PHARMA COLLEGE SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF REPRODUCTIVE HEALTH

LIFESTYLE MODIFICATION PRACTICE AND ASSOCIATED FACTORS AMONG ADULT HYPERTENSIVE PATIENTS IN PUBLIC HEALTH FACILITIES, SIDAMA REGION HAWASSA, ETHIOPIA

BY: MELKAMSEW EJIGU (MD)

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HAWASSA, ETHIOPIA

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EMAIL: melkamejigu01@gmail.com

PHONE: +251 92 627 7456

Name of advisors:

1. **Mr. HENOK (ASS'T PROFESSOR IN EPI. & BIO)**

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DECLARATION

I hereby declare that this MPH Thesis is my original work and has not been presented for a degree in any other university or college, and all sources of material used for this thesis have been duly acknowledged.

Name: _____

Signature: _____

Date: _____

ADVISORS APPROVAL SHEET

This is to certify that the research thesis entitled "Lifestyle modification practice and associated factors among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia" submitted in partial fulfillment of the requirements for the degree of Masters of public Health has been carried out by Melkamsew Ejigu (MD) under my supervision. I have thoroughly checked that she has considered and incorporated all comments. Therefore; I recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department for defense.

_____   _____   _____

Name of major advisor   Signature   Date

APPROVAL BY THE BOARD OF EXAMINATION

This thesis by Melkamsew Ejigu (MD) is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of masters in reproductive health.

Internal Examiner:

_____ _____ _____ _____
Name   Rank   Signature   Date

External Examiner:

_____ _____ _____ _____
Name   Rank   Signature   Date

Research Advisor/s:

_____ _____ _____ _____
Name   Rank   Signature   Date

_____ _____ _____ _____
Name   Rank   Signature   Date

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ABREVIATION/ACRONOMY

BP	BLOOD PRESSURE
CV	CARDIOVASCULAR
DASH	DIETARY APPROACHES TO STOP HYPERTENSION
HBP	HIGH BLOOD PRESSURE
HTN	HYPERTENSION
LMICs	LOW-AND MIDDLE-INCOME COUNTRIES
LSM	LIFE STYLE MODIFICATION
SD	STANDARD DEVIATION
NCDs	NON-COMMUNICABLE DISEASES
WHO	WORLD HEALTH ORGANIZATION

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ABSTRUCT

Introduction: Hypertension is an overwhelming global challenge. Appropriate lifestyle modifications are the cornerstone for the prevention and control of hypertension. In this regard, lacks of knowledge and poor attitude toward lifestyle modification have been a major setback. Therefore this study aims to assess the level of Lifestyle modification practice and associated factors among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia

Objective: To assess the level of Lifestyle modification practice and associated factors among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia

Methods: Institutional-based cross-sectional study was conducted among 492 hypertensive patients in Hawassa city public health facilities, from 10 June to 30 July 2025. The pre-tested structured questionnaire was used, and the data was collected through an interview. The data was analyzed using SPSS version 26. A multivariate logistic regression model was used to determine independent predictors of practice of lifestyle modifications among hypertensive patients. Adjusted odds ratio (AOR) at 95% confidence interval (CI) was used for predicting the independent effect of each variable on the outcome variables.

Result: The study revealed that 46.1% (95% CI: 41.9-52.1) of participants had good practice of life style modification. Factors such as good knowledge (AOR: 1.99, 95% CI: 1.32, 3.00), age (AOR =2.68, 95%CI: 1.16-6.19) and having a family history of hypertension (AOR=1.68; 95% CI: 1.08 2.61) were statistically significant in association with life style modification practice.

Conclusion and recommendation: This study showed there is poor level of practice on life style modification among of adult hypertensive patients. So, correct measures need to be taken from the time of diagnosis, especially at clinics where follow up takes place and the level of understanding by patients should be assessed.

Key words: Lifestyle modification, hypertension, knowledge, attitude, practice, Hawassa City

1. INTRODUCTION

1.1 BACKGROUND

In recent years, Non-Communicable Diseases (NCDs) are also one of the biggest threats to humanity by causing significant mortality and morbidity worldwide including Low-and Middle-Income Countries (LMICs). Among NCDs, Hypertension (HTN), High Blood Pressure (HBP), is common problems (1–3), which affects 1.13 billion people worldwide (2). Blood pressure (BP) is the force exerted by circulating blood against the walls of the body's arteries, the major blood vessels in the body. Hypertension is when blood pressure is too high (4), while the level of blood pressure is greater than 140/90mmHg in adults aged 18 years or more (5). It is commonly termed the silent killer (6).

It is one of the major but preventable risk factors for cardiovascular (CV) morbidity and mortality resulting from target-organ damage to blood vessels in the heart, brain, kidney, and eyes (7). The factors contributing to the hypertension are mainly environmental, genetic and behavioral factors such as smoking, high alcohol intake and high fat intake. These risk factors can be counteracted through lifestyle modification (LSM) (8,9). According to WHO, increment in prevalence of hypertension and other cardiovascular disease in developing countries has been associated with aging of the populations, urbanization and socioeconomic changes favoring sedentary habits (10).

Hypertension can be adequately managed through drug treatment as well as lifestyle changes. It is possible to prevent the development of hypertension and to lower blood pressure levels by simply adopting a healthy lifestyle (11). Life style modification is also the first line of anti-hypertension therapy (10,11).The recommended lifestyle measures that have been shown to be capable of reducing blood pressure include: weight reduction (particularly in those with abdominal obesity), reduced daily salt intake, regular physical activity, quitting smoking, healthy drinks(moderate consumption of coffee ,tea), moderation of alcohol intake, reducing stress and use of the Dietary Approaches to Stop Hypertension (DASH). DASH diet besides reduced sodium intake, includes regular consumption of fruits, vegetables and low fat dairy products rich with calcium and potassium (9, 11, 12).

Approximately 30% of adults in Addis Ababa have Hypertension above 140/90 mmHg or reported use of antihypertensive medication (11). Unawareness of lifestyle modifications, and failure to apply these were one of the identified patient-related barriers to blood pressure control (13,14). Appropriate lifestyle changes may safely and effectively delay or prevent Hypertension complications in hypertensive patients (10).

Therefore this study was aimed to assess the level of life style modifications practice and associated factors in adult hypertensive patients attending selected public hospitals in Hawassa City, Sidama, Ethiopia

1.2. STATEMENT OF PROBLEM

Hypertension is a significant health problem throughout the world with high morbidity and mortality rate (15). Globally the disease affects over one billion people, seven million of them die each year as a consequence of severe complications and lack of adequate control (16). The global prevalence of Hypertension has been increasing. By 2030, 23 million cardiovascular deaths are projected, with 85% occurring in low- and middle-income countries (16). Hypertension remains as one of the most critical public health challenges worldwide because of the associated morbidity, mortality, and the cost to society (15,16). Hypertension causes 7.1 million premature deaths each year worldwide and accounts for 13% of all deaths. Globally Hypertension is a severe warning sign (17).

Despite the availability of safe and effective anti-hypertensive medications and the existence of clear treatment guidelines, hypertension is still inadequately controlled in a large proportion of patient's worldwide (9).Unawareness of lifestyle modifications, and failure to apply it were one of the identified patient related barriers to blood pressure control (18).The implementation of LSM is often the overlooked part of hypertension management. Good lifestyle modification practices improve health status and reduce blood pressure, which prevents the effects of hypertension complications (10,11,19). A stage one hypertensive patient can do lifestyle modification practices for 6–12 months without cardiovascular complications or the use of medicine (20).About 70% of people with hypertension who simply get pharmaceutical treatment have uncontrollable blood pressure(21).

One problem for lack of LSM among hypertensive patient is lack of awareness and poor practice (14). For example, a study conducted in Ghana showed mean knowledge score on LSM of 2.5 (standard deviation (SD): 1.25) out of 517 whereas in Nigeria only 33 out of 104 (31.7%) had good knowledge (22). Similarly, the study participant displayed poor attitude and adherence toward LSM in both study (22). The few existing studies conducted in Ethiopia indicated inconsistent data. For instance, the level of good practice to LSM was found to be 23% in Addis Ababa whereas it was found to be 61.39% in Bishoftu (11,23). Lifestyle changes help the patient by lowering blood pressure, improving anti-hypertensive drug efficacy, and minimizing heart disease risk (14).

Various both modifiable and non-modifiable factors have been associated with poor implementation of LSM. Age, educational status, monthly income, years since diagnosis and co-morbidity were among factors significantly associated with LSM practice (10,12,21,23). It is important to identify modifiable factors and work toward improving it in order to adequately control hypertension and prevent its sequel (25).

In spite of emerging empirical evidence of the efficacy of lifestyle modification in blood pressure control, little is known about the practice of lifestyle modification and associated factors among hypertensive patients in Ethiopia, particularly to study area. Therefore; the study was aimed to assess the level of life style modifications practice and associated factors in adult hypertensive patients attending selected public hospitals in Hawassa City, Sidama, Ethiopia

1.3. SIGNIFICANCE OF THE STUDY

The findings will be useful to the governmental and non-governmental organizations working in lifestyle modification programs to design interventions to improve the practice of lifestyle modification in the study areas and other similar circumstances. This study will also provide valuable information for health policy-makers in designing or redesigning treatment guidelines and protocols. Also this study will lay the groundwork for future research in the area of hypertension management, particularly in low- and middle-income settings. The insights gained could inspire further studies on intervention efficacy, long-term outcomes of adherence, and the integration of lifestyle modifications into routine clinical practice. Finally the outcomes of the study results will be used in the future as a tool for further prevention and controlling programs aimed at overcome problems and improve community lifestyle practices and diet modifications.

2. LITERATURES REVIEW

2.1. GENERAL OVERVIEW OF HYPERTENSION

The global prevalence of hypertension has been steadily increasing, and in 2024, an estimated 1.3 billion people globally are living with the condition. This number has more than doubled since 1990, from 650 million to 1.3 billion (16). While the overall global prevalence is declining slightly, the number of people with hypertension continues to rise due to a combination of factors, including population growth and aging (16). Also globally, almost every 1 in 3 adults is hypertensive, with male prevalence slightly higher than females under 50 years age group. Beyond the age of 50, the prevalence reaches nearly 49%, or every 1 out of 2 individuals, with nearly equal prevalence among both men and women (26).

In 2024, the prevalence of hypertension in Sub-Saharan Africa (SSA) is estimated to be between 30.0% and 31.1%, affecting around 74.7 million individuals. This number is projected to increase to 125.5 million by 2025. In other words, a significant portion of the adult population in SSA is affected by hypertension (27,28).

In 2024, the prevalence of hypertension in Ethiopia is estimated to be around 20%. This is higher in urban areas (23.7%) compared to rural areas. Factors like age, sex, obesity, and lifestyle choices contribute to this higher prevalence. A meta-analysis of studies conducted in Ethiopia found a pooled prevalence of 20.63% (20). Additionally, a high percentage of hypertensive individuals in Ethiopia experience uncontrolled blood pressure, with one study estimating that 51% of hypertensive patients have uncontrolled hypertension (20). In 2024, Addis Ababa exhibited the highest prevalence of hypertension in Ethiopia, with 30.6%, followed by Southern Nations, Nationalities, and People's Region (SNNPR) at 25.8% and Amhara region at 19.7%. The lowest prevalence was reported in Tigray (11.0%) and Afar (9.2%) regions (29).

2.2. PRACTICE OF LIFE STYLE MODIFICATION

A Study conducted in India at selected Hospital of Kamrup Metro Assam to Assess the Knowledge, Attitude and Practice of Life Style Modification among Hypertensive Patient showed that 78.9%, study participants have good practice about lifestyle modification (30).

A cross sectional study conducted in Adiss Abeba city at Tikur Anbesa specialized hospital among hypertensive patients showed that (35%) of study participants have poor practice about lifestyle modification (14).

A study conducted in South Ethiopia among diagnosed hypertensive patients in selected hospitals about Lifestyle modification practice and associated factors revealed that only (27.3%) of the patients practiced recommended lifestyle modifications (32).

Another Cross-sectional Study conducted to Assess Knowledge and Practice of Life Style Modification among Hypertensive Patients at Nekemte Specialized Hospital, Western Oromia, Ethiopia showed that only 68.92% study participants have a good practice of lifestyle modifications. Also in this study Males have better practice than females (24).

A prospective cross sectional study conducted in Yekatit 12 General Hospital in the largest city of East Africa revealed that Regarding their practices, 38% of the respondents had good practices towards lifestyle modification (12).Similar study conducted in Harar, Eastern Ethiopia showed that (49.6%) of participants had good had good practice on lifestyle modification recommended for hypertension management(10).

Also another study conducted in Mizan Tepi University Teaching Hospital South west Ethiopia about Lifestyle modification practice and associated factors among diagnosed hypertensive patients showed that (33.3%) of patients practiced recommended life style modifications (19).

Study conducted among Hypertensive Patients Attending Public Hospitals in Hawassa City, Ethiopia in about Non-Medical Management of Hypertension and its associated Factors revealed that 62.3 % of participants had good practice of non-medical management of hypertension (31).

Study conducted in Bahir Dar City, Northwest Ethiopia to assess Level of Adherence to Recommended Lifestyle Modifications and Associated Factors Among Adult Hypertensive Patients Attending Chronic Follow-Up Units at Hypertension Sentinel Site Health Facilities showed that (64.4%) of the respondents were adherent to all lifestyle modification practices (33).

A study conducted in Dessie Referral Hospital, North East Ethiopia, showed that the overall adherence of life style modification in this study was only 23.6% (13).

Study conducted in Hawassa University comprehensive, specialized hospital, Southern-Ethiopia Factors Associated with Practices of Recommended Lifestyle Modification among Hypertensive Patient showed that only 37.8% of the patients practiced recommended lifestyle changes (18).

Study conducted in pastoral health facilities of southern Ethiopia about Behavioral and biomedical factors associated with lifestyle modification practices among diagnosed hypertensive patients showed that 56.1% of the patients practiced the recommended lifestyle modifications (34).

A study conducted in Bahir Dar City Hospitals, North West Ethiopia to Assess Adherence to Lifestyle Modification Practices and Its Associated Factors among Hypertensive Patients showed that the overall adherence to lifestyle modification practices was about 32.4% (21).

Similarly another study conducted at bishoftu general hospital, Oromia region, Ethiopia to assess Level of adherence to lifestyle modifications and associated factors among hypertensive patients attending outpatient department showed that the overall adherence in this study was only 26.9% (23).

Study conducted in governmental hospitals of Guji zone, Oromia, Ethiopia about Dietary adherence and associated factors among hypertensive patients showed that only 28.30% of participants were found to be adherent to the recommended diet (25).

A study conducted in Selected Hospitals in Central Gondar Zone Ethiopia to determine Lifestyle Modification Practice and Associated Factors among Diagnosed Hypertensive Patients showed that the overall prevalence of recommended lifestyle modification in hypertensive patients was 24.2% (9)

2.3. FACTORS ASSOCIATED TO LIFE STYLE MODIFICATION

A Study conducted in India at selected Hospital of Kamrup Metro Assam to Assess the Knowledge, Attitude and Practice of Life Style Modification among Hypertensive Patient showed that independent variables higher level Education, occupation and monthly income of hypertensive patient were significantly associated with knowledge and attitude. Also study shows Education of hypertensive patients were significantly associated with practice (30).

A cross-sectional study done among Hypertensive Patients in Ghana showed that Educational status, marital status, employment status and average monthly income Predictors were significantly associated with good knowledge of lifestyle modification. Also god Knowledge level was significantly associated with positive attitude towards lifestyle modification (22).

A study conducted in South Ethiopia among diagnosed hypertensive patients in selected hospitals about Lifestyle modification practice and associated factors revealed that age, educational status, monthly income, years since diagnosis, and co-morbidity were factors significantly associated with lifestyle modification practice (32).

A prospective cross sectional study conducted in Yekatit 12 General Hospital in the largest city of East Africa revealed that their monthly income and duration on-treatment follow up since diagnosed with hyper tension were independently associated with knowledge. Also this study showed that concerning their damned practices, age and knowledge were independently associated with the practices (12).

Similar study conducted in Harar, Eastern Ethiopia showed that Regarding factors associated with lifestyle modification, being in age range of 46–64 years; having formal education; being government employee and being housewives were factors significantly associated with good knowledge of lifestyle modification, however, favorable attitude was found to be the only factor associated with good practice of lifestyle modification (10).

Also another study conducted in Mizan Tepi University Teaching Hospital South west Ethiopia about Lifestyle modification practice and associated factors among diagnosed hypertensive patients showed that Age greater than 65 years old, having no source of information, duration of diagnosis of hypertensions, having no formal educations, poor knowledge and negative attitudes were independent predictors on poor practice of lifestyle modifications (19).

Study conducted in Bahir Dar City, Northwest Ethiopia to assess Level of Adherence to Recommended Lifestyle Modifications and Associated Factors Among Adult Hypertensive Patients Attending Chronic Follow-Up Units at Hypertension Sentinel Site Health Facilities showed that Participants with good knowledge about lifestyle modification, good self-efficacy, good adherence to antihypertensive medication, primary education , underweight, and overweight/ obese were factors associated with adherence to lifestyle modification (33).

A study conducted in Dessie Referral Hospital, North East Ethiopia, showed that divorced and widowed, secondary school education, no regular income or monthly income of ≥3000 ETB, having co-morbidities, good knowledge about the disease and good self- efficacy were independent variables significantly associated with adherence to lifestyle modification practice (13).

Study conducted in Hawassa University comprehensive, specialized hospital, Southern-Ethiopia Factors Associated with Practices of Recommended Lifestyle Modification among Hypertensive Patient showed that the duration since the diagnosis of hypertension, home blood pressure check-up, hypertension controlling status and counseling were significantly associated with practice of lifestyle modification. Besides self-efficacy, appointment follows up status (and knowledge on hypertension and related consequences also were significantly associated with the practice of lifestyle change (18).

A study conducted in Bahir Dar City Hospitals, North West Ethiopia to Assess Adherence to Lifestyle Modification Practices and Its Associated Factors among Hypertensive Patients showed that above secondary educational status, good knowledge, good self-efficacy, good social support, and good patient–physician relationship were statistically significant predictors of adherence to lifestyle modification practices (21).

Similarly another study conducted at bishoftu general hospital, Oromia region, Ethiopia to assess Level of adherence to lifestyle modifications and associated factors among hypertensive patients attending outpatient department showed that patients Age older than 55 years, formal education, the patients who had hypertension with 5 to 10 years diagnosis time, co-morbidity and good knowledge about healthy lifestyle have an independently associated with adherence to lifestyle modifications (23).

Study conducted in governmental hospitals of Guji zone, Oromia, Ethiopia about Dietary adherence and associated factors among hypertensive patients showed that participation in nutritional

education, level of knowledge, respondents' ages, and length of time since hypertension diagnosis showed a strong association with adherence to recommended dietary guidelines (25).

A study conducted in Selected Hospitals in Central Gondar Zone Ethiopia to determine Lifestyle Modification Practice and Associated Factors among Diagnosed Hypertensive Patients showed that Age ⩾65 years, no formal education, diagnosis time is 5 to 10 years; co morbidities and rich wealth index are is significantly associated with good lifestyle modification practices (9).

2.6. CONCEPTUAL FRAM WORK

Sociodemographic and economic factors

-Age, Sex,

-residency,

-marital status, Educational status,

-Religion, Occupation, monthly Income

Knowledge about LSM

Practice about LSM

Attitude about LSM

Health profile related, individual and source of information related factors
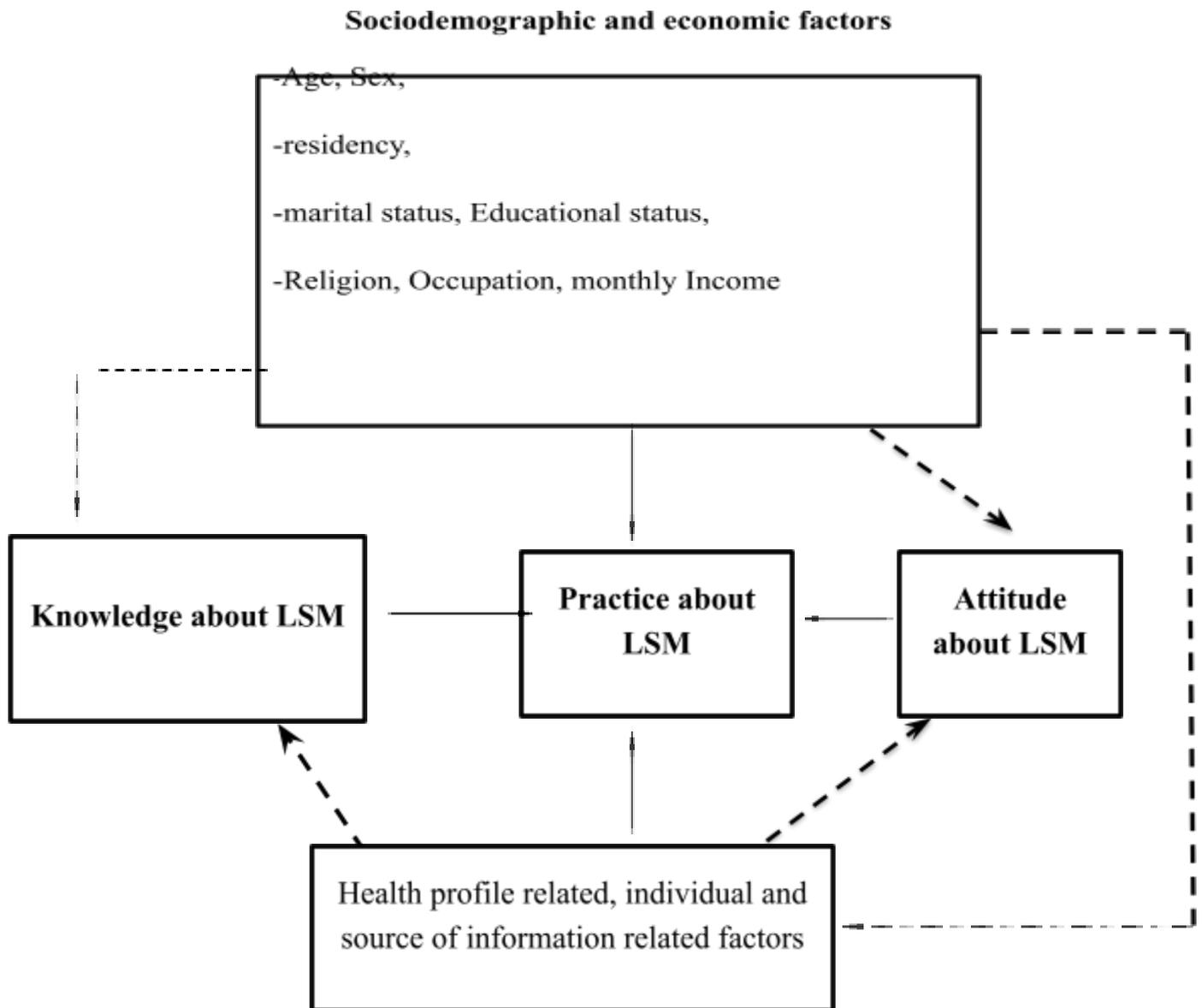
Figure 1.Conceptual framework for practice of lifestyle modification recommended for hypertension management (Source: By reviewing different similar literatures (10, 14, 22, 24, 33)

3. OBJECTIVES

3.1. GENERAL OBJECTIVE

☐ To assess the level of Practice Regarding Life Style Modification Among Hypertensive Patients Attending in Hawassa city public health facilities in Sidama Region, Ethiopia 2025

3.2. SPECIFIC OBJECTIVES

☐ To determine the level of practice regarding life style modification among hypertensive patients attending in Hawassa city public health facilities

☐ To identify factors associated with life style modification practice among Hypertensive Patients Attending in Hawassa city public health facilities

4. METHODS AND MATERIALS

4.1. STUDY AREA

The study was conducted in Hawassa city. It is capital city of Sidama region which located 273 km far from Addis Ababa. It has 8 sub-cities and 32 kebeles (20 urban, 12 rural). According to the projections of the central statistics authority of Ethiopia, population of Hawassa city is estimated to be 436,992 in 2016 E.C (35) of whom 51.4% were male and 48.6% female. In the city, there are five public hospitals, eleven health centers, seventeen health posts, four private primary hospitals, fifty one private clinics. The five public hospitals in the Hawassa city include Hawassa University Comprehensive Specialized Hospital, Adare General Hospital, Tula Primary Hospital, Alamura primary hospital and Motite Fura Primary Hospital. All these facilities provide preventive, curative and rehabilitative services to communities in city administration and nearby populations according to their level.

4.2 STUDY DESIGN AND PERIOD

Institutional-based cross-sectional study was conducted to assess the level of practice toward LSM recommended for hypertension management among adult hypertensive patients in Hawassa public health facilities from June 10 to July 30/2025

4.3 SOURCE POPULATION

All adult hypertensive patients who was on follow-up visit in chronic care unit of Hawassa public health facilities will be source population

4.4 STUDY POPULATION

Randomly selected adult hypertensive patients visiting the chronic care unit during the study period was study population.

4.5 INCLUSION AND EXCLUSION CRITERIA

- **Inclusion**: All adult hypertensive patients who had follow-up visit in chronic care unit of selected health facilities in the study period were included.
- **Exclusion:** adult hypertensive patients who were newly diagnosed (less than 6 month) were excluded from the study and pregnant mother was excluded. Hypertensive patients who have mental problem and Hypertensive patients who are severely ill also was excluded from the study

4.6 SAMPLE SIZE DETERMINATION

Sample size was calculated by using single population proportion formula considering the following assumptions to get the largest sample size, Z = the 95% confidence normal distribution value is $Z \alpha / 2 = 1.96$, and the error (d) = 5% and the alpha value is 0.05. The estimated proportion was taken from a study conducted in Public Hospitals in Hawassa City, Ethiopia, Non-Medical Management of Hypertension and Its associated Factors among 2 Hypertensive Patients Attending Public Hospitals was 62.35 % (31), the sample size was calculated and 10% possible non-response rate was added.

Therefore, by using the formula,

$$n0 = \frac{Z^2 P (1-P)}{d^2}$$

n= total Sample size required

Z = confidence interval of 95 % (1.96)

P =proportion

d= Margin of error 5 % (0.05)

Where:-n=sample size required

n_o= sample obtained from single population formula

$$no = \frac{[1.96]^2 * 0.623(1-0.623)}{(0.05)^2} = 361$$

The final sample size after adding 10% non- response rate =397

Sample size determination for the second objective calculated by using statistical Epi Info 7 computer software. Using determinants of life style modification from different study's findings respectably.

Table 1: sample size calculation for second objective

S. N	Variable Name	Power	CI	Ratio	Exposed	Non-Exposed	Sample size	When 10% of non –response	Ref
1.	Family hx of HTN	80	95	1	45.3 %	32.5 %	470	517	(31)
2.	Educational status	80	95	1	40 %	18.3%	154	169	(25)
3.	Knowledge of HTN	80	95	1	53.6 %	93.8 %	48	53	(25)

Sample size for the second specific objective is calculated by online Open Epi software with assumptions of CI 95%, power 80%, of unexposed and variables with smallest adjusted odds ratio and largest sample size for second objective was 517. So, maximum sample size is high for second objective which is 517.

Therefore the sample size for this study was 517.

4.7 SAMPLING TECHNIQUE AND PROCEDURES

First randomly select three public health facilities by using simple random sampling technique. Then the final sample size was proportionally allocated to each randomly selected public health facilities. Finally to select study participants from the study population I was used all consecutive adult hypertensive patients visiting chronic care unit of selected public health facilities during the study period and who fulfill the inclusion criteria was included for the purpose of the study.
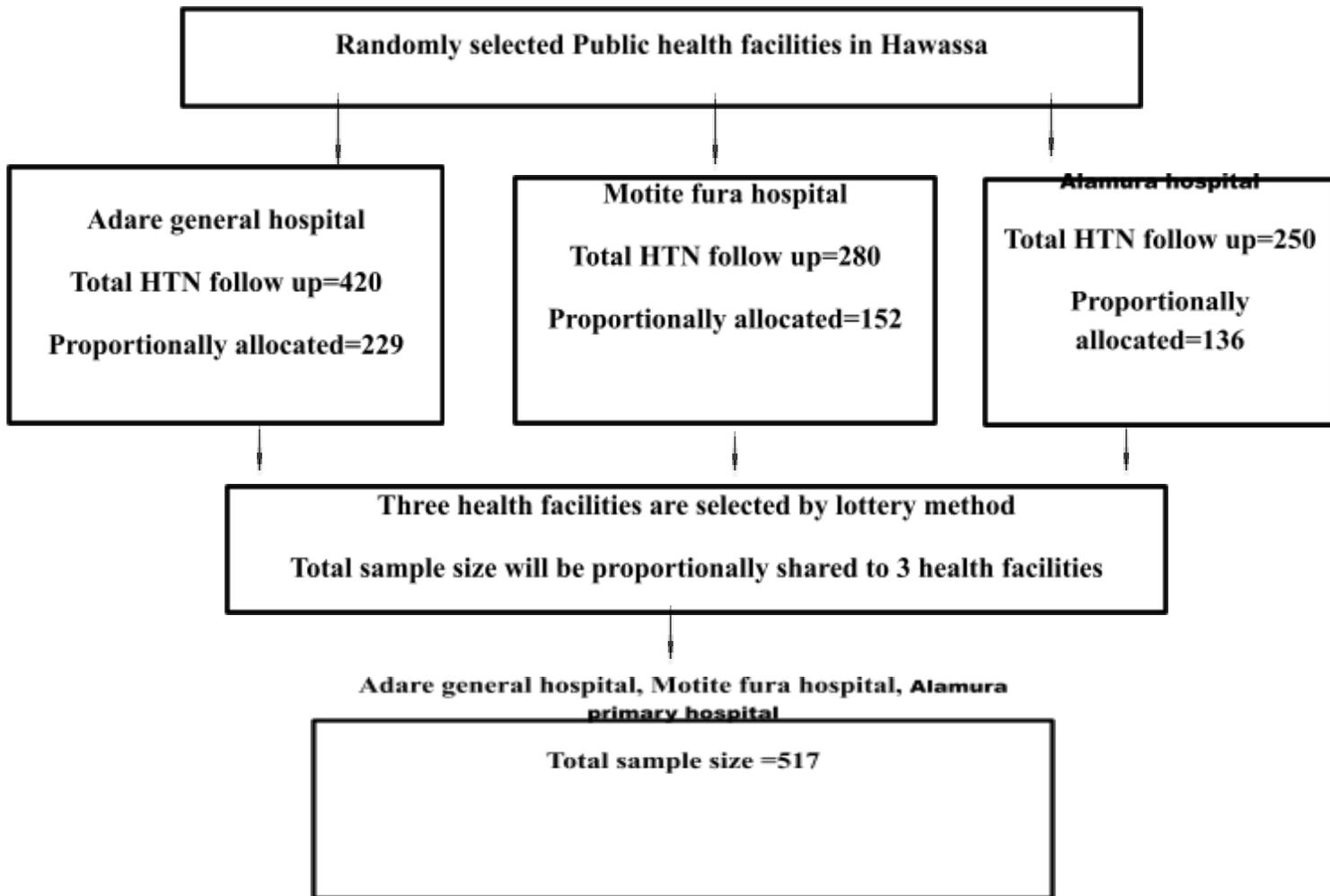
Figure 2.Schematic presentation of sampling procedures

4.8 DATA COLLECTION TOOL

Data was collected through face-to-face interview using a pre tested structured questionnaire. The questionnaire was adapted from similar studies and other related documents investigating level LSM Practice recommended for hypertension management (9, 10, 18, 25, 29, 31). It contains all necessary variables regarding socio-demographics characteristics, Health profile related, individual and source of information related factors among hypertensive patients, KAP of LSM of the respondents.

4.9. DATA COLLECTION PROCEDURES

Data was collected using a pretested, structured and interviewer guided questionnaire adopted from related studies. The questionnaire was prepared in English and it was translated in to Amharic & sidamic language. During data collection kobo tool box mobile application was used. structured and interviewer guided questionnaire containing47 items with 5 sections covering the Sociodemographic characteristics of patients (9 question), Health profile related, individual and source of information related factors among hypertensive patients (10 question), patients" knowledge on hypertension(10 question), attitudes(9 question) and practice regarding life style modification(9 question) was used for data collection. Patients were invited to participate in the data collection while they were waiting for turn at follow up clinic. The principal investigator was contacted with each patient who arrived to clarify the importance of the research for them. According to clinic schedule, data was collected from Monday to Friday until sample size is fulfilled. Data was collected by two BSc nurses who was training on the subject matter and experience in data collection.

4.10 VARIABLES OF THE STUDY

4.10.1 DEPENDENT VARIABLE

- Practice

4.10.2 INDEPENDENT VARIABLES

- Socio demographic characteristics of patients
- Health profile related, individual and source of information related factors
- Knowledge and attitude

4.11 OPERATIONAL DEFINITIONS

Knowledge - In order to measure the level of knowledge toward LSM recommended for hypertension management among hypertensive patient, I was used 10 multiple-choice questions. If respondents get the right answer, it will be coded as Yes "1" if not it was coded as No "0." The respondent's knowledge scores were aggregated and ranged 0–10. Based on the cumulated score, respondents, who scored mean and above, was considered to have "Good knowledge"; while those who score below mean was considered as having "Poor knowledge" toward LSM to manage hypertension (10).

Attitude-To determine the level of attitude, a set of nine statements pertaining to LSM recommended for hypertension management among hypertensive patients was included in the questionnaire, and respondents was asked to record whether they agreed strongly, agreed slightly, had no opinion about the statement under consideration, disagree slightly, and disagree strongly (a five-Point Likert-type scale). Based on the cumulated score, respondents, who scored median value and above, was considered to have "favorable attitude"; while those who score below median was considered as having "unfavorable attitude" toward LSM (10).

Practice-In order to determine the extent of practice of LSM recommended for hypertension management among hypertensive patient, I was used a set of nine multiple-choice questions. If respondents practiced correctly each question, it was coded as Yes "1" if not it was coded as No "0." The respondent's practice scores were aggregated and ranged 0–9. Based on the cumulated score, respondents, who scored mean and above, was considered to have "Good practice"; while those who score below mean was considered as having "Poor practice" toward LSM to manage hypertension (10).

4.12 DATA QUALITY CONTROL

The quality of data was assured by pre-testing the questionnaire, training of the data collectors and supervising the data collection process. Well-designed questionnaire of English version was prepared by the investigators and translated in to local languages (Amharic) and (Sidamic). The instrument was pre-tested before the study period on 5% of the sample patients in unselected public health facilities which is located in Hawassa City, and amendments was made accordingly. The data collectors were given 1 day training concerning interviewing technique and appropriate data recording. Close supervision was made by investigators during the data collection through observation and review of the questionnaires filled and giving feedback to the data collectors.

4.13 DATA PROCESSING AND ANALYSIS

Data was entered by using Epi data software, and then it was cleaned and analyzed by using SPSS Version 26 for windows. Appropriate descriptive statistics such as mean (with SD), median (with interquartile range (IQR)) and frequencies (with percentages) was used to describe the study population in relation to relevant variables. Bivariate and multivariate analysis with 95% confidence interval (CI) was employed to infer associations between the independent and dependent variables. Binary logistic regression was used to calculate the crude odds ratio (COR) with 95% CI. Each variable was entered into a logistic regression model so as to determine the presence of statistical significant association with the outcome variable. Multicollinearity among selected independent variables was checked through variance inflation factor (VIF), and none was found. All the explanatory variables with a P-value < 0.25 in the bivariate analyses were included in the final multivariable logistic model in order to identify the independent predictors for the level of practice of LSM. Tables, figures, charts, and texts were used for data presentation.

4.14 ETHICAL CONSIDERATIONS

Ethical clearance was obtained from Pharma College. Permission letter was obtained from Sidama region public health institute and Hawassa city administration health department. The purpose and objective of the study was explained to the respondents. Then, written consent was taken from each participant after clearly explaining the purpose of the study. The respondents were informed to withdraw from the study at any time of data collection and/or to refrain from responding to questions if they were not interested to participate by any reason.

5. RESULT

5.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

A total of 492 respondents out of the planned 517 were included in this study; making the response rate 95 percent. Among these 52.4 % were males and the mean age was 43.9(±12). Majority came from urban (86.6 %) and married (85.8 %); half of the patients have an income of greater than 3000 ETB (51.4 %). Regarding the educational status, 26% (128) were diploma and above (fig 3) (Table 2)

Table 2 Socio-Demographic Characteristics among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025 (n=492)

Variable	Category	Frequency	Percent %
Age	18-29	75	15.2
	30-39	127	25.8
	40-49	125	25.4
	50-59	124	25.2
	>60	41	8.3
Sex	Male	258	52.4
	Female	234	47.6
Residentially	Urban	426	86.6
	Rural	66	13.4
Marital status	single	38	7.7
	married	422	85.8
	widowed	18	3.7
	divorced	14	2.8

Occupation	Government employer	148	30.1
	Private organization	105	21.3
	Merchant	99	20.1
	House Wife	82	16.7
	Others	58	11.8
Average monthly income	<1000	3	0.6
	1000-1999	106	21.5
	2000-2999	130	26.4
	>3000	253	51.4
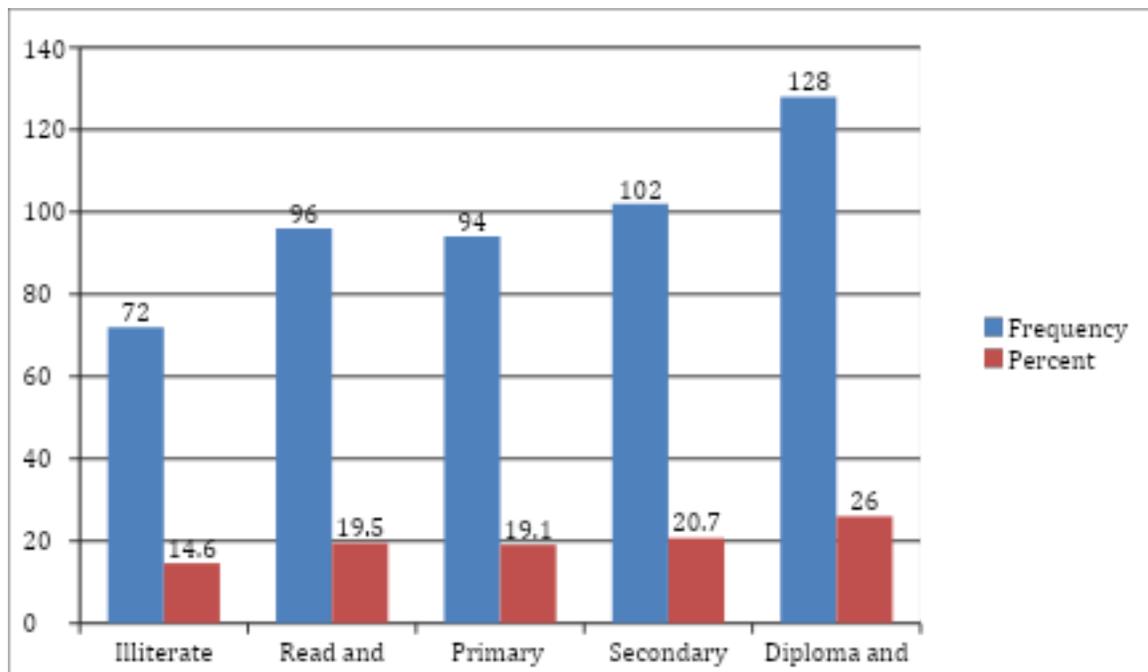
Figure 3.Educational status of adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

5.2. HEALTH PROFILE AND INDIVIDUAL RELATED FACTORS AMONG THE PARTICIPANTS

Study participant who were in treatment for greater than 4 years 306 (62.2 %) and who had a family history of hypertension 346 (74.0 %). From respondents 449 (91.3 %) hear information about lifestyles modification (Table 3).The main source of information was Health professionals 315(64.0 %). The commonest co-morbidity among hypertensive patients in the study were diabetes mellitus (15.9 %) conditions followed by cardiovascular co-morbidity (8.1 %). (Figure 4)

Table 3 Health profile related and individual related factors among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025 (n=492)

Variable	Category	Frequency	Percent %
Duration since diagnosis	<2 years	81	16.5
	2-4 years	105	21.3
	>4 years	306	62.2
Family history of Hypertension	Yes	346	74.0
	No	128	26.0
Hear information about lifestyles	Yes	449	91.3
	No	43	8.7
Source of information	Health professionals	315	64.0
	Different medias	57	11.6
	Family and friends	75	14.8
	No	2	0.4
Co-morbidity	Yes	220	44.7
	No	272	55.3
Blood Pressure Status	Controlled	224	45.5
	Uncontrolled	268	54.5
Patient-provider relationship	Good	354	72.0
	Not good	138	28.0
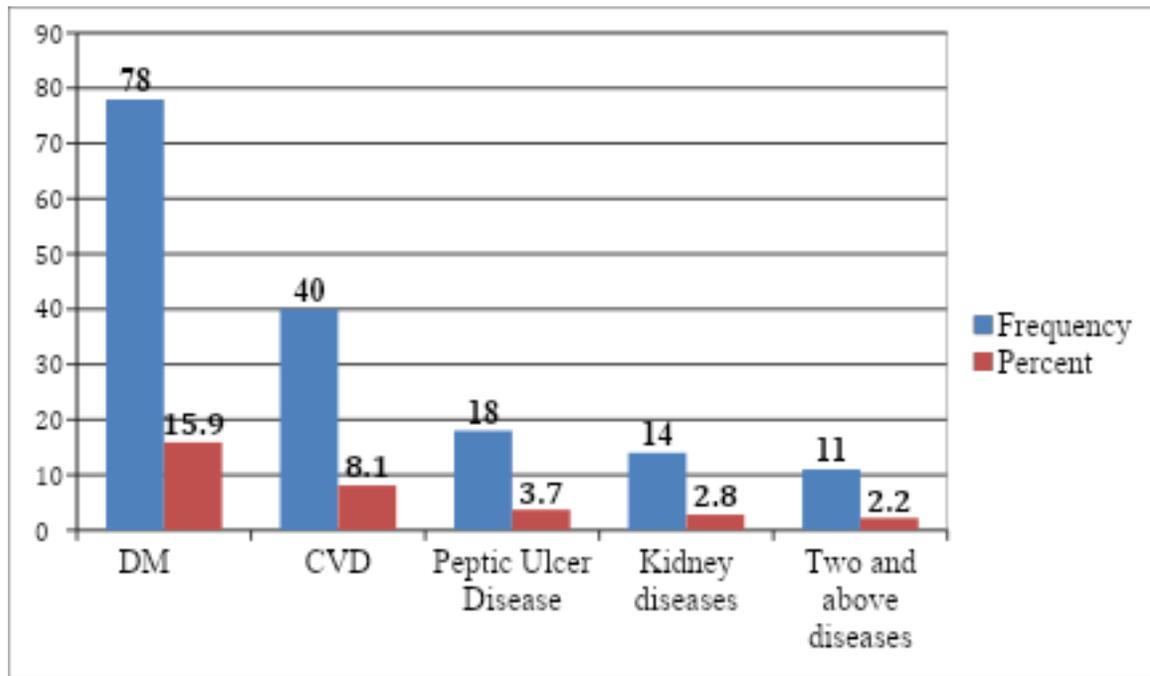
Figure 4.Type of Co morbidity among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

5.3. KNOWLEDGE OF HYPERTENSIVE PATIENTS TOWARDS LIFE STYLE MODIFICATION

Out of the 492 respondents 206(41.9 %) have poor knowledge and the remaining 286(58.1 %) have good knowledge (fig.5). About two-third 64.8 % of the participants know about salt reduction. But only 65.2 % patients know about benefit of diet helps to control blood pressure, 64.6 % knows the importance of regular physical activity in controlling BP (See Table 4). More than one-third (35.4%) of the participants had positive attitude. (fig 6)

Table 4 knowledge life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025 (n=492)

Variable	Category	Frequency	Percent %
Aware of LSM to manage hypertension	yes	325	66.1
	no	167	33.9
Can mention at least one LSM to manage hypertension	yes	317	64.4
	no	175	35.6
Knows the importance of maintaining normal body weight to controlling BP	yes	324	65.9
	no	168	34.1
Knows the importance of diet in controlling BP	yes	321	65.2
	no	171	34.8
Know the importance of reducing salt intake in controlling BP	yes	319	64.8
	no	173	35.2
Know the importance of regular physical activity in controlling BP	yes	318	64.6
	no	174	35.4
Know the effect of drinking alcohol on controlling BP	yes	328	66.7
	no	164	33.3
Know the effect of cigarette smoking on controlling BP	Yes	326	66.3
	no	166	33.7
Know the effect of chewing Khat on controlling BP	yes	324	65.9
	no	168	34.1

Figure 5 over all knowledge of life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

5.4. ATTITUDE OF RESPONDENTS TOWARDS LIFE STYLE MODIFICATION

Over all attitude of respondents

35.4

64.6

■ negative attitude
■ positive attitude

Figure 6 over all attitude of life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

5.5. PRACTICE OF LIFESTYLE MEASURES BY HYPERTENSIVE PATIENTS

Out of the 492 participants 265(53.9 %) have poor practice and the remaining 227(46.1 %) (95% CI: 41.9, 52.1); have good practice (fig.7). About 185 (37.6%) of the regularly consume salt free or low salt diet. About 184 (37.7 %) of participants Check weight regularly, 38.4 % took healthy diet, and 37.6 % are doing regular exercise. (See Table 5)

Table 5 practice of life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

Variable	Category	Frequency	Percent %
Check weight regularly	yes	184	37.4
	no	308	62.6
Regularly plan to include diet rich in fruits, vegetables and low-fat dairy products in meal program	yes	189	38.4
	no	303	61.6
Regularly eat diet rich with high cholesterol	yes	181	36.8
	no	311	63.2
Regularly consume salt free or low salt diet	yes	185	37.6
	no	307	62.4
Regularly drink alcohol	yes	179	36.4
	no	313	63.6
Conduct physical activity regularly (at least 30 min/day, most days of the week	yes	185	37.6
	no	308	62.4
Smoke cigarette	yes	185	37.6
	no	307	62.4

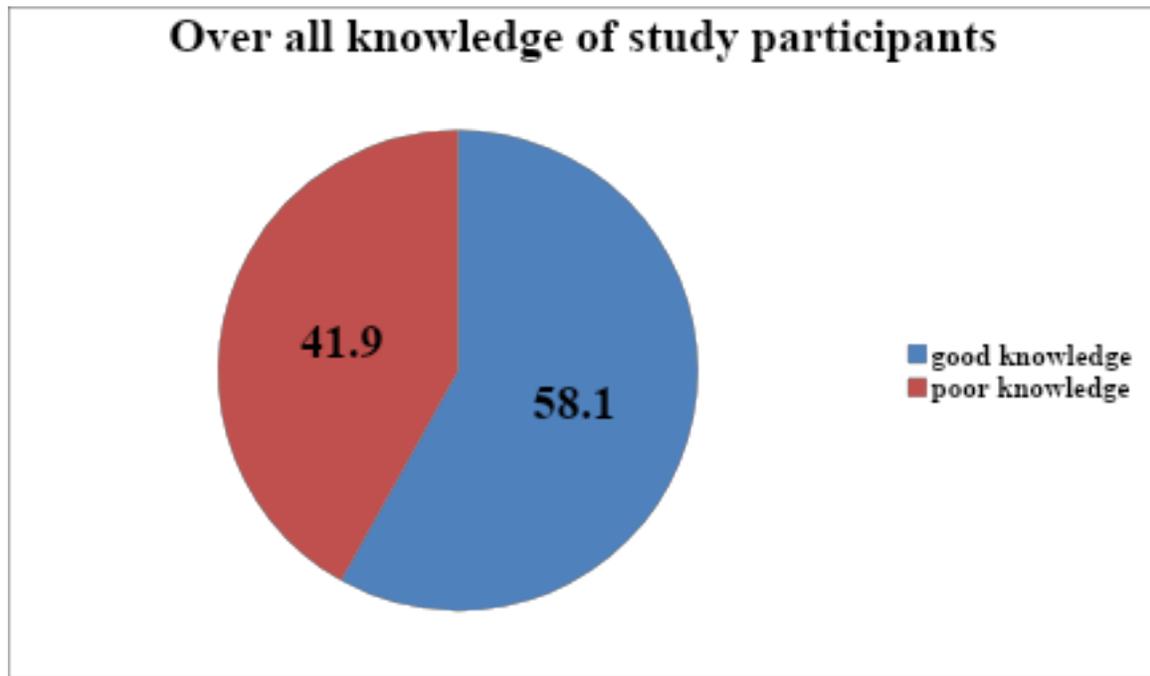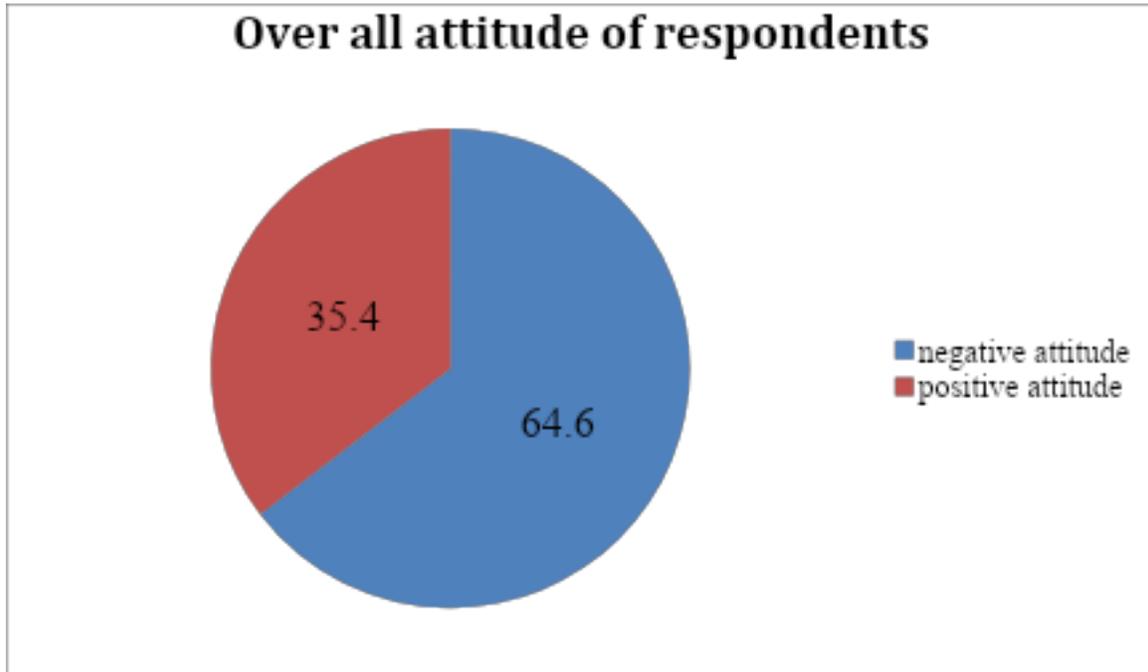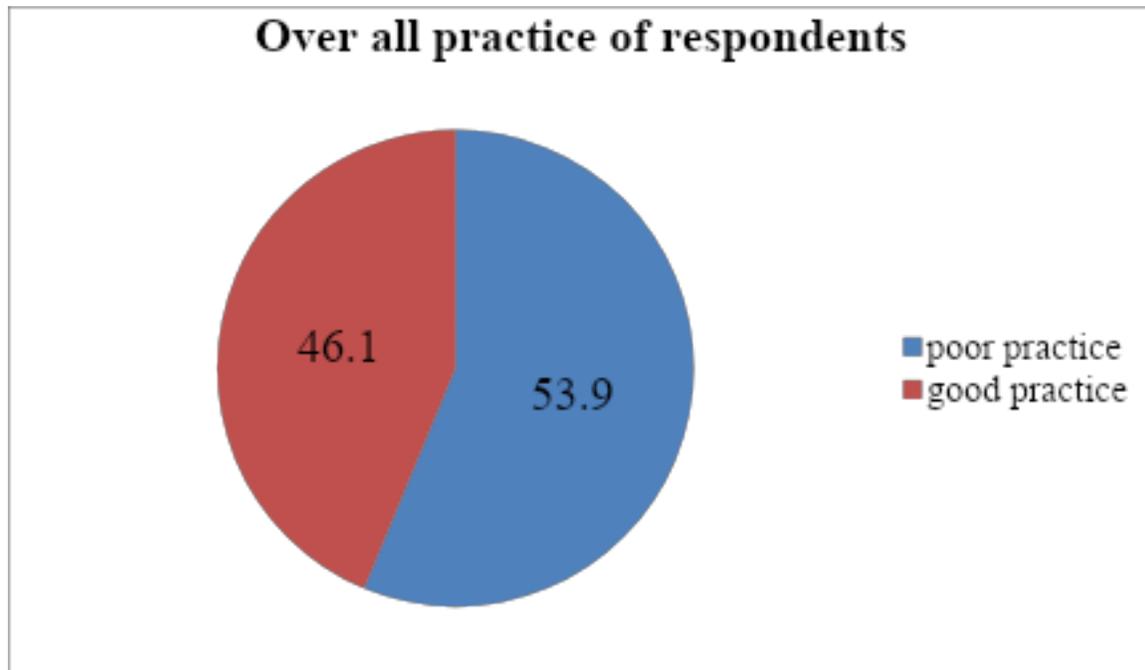Figure 7 over all practice of life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

5.6. FACTORS ASSOCIATED WITH PRACTICE OF LIFE STYLE MODIFICATION

From a total of 16 variables, ten variables in Bivariable logistic regression with p < 0.25 were candidates for multivariable logistic regression; these variables were Sex, Age, educational level, occupation, comorbidity, blood pressure status, Patient-provider relationship, Hear information about lifestyles, Family history of Hypertension and knowledge. (See Table 6)

Table 6 Bivariable logistic regression factors associated with practice toward LSM among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

Independent variables		practice toward LSM		COR (95% CI)	P value
		Good	Poor		
Age	18-29	46(17.4%)	29(12.8%)	1	
	30-39	67(25.3%)	60(26.4%)	1.42(0.79,2.53)	0.23*
	40-49	66(24.9%)	59(26.0%)	1.41(0.79,2.52)	0.24*
	50-59	69(26.0%)	55(24.2%)	1.26(0.70,2.26)	0.43
	>60	17(6.4%)	24(10.6%)	2.23(1.03,4.86)	0.04*
Educational level	Illiterate	41(15.5%)	31(13.7%)	1	
	Read and write	46(17.4%)	50(22.0%)	1.21(0.67,2.19)	0.5
	Primary	46(17.4%)	48(21.1%)	1.75(1.02,2.99)	0.04*
	Secondary	53(20.0%)	49(21.6%)	1.68(0.98,2.88)	0.05*
	Diploma and above	79(29.8%)	49(21.6%)	1.49(0.88,2.52	0.13*
Occupation	Government employer	90(34.0%)	58(25.6%)	1	
	Private organization	54(20.4%)	55(22.5%)	1.46(0.88,2.42)	0.13*
	Merchant	51(19.2%)	48(21.1%)	1.46(0.87,2.44)	0.14*
	House Wife	48(18.1%)	34(15.0%)	1.09(0.63,1.90)	0.73
	Others	22(8.3%)	36(15.9%)	2.53(1.36,4.74)	0.00*
Co-morbidity	Yes	112(42.3%)	108(47.6%)	1.24(0.86,1.77)	0.23*
	No	153(57.7%)	119(52.4%)	1	

Blood Pressure Status	controlled	111(41.9%)	113(49.8%)	1.37(0.96,1.96)	0.08*
	uncontrolled	154(58.1%)	114(50.2%)	1	
Patient-provider relationship	good	180(67.9%)	174(76.7%)	1.55(1.03,2.31)	0.03*
	not good	85(32.1%)	53(23.3%)	1	
Hear information about lifestyles	Yes	238(89.8%)	211(93.0%)	1.49(0.78,2.85)	0.22*
	no	27(10.2%)	16(7.0%)	1	
Family history of Hypertension	yes	202(76.2%)	162(71.4%)	1.28(0.85,1.92)	0.2*
	no	63(23.8%)	65(28.6%)	1	
Knowledge	Good	164(61.9%)	122(53.7%)	1.39(0.97,2.00)	0.06*
	Poor	101(38.1%)	105(46.3%)	1	

1: reference category*=p-value <0.25, CI = Confidence Interval, COR = Crude Odds Ratio

Variables associated with practice of life style modification (p<0.25) in the Bivariable analysis were entered in to multiple logistic regression.

In multi-variable logistic regression only 3 variables were significantly associated with practice of lifestyle modification at p <0.05 these variables were age, family history of hypertension and knowledge; which were significantly associated with practice of lifestyle modification.

Patients aged greater than 60 years were approximately three times more likely to have good lifestyle modification practice (AOR =2.68, 95%CI: 1.16-6.19) than patients with below age 60 years.

The study also showed that; hypertensive who had good knowledge were 2 times more likely to practice recommended lifestyle modifications than who had poor knowledge (AOR: 1.99, 95% CI: 1.32, 3.00).

Also having a family history of hypertension (AOR=1.68; 95% CI: 1.08 2.61) were statistically significant with life style modification practice. (See Table 7)

Independent variables		practice toward LSM		AOR (95% CI)	P value
		Good	Poor		
Age	18-29	46(17.4%)	29(12.8%)	1	
	30-39	67(25.3%)	60(26.4%)	1.83(0.98,3.41)	0.05
	40-49	66(24.9%)	59(26.0%)	1.86(0.99,3.49)	0.05
	50-59	69(26.0%)	55(24.2%)	1.78(0.95,3.33)	0.07
	>60	17(6.4%)	24(10.6%)	2.68(1.16,6.19)	0.02*
Educational level	Illiterate	41(15.5%)	31(13.7%)	1	
	Read and write	46(17.4%)	50(22.0%)	1.39(0.54,3.57)	0.48
	Primary	46(17.4%)	48(21.1%)	1.85(0.74,4.65)	0.18
	Secondary	53(20.0%)	49(21.6%)	1.67(0.66,4.23)	0.27
	Diploma and above	79(29.8%)	49(21.6%)	1.37(0.53,3.51)	0.58
Occupation	Government employer	90(34.0%)	58(25.6%)	1	
	Private organization	54(20.4%)	55(22.5%)	1.17(0.47,2.89)	0.73
	Merchant	51(19.2%)	48(21.1%)	1.07(0.43,2.65)	0.87
	House Wife	48(18.1%)	34(15.0%)	0.75(0.63,1.90)	0.56
	Others	22(8.3%)	36(15.9%)	2.53(0.28,1.97)	0.14
Co-morbidity	Yes	112(42.3%)	108(47.6%)	1.39(0.94,2.06)	0.09
	No	153(57.7%)	119(52.4%)	1	
Blood Pressure Status	controlled	111(41.9%)	113(49.8%)	1.31(0.87,1.98)	0.19
	uncontrolled	154(58.1%)	114(50.2%)	1	
Patient-provider relationship	good	180(67.9%)	174(76.7%)	1.40(0.88,2.23)	0.15
	not good	85(32.1%)	53(23.3%)	1	
Hear information about lifestyles	Yes	238(89.8%)	211(93.0%)	1.54(0.76,3.12)	0.22
	no	27(10.2%)	16(7.0%)	1	
Family history of Hypertension	yes	202(76.2%)	162(71.4%)	1.68(1.08,2.61)	0.02*
	no	63(23.8%)	65(28.6%)	1	

| Knowledge | Good | 164(61.9%) | 122(53.7%) | 1.99(1.32,3.00) | 0.00* |
| | Poor | 101(38.1%) | 105(46.3%) | 1 | |

Table 7 Multivariate logistic regression factors associated with practice toward LSM among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

1: reference category*=p-value <0.05, CI = Confidence Interval, AOR = Adjusted Odds Ratio

6. DISCUSSION

In this study, the prevalence of good practices towards lifestyle modification among the study participants was found to be 46.1 %. This finding is higher than the study conducted in Addis Ababa, the level of good practice to recommended LSM was found to be 23% (11), in West Aresi zone, Oromia 25.2% (9), in Mizan Tepi 33.3% (19) , a study in Durame, southern Ethiopia was 27.3% (13), in central Gondar zone, the overall prevalence of recommended lifestyle modification was 24.2% (14), in Dessie, northeast Ethiopia, adherence to lifestyle modifications was 23.6% (15), at Bishoftu General Hospital, of the respondents had good practices was 38% (16). The variation between those previous findings and the current study might be due to the differences in the socio-economic status of the patients and the availability of the health service providers within the reach of the patients. Also the difference in the study finding could be due to difference in study setting, residence and educational status. Unlike our study, some studies were community based, some conducted on rural dwellers and the other was conducted on patients which in majority had no formal education.

This finding lower than the study conducted in Nekemte, 68.92 % of the respondent had a good practice (7).Out of the total participants, 87% of respondents measured their blood pressure regularly compared to 38% of the subjects did not measure their blood pressure regularly and 58.3% did physical exercise compared to 88% of the study participants did not carry out any form of physical activity (18). The difference in the study finding could be due to difference in study setting, residence and educational status.

This study revealed that respondents with a good knowledge level towards life style modification were approximately two times more likely to practice these strategies compared to those with poor knowledge in this area. This finding indicates that hypertensive patients who possessed a better

understanding of LSM /non-medical management elements were more likely to put these practices into action.

This result is comparable with the study conducted in Ghana, Nigeria (19) and in Dares Salaam, 269 where people who had knowledge of HTN, only 63 (29.6%) had knowledge of the risk factors for HTN (20).

The current study identified that, age greater or equals to 60 years old were approximately 3 times more likely to practice recommended lifestyle modifications than those who had age less than 60 years old .This finding is in line with studies from Durame, Ethiopia (22), China (27) and Nigeria

(20). The possible explanations for this are; older may have more access for information, they have good things to accept physician's advice to do the recommended life style modification practice.

On the other hand, respondents with a family history of hypertension were approximately two times more likely to practice life style modification when compared to those without a family history of hypertension. This implies that having a family history of hypertension increases the likelihood practices of lifestyle modification among hypertensive patients. However, this finding is not comparable to some previous studies, possibly due to differences in the study design, sample size, study time, nature of participants and environmental factors. This suggests that having a family history of hypertension increases the likelihood of adopting life style modification practices among hypertensive patients. However, this finding is not directly comparable to some previous studies, possibly due to differences in study design, sample size, study setting, study time, nature of study participants, and environmental factors.

7. CONCLUSION AND RECOMMENDATION

7.1. CONCLUSION

This study aimed to assess the practice of life style modification practice and its associated factors among hypertensive patients. The findings revealed that 46.1 % of the study participants exhibited good practice in life style modification. Factors such as age of respondents, good knowledge level and having a family history of hypertension showed statistically significant associations with the practice of life style modification.

7.2. RECOMMENDATION

❖ **For health institution**

✔ Therefore, proper awareness creation and health education the recommended lifestyle modifications might support patients to control their hypertension and to prevent comorbidity with different diseases

✔ It is evident that there is a need for an integrated effort from various health disciplines to enhance patients' knowledge towards life style modification practice for hypertension.

❖ **For the World Health Organization(WHO)**

✔ Strengthen technical support for Ethiopian health professionals and health sectors by providing up-to-date guidelines and training packages on lifestyle changes.

✔ Collaborate with the Ministry of Health to expand community – based NCD programs emphasizing public education on diet; physical activity and blood pressure control.

❖ **For Non-Governmental Organization(NGOs)**

✔ Allocate resources to support awareness campaigns and patient education initiatives that promote sustainable lifestyle changes.

✔ Work with local health facilities and community structures to establish peer-support networks, ensuring continuous encouragement and follow up for hypertensive patients.

❖ **For scientific community**

✔ Further research be conducted using a mixed study design to explore the other factors that cannot be addressed by a quantitative study

✔ Further study conduct other than cross-sectional study design to explore the cause-effect relationship

8. STRENGTH AND LIMITATIONS OF THE STUDY

8.1. STRENGTH OF THE STUDY

☐ During the study time, health education was given by for each of the study participants about the benefits of practicing lifestyle modification for controlling blood pressure.

☐ The use of standardized data collecting techniques and tool

☐ Study subjects were selected using random sampling.

☐ The random sampling helps to avoid selection bias.

☐ Using logistic regressions to control the possible confounding factors in order to assess the relative effect of independent variables to dependent variables.

8.2. LIMITATIONS OF THE STUDY

☐ The data was self-reported by the participants; there may be a social desirability bias and recall bias, which affects the result of the study.

☐ The practices of lifestyle modification in hypertensive patients was assessed using only patients' responses alone

☐ This study is used a cross-sectional study design. It does not show cause-effect relationship between dependent and independent variables.

☐ The information collected quantitatively was not triangulated with the qualitative method

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7. ANNEXES

Annex-1: Information Sheet

Information Sheet and Informed Consent form for Assessment of knowledge, attitude, practice and factors associated with life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025

Hello, my name is ------------------ I am working as a data collector for the study being conducted on Assessment of knowledge, attitude, practice and factors associated with life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia 2025 by Melkamsew Ejigu (MD) who is studying her Master's degree in Public Health at Pharma College Hawassa Campus. I am kindly requesting you to give me your attention to explain to you about the study and being selected as the study participant.

The study title: Assessment of knowledge, attitude, practice and factors associated with life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia, 2025

Purpose /Aim of the study: The findings of this study will be of high importance for the Hawassa health office and regional health office, health workers, and managers to plan intervention programs to improve hypertension and related factors in the city. Moreover, this study aims to write a thesis as a partial requirement for the fulfillment of a master`s degree program in Public Health for the principal investigator.

Procedure and duration: You are selected by chance and I will be interviewing you to take part in the study. Your participation will help us to assessment of knowledge, attitude, practice and factors associated with life style modification among adult hypertensive patients in public health facilities, Sidama region Hawassa, Ethiopia. I am going to ask some questions that are not difficult to answer. I would like to appreciate your support in responding to these questions. There are some questions to answer where I will fill the questionnaire by interviewing reproductive age group women's. The interview will take about 20-25 minutes, so I will kindly request you to allow me to do this interview.

Risks and benefits: The risk of being participating in this study is minimal, but only taking a few minutes of your time. However, the findings from this research may reveal important information for Hawassa health office and regional health office.

Confidentiality: The information you will provide us will be confidential. There will be no information that will identify you in particular. The findings of the study will be general for the study community. The questionnaire will be coded to exclude showing names.

Rights: Participation in this study is voluntary. You have the right to declare to participate or not in this study.

Contact address: There, are any questions or enquires any time about the study or the procedures, please contact in this address. Principal investigator: Dr.Melkamsew Ejigu;

Mobile phone: +251 92 627 7456 or email: melkamejigu01@gmail.com.

Annex II. Informed Consent Form

If you agree to be included in the study, I will start my question by asking general identification questions.

May I continue interviewing? 1), Yes _____   2), No (Refused) _____

If yes, go to the questions below if no, skip and go to the participants

Name of the interviewer ----------------------- Sign------------ Date ----------------

Name of the supervisor ------------------------ Sign ------------- Date-----------------

Name of the facility_____Questionnaire identification No _____

Annex- III: Data Collection Tool (Questionnaires)

Part I. Socio-Demographic Characteristics of the respondents

S.N	Questions	Category	Skip
1.	How old are you?	_____	
2.	Sex	1.male 2.female	
3.	Residentially	1.Urban 2.Rural	
4.	Marital status	1.single 3.widowed 2.married 4.divorced 5.other	
5.	What is your religion?	1.Orthodox 3.Catholic 2.Protestant 4.Muslim 5.Others	
6.	What is your educational level?	1.Illiterate 4.Secondary (9-12) 2.Read and write 5.Diploma and above 3.Primary (1-8)	
7.	What is your occupation?	1.Government employer 2.Private organization 3.Merchant 4.House Wife 5.Others,	
8.	Average monthly family income in Birr	_____	
9.	A distance of hospital from their residence	1.<5 km 2.5-10 km 3.>10 km	

Part 2.Health profile related, individual and source of information related factors among hypertensive patients

S.N	Questions	Category	Skip
1.	Duration since diagnosis	1.<2 years 3.5-10 years 2.2-5 years 4.>10 years	
2.	Family history of Hypertension	1.yes 2.no	
3.	Hear information about lifestyles	1.yes 2.no	
4.	Source of information	1.Health professionals 2.Different medias 3.Family and friends	
5.	Co-morbidity	1.yes 2.no	
6.	Type of Co morbidity	1.DM 4.Peptic Ulcer Disease 2.CVD 5.Two and above diseases 3.Kidney diseases	
7.	Blood Pressure Status	1.controled 2.uncontroled	

8.	BMI	1.Normal 2.Underweight 3.Overweight/ Obese	
9	Patient-provider relationship	1.good 2.not good	
10	Self-Efficacy	1.good 2.poor	
11.	Availability of Health Insurance	1.yes 2.no	

Part 3. Respondent's level of knowledge toward LSM recommended for hypertension management among hypertensive patients

S.N	Questions	Category	Skip
1.	Knows recent BP measurement	1.yes 2.no	
2.	Aware of LSM to manage hypertension	1.yes 2.no	
3.	Can mention at least one LSM to manage hypertension	1.yes 2.no	
4.	Knows the importance of maintaining normal body weight to controlling BP	1.yes 2.no	
5.	Knows the importance of diet in controlling BP	1.yes 2.no	
6.	Know the importance of reducing salt intake in controlling BP	1.yes 2.no	
7.	Know the importance of regular physical activity in controlling BP	1.yes 2.no	
8.	Know the effect of drinking alcohol on controlling BP	1.yes 2.no	
9.	Know the effect of cigarette smoking on controlling BP	1.yes 2.no	
10.	Know the effect of chewing Khat on controlling BP	1.yes 2.no	

Part 4. Respondent's level of attitude toward LSM recommended for hypertension management among hypertensive patients

S.N	Questions	Category	Skip
1.	Education during follow-up on LSM about hypertension is essential component of HTN management	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	
2.	Regular checking of BP is important part of BP management	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	
3.	Maintaining normal body weight is important for controlling BP	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	
4.	Controlling diet is important for controlling BP	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	

5.	Controlling salt intake is important for controlling BP	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	
6.	Regular physical activity is important part of controlling BP	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	
7.	Excessive alcohol intake has no effect on BP	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	
8.	Khat chewing has no effect on BP	1.Strongly agree 2.Agree slightly 3.Neutral 4.Disagree slightly 5.Strongly disagree	

9.	Smoking cigarette has no effect on BP	1.Strongly agree	
		2.Agree slightly	
		3.Neutral	
		4.Disagree slightly	
		5.Strongly disagree	

Part 5. Respondent's level of practice toward LSM recommended for hypertension management among hypertensive patients

S.N	Questions	Category	Skip
1.	Check BP regularly	1.yes 2.no	
2.	Check weight regularly	1.yes 2.no	
3.	Regularly plan to include diet rich in fruits, vegetables and low-fat dairy products in meal program	1.yes 2.no	
4.	Regularly eat diet rich with high cholesterol	1.yes 2.no	
5.	Regularly consume salt free or low salt diet	1.yes 2.no	
6.	Regularly drink alcohol	1.yes 2.no	
7.	Conduct physical activity regularly (at least 30 min/day, most days of the week	1.yes 2.no	
8.	Chew Khat	1.yes 2.no	
9.	Smoke cigarette	1.yes 2.no	

Thanks for your response!!

አባሪ- III፣ አማርኛ መጠይቅ

ክፍል I. ማህበራዊ ባህሪያት በሚመለከት

ተ.ቁ	ጥያቄዎች	ምድብ	ዝለል
1.	ዕድሜ	_____	
2.	ፆታ	1.ወንድ 2.ሴት	
3.	የመኖሪያ ቦታ	1.ከተማ 2.ገጠር	
4.	የጋብቻ ሁኔታ	1.ያላገባ /ች 3.የሞተበት/ባት 2.ያገባ/ች 4.የተፋታ/ች 5.ሌላ	
5.	ሃይማኖት	1.ኦርቶዶክስ 3.ካቶሊክ 2.ፕሮቴስታንት 4.ሙስሊም 5.ሌላ	
6.	የትምህርት ደረጃህ	1. ትምህርት ያልተማረ/ች 4. ሁለተኛ ደረጃ (9-12) 2. ማንበብ እና ጻፍ 5.ዲፕሎማ እና ከዚያ በላይ 3. የመጀመሪያ ደረጃ (1-8)	
7.	ሥራህ	1. የመንግስት ሰራተኛ 2.የግል ድርጅት ተቀጣሪ 3.ነጋዴ 4.የቤት እመቤት 5. ሌላ,	
8.	አማካይ ወርሃዊ የቤተሰብ ገቢ	_____	
9.	ከመኖሪያ ቤታችሁ የጤና ጣቢም ያለዉ ርቀት	1.<5 ኪ.ሜ 2.5-10 ኪ.ሜ 3.>10 ኪ.ሜ	

ክፍል 2.ከጤና ጋር ተያያዝ, ግላዊ እና የመረጃ ምንጭን በሚመለከት

ተ.ቁ	ጥያቄዎች	ምድብ	ዝለል
1.	ግሬት እንዳለቦት ከታወቀ ምን ያህል ጊዜ ሆነ	1.<2 ዓመት 3.5-10 ዓመት 2.2-5 ዓመት 4.> 10 ዓመት	
2.	የቤተሰብ ዉስጥ የደም ግሬት ያለቦት አለ	1.አዎ 2.የለም	
3.	ስለ አኗኗር ዘይቤዎች መረጃን አዳምጠዉ ያዉቃሉ	1.አዎ 2.የለም	
4.	የመረጃ ምንጭ	1.የጤና ባለሙያዎች 2.የተለያዩ ሚዲያዎች 3. ቤተሰብ እና ጎደኞች	
5.	ተጓዳኝ ህመም አለቦት	1.አዎ 2.የለም	
6.	ምን አይነት ተጓዳኝ ህመም አለቦት	1.ስኳር 4.የጨገዋራ ህመም 2.የልብ ህመም 5.ሁለት እና ከዚያ በላይ በሽታዎች 3. የኩላሊት ህመም	
7.	የደም ግሬት ሁኔታ	1.መቆጣጠር የተቻለ 2. ቁጥጥር ያልተደረገበት	

8.	BMI	1. ኖርማል 2.ከኖርማል በታች 3.ከመጠን በላይ ወፍራም	
8.	ከአገልግሎት ሰጪዎች ጋር ያሎት ግንኙነት	1. ጥሩ 2. ጥሩ አይደለም	
9.	በራስን መተማመን	1. ጥሩ 2.ጥሩ ያልሆነ	
10.	የጤና መድህን አላችሁ	1.አዎ 2.የለምንም	

ተ.ቁ	ጥያቄዎች	ምድብ	ዝለል
1.	የቅርብ ጊዜ የደም ግፊት ልኬቶን ያውቃሉ	1.አዎ 2.አላቅም	
2.	አ�గ�፝ር ዘይቤዎችን ያዉቃሉ የደም ግፊትን ለመቆጣጠር	1.አዎ 2.አላቅም	
3.	የደም ግፊትን ለመቆጣጠር ቢያንስ አንድ አኛኛር ዘይቤ መጥቀስ ይችላሉ	1.አዎ 2.አላቅም	
4.	የደም ግፊትን ለመቆጣጠር መደበኛ የሰውነት ክብደትን የመጠበቅን አስፈላጊነት ያውቃሉ	1.አዎ 2.አላቅም	
5.	የደም ግፊትን ለመቆጣጠር የአመጋገብን አስፈላጊነት ያውቃሉ	1.አዎ 2.አላቅም	
6.	የደም ግፊትን ለመቆጣጠር የጨው መጠን መቀነስ አስፈላጊ መሆኑን ያውቃሉ	1.አዎ 2.አላቅም	
7.	የደም ግፊትን ለመቆጣጠር መደበኛ የአካል ብቃት እንቅስቃሴ አስፈላጊነትን ያውቃሉ	1.አዎ 2.አላቅም	
8.	የደም ግፊትን በመቆጣጠር ላይ አልኮል መጠጣት የሚያስከትለውን ውጤት ያዉቃሉ	1.አዎ 2.አላቅም	
9.	ሲጋራ ማጨስ የደም ግፊትን በመቆጣጠር ላይ የሚያስከትለውን ውጤት ያዉቃሉ	1.አዎ 2.አላቅም	
10.	ጫት ማኘክ ቢፒን በመቆጣጠር ላይ ያለውን ተጽእኖ ይወቁ	1.አዎ 2.አላቅም	

ክፍል 4. አመለካከትን በሚመለከት

ተ.ቁ	ጥያቄዎች	ምድብ	ዝለል
1.	በክትትል ወቅት አኗኗር ዘይቤዎችን ትምህርት መስጠት የደም ግፊትን ለመቆጣተር አስፈላጊ ነው ብለዉ ይስማማሉ	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	
2.	መደበኛ የደም ግፊት ምርመራ የደም ግፊትን ለመቆጣጠር አስፈላጊ አካል ነዉ	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	
3.	የሰውነት ክብደትን መጠበቅ ግፊትን ለመቆጣጠር አስፈላጊ ነዉ	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	

4.	አመጋገብን ማስተካከል የደም ግፊትን ለመቆጣጠር አስፈላጊ ነዉ	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	
5.	የጨው መጠን መቀነስ የደም ግፊትን ለመቆጣጠር አስፈላጊ ነው	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	
6.	መደበኛ የአካል ብቃት እንቅስቃሴ የደም ግፊትን ለመቆጣጠር አስፈላጊ አካል ነዉ	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	
7.	ከመጠን በላይ አልኮል መጠጣት በደም ግፊት ላይ ምንም ተፅዕኖ የለውም	1. በጣም እስማማለሁ 2. በትንሹ እስማማለሁ 3. ገለልተኛ 4. በትንሹ አልስማማም 5. በጣም አልስማማም	

8.	ጫት መቃም በደም ግፊት ላይ ምንም ተፅዕኖ የለውም	1. በጣም እስማማለሁ	
		2. በትንሹ እስማማለሁ	
		3. ገለልተኛ	
		4. በትንሹ አልስማማም	
		5. በጣም አልስማማም	
9.	ሲጋራ ማጨስ በደም ግፊት ላይ ምንም ተፅዕኖ የለውም	1. በጣም እስማማለሁ	
		2. በትንሹ እስማማለሁ	
		3. ገለልተኛ	
		4. በትንሹ አልስማማም	
		5. በጣም አልስማማም	

ክፍል 5. ተግባርን በሚመለከት

ተ.ቁ	ጥያቄዎች	ምድብ	ዝለል
1.	የደም ግሬት ልኬት በመደበኛነት ያደርጋሉ	1.አዎ 2.አይ	
2.	ኩብደቶን በየጊዜው ይለካሉ	1.አዎ 2.አይ	
3.	ፍራፍሬ፣ አትክልትና በዝቅተኛ ቅባት የበለፀጉ የወተት ተዋጽኦዎችን በምግብ ፕሮግራም ውስጥ አካተዉ ይመገባሉ	1.አዎ 2.አይ	
4.	ከፍተኛ ኮሊስትሮል የበለፀገ ምግብን በመደበኛነት ይመገባሉ	1.አዎ 2.አይ	
5.	ከጨው ነፃ የሆነ ወይም ዝቅተኛ ጨው አመጋገብን በመደበኛነት ይጠቀማሉ	1.አዎ 2.አይ	
6.	አዘውትረዉ አልኮል ይጠጣሉ	1.አዎ 2.አይ	
7.	የአካል ብቃት እንቅስቃሴን አዘውትረው ያካሂዳሉ (ቢያንስ 30 ደቂቃ) ብዙ ቀናት በሳምንቱ ዉስጥ	1.አዎ 2.አይ	
8.	ጫት ይቅማሉ	1.አዎ 2.አይ	
9.	ሲጋራ ያጨሳሉ	1.አዎ 2.አይ	

SIDAAMU AFII XA'MUBBA

GAFA 1. DAGOOMITTETE AKATA LA"INOHUNNI

A/K	Xa'mubba	Gaamo	Sai
1	Diro	_____	
2	KOO/TEE	1. Labbaha 2. Meyaata	
3	Teesso	Baadiyye/quchchuma	
4	Adhino/diadhino maatete gara	1. Diadhamino/adhantini 2. Adhantino/adhamino, 3. 3. Reyootenni baxxitino 4. Tidhaminoha/ntinota	
5	Amma'no	1. Ortodokse, 2. pirotestaante , 3. kaatoolike, 4. Musiliime, 5. Wole	
6	Rosu deerra	1. Roso rosinokkiha/kkita 2. Nabbawa borreessa 3.umi dirimi (1-8) kifile 4. Layiinki deerra(9-12) kifile geeshsha 5. Dippiloomanna hakkuyi ale	
7	Looso	1. mootummate loosaasincho 2. Hallanynyunni qaxarame 3.Daddalaancho 4. Mini ama 5. Wole	
8	Mereerimu matete eo aganunni	_____	

GAFA 2. FAYYIMMATE LEDO AMADAMINOHUNNI HALLANYNYUNNA TAJETE BUICHCHO LAINOHUNNI

A/K	Xa'mubba	Gaamo	sai
1	Mundeete lexxo nooheta afittonku/ttanku mageeshshi yanna ikkanno	1. <2 diro 2. 2-5 diro 3. 5-10 diro 4. >10 diro	
2	Maatete giddo mundeete lexxo noonsahu noo?	1. Eee no 2. Dino	
3	Heeshsho woyyeessinanni gara taje macciishshite egennootto/tta ?	1. Ee 2. macciishshe diegennoommo/mma	
4	Tajete bue	1. Fayyimmate ogeeyye 2. Babbaxxitino miidiyubba 3. Maatewiinninna miillanniwiinni	
5	Lawaabbannokki xisso noohe?	1. Ee 2. Dinoe	
6	Hiittoo xisso?	1. Sukkaare 2. Wodanu xisso 3. Mulu xisso 4. coggaarru xisso 5. lamunna hakkuuyi ali xisso	
7	Mundeete lexxo lainohunni	1. uurrisa dandiinannita 2. uurrisa dandiinannikkita	
8	Bisu du'mille lainohunni	1. Garunni noo du'mille 2. Hasi'noonnihura woroonni nooho 3. Hasi'nannihura aleenni noo du'mille	
9	Owaante uyiitanno ogeeyye ledo noohe xaadooshshi	1. danchaho 2. Dancha di''ikkino	
10	Fayyimmate wowe daftaru noo'ne	1. noonke 2 . Dinonke	

GAFA 3. EGENNOTE/AFATE/ DEERRA LAINOHUNNI

A/K	Xa'mubba	Gaamo	sai
1	Muli yanna giddo mundee bikkidhe egennootto/tta?	1. Ee 2. Dee'ni	
2	Muli yanna giddo mundeekki bikki mageeshshaatiro afootto/tta?	1. Ee 2. Diafoommo/mma	
3	Mundeete lexxo qargadhate hiittonni meessaneete agadhinanniro afootto/tta?	1. Ee afoommo/mma 2. Diafoommo/mma	
4	Mundeete lexxo gargadhinanni gara ajanni ajeenna mitto kula dandaatto/tta?	1. Ee 2.Didandeemmo/mma	
5	Mundeete lexxo gargadhate Saga'linanni gara afootto/tta?	1. Ee 2. Diafoommo/mma	
6	Mundeete lexxo/xiiwo gargadhate Maxine bikkisinni/ajinshe horonsi'nannita afootto/tta?	1. Ee 2. Diafoommo/mma	
7	Mundeete lexxo/xiiwo gargadhate mannimmate guunte /ispoorte woy bisu milli millo loosa hasiissannota afootto/tta?	1. Ee 2. Diafoommo/mma	
8	Mundeete lexxo/xiiwo gargadhate aana alkoolete agatto aga iillishshanno gawajjo afootto/tta	1. Ee 2. Diafoommo/mma	
9	Sigaara wiliishsha/aga mundeete lexxo/xiiwo gargadhate aana abbitanno qarra afootto/afootta	1. Ee 2. Diafoommo/mma	
10	Caate ita/corqa mundeete lexxo /xiiwo qargadhate aana iillishshanno gawajjo afootto/tta	1. Ee 2. Diafoommo/mma	

GAFA SHOOLE(4) LAOOSHSHE LAINOHUNNI

A/K	Xa'mubba	Gaamo	sai
1	Harunsote yannara heeshsho woyyeessi'nanni gari aana rosichcho aa mundeete lexxo/xiiwo gargadhate hasiissanno yita sumuu yaatto/yaatta?	1.lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
2	Mereeroho murrikkinni aante aantete harunsine meessaneeto yaa'la mundeete lexxo/xiiwo uurrisate hasiissannote yite ammanatto/tta?	1. lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
3	Hasi'nannihu aleenni bisu du'milee agadha mundeete/lexxo xiiwo gargadhate hasiissanno?	1..lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
4	Saga'lineemmo gara taashsha mundeete lexxo/xiiwo gargadhate hasiissanno?	1..lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma	

			3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
5	Saga'lineemmo Maxine taashsha/ajisha mundeete lexxo/xiiwo gargadha dandiissiissanno/hasiissanno?	1..lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
6	Uurrinsikkinni mannimmate guunte loosa mundeete lexxo/xiiwo gargadhate bisooti yite ammanatto/tta?	1..lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
7	Hasiisannohu aleenni agatto/alkoole/ aga mundeete lexxora/xiiwora reqecci assate qeechchi dinose?	1.lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
8	Caate ita/qama''a mundeete lexxora/xiiwora reqecci assate qeechchi dinose?	1.lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma	

		3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	
9	Sigaara wiliishsha /aga/ mundeete lexxora/xiiwora reqecci assate qeechchi dinose?	1.lowo geeshsha sumuu yeemmo/yeemma 2. Shiimunni sumuu yeemmo/yeemma 3. Hedo aa didandeemmo/mma 4. Shiimunni sumuu diyeemmo/yeemma 5. Lowo geeshsha sumuu diyeemmo/yeemma	

GAFA 5. ASSOOTE/LOOSO/LAINOHUNN

A/K	Xa'mubba	Gaamo		sai
1	Mundeete lexxo/xiiwo mirmera/yaala yanna agadhitte assiratto/tta	1. Ee	2. Dee'ni	
2	Bisu ayiirrinynye yanna agadhite assiratto/tta	1. Ee	2. Dee'ni	
3	Intanni laalo, ataakiltenna lowo qiwaate batidhinokkiha adote laalcho sagalekki giddo karsite itatto/tatta	1. Ee	2. Dee'ni	
4	Lowoti kolestiroolete coomu batirino sagale ganynyite /uurrinshatenni/itatto/tta	1. Ee	2. Dee'ni	
5	Maxine nookki sagale woy shiima Maxine worroonni sagale uurrinshatenni woy ganynyite itatto/tta	1. Ee	2. Dee'ni	
6	Alkoole/agatto/ duuchcha yannara agatto/tta	1. Ee	2. Dee'ni	
7	Mannimmate guunte/mannimmate millimillo/duuchcha woyiite ajani ajeenna duuchcha woyiite lamalate giddo barrunni 30 xiqqeessira/ loosatto/tta	1. Ee	2. Dee'ni	
8	Caate itatto/tta/corqatto/tta	1. Ee	2. Dee'ni	
9	Sigaara wiliishshatto/tta(agatto/tta)	1. Ee	2. Dee'ni	