (0.099). Factors such as old age (AOR = 2.23, 95%CI: 1.14–4.33), comorbidity (AOR = 3.42, 95%CI: 1.54–7.59), poor self-reported health status (AOR = 2.87, 95%CI: 1.28–6.43), chewing khat (AOR = 5.83, 95%CI: 2.09–16.29) and not adhering to treatment (AOR = 2.41, 95%CI: 1.19–4.85) were significantly associated with affected HRQOL among hypertensive patient.

Conclusion: -More than two-fifths of hypertensive patients have affected HRQoL. Old age, comorbidity, poor health status, chewing khat, and not adhering to treatment were found to be significantly associated with affected HRQOL. Therefore, health institutions should establish a health literacy unit that provides health education and awareness on a health-promoting lifestyle for all patients, especially older individuals and patients with additional chronic illnesses.

Keywords: Health-related quality of Life, Hypertension, Ethiopia

1. INTRODUCTION

1.1. Background

Hypertension (HTN) is a chronic condition in which blood pressure in the arteries is persistently elevated(1). It is also defined as having a systolic blood pressure of more than 140 millimeters of mercury (mmHg) and a diastolic blood pressure of more than 90 mmHg over a sustained period, taken in two or more contacts with the health care provider after an initial screening(2). Hypertension is classified as primary (essential) or secondary hypertension. Over 90% of individuals have high blood pressure that results from an unknown pathophysiologic etiology, which is known as essential hypertension(3).

Currently, hypertension is a global public health issue that dramatically increases the risk of heart disease, stroke, kidney failure, and physical disability(4). Hypertension is characterized by progressive limitations in physical activity and health-related quality of life (HRQOL)(5). Hypertension is also identified as a significant contributor to the worsening health status and reduced life expectancy, which has an impact on the quality of life of patients(6). Related Quality of life (HRQOL) has become a significant concept in the fields of health and is considered to reflect the impact of disease and treatment on disability and daily functioning(7). It is considered an effective economic evaluation tool to assess the impact of health conditions on the daily lives of patients and is useful in describing the life experiences of people as they relate to their health(8). Over the past few decades, different health HRQOL measurement tools have been developed, which can serve as a self-classifier for health. The EuroQol five-dimension (EQ-5D) and the Short Form six-dimension (SF-6D) have become widely accepted in Economic evaluation studies(9, 10). The EQ-5D tool is a self-administered questionnaire developed by the EuroQol Group. It measures five dimensions of health: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. It also rates the health status of patients using the Visual analogue Scale (VAS). The EQ-5D contains three or five levels of rating on the five health dimensions, such as pain, anxiety, usual care, usual activity, and discomfort. The VAS scores ranged from 0 (worst health) to 100 (best health). The EQ-5D-3L and EQ-5D-5L have been widely accepted types of EQ-5D tool(11). The only EQ-5D tool that has an Ethiopian population tariff and can be used for cost-utility analysis is EQ-5D-5L(12).

1.2. Statement of the Problem

Hypertension is one of the global public health emergency diseases and is the most critical factors for chronic diseases such as cardiovascular disease, stroke, arrhythmias, heart failure, and renal diseases(4). Globally, 1.4 billion people had hypertension, with 14% controlled to systolic blood pressure (SBP) below 140mmHg, which contributes to 18 million cardiovascular deaths annually(13). In 2016, non-communicable diseases accounted for 40.5 million or 71% of deaths globally; 17.9 million or 44% of non-communicable disease-related deaths were due to cardiovascular disease, with hypertension as the leading risk factor(14).

Hypertension is also the leading cause of morbidity and mortality in sub-Saharan Africa. For example, studies from four African countries found that the overall age-standardized prevalence of hypertension was 25.9 %(15). Hypertension is one risk factor for Non-communicable diseases (NCDs) in Ethiopia. A study on the prevalence of HTN in Ethiopia found that the prevalence of HTN was estimated to be 9.3–30.3%(16).

A previous study found that hypertension was associated with an increased risk of having a worse HRQoL. Hypertension is characterized by progressive limitations in physical activity and HRQoL. Health-related Quality of life deficits may extend beyond the traditional domains of physical activity, psychological health, and emotional well-being to sexual health and function(5). For example, a study in Spain found that patients with obesity, hypertension, diabetes, or a combination of these factors were associated with a worse HRQoL, on both the physical and the mental scales(17).

Besides, findings from the Egyptian population found that the mean of Physical and Mental Component Summary and their items of HRQOL were statistically higher among the normal group compared with the hypertension group(18). In addition, a study done in Dessie found that the mean scores of physical, psychological, social, and environmental domains were 42.93, 51.78, 57.31, and 48.15, respectively(4). Furthermore, a study conducted in Jimma found that HRQoL mean score was 58.58 in physical functioning, 54.7 in role physical, 57.45 in role emotional, 57.01 in vitality, 61.42 in mental health, 74.61 in social functioning, 74.67 in bodily pain, and 51.66 in general health dimension(19). Moreover, a study conducted in Mekelle revealed that the physical and mental component mean scores of 64.83 and 64.88, respectively, among hypertensive patients(20). Besides, a study in Addis Ababa found that over two-thirds of

the patients reported no problems with self-care, usual activity, and depression/anxiety(21).Factors like longer duration of hypertension, low level of education, presence of hypertension-related symptoms, being divorced, uncontrolled blood pressure status, age, adherence to treatment, presence of co-morbidity, complication, being farmer, being female, more than one symptom count, having a stroke, visual impairment have a significant association with HRQoL of Hypertension patients(22-24). Smoking and alcohol consumption have a negative relationship with good HRQoL for other diseases(4). Despite the Ethiopian government's efforts to reduce the incidence of hypertension and related complications through early screening and diagnosis, the disease has impaired the physical, psychological, social, and environmental quality of life of patients under treatment(4). However, assessment of HRQoL among hypertensive patients has paramount importance in designing interventions that improve the complications and death related to HTN. Therefore, this study aimed to assess HRQoL among hypertensive patients attending Asella Referral and Teaching Hospital (ARTH) in Southern Central Ethiopia.

1.3. Significance of the study

Quality of life measurement has importance in healthcare settings at policy and administration levels, in clinical assessments of therapies, and in the clinical management of individual cases. Thus, the findings of this study will assist the health policymakers as well as stakeholders in designing interventions that improve the complications and impairment due to hypertension. In addition, the findings would indicate the factors that help health providers to improve the quality of care to improve the HRQoL of hypertensive patients. Moreover, the finding would help the study participants by enabling them to get quality care at health facilities by indicating the determinants of HRQoL to health providers. Besides, the finding can be used in Economic evaluation studies of interventions for hypertensive patients to design cost-effective strategies. Furthermore, the findings can also be used as baseline data for future research on the quality of life of hypertension.

2. LITERATURE REVIEW

2.1. Health-related quality of life among hypertensive patients

Hypertension is the biggest contributor to the burden of disease globally, being responsible for 7% of world disability-adjusted life years (DALYs), and uncontrolled blood pressure leads to deteriorated quality of life every year(2, 25). A previous study in different countries found significantly lower health-related quality of life among hypertensive patients. For instance, a comparative study conducted in China revealed that the mean (SD) HRQoL measured using EQ-5D-5L among hypertensive and non-hypertensive patients was 0.94(0.14) and 0.96 (0.09), respectively(26). In addition, another study in China using the EQ-5D tool found EQ-5D utility values of 0.9400 ± 0.1197 , with notable difficulties in anxiety/depression (27%) and pain/discomfort (26.2%)(27). A cross-sectional study conducted in Bangladesh revealed that the average EQ-index of 0.83, with 39% reported difficulties with self-care, 43.5% having mobility problems, 80.6% having pain, and 61.2% having anxiety(28). In addition, the EQ-VAS and EQ-5D index scores of hypertensive HIV patients were 80.99 and 0.86 in Nigeria, respectively(29). A cross-sectional study conducted among hypertensive patients in Dessie, Ethiopia, found that the mean scores of physical, psychological, social, and environmental dimensions of quality of life were 42.93, 51.78, 57.31, and 48.15, respectively(4). A study conducted in Jimma also found that the mean score of HRQoL of hypertensive patients was 58.58 in physical functioning, 54.7 in role physical, 61.42 in mental health, 74.61 in social functioning, 74.67 in bodily pain, and 51.66 in general health domains(19). Moreover, a cross-sectional study conducted in Mekelle revealed that the mean score of the physical and mental components was 64.83 and 64.88, respectively, among hypertensive patients(20). Furthermore, another study conducted in Ethiopia found that the magnitude of high health-related quality of life among hypertensive patients was 53.6%(30).

2.3. Factors associated with HRQOL among hypertensive patients

Sociodemographic-related factors

Different Socio-demographic factors were found to influence the quality of life of hypertensive patients under treatment. A study in China reported that the HRQoL of hypertension may be influenced by age, gender, education, household income, health expenditure, place of residence, and family history of high blood pressure (HBP)(25, 31). Another finding in China found that the

quality of life of the Chinese population is significantly associated with age, marital status, educational level, diet, sleep, mental state, mood, and presence of chronic diseases(27).

Moreover, a study in Dessie indicated that age, duration of antihypertensive treatment, low social support, physical inactivity, co-morbidity, being a widow, chat chewing, and being single had a significant association with lower (4). Furthermore, a study from Addis Ababa showed that education level, visit to a health center, and marriage had lower odds of affected HRQoL, whereas lower monthly income and presence of co-morbidities had higher odds of affected HRQoL(21). Another study conducted in Ethiopia found that old age, educational level, and having a high income were significantly associated with health-related quality of life(30).

Behavioral factors

Behavioral factors such as chewing khat, drinking alcohol, smoking cigarettes, and practicing regular physical activities were factors found to affect the quality of life of hypertensive patients. A study done in Saudi Arabia among Khat chewers and non-chewers found a significantly reduced Quality of life among khat chewers(32). A study conducted in China revealed that drinking alcohol significantly reduces the domain of quality of life, such as physical, mental health measures, and emotional self-regulation, in addition to its impact on general health(33). In addition, other study findings from China reported that smoking, drinking, and not having regular exercise were significantly associated with the quality of life of hypertensive patients(34). Moreover, in Chinese study found that factors such as smoking, alcohol consumption, physical activity level, and hours of sleep at night strongly influenced the health utility value of patients(35). In Lebanese people, a study found that smoking cigarettes daily and a lack of regular sport activity significantly decreased quality of life(36). A study done in Amhara Region, Ethiopia, found that behavioral factors such as chewing khat were significantly associated with low health-related quality of life among hypertensive patients(37). A study conducted in Wollega, Ethiopia, found that chewing khat harmsthe health-related quality of life of hypertensive patients(38).

Nutrition-related factors

A study conducted in Australia among hypertensive patients found thatthe dietary pattern of patientssignificantly reduced the quality of life of patients (39). Another study in China found

that the quality of life of the Chinese population is significantly associated with diet, sleep, mental state, mood, and presence of chronic diseases(27).

Clinical and treatment-related factors

Another study conducted in Nepal found that the number of antihypertensive drugs used and compliance with dietary salt advice were significantly associated with health-related quality of life(40). In Addition, a study done in China found that having regular physical activity and medical examination had a positive effect on the HRQoL of hypertension patients(41). A study conducted in China points out that having comorbidity was significantly associated with poor quality of life(26). A study finding from Vietnam also showed treatment adherence was positively associated with HRQoL, whereas the presence of co-morbidity was negatively associated with HRQoL(42). In addition, a findings report from studies done in Jordan and Poland indicated that adherence to therapeutic recommendations among hypertensive elderly patients was associated with improved quality of life(22, 43). Moreover, a study performed in Nigeria indicated that the duration of antihypertensive drugs was associated with HRQoL of hypertensive patients (29). Another study in Nigeria revealed that the overall HRQoL was significantly better in the group of hypertensives with controlled blood pressure and more impaired in patients with increased blood pressure, stroke, and visual impairment(44). Besides, a study done in Mekelle, North Ethiopia, indicated that HRQoL was significantly affected by duration of hypertension, blood pressure status, and presence of health complaints(20).

Conceptual Framework

The next conceptual framework, which depicts the relationship of the variables, is adapted and modified from published sources (4, 25, 44, 45).

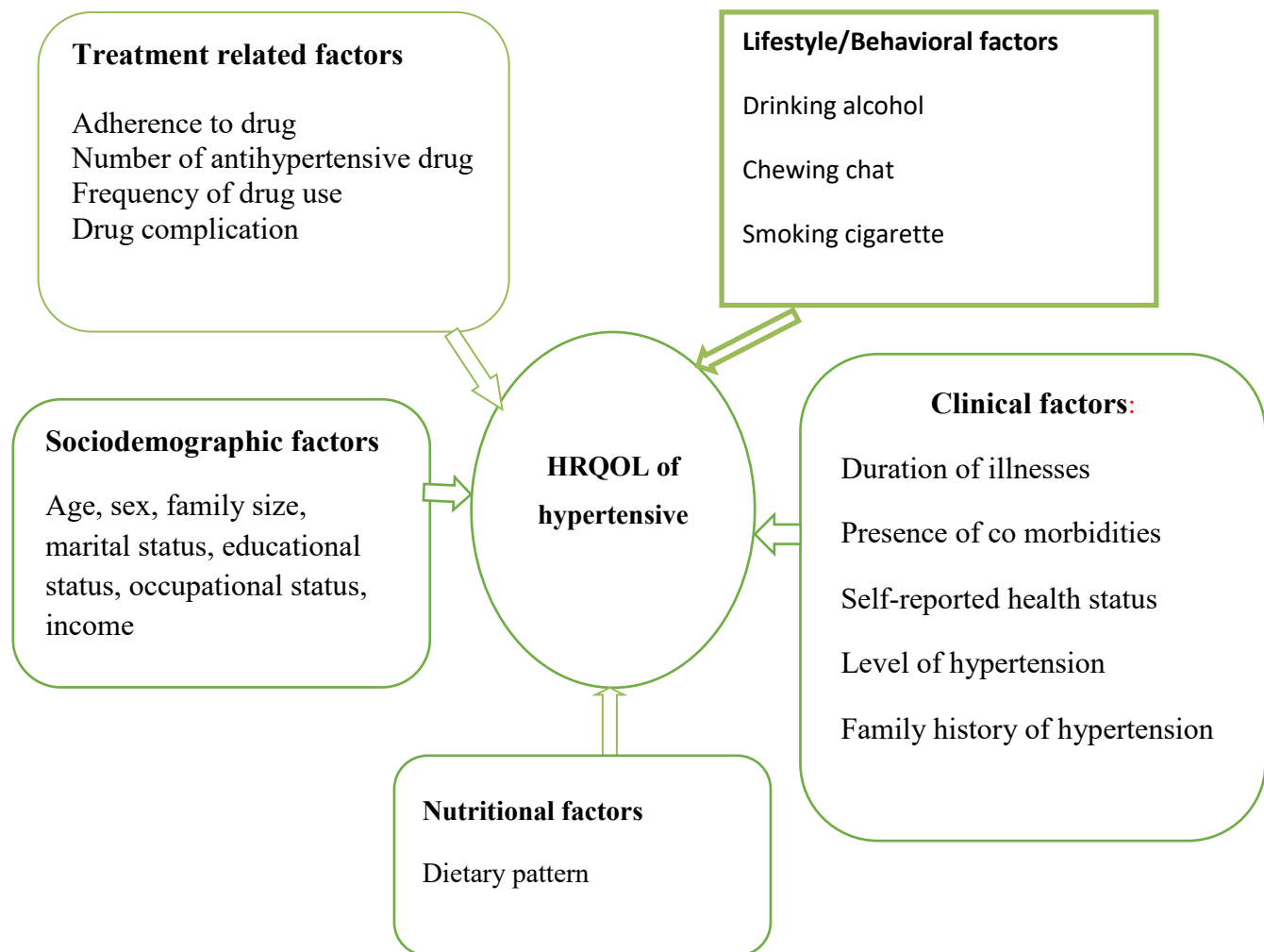


Figure 1: Schematic diagram indicating the relationship between dependent and independent variables of hypertensive patients who visited ARTH, South Eastern Ethiopia, 2025

3. OBJECTIVES

3.1. General objective

- ✓ To evaluate health-related quality of life and associated factors among hypertensive Patients attending ARTH from March 10, 2025, to April 10, 2025

3.2. Specific objectives

- ✓ To determine health-related quality of life among hypertensive patients attending ARTH from March 10, 2025, to April 10, 2025
- ✓ To assess factors associated with health-related quality of life among hypertensive patients attending ARTH from March 10, 2025, to April 10, 2025.

4. METHODS

4.1. Study setting

The study was conducted among hypertensive patients in Asella Referral and Teaching Hospital (ARTH), South Eastern Ethiopia. Asella Referral and Teaching is located in Asella town and serves as a referral hospital for the Arsi Zone, providing healthcare for its more than 3.5 million inhabitants. The hospital contains specialized departments such as Emergency Room, Internal Medicine, Pediatrics, Gynecology and Obstetrics & Fistula Unit, Surgery, Ophthalmology, and Intensive Care Unit. The hospital also has a separate chronic unit that provides services for chronic patients. This Hospital has employed around 340 clinical (i.e., specialists, physicians, nurses, midwives, laboratory, pharmacy, and other health professionals) and 100 non-clinical personnel. The hospital has more than 250-bed beds that deliver healthcare services to the Arsi zone and its surrounding population. In the medical out patient department of this hospital, there were 2232 hypertensive patients receiving services annually, with an average of 820 monthly.

4.2. Study Design and Period

An institutional-based cross-sectional study design was conducted from March 10, 2025, to April 10, 2025.

4.3. Source population

All hypertensive patients who attended the outpatient department was the source population

4.4. Study population

All hypertensive patients who attended the medical outpatient department and fulfilled the eligibility criteria during the data collection period were the study population

4.5. Exclusion and inclusion criteria

Hypertensive patients aged 18 years and above, and on antihypertensive medication for six months or more, would be eligible for this study, while hypertensive patients with critical illness, persons with disability (unable to communicate), and pregnant women would be excluded from the study.

4.6. Sample size

To determine the sample size for a study, a single population proportion method would be used and the following assumptions: a 95% confidence level of $Z_{\alpha/2} = 1.96$, 5% margin of error, the proportion of clients rated poor HRQoL ($p=39.4\%$) (4), and a non-response rate of 10%.

$$n = Z^2 pq / W^2$$

$$[(1.96)^2 (0.394) (0.606)] / (0.05)^2 = 367 \text{ and adding } 10\% * 367 = 37$$

Table 1: sample size calculations for the second objective by considering factors associated with HRQOL of hypertensive patients from different studies, 2025

Variable	% outcome in the exposed group	% outcome in the unexposed group	CI	Power	Ratio	OR	Sample Size	Source (Ref.)
Comorbidity	68.4	44.65	95	80	1	1.95	152	
Monthly income	69.5	50.45	95	80	1	2.24	226	

Then, the final sample size was 404 hypertensive patients.

4.7. Sampling technique and procedure

To begin with, the chronic outpatient department was selected purposively as the service would be provided commonly at this clinic. The trends of the client getting services in the last year were collected from the hypertensive registration book for an equivalent length of data collection period. Then, the total sample of 820 was divided by 404, and 2 is the interval for data collection. A first hypertensive patient was selected randomly among clients who came for hypertension-related services, and the first client was interviewed. From that time onwards, the selection of the representatives was continued, keeping the interval K of two until the required sample size was achieved. If the respondents refused or did not fulfill the inclusion criteria during the data collection period, the next patients were considered for the interview.

4.8. Study variable

4.8.1. Dependent Variable

Health-related Quality of Life (Affected vs. not affected)

4.8.2. Independent Variable

Socio-demographic factors: Age, sex, marital status, educational status, residence, monthly income, family size, and employment status

Drug-related factors: frequency of drug use, drug complications

Health-related factors: Duration of illness, and presence of comorbidities

Clinical and Treatment-related factors: Adherence to the drug and the number of antihypertensive drugs

Nutrition-related factors: Dietary pattern

4.9. Operational definition

Health-related quality of life: the WHO has defined HRQoL as “an individual’s perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns. For assessing the level of HRQoL of hypertensive patients, an EQ-5D-5L tool was used to measure five dimensions of health: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has five levels, corresponding to having no problems, slight problems, moderate problems, severe problems, and extreme problems. During the determination of the HRQoL for each dimension, a patient-reported “have no problems” will be categorized as “no problem”, whereas a patient reported any problem (have slight problems to extreme problems) would be merged as “have problem” for each dimension of HRQoL.

Affected HRQOL: was defined as an individual who reported any type of problem in five dimensions of HRQOL, whereas no health problem reported in five dimensions was considered as not affected HRQOL.

4.10. Data Collection Tool and Procedure

An interviewer-administered structured questionnaire was used to collect data. A questionnaire consists of socio-demographic characteristics of patients, clinical factors, treatment factors, and health-related quality of life assessment. The health-related quality of life assessment was performed by a validated Afan Oromo/Amharic version of the EQ-5D-5L questionnaire (12). The EQ-5D-5L contains five domains: Mobility, Self-Care, Usual Activities, Pain/Discomfort, and Anxiety/Depression. Each domain of the HRQoL of life has five levels to describe the severity (i.e., have no problems, have slight problems, have moderate problems, have severe problems, and have extreme problems), which describes 5^5 (3125) possible health combinations. The predicted values for the EQ-5D-5L would have a range of -0.718 for the worst possible health and “1” for the best possible health (12). Then the HRQoL data collected using EQ-5D-5L was converted to a single utility score using a tariff for the Ethiopian population (12). Data was collected by two BSc professional nurses.

4.11. Data quality management

The data collection tool was prepared in English initially and translated into the local language by an expert. Before data collection, the questionnaire was pretested at Bokoji Hospital on 5% of the study sample size, and necessary modifications were made based on the pretest findings. Data were collected by two trained nurses after giving two days of training to data collectors on data collection formats and techniques of data collection. The supervisor would supervise every activity of the data collectors and the completed questionnaires every day. At the end of each day of data collection, the data collected was checked by the principal investigator for completeness and consistency.

4.12. Data processing and analysis

The collected data were coded and entered into the Statistical Package for the Social Sciences (SPSS) version 25 for analysis. The mean and standard deviation (SD) were computed to summarize continuous variables, while frequencies and percentages were calculated to describe the categorical variables. The collected data were assessed for different assumptions, such as normality, multicollinearity, and heteroscedasticity, statistically. The Shapiro–Wilk test was used to check the normality of variable distributions. The variance inflation factor (VIF) was used to

assess the presence of multicollinearity, while heteroscedasticity was checked using Hosmer-Lemeshow tests. The relationships of all factors and the scores of EQ-5D were analyzed with the Mann-Whitney U test or the Kruskal-Wallis test. The percentage of people in each dimension was calculated, and χ^2 tests were performed to examine the statistical significance of the difference between groups in the percentage of reported problems. A bivariate logistic regression model was used to determine factors associated with affected HRQOL (0 = not affected, 1 = affected). The variables with a P value less than 0.25 were considered candidates for the multivariate logistic regression analysis model to identify factors associated with affected HRQoL. A p-value of less than or equal to 0.05 and an Adjusted Odds Ratio (AOR) with 95% CI was used to declare the statistical significance of the factors associated with the HRQoL in the models.

4.13. Ethical Consideration

The study was conducted after the ethical clearance letter was secured from Arsi University, College of Health Sciences, Department of Public Health Institutional Review Board. The support letter was addressed to the Asella Referral and Teaching Hospital administrations to collect data at the chronic outpatient department in the hospital. In addition, oral informed consent was obtained from a hypertensive client before the initiation of the study. The confidentiality issues were maintained using a unique code.

4.14. Dissemination of the result

The result of the study will be disseminated to responsible bodies such as Arsi University, College of Health Sciences, the Department of Public Health, as well as the ARTH administration. The study findings will also be submitted to professional journals on health for publication to serve as data sources for further studies on the site.

5. RESULTS

5.1. Socio-demographic characteristics of study respondents

A total of 404 hypertensive patients were interviewed in this study. The majority, 261(64.6%) of the respondents were females, while 252(62.4%) of them were from urban areas. Of the total, 291(72%) of the study participants were married. The majority, 221(54.7%) of the respondents were in the age group of 41-65 years, with a mean age of 53.5 years and a standard deviation of ± 7.978 . Above two-fifths (45.5%) of the study participants were found to have attended primary education, whereas 94(23.3%) of them attained secondary and above education. In addition, 190(47%) of the respondents had a monthly income of 1000-2000 birr and a family size of less than five (Table 2).

Table 2: Socio-demographic characteristics of hypertensive patients who visited ARTH, southern Eastern Ethiopia, 2025

Characteristics		Frequency (%)
Sex	Male	143(35.4%)
	Female	261(64.6%)
Age	18-40	106(26.2)
	41-65	221(54.7)
	Above 65 years	77(19.1)
Residence	Rural	152(37.6%)
	Urban	252(62.4%)
Educational status	Not able to read and write	23(5.7%)
	Able to read and write	103(25.5%)
	primary	184(45.5%)
	Secondary and above	94(23.3%)
Marital status	Single	113(28%)
	Married	291(72%)
Ethnicity	Oromo	368(91.1%)
	Amhara	32(7.9%)
	Tigre	4(1.0%)
Occupational status	Farmer	136(33.7%)

	Merchant	92(22.8%)
	Government employee	30 (7.4%)
	Private employee	12(3.0%)
	Other	134(33.2%)
Religion	Muslim	124(30.7%)
	Orthodox	186(46%)
	Protestant	94(23.3%)
Monthly income	Less than 1000	115(28.5%)
	1000-2000	190(47.0%)
	Above 2000	99(24.5%)
Family size	Less than 5	190(47%)
	5 and above	214(53%)

5.1. Health-related and lifestyle characteristics of study participants

Among 404 hypertensive patients interviewed, the majority, 222(55%),rated their current health status as medium. Besides, 257(63.6%) of hypertensive patients reported that hypertension has caused a medium economic burden on their lives. Regarding chronic illnesses, only 97(24%) of patients were reported to have an underlying disease, with 65(61.3%) having diabetic mellitus, followed by 21(19.8%) having asthma. Of the total, 88(88%) food and drinking establishments had renewed licenses. Nearly all 361(89.4%) of the hypertensive patients reported taking their antihypertensive treatment regularly. Regarding lifestyle, only 4.7% and 8.2% of the patients were reported to smoke cigarettes and drink alcohol,respectively (Table 3).

Table 3: Health and lifestyle-related characteristics of hypertensive patients who visited ARTH, southern Eastern Ethiopia, 2025

Characteristics		Frequency (%)
Current health status rated	Poor	138(34.2)
	Medium	222(55.0)
	Good	44(10.9)

Economic burden of hypertension	low	93(24.5)
	Medium	257(63.6)
	High	48(11.9)
Do you or other family members have chronic illnesses?	Yes	97(24.0)
	No	307(76.0)
Type of co-morbidity	Heart failure	4(3.8)
	Diabetic Mellitus	65(61.3)
	COPD	16(15.1)
	Asthma	21(19.8)
Encountered illnesses in the last 3 months	Yes	94(23.3)
	No	310(76.4)
How long after getting hypertension	≤5	274(67.8)
	Above 5	130(32.2)
Admitted to IPD	Yes	73(77.7)
	No	21(22.3)
How often do you take treatment?	Always	361(89.4)
	Sometimes	43(10.6)
Complication	Yes	54(13.4)
	No	350(86.6)
Practiced physical activities	Yes	107(26.5)
	No	297(73.5)
Smoke cigarette	Yes	19(4.7)
	No	385(95.3)
Drink alcohol	Yes	33(8.2)
	No	371(91.8)
Chew chat	Yes	35(8.7)
	No	369(91.3%)

5.2. EQ-5D-5L result

The respondents obtained a mean EQ-5D index score of 0.899 (SD: 0.099). Highest possible Older age ($p<0.022$), higher education ($p<0.014$), poor health status ($p<0.013$), with chronic disease ($p<0.001$), good adherence to treatment ($p<0.001$), smoking cigarettes ($p<0.002$), drinking alcohol ($p<0.003$) and chewing chat ($p<0.001$) were associated with lower EQ-5D index (Table 4).

Table 4: EQ-5D-5L index scores by characteristics of hypertensive patients who visited ARTH, southern Ethiopia, 2025

Characteristics	categories	EQ-5D score	
		Mean(SD)	P- Value
Total EQ-5D utilities		0.899(0.099)	
Sex	Male	0.890(0.098)	0.265
	Female	0.902(0.998)	
Age	18-40	0.911(0.09)	0.022
	41-65	90.2(0.10)	
	65 & above	87.4(0.11)	
Residence	Rural	0.896(0.097)	0.253
	Urban	0.901(0.100)	
Educational status	Non-formal	0.885(0.100)	0.014
	primary	0.910(0.096)	
	Secondary and above	0.900(0.103)	
Current health status	Poor	0.884(0.103)	0.013
	Medium	0.906(0.097)	
	Good	0.915(0.097)	
Comorbidity	Yes	0.873(0.104)	0.001
	No	0.908(0.096)	
Adherence	Good	0.910(0.096)	0.001
	poor	0.871(0.104)	
Smoke cigarette	Yes	0.822(0.130)	0.002

	No	0.903(0.096)	
Drink alcohol	Yes	0.836(0.114)	0.003
	No	0.095(0.096)	
Chew chat	Yes	0.802(0.116)	0.001
	No	0.909(0.093)	

5.3. EQ-5D-5L dimension scores

The magnitude of affected HRQOL among hypertensive patients was 44.3 % (95%: 39.4%-49.3%)(Fig. 2).The most frequently reported problem was pain/discomfort (43.3%), followed by usual activities (36.6%), and self-care (25.7%) was the least frequently reported problem (Fig. 3). Compared with 18-40 years respondents, other age respondents were more likely to report problems in five dimensions of EQ-5D, and above 65 years group respondents reported the most problem in pain/discomfort (59.7%), usual activities (49.3%), anxiety/depression (45.4%), self-care (39%) and mobility (39%). Respondents who had informal education levels reported the most problems in usual activities (47.6%), and pain/discomfort (54.8%), than respondents who attended secondary and above educational levels. Compared with no chronic disease respondents, chronic disease respondents were more likely to report problems in usual activities (57.1%) and pain/discomfort (62.2%) in EQ-5D. In addition, those who reported drinking alcohol, smoking cigarettes, and chewing Khat were more likely to report problems in five dimensions of EQ-5D compared to their counterparts (Table 5).

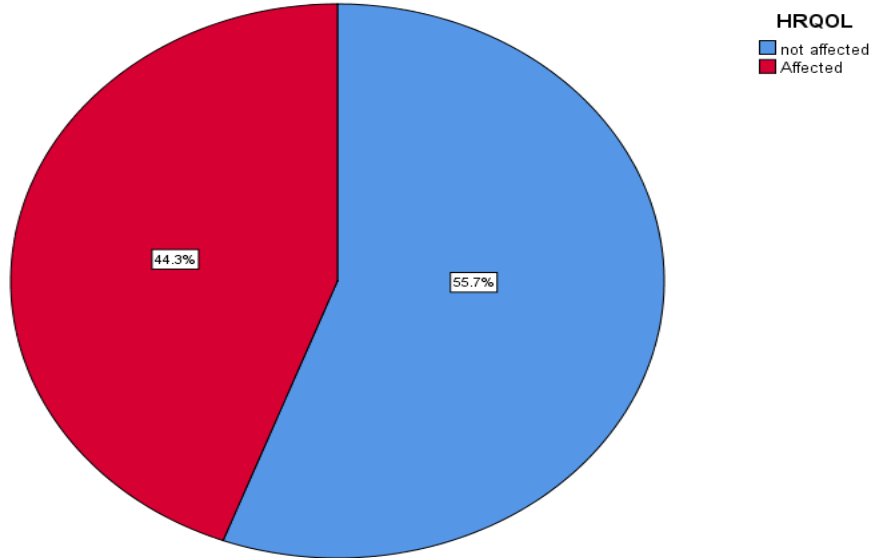


Figure 2: Magnitude of affected health-related quality of Life among hypertensive patients in ARTH, South Eastern Ethiopia, 2025

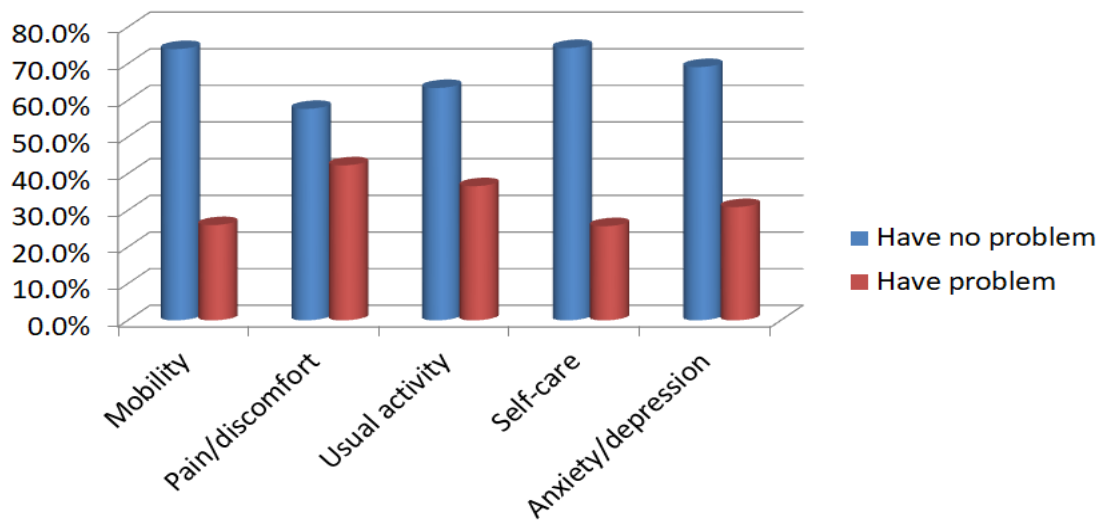


Figure 3: Percentage of problems reported in each dimension of EQ-5D among hypertensive patients who visited ARTH, southern Eastern Ethiopia, 2025

Table 5: Percentage of reported any problem in 5 dimensions of EQ-5D-5L among hypertensive patients who visited ARTH, South Eastern Ethiopia, 2025

Variable	Mobility			Pain/discomfort			Usual care			Self-care			Anxiety/Depression		
	No problem (%)	Have problem (%)	P. value	No problem (%)	Have problem (%)	p. value	No problem (%)	Have problem (%)	p. value	No problem (%)	Have problem (%)	P. value	No problem (%)	Have problem (%)	p. value
Sex															
Male	75.1	24.9	0.501	60.2	39.8	0.173	65.1	34.9	0.319	75.5	24.5	0.448	69.7	30.3	0.693
Female	72	28		53.2	46.8		60.1	39.9		72	28		67.8	22.2	
Residence															
Urban	74.6	25.4	0.726	60.7	39.3	0.111	65.5	34.5	0.257	75	25	0.660	69.4	30.6	0.829
Rural	73	27		52.6	47.4		59.9	40.1		73	27		68.4	31.6	
Age															
18-40	81.1	18.9	0.013	65.1	34.9	0.002	69.8	30.2	0.024	80.2	19.8	0.009	74.5	25.5	0.008
41-65	76	24		60.2	39.8		64.7	35.3		76	24		71.5	28.5	
65+	61	39		40.3	59.7		50.7	49.3		61	39		54.6	45.4	
Education status															
Informal	69	31	0.239	45.2	54.8	0.003	52.4	47.6	0.005	69.8	30.2	0.290	61.9	38.1	0.096
Primary	77.7	22.3		63.6	36.4		70.7	29.3		77.7	22.3		73.4	26.6	
Secondary & above	73.4	26.6		62.8	37.2		63.8	36.2		73.4	26.6		70.2	29.8	
Comorbidity															
Yes	67.4	32.6	0.071	37.8	62.2	0.001	42.9	57.1	0.001	67.4	32.6	0.108	62.3	37.7	0.131
No	76.2	23.8		63.8	36.2		69.7	30.3		76.2	23.8		71	29	
Smoke cigarettes															
Yes	47.4	53.6	0.007	31.6	68.4	0.018	36.8	63.2	0.014	53.6	47.4	0.027	42.1	57.9	0.009
No	75.3	24.7		59	41		64.8	35.2		75.3	24.7		70.4	29.6	
Drink alcohol															
Yes	45.5	54.5	0.001	30.3	69.7	0.001	33.3	66.7	0.001	45.5	54.5	0.001	45.5	54.5	0.002
No	76.6	23.4		60.1	39.9		66	34		76.8	23.2		71.2	28.8	
Chew chat															
Yes	42.9	57.1	0.001	14.3	85.7	0.001	17.2	82.8	0.001	42.9	57.1	0.001	40	60	0.001
No	77	23		61.8	38.2		67.8	32.2		77.2	22.8		71.8	28.2	

5.3. Factors associated with affected HRQOL of hypertensive patients

In bivariate logistic regression, age, residence, co-morbidity status, education level, self-reported health status, alcohol consumption, chewing Khat, smoking cigarettes, and treatment adherence were considered as candidate variables for multivariable logistic regression. In multivariable logistic regression, age, comorbidity status, self-reported health status, chewing Khat, and treatment adherence were found to be significantly associated with affected HRQOL among hypertensive patients. The results showed that old age was almost two times more likely to have affected HRQOL compared to their counterparts (AOR = 2.23, 95%CI: 1.14–4.33). The odds of having affected HRQOL among hypertensive patients with comorbidity were almost three times higher than compared to their counterparts (AOR =3.42, 95%CI: 1.54–7.59). In addition, respondents with poor self-reported health status were 2.87 times more likely to have affected HRQOL compared to those who reported good health status (AOR = 2.87, 95%CI: 1.28–6.43). Moreover, hypertensive patient who chew khat were almost six times more likely to have affected HRQOL compared to their counterparts (AOR = 5.83, 95%CI: 2.09–16.29). Furthermore, the likelihood of having affected HRQOL of life was 2.41 times higher among patients who didn't adhere to treatment compared to those who adhered to treatment (AOR = 2.41, 95%CI: 1.19–4.85)(Table 6).

Table 6: Multivariate logistic regression analysis results on the relationships between affected HRQOL and influence factors among hypertensive patients who visited ARTH, South Eastern Ethiopia, 2025

Variables	HRQOL		COR(95%CI)	AOR(95%CI)
	Affected	Not Affected		
Age				
18-30	40	66	1	1
31-45	93	128	1.20(0.75,1.93)	1.15(0.68,1.92)
46& above	46	31	2.45(1.34,4.47)	2.23(1.14, 4.33)*
Residence				
Urban	105	147	1	1
rural	74	78	0.75(0.50,1.13)	1.46(0.94, 2.29)
Educational status				

No formal education	71	55	1.99(1.16,3.43)	1.69(0.92, 3.11)
Primary education	71	113	0.97(0.58,1.61)	0.99(0.57, 1.75)
Secondary and above	37	57	1	1
Comorbidity				
Yes	61	36	2.72(1.69,4.35)	3.42(1.54–7.59)*
No	118	189	1	1
Chew Khat				
Yes	30	5	8.86(3.36,23.35)	5.83(2.09, 16.29)*
No	149	220	1	1
Drink alcohol				
Yes	23	10	3.17(1.47,6.85)	1.90(0.79, 4.57)
No	156	215	1	1
Smoke cigarette				
Yes	14	5	3.73(1.32,10.57)	1.92(0.61, 6.09)
No	165	220	1	1
Self-reported health status				
Poor	74	64	3.08(1.47,6.48)	2.87(1.28, 6.43)*
medium	93	129	1.92(0.94,3.93)	1.98(0.92, 4.27)
Good	12	32	1	1
Treatment adherence				
Yes	69	38	1	1
No	110	187	3.09(1.95,4.89)	2.41(1.19, 4.85)*

6. Discussion

The present study aimed to assess the HRQOL among hypertensive patients using the EQ-5D scale. In this study, the proportion of respondents who reported problems in usual activities and the pain/discomfort dimension was high. This finding was consistent with previous studies from China(27), Nigeria(29, 44), Slovenia(46), Dessie, North Ethiopia(4), and Addis Ababa(47), which reported a high proportion of impairment in mental and physical dimensions of HRQoL among hypertensive patients. The possible justification for high problems in the physical or mental domain of quality of life might be linked to incomplete information related to health-promoting lifestyle, such as physical activity, interpersonal relationships, stress management, spiritual growth, and dietary management, which might lead to stress and complications that reduce quality of life (43, 45, 48).

In this study, 44.3 % (95%CI: 39.4-49.3%) of hypertensive patients had affected HRQOL. In addition, the average EQ-5D utility index measured using EQ-5D-5L was 0.899(0.099) among hypertensive patients. This finding is consistent with a study done in Nepal, 0.87(49), Nigeria, 0.86(29), and Addis Ababa, 0.86(47). However, this finding is lower than study conducted in China (0.92)(25) and higher than studies done in Pakistan, 0.64(50), and China, 0.85(23). The most probable variation was due to variations in the HRQOL evaluation method employed (i.e., health utility tariff used, tools), study participant, and study period. Some of the studies employed the EQ-5D-3L instrument, while this study employed the EQ-5D-5L.

This study showed that the mean EQ-5D index score decreased with increasing age. In addition, the multivariate logistic regression analysis also showed that old age respondents (46 and above) were more likely to have affected HRQOL compared to young individuals. This result was supported by the studies done in China(27), Nepal(49), Egyptian(18), and Dessie, Ethiopia(4). This might be due to old age individuals having reduced immunity systems, poor health-promoting lifestyles, and being highly susceptible to different chronic illnesses, which reduces their HRQOL domains(15, 45, 51). The other factors found to affect the quality of life of hypertensive patients were self-reported health status. The study findings revealed that respondents who had poor self-reported health status had increased odds of having affected HRQOL than those who had good self-reported health status. This is explained by the fact that

respondents who had poor self-reported health status might have complications such as chronic illnesses, which reduce their quality of life.

The study found that individuals with chronic illnesses have reported increased odds of having affected quality of life compared to those who had no underlying diseases. This finding was supported by a study done in Nepal(42), India(3),and Pakistan(50). This is explained by the fact that individuals who had comorbidity had a deterioration of the immune system, which limits their physical activities, that have an impact on the physical component of quality of life. In addition, respondents who have underlying diseases might have discomfort/pain induced by multiple drugs used to manage the complication, which reduces the quality of life domains(23, 45). The other factors that were found to determine the quality of life of hypertensive patients were adherence to antihypertensive drugs to manage complications. The findings of the study revealed that individuals who didn't always adhere to antihypertensive drugs for treatment had increased odds of having affected health-related quality of life compared to those who adhered to treatment appropriately. This finding is supported by studies conducted in Vietnam(42), Jordan(52), Greece(24), and Nepal(53), which reported that adherence to antihypertensive medications improves the quality of life of patients. This might be because an individual who has noncompliance with antihypertensive drugs and treatment has uncontrolled blood pressure, which leads to extra complications that bring pain, anxiety, or discomfort and reduce patients' quality of life(20, 22, 44, 54).

In this study, behavior-related factors were found to influence the health-related quality of life of patients. The study findings point out that individual who chews Khat had increased odds of affected health-related quality of life compared to those who didn't chew Khat. This finding is supported by the study conducted in China(31) and Dessie, North Ethiopia(4). This is explained by the fact that respondents who had a poor practice of healthy lifestyles such as Khat chewing, had stress that reduces the health-related quality of life of patients.

7. Strengths of the study

This study had the following strengths.

- To the best of our knowledge, this study was the first to elicit a utility index for hypertensive patients, which helps in designing cost-effective intervention that improves the quality of life of hypertensive patients.
- The study used the validated Amharic/Afan Oromo EQ-5D-5L tool, which has high sensitivity and low ceiling effects as compared to the EQ-5D-3L tool, to elicit the utility index.
- The study used the Ethiopian population tariff to convert the individual utility index to a single HRQoL health state utility by using EQ-5D-5L.

8. Limitations of the Study

This study has some limitations.

- The study collected HRQOL data using the EQ-5D-5L tool based on patient preferences, in which the patient might over or underestimate their health status during the interview.
- The study was conducted in a single setting, which affects the generalizability of the results in some way.
- The study's cross-sectional design nature, also didn't support the cause-and-effect relationship.

9. Conclusions

More than two-fifths of hypertensive patients have affected HRQoL. The usual activity was the most frequently affected dimension of EQ-5D, next to the Pain/discomfort domain. Old age, comorbidity, poor self-reported health status, chewing khat, and not adhering to treatment were found to be significantly associated with affected HRQOL. Therefore, health institutions should establish a health literacy unit that provides health education and awareness on a health-promoting lifestyle for all patients, especially older individuals and patients with additional chronic illnesses.

10. Recommendations

Based on the findings of this study, I recommend the following

For policymakers:

- ✓ They should also include a health-promoting lifestyle in the health education given to patients with non-communicable diseases guidelines.

For Health Institutions:

- ✓ Health institutions should establish a health literacy unit that provides health education and awareness on a health-promoting lifestyle for all patients, especially older individuals with chronic illnesses.

For the health provider

- ✓ Health workers should provide regular health education and health-promoting lifestyles such as physical activity, health responsibility, interpersonal relationships, stress management, spiritual growth, and nutrition for older individuals with chronic illnesses.

For researches

- ✓ Further research should be conducted using EQ-5D-5L in multicenter studies to assist the policy makers in planning or designing cost-effective interventions for hypertensive patients.

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Annexes

ANNEX I: Consent Form

My name is _____, I am a nurse working here in ARTH and I am now collecting data for the research being conducted to determine the determinants of health related quality of life, by Esmael Mohammed Who is a public Health student in Arsi University. The Hospital is selected as one of the study areas. The researcher employed me for this data collection to maintain your data strictly confidential; I am not to let others outside of this clinic access your name and other identifiers. We believe that the findings of this study will have paramount importance for the evaluation of the quality of care and determinants of HRQoL of hypertensive patients. The information that is necessary for the study will be obtained through interviews and it will not inflict any harm as long as confidentiality is maintained. The information will be taken when you give permission, and your willingness for the interview will help us achieve the stated benefits of the study. Name and personal identifiers of the patients will not be recorded on the data collection form, and the information that we utilize will be kept confidential and will also be used for this study purpose alone. If you have any questions about this study, you may ask me or the principal investigator, Esmael Mohammed (Tel: 0938692972 and E-mail: ismaelsalman2019@gmail.Com).

Signature of the interviewer which shows that the Hospital has consented written or verbally to collect data necessary for this study _____

Annex II: Data collection questionnaire English version

Data collection format for the assessment of Health-related quality of life and associated factors among Hypertensive patients attending Asella Referral and Teaching Hospital, Southeastern Ethiopia

I. Sociodemographic and socioeconomic characteristics

S/no	Question	Response	Skip to
101	Age of respondent (in complete years)	_____	
102	Sex of respondent	1. Male 2. Female	
103	What is your Religion?	1. Muslim 2. Orthodox 3. Protestant 4. Catholic 5. Other (specify)_____	
104	What is your ethnicity?	1.Oromo 2.Amhara 3.Tigre 4.Gurage 5.Other(specify)_____	
105	Current marital status of the respondent?	1.Married 2.Divorced 3. Single 4. Widowed 5.Separeted	
106	What is your main occupation?	1. Retired 2. Employed 3. Unemployed	

107	What is your highest educational level?	1. Cannot read and write 2. Read and write only 3. Primary education(1-8) 4. Secondary education and above	
108	What is your monthly income (in birr)	-----	
109	What is the number of family members in the house?	1. Less than or equal to 5 2. Greater than 5	

II. Questions about healthcare-related factors

110	How do you rate your current health status	1. Poor 2. Medium 3. good	
111	How do you rate the economic burden Caused by hypertension?	1. Low 2. Middle 3. High	
112	Do you or other members of the household have a chronic illness?	1. Yes 2. No	
113	If yes to 112, what type of comorbidity do you have?	1. Heart failure 2. Diabetic Mellitus 3. COPD 4. Asthma 5. Other	Multiple choice is possible
114	Has any member of your family encountered any illness during the last 3 months?	1. Yes 2. No	If “yes” go to 113, ‘no’ skip to 115
115	How long after you get hypertension?	1. 0-2 years 2. 2-4 years 3. More than 4 years	

116	Have you been admitted to an inpatient due to hypertension?	1. Yes 2. No	
119	Have you got anti-hypertensive treatment for your illness?	1. Yes 2. No	
120	How often do you take your treatment	1. Always 2. Sometimes	
121	Do you have a drug-related complication	1. No 2. Yes	
122	How far do you live from the nearby health facilities	1. Less than 5km 2. 6km-10km 3. Above 10km	

III. Questions regarding lifestyle

201	Do you practice physical activity?	1. Yes 2. No	
202	Do you smoke cigarettes?	1. Yes 2. No	
203	Do you drink alcohol?	1. Yes 2. No	
204	Do you chew the chat?	1. Yes 2. No	

IV. Questions about health-related quality of life

205	How did you rate your mobility status?	1. no problem 2. slight problems 3. moderate problems 4. severe problems 5. extreme problems	
206	How did you usually rate the activity dimension?	1. no problem 2. slight problems 3. moderate problems 4. severe problems 5. extreme problems	
207	How did you rate the pain dimension?	1. no problem 2. slight problems 3. moderate problems 4. severe problems 5. extreme problems	
208	How did you rate the self-care dimension?	1. no problem 2. slight problems 3. moderate problems 4. severe problems 5. extreme problems	
209	How did you rate the anxiety/depression dimension?	1. no problem 2. slight problems 3. moderate problems 4. severe problems 5. extreme problems	

Thank you for your response!

Annex III: Data collection questionnaire Afan Oromo version

KOLLEEJII SAAYINSII FAYYAA HAWASAA YUNIVARSITII ARSII

Kutaa 1ffaa: GaaffileeHaalaJiruu fi JireenyaHawaasaa

Gaaffileenarmaangadiikunniindhimmakeessanilaallatu. Deebiinisindhimmakeessanirrattinaaf kennitankunwaa'eekeessanii _____ fi _____ gaaffileedhibiikeessattikannafayyaduta'a. Deebiikeessanibsuunyooifaisiniifhintaanemaaloohangadandeessanittideebii _____ fi yaadasirriita'eenattihima.

T/L	Gaafii	Deebii	Irradarbi
101	Umrii (waggaadhaan)	_____	
102	Saala	1. Dhiiraa 2. Dubara	
103	Amantiinkeemaalii?	1. Muslima 2. Ortoodoksii 3. Pirootestaantii 4. Kaatoolikii 5. Kanbiroo _____	
104	Sabniikeemaalii?	1. Oromoo 2. Amaara 3. Tigree 4. Guraagee 5. Kan biroo _____	
105	Haalagaa'elayerooammaa?	1. Fuudhe/Heerumtee 2. Hiikee/Hiiktee 3. Kanhinfuune/hinheerumne	

		4. Kandhiirsiiirraaboqate 5. Kan addabahan	
106	Dalagaankeemaalii?	1. Soramabahe/baate 2. Kanmindeeffame 3. Kanhinmindeeffamne	
107	Sadarkaanbarnootakeetimaalii?	1. Barreessuu fi dubbisuukanhindandeenye 2. Barreessu fi dubbisuufafa 3. Barumsa sadarkaajalqabaa(1-8) 4. Barumsasadarkaalammaaffa fi sanaol	
108	Galiinkeeki'aanmeeqa? (maallaqaan)	_____	
109	Baay'innimiseesnsamaatiimeeqa?	1.5 Gadiiyookin 5 ninwalqixa 2. 5 olii	

Kutaa 2 ffaa :GaafileeHaala of EeggannooFayyaatiinWalqabtan

110	Haalafayyaakeetiikanyerooammaa kkamittisadarkeessita?	4. Gadi-aanaa 5. Gidduugaleessa 6. Gaarii/Bayeessa	
111	Rakkoohaaladinagdeedhibbaadhiig aafiddukeessattiakkamittisadarkees sita?	4. Gadi-aanaa 5. Gidduugaleessa 6. Ol-aana	
112	Atiiyookanmiseensimaatiidhibeetur aaqabuujira?	1. Eeyyen 2. Lakki	
113	Yoo gaafiin 112 Eeyyenta'e, dhibeen kana wajjinjiruumaalii?	6. DhibeeOnnee 7. DhibeeSukkaara 8. Dhibeeturaacufamuusirnaharga nsuu 9. DhibeeeAsmii	Filaannonheddu unidanda'ama

		10. Kanbiroo	
114	Miseensimaatiiji'asadan(3) darbankeessattidhibeekaminuuqaba mejira?	1. Eeyyeen 2. Lakki	Yoo"Eeyyeen" ta'egaafii 115 ttidarbi, Yoo "lakki" ta'egaafii 116 ttidarbi
115	DhibeenDhiibbaadhiigaergasiqabe ehangamture?	1. Waggaa 0-2 2. Waggaa 2-4 3. Waggaa 4 ol	
116	Sababadhibeedhiibbaadhiigaatiifma nayaalaciifteebeektaa?	3. Eeyyeen 4. Lakki	
117	Midhamayookinhir'inaqaamaqabda a?	1. Eeyyeen 2. Lakki	
118	YooEeyyeenta'eegostiimidhama/hi r'inaqaamaaatiqabdumaali?	1. Hir'inaijaa 2. Midhamaqaama 3. Rakkoodhageetti 4. Kanbiroo	Filaannonheddu unidanda'ama
119	Dawaadhibeedhiibbaadhiigaaargatt eejirtaa?	1. Eeyyeen 2. Lakki	
120	Yeroohangamiifyaaliifudhatta?	3. Yeroohundaa 4. Yerootokkotokko	
121	Xaxaandawaanwalqabatejiraa?	3. Lakki 4. Eeyyeen	
122	Dhaabbileefayyaairraahangamfaga attejiraatta?	4. Km 5 gadi 5. Km6-Km10 6. Km 10 ol	

Kutaa 3ffaa: Gaafiilehaalajireenya

201	Shaakalasochiiqaamanitaasistaa?	1.Eeyyeen 2.Lakki	
202	Tamboonixuuxxaa?	1.Eeyyeen 2.Lakki	
203	Alkooolinidhugdaa?	1.Eeyyeen 2.Lakki	
204	Jimaaniqamaataa?	1.Eeyyeen 2.Lakki	

Kutaa 4ffaa: Gaafiilehaalagaarummaajireenyafayyaatiinwalqabatan

205	Haalasochiikeetiiakkamittisadarkeessita?	1.Rakko hinqabu 2.Rakko xiqqooqaba 3..Rakko giddu- galeessaqaba 4.Rakko cimaqaba 5.Rakko baay'eecimaqaba	
206	Haalakamiinkallaattiisochii baratamaasadarkeessita?	1.Rakko hinqabu 2.Rakko xiqqooqaba 3..Rakko giddu- galeessaqaba 4.Rakko cimaqaba	

		5.Rakkobaay'ee cimaqaba	
207	Haalakaminkallaattiidhukkuubbisadarkeessita?	1.Rakko hinqabu 2.Rakko xiqqooqaba 3..Rakko giddu- galeessaqaba 4.Rakko cimaqaba 5.Rakkobaay'ee cimaqaba	
208	Haalakaminkallaatti of to'annaakeetii Sadarkessita?	1.Rakko hinqabu 2.Rakko xiqqooqaba 3..Rakko giddu- galeessaqaba 4.Rakko cimaqaba 5.Rakko baay'eecimaqaba	
209	Haalakaminkallaatticinqamuuyookin yaaddoosadarkeessita?	1.Rakko hinqabu 2.Rakko xiqqooqaba 3..Rakko giddu- galeessaqaba 4.Rakko cimaqaba 5.Rakko baay'eecimaqaba	

Deebiikennitanifgalatooma!

Declaration of Investigator

I, the undersigned student of Master of Public Health, declare that this thesis is my original work in partial fulfillment of the requirements for the degree of Master of Public Health to my best knowledge.

Ismael Mohammed

Signature: _____ Date **12/12/2025**

Declaration of Advisors

We, the undersigned Advisors, declare that this thesis is our original work in partial fulfillment of the requirement for the degree of Master of Public Health for the stated student above to our best knowledge. We confirmed that this proposal is ready for defense with our approval as the university advisor (s).

Date of Submission: 12/12/2025

Name of Primary Advisor	Signatures	Date
1. Muhammedawel Kaso (MPH, Associate professor)		2/10/2026
Name of Secondary Adviser	Signatures	Date
Dr Hailu Fekadu (MPH, Assistant Professor)		11/12/25

Examining Board Approval

We, the undersigned Examining board, approve that this thesis is original work with the basic scientific merits for partial fulfillment of the requirement for the degree of General Master of Public Health for the stated student above to our best knowledge. We confirmed that this thesis is sufficient for the student's promotion to a higher level.

Name of External Examiner:	Signatures	Date
1. _____	_____	_____
Name of Internal Examiner:	Signatures	Date
2. _____	_____	_____
Name of Department Head:	Signature	Date
3. _____	_____	_____