ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF NURSING

ANTIHYPERTENSIVE MEDICATION ADHERENCE AND ITS ASSOCIATED FACTORS AMONG HYPERTENSIVE PATIENTS IN NORTH SHOWA ZONE PUBLIC HOSPITALS, NORTH ETHIOPIA. 2021

BY: ASFAW GETAYE (BSc)

A RESEARCH THESIS SUBMITTED TO THE NURSING DEPARTMENT, SCHOOL NURSING AND MIDWIFERY, COLLEGE OF HEALTH SCIENCES, ADDISABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER SCIENCE IN ADULT HEALTH NURSING

JUNE, 2021

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JUNE, 2021

ADDIS ABABA, ETHIOPIA

APPROVAL BY THE BOARD OF EXAMINATION

This thesis by **"Antihypertensive medication adherence and its associated factors among hypertensive patients in North Showa Zone Public hospitals, Ethiopia 2021"** is accepted in its present form by the board of examiners as satisfying thesis for degree of masters in Adult Health Nursing

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STATEMENT OF DECLARATION

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ACKNOWLEDGMENT

First of all, I would like to express my deepest gratitude's to my advisor's Sr. Zuriash Mengistu and Sr. Tsion Alemu for their unreserved guidance and constructive suggestions and comments, at each step of my thesis. Next, I would like to thank the North Showa Zone hospital administrative, data collectors and the study participants for their cooperation and willingness. I also would like to give my heartfelt thanks to Addis Ababa University College of Health Sciences, Department of Nursing and Midwifery in general providing opportunity, their unfailing support and guidance in the study.

Finally, I would like to acknowledge Salale University for sponsoring my post-graduate study and my friends for sharing their ideas and giving support thought my study.

ABBREVIATION AND ACRONYMS

AAU	Addis Ababa University
AOR	Adjusted Odd Ratio
BP	Blood Pressure
BMI	Body Mass Index
CI	Confidence Interval
CKD	Chronic Kidney Disease
CVD	Cardio Vascular Disease
DC	Data Clerk
ETB	Ethiopian Birr
HTN	Hypertension
JUSH	Jima University Specialized Hospital
MA	Medication Adherence
MMAS	Morisky's Medication Adherence Scale
NCD	Non- Communicable Disease
NHANES	National Health and Nutrition Examination Surveys
SPSS	Statistical Package for Social Science
SRS	Systematic Random Sampling
SSA	Sub Saharan African
UAE	United Arab Emirates
USA	United State of Americ

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ABSTRACT

Adherence to antihypertensive medication plays a tremendous role in controlling BP, however poor adherence to antihypertensive medication leads to complications of HTN, wastage of health care resources, and workload on health care providers which results in poor clinical outcome. This study aimed to assess antihypertensive medication adherence and its associated factors among hypertensive patients' in North Showa Zone public hospitals', Oromia regional state, North Ethiopia. 2021. An institutional-based cross-sectional study was conducted from February 8 to March 8/2021 in three public hospitals of North Showa Zone. Out of four public hospitals, three hospitals were selected through simple random sampling techniques and the final sample size 348 was selected systematic random sampling. Data were checked, cleaned and entered into Epi data software version 3.1, and imported to SPSS version 23 software for analysis. Descriptive analysis was done and presented in frequencies and percentages. The association between independent and dependent variables was analyzed using bivariate and multivariate analysis, and variables that show P-values of < 0.05 with 95% CI will be considered statistically significant. This study includes 348 participants with a 97.4% response rate. Of the respondents, 56.9% adhere to their medication. Marital status (AOR=3.24,95%CI=1.12-9.60), residence (AOR=2.59,95%CI=1.42-4.75), Controlled BP (AOR=4.26, 95%CI=2.37-7.67), number of medication (AOR= 2.59,95%CI=1.35-4.97), comorbidity (AOR=2.24, 95%CI=1.33-4.67), knowledge (AOR=5.01,95%CI=2.69-9.35), insurance coverage user (AOR=2.20,95%CI=1.23-3.95) and forgetfulness were found statistically significant. The adherence status of this study was sub-optimal and the knowledge status of patients about HTN and their treatments was the most associated factor. Give health education for patients about HTN and its treatments, early diagnosis, and management of comorbidity, and adherence counseling are important for improving the adherence status of clients.

Key Words: Adherence, antihypertensive medication, public hospitals

1. INTRODUCTION

1.1. Background

Hypertension is a condition in which the blood vessels' pressure has raised or when a systolic blood pressure is ≥140 mm Hg and diastolic blood pressure is ≥ 90 mm Hg (1). As National Health and Nutrition Examination Surveys (NHANES) prevalent hypertension is traditionally defined as blood pressure (BP) greater or equal to140 mmHg systolic and greater or equal to 90mmHg diastolic and currently taking antihypertensive medications (2)

Hypertension is a silent killer that rarely shows symptoms and contributes to the burden of heart disease, stroke and kidney failure, and premature mortality and disability. It accounts for 51% of deaths due to stroke and 45% of deaths due to heart disease, and disproportional in low- and middle-income countries (1).

It is the most leading risk factor for cardiovascular disease(CVD) and affecting more than 1 billion people worldwide, as well as accountable for more than 10 million preventable deaths worldwide each year and expected to increase by 29% to reach 1.56 billion by 2025 (3,4). In 2015 the global burden of diseases reported in India shows that it leads to 1.6 million deaths and thirty three point nine (33.9) million disability-adjusted life (5).

The prevalence of hypertension has been continuously increasing at an alarming rate which put a great impact on health care providers (6). Between 2015-2016 as National Health and Nutrition Examination Survey study done in the United States shows that the prevalence of hypertension was 29.0% and increased with age (7). In Turkey, approximately 30% general population and 45-50%population over 50years old have hypertension (8).

In sub-Saharan Africa (SSA) the prevalence of hypertension is high and it is the main driver for CVD in the region (9,10). In the Democratic Republic of Congo, the prevalence of hypertension has been increased in the past three decades (11). In Kenya, as a national survey shows it was 24.5% (12). In 2015 a meta-analysis done in Ethiopia shows that the prevalence of hypertension was 19.6% (23.7 urban and 14.7% rural) (13).

Worldwide HTN is a growing public health problem and the impact is higher in developing countries including Ethiopia with high prevalence and hidden epidemic in the population. A study was done in Ethiopia among adults, most patients were detected unintentionally when they were admitted to hospital for unrelated disease or subjected to pre-employment or preoperative medical checkups (14)

As the World Health Organization (WHO) defines that adherence is the extent to which a person behavior taking medication and making healthy lifestyle changes corresponds with recommendations from medical or health care advice (15,16). Adherence to prescribed medical regimens plays an incredible role in sustaining the health and well-being of individuals with HTN (17). It is an imperative issue, directly linked with the management of chronic diseases (18), particularly anti-hypertensive medication adherence is an important predictor of optimal BP control and its complications such as CVD, stroke and renal failure (3,19,20)

The treatment of HTN primarily depends on the level of understanding and the perception of an individual towards HTN, and identifying factors related to poor adherence to medications was a fundamental step for future improvements that tailor specific interventions to improve MA (medication adherence) (21). In Pakistan, MA was a multifaceted phenomenon, which didn't depend on one factor rather than multiple factors such, sociodemographic, types of medication prescribed, social support, patient health provider relationship, cost, as well as psychological challenges (22)

A hospital-based cross-sectional study done in western Rajasthan, India, shows that forgetfulness behavior followed by poor knowledge and lack of awareness was the most common cause of poor adherence (23). In Ethiopia, a case-control study done in Hawassa referral hospital show that even though the prevalence of adherence was low, the most determinants of antihypertensive medication adherence were sociodemographic(age and residence), co-morbidities, and knowledge towards HTN (24)

1.2. Statement of the Problem

Blood pressure control remains unsatisfactory in the world and several factors have been identified which hinder BP control. From them, poor MA plays a tremendous role. In the absence of new drugs to control BP, drug adherence is a crucial issue in the management of hypertensive patients. As various studies have been done show that lack of persistence follow-up by a poor day -to -day execution of the prescribed drugs is the major challenge in controlling BP (25). A case-control study done in Hawassa referral hospital shows that only the availability of effective antihypertensive medications does not bring a good outcome in controlling BP, rather than adhering to their medication (24,26)

Adherence to anti-hypertensive medications is an effective intervention in managing the disease, as WHO recommends proper attention to be given towards adherence issues more than the development of new treatment regimens. On average, the overall adherence to long-term therapies for chronic illnesses is 50% among the developed countries and lower in developing countries (27)

Worldwide the proportion of hypertensive patients, whose disease treated effectively with medication remains low in developing countries (low and middle income countries) (28). A study done in Northern Vietnam shows that only 49.8% adhere to their medication (29). In Cameron, 43.9% were compliant with their anti-hypertensive medication (6). In Ethiopia, a cross-sectional study done in Nedjo general hospital show that, only 31.4% of the participants were adherent to their medication (30)

Poor adherence is a global public health concern with substantial health and cost implications. In the USA, around 125,000 deaths and $US100 billion annually cost was caused by poor adherence (31). Finding from Malaysia show that, poor adherence to medications is a major cause for treatment failure, especially in chronic diseases such as HTN (32).

Furthermore, poor adherence is the most common cause of uncontrolled high BP over the world and leads to useless drug overdose or class changes which end up to increase the adverse effects of drugs and medical costs (33). It is highly associated with poor BP control and risk of CVD as well as increases an avoidable hospital admission of hypertensive patients (34–36)

A study done in Northwest Ethiopia shows that poor adherence has a great impact in the reduction of effective medication and the efficiency of the health care system (18,37,38). In the same manner, a study done in University of Gondar Hospital show that it also increases health care resources expenditure and bad outcome of diseases, that leads the patients' hopeless, low satisfaction and ended until the patient decided to stop their treatment that results in complication of HTN or death (39)

Poor adherence and poor HTN control still unresolved big challenges for health care providers, but having information about HTN is a significant independent determinant of good adherence. Poor HTN control and identification knowledge deficit as a contributing factor to poor adherence remains the main obstacle for a multidisciplinary team of health care providers (40). Finding from United Arab Emirates (UAE) shows that there was a strong positive correlation between knowledge and drug adherence, and they suggest that MA has a multi-factorial phenomenon while knowledge has only one key factor (41).

Even though numerous studies have been conducted on the impacts of poor adherence to antihypertensive medication, but the factors are not yet clearly determined (42). In Ethiopia, only a few studies have been tried to look at the knowledge of HTN among hypertensive patients (10). In the same manner, a study done in Debra Tabor shows that there was a scarcity of data on MA and its associated factors(18,19). So, this study will be aimed to assess antihypertensive medication adherence and its associated factors among hypertensive patients in North Showa Zone Public Hospitals, North Ethiopia 2021

2. LITERATURE REVIEW

Adherence is define as the extent to which a person follows a treatment plan upon agreed with a health care provider (31). Adherence to prescribed medication is a primary determinant of treatment success, so public health personnel should focus on increasing the adherence of anti-hypertensive medication (43). This literature review summaries on anti-hypertensive MA and its associated factors from global to local. The associated factors which are study under this title are: sociodemographic factors, personal factors, clinical factors, organizational factors and social supporting factors with the antihypertensive medication adherence.

2.1. Anti-Hypertensive Medication Adherence

Worldwide the proportion of hypertensive patients', whose disease is treated effectively with medications remains low in developing countries, so greater efforts should be devoted to improving anti-hypertensive MA to control BP and its complications (28). Finding from meth analysis done in the United States shows that, majority of the people in the world are non-adherence to their chronic medication regimens, approximately 43% to 65.5% of patients fail to adhere their prescribed regimen were hypertensive patient (44).

A study done in rural Northern Vietnam, out of 315 below half (49.8%), in Romania (68.9%), in Sir Lanka (71.8%) and in Korea, out of 1,523 patients, 1,245 (81.7%) had good adherence to antihypertensive medication respectively (29,45–47). A community based cross-sectional study conducted in urban and rural areas in India shows that only 23.7% adhere to their medication (25). However, a study done in Saud Arabia only 7.58% adhere to antihypertensive MA (22).

In SSA the high prevalence of HTN is associated with contrastingly low awareness, treatment, and control rates (48). A study done on the twelve countries of SSA show that, only 36.5% adhere to their drugs (49). In Cameron 43.9% were compliant with their antihypertensive drug treatments (6). in Nigeria 61.2% adhere to antihypertensive medication (50). A cross-sectional study done in Kiambu district hospital in Kenya shows that 62.4% of the respondents were fully adherent to treatment, but only 48.3% of them had controlled BP (51)

In Ethiopia, as different study reveals, there was inconsistency of antihypertensive MA among hypertensive patients. A case-control study done in Hawassa referral hospital show that more than two-thirds (67%) of respondents were found to be adherent (24), in northwest Ethiopia 67.2% (18), JUSH 61.8% (37), Addis Ababa 66.6% (52) and 31.4% in Nedjo general hospital (30) were adherent.

2.2. Factors Associated to Anti-Hypertensive Medication Adherence

2.2.1. Sociodemographic

A study done in Chinese on the determinants of hypertension treatment adherence among population shows that out of total 27.46% of patients were compliant with their antihypertensive treatments, but gender, residence, occupation and the duration of hypertension were found to be the main factors affecting treatment adherence with p-value 0.034, 0.029 and less than 0.001 respectively (53). In Korea those with higher levels of educational were more likely to be adherent than the counterpart (54). A prospective one-year based study conducted in Northern Vietnamese community shows that only age was significant association with MA and they suggest that, age should be considered for guiding the choice to whom target for improving medication adherence (29).

A cross-sectional study done in Southeast of Iran shows that, age and level of education significantly predicted adherence to treatment (55). In Lebanon patient education was the cornerstone for treatment success (56). Finding from Saudi Arab shows that, from sociodemographic variables only sex and number of children were significantly associated with non-adherence to antihypertensive medication with (p=0.01 and 0.03) respectively, but there was no significant association with age, nationality, level of education, marital status, occupation, monthly income and having health insurance coverage (57).

A study done in Gahana hospitals show that age, marital status, educational level, income, duration of diagnosis, number of medications taken and sexual dysfunction was associated with medication adherence(58) and a study done Ghana and Nigeria shows that, mean age of patients who were non-adherent to medications was 54.5 ± 13.2 years while those who were adherent had a mean age of 60.9 ± 12.1 years ($P < 0.001$) (59).

A study done in Hawassa referral hospital shows individuals who had hypertensive, lived in urban areas were six times more likely to adhere to their medications as compared to those who lived in rural areas (24) (19). Individuals whose age was >60 years were 67% less likely to adhere to their antihypertensive medication therapy than younger(19). A study done in Addis Ababa at selected public hospitals on the relation between gender and medication adherence reveals that female were 2 times more likely to be adherent than male(52). In Black Lion Hospital individuals who married were 2 times more likely to adhere to anti-hypertensive medication compared to divorced and those who had private business were 72% less likely to adhere to medication management compared to governmental employed (60).

2.2.2. Knowledge

Knowledge about HTN and its treatment has an incredible role in understanding and avoiding confusion about the disease condition and treatment. A cross-sectional based study conducted at inpatients hospital in Samarkand, Uzbekistan reveals that good knowledge of patients about hypertension had five times (OR=5.4, 95% CI, 1.7–16.2) controlled their BP and four times (OR=3.8) adhere to the drugs than poor knowledge(61). A survey conducted in Poland on relationship between patients' knowledge and MA among hypertensive patients shows that patients' knowledge on HTN was a significant independent determinant of good adherence ($\beta=0.208$; $P=0.001$) (40).

In Tamil Nadu, India shows that, participants who had good knowledge about any factors pertaining to drug compliance were three times more compliant with antihypertensive drugs than who had poor knowledge (62). At United Arab Emirates, there were a positive correlation between knowledge and drug adherence among hypertensive patients. Despite, it believed that MA was a multi-factorial phenomenon and knowledge was the only key of those factors (41). Individuals who had good knowledge about the diseases were two times and three times more adhere than the counter in Negeria and Kenya respectively (50,51)

In Ethiopia, a study done at Debra Tabor general hospital and Addis Ababa shows that those who had good knowledge about HTN and its treatment were approximately nine (AOR=8.86, 95% CI: 4.67, 16.82) times and three time more adhere to their antihypertensive medications than poor knowledge respectively(19,52)

2.2.3. Clinical Factors

A study done on barriers to MA among hypertensive patients in Iran shows that there was a significant positive relationship between duration of HTN and the degree of MA (P<0.001), but there was a significant negative relationship between the number of medications used and concurrently with other diseases and the degree of MA or the duration of HTN, the number of medications used and concurrently with other diseases significantly decreased to (76%) of the total amount of MA (63). In Brazil, there was a strong positive correlation between a higher complexity of the drug therapy and a low adherence to treatment (64).

A cross-sectional study done in Uzbekistan shows that those, whose BP controlled were significantly more adherent to antihypertensive drugs than uncontrolled BP patients (OR=15.5, 95% CI 6.9–34.9) (61). A cross-sectional study done in Malaysia and Romania shows that, there was a significant association between low adherence and uncontrolled BP(32,45). A cross-sectional study don in India show that individuals who had comorbidities were four times more adhere than the counter part (25).

A finding from Algeria show that, number of taking antihypertensive drugs and no co-morbidity were four times statically significant with antihypertensive medication adherence with (p<0.013) and (p<0.006) than the counter part respectively. In the same ways as a duration of HTN increased better compliance levels were expected and about 75% of the patients with a better compliance had controlled systolic BP levels (<140mmHg) (33). A study done in Ghana and Nigeria reveals that, there was a significant association between MNA and poor BP control (P = 0.006) (59)

A cross-sectional study done at selective public hospitals of Addis Ababa shows that 55.4% of the respondents had co-morbidities, from that diabetes mellitus was found to be the most frequent comorbidity with 57.1% of the respondents having it; 12.2% had

coronary artery disease, 11.1% had a history of stroke, 2.1% had CKD and 17.4% had other comorbid diseases(52). A study done in southwest Ethiopia shows that individuals who had no co-morbidity were 12 times more likely to adhere to antihypertensive medications than the counterparts(37).

A case-control study was conducted in Hawassa referral hospital shows that individuals whose BP control were two (AOR=2.35) times and cross sectional study was conducted at University of Gondar hospital, it was three (AOR = 2.93) times adhere than the counterpart and those with no or one co-morbidity were 2.5 and 2.68 times higher than those who had two co-morbidities (adjusted OR = 2.50, 95%CI 1.01, 6.21)(24,39). In Debra tabor hospitals, those who took a single drug per day were three (AOR=3.04) times more adhere to their prescribed drugs as compared to patients who took multiple drugs per day(19,37,52)

2.2.4. Organizational Factors

The health care system and health care providers such as physicians, pharmacists and nurses have a tremendous role in their daily practice to improve patient medication adherence(43). A cross-sectional study done in Saudi Arabia shows that individuals whose last visit was greater than one month duration and those whose drugs changed by physician more than once were significantly associated to non-adhere than the counter-part with ($p<0.001$ and $p= 0.002$) respectively, but those who counseled by health care providers were more adherent than the counter part with ($p<0.001$)(57). In Kenya individuals who have been counseled by their clinicians on MA were more likely to be adherent than the counter ($p=0.000$)(51).

A cross-sectional study done in northwest Ethiopia shows that individuals who had favorable attitude about antihypertensive treatment were ten times more adherent than unfavorable and a good patient provider relationship was four times more adhere than counterpart (18).

2.2.5. Social Supporting Factors

A multidimensional social support is a support that one could obtain from family, friends and significant others. A Study done in India show that psychosocial interventions has great role to increases social support which enhance the adherence among HTN patients and there was a significant positive correlation between social support and adherence ($p<0.001$)(17). In the same way a study done in Namibia on assessing adherence to antihypertensive therapy in primary health care show that having a family support system and attendance of follow-up visits were significant predictors of adherence (OR = 5.4, p = 0.045) and (OR = 3.1, p = 0.03) respectively (65).

As a study done in Kenya shows that there was a positive relationship between multidimensional social support and MA among hypertensive patients, through reminding and information sharing, which lead to good MA (66). A cross-sectional study done in Central Ethiopia show that the treatment adherence was significantly and positively associated with having family support with (AOR: 1.65; 95% CI = 1.23, 2.22)(26)

2.3.Conceptual Framework

This conceptual framework is developed through reviewing different kinds of literatures which show the association between the dependent and independent variables. It is adopted and modified from the listed articles (18,19,21,37,51,53,61,63–65)

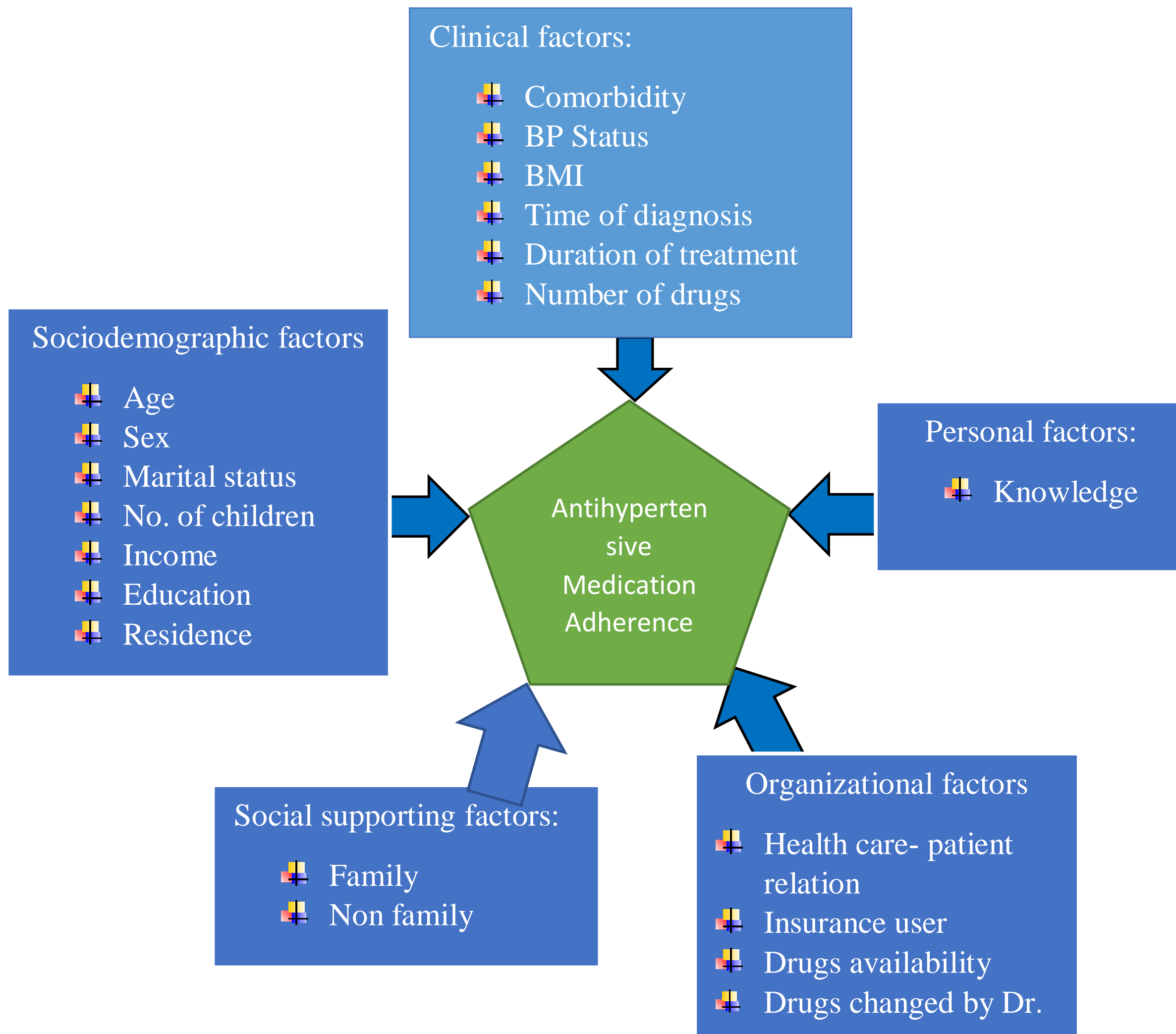


Figure 1: Proposed conceptual framework showing the associated factors of anti-hypertensive medication adherence in 2021

3. JUSTIFICATION OF THE STUDY

Even though hypertension is a preventable disease, but only the availability of effective antihypertensive medication didn't bring the intended outcome. In the worldwide majority of hypertensive patients are poorly adhering to their medication and less aware of the associated factors especially in developing countries including Ethiopia. Poor adherence to their medication has a negative impact on the quality of life of hypertensive patients and an inevitable challenge for health care providers. Even though various studies have been tried to determine the associated factors of anti-hypertensive medication adherence, but the factors are not yet clearly determined and only a few studies have been done on knowledge.

Though there is a scarcity of data and inconsistent results on antihypertensive medication adherence and its associated factors as a study done in Ethiopia before and there is no study done in the study area. To fill this research gap, the study aimed to assess the antihypertensive medication adherence and its associated factors among hypertensive patients in North Showa Zone Public Hospitals, Oromia, North Ethiopia, 2021.

4. SIGNIFICANCE OF THE STUDY

Knowledge of the prevalence of antihypertensive medication adherence and its associated factors among hypertensive patients follow-up enables the health care professionals and planners to establish proper measures to prevent complications of hypertension, to increases the ultimate clinical outcome and survival status of the hypertensive patient.

The findings from this study will provide the hypertensive patients with information on their adherence status and associated factors, and help them to prevent the problems and seek medical care timely. It will also be an input for the North Showa Zone health bureau and policymakers to review or strengthen their plan on antihypertensive medication adherence and its associated factors. Additionally, it will be used to reduce the workload on health care providers and gives clues to emphasize the health profession on associated factors of anti-hypertensive medication adherence. Furthermore, it will be used as an input for future researchers on related topics.

5. OBJECTIVE

5.1. General Objective

To assess antihypertensive medication adherence and its associated factors among hypertensive patients in north showa zone public hospitals, Oromia regional state, North Ethiopia. 2021

5.2. Specific Objective

- ✓ To determine anti-hypertensive medication adherence among hypertensive patients in North Showa Zone public hospital, Oromia regional state. North Ethiopia. 2021
- ✓ To identify factors associated to anti-hypertensive medication adherence among hypertensive patient in North Showa Zone public hospital, Oromia regional state, North Ethiopia. 2021

6. METHODS AND MATERIALS

6.1.Study Area and Study Period

As a Conesus done in 2007 shows that, the total population of north showa has 1,431, 305 from this 717552 men and 713753 women; with the area of 10322.48 square kilometers. The zone's capital city is Fiche which located at a distance of 112 km from Addis Ababa in the north direction. North Showa is surrounded by Amhara regional state in North and East, Addis Ababa special zone in South and West Showa zone in the West. The Zone has four governmental hospital and the study involves all of the hospitals. The study was conducted on follow-up units at Fiche general hospital, Kuyu hospital and Dera hospital. The total number of hypertensions follow up in North showa with a year is 7087. Fiche general hospital has 2626, Muka Xuri hospital 1144, Kuyu hospital 1980 and 1337at Dera hospital. The study was conducted from November /2020 to May/ 2021

6.2.Study Design

Institutional-based cross sectional study was used

6.3.Sources of Population

All hypertensive patients who had a follow up at North Showa Zone public hospitals, Oromia regional state.

6.3.1. Study Population

All hypertensive patients found in the public hospitals who were 18-years old and above, on antihypertensive medication at least for 6-month duration and available during the data collection.

6.3.2. Study Unit

Hypertensive patients'

6.4.Inclusion and Exclusion Criteria

6.4.1. Inclusion Criteria

All hypertensive patients found in the hospitals who were 18years old and above, on antihypertensive medication at least for 6-months period before the study and those who were voluntary to participate.

6.4.2. Exclusion Criteria

Patients with cognitive impairment

Seriously ill patients

6.5.Sample Size Determination

The sample size (n) required for the study was calculated using the formula used to estimate a single population proportion. Considering the study done in Nedjo general hospital on adherence to antihypertensive medication among chronic follow up of hypertension, a proportion of 31.4%(30) was taken to determine the sample size with a level of confidence intervals 95% and a margin of error 5%.

Therefore: $n=\frac{(z\propto/2)^2 p(1-p)}{(d)^2}$

Where, n= Sample size

$Z\ \alpha/2$= Critical value =1.96

p= Percentage of antihypertensive medication adherence = 0.314

d=Precision (margin of error) =0.05

$n = (1.96)^2\ 0.314(1-0.314) / (0.05)^2 = 331$

Substituting the values for each of these variables in the above formula, the sample size was estimated to be **331.**

Due to the total number of hypertensions follow up at North Showa public hospital was less than 10,000, a correction formula was used as follow:

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

Whereas: n_f: the final sample size

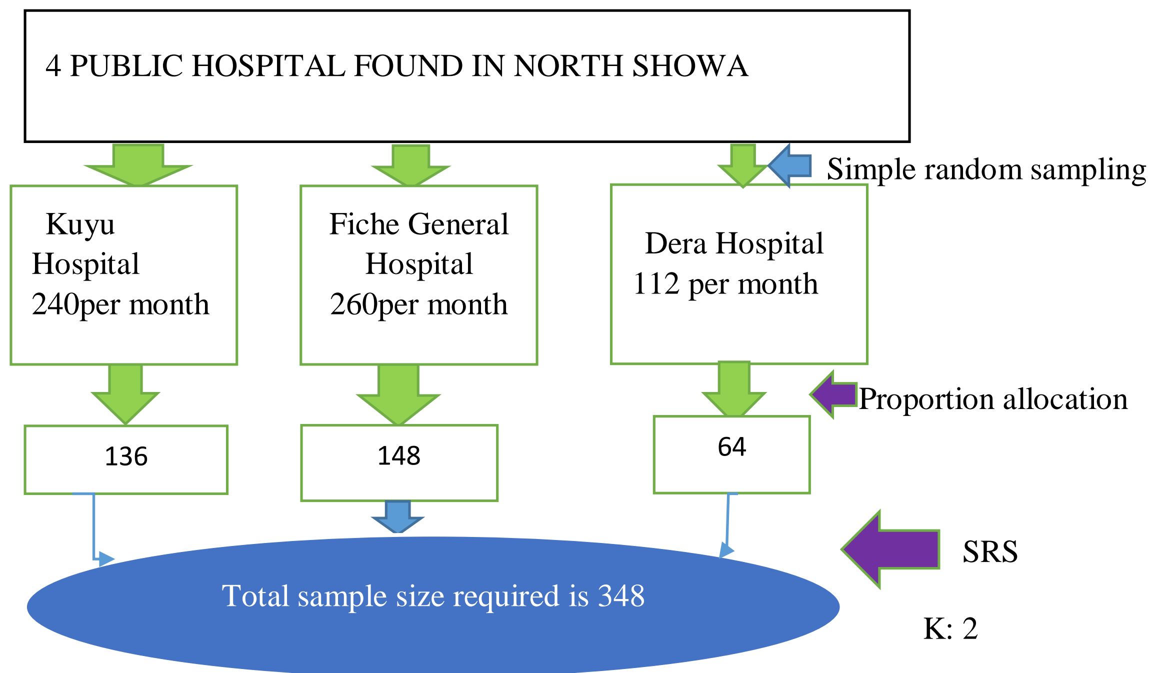
n: the initial sample size was 331

N: is the total number of hypertensions follow up at North Showa Zone is 7,087

By substituting the value in the above equation, the sample size was **316** and adding non response rate of 10%, the final sample size was **348**

6.6.Sampling Technique.

There are 4 public health hospitals that give chronic follow-up services in the North Showa Zone. Out of these three hospitals were selected using sampling random sampling techniques for the study. The number of study units for each follow-up was proportionally allocated based on the number of patients coming per-month and those who were a part of the final sample size were selected using systematic random sampling. The 1st interviewee was selected by lottery methods from chronic illness clinical registration books, code was done with the "K" value and continue until sample size required was full filled by adding the "k" value to the sub-sequent selected one.



Key: **SRS**: Systematic Random Sampling

Figure 2: Schematic presentation of sampling techniques

6.7.Variables

6.7.1. Dependent

Adherence to anti-hypertensive medication

6.7.2. Independent

- Sociodemographic Factors: sex, age, marital status, number of children, monthly income, educational status and residence
- Clinical Factors: Comorbidity, BP status, BMI, time of diagnosis, duration of treatment and number of drugs used
- Personal Factors: Knowledge
- Organizational Factors: Health care provider-patient relation, insurance coverage user, drugs availability in hospitals and drugs changed by Dr.
- Social Supporting Factors: Family and non-family support

6.8.Operational Definition

Adherent:- respondents who score ≥6 in Morisky Medication Adherence Scale-8(37,67)

Non-adherent:- respondents who score <6 in MMAS-8(37,67)

Good knowledge:- respondents who scored points at the mean and above from the item knowledge questions prepared on hypertensions(24)

Poor knowledge:- respondents who scored points less than the mean from the item knowledge questions prepared on hypertensions(24)

Co-morbidities:- respondents with one or more medical conditions in addition to hypertensions(52).

Social support:- A respondent whose score above the mean value on the Duke Social Support and Stress scale were taken as having social support (52)

Young adult: individuals whose age range from 18-39years (68)

Middle adult: those whose age range from 40-59years (68)

Old: those whose age greater or equal to 60 years (68)

Poverty Line: individuals whose daily income were lees 1.9$(2500ETB) (69)

4.9. **Data Collection Instruments.**

A structured and pretested interviewer-administered questionnaire was used. The following listed parts were assessed during data collection.

I: Sociodemographic factors which contain around ten (10) closed and open-ended questions.

II: Clinical factors: This is the question item that incorporates HTN status, BMI, duration of diagnose, number of medications used and comorbidities

III: Personal factors: was used to assess the general knowledge of patients about HTN and its related issues.

IV: Organizational factors: It contains 7 open and closed-ended questions, used to assess the health care patient relationships and health care system.

V: Social supporting factors: was used to assess the supporting status of individuals, from family and non-family members which contains 12 questions (clearly described below)

VI: Antihypertensive medication adherence: It is the ways of the individual's antihypertensive medication status was assessed and it contains 8 closed-ended questions (clearly described below).

All the above-stated questionnaire was adopted from similar study done before and some standard guidelines tools that are used to assess antihypertensive medication adherence and its associated factors. Such as the WHO STEPwise approach to chronic disease risk factor surveillance (70). On the adherence status of antihypertensive medication, it contains eight items Morisky's Medication Adherence Scale (MMAS-8) which was used to assess the study participant's MA. A scoring scheme of "Yes" = 1 and "No" = 0 for the first seven, **except the 5th** question which reversed and items in the last a five-point Likert response, was used with options "never", "once ", "sometimes", "usually", and "always", low <6, 6-8 medium and 8 high adherents (71)

The Duke Social Support and Stress Scale contain 12items that were used to assess social support gained from family, friends or significant others. The responses were coded as follows: “none” =0, “some” =1, “a lot” =2, “yes” =2, “no” =0 and “there was no such person” =0. A blank response was considered as “0”, the support score was calculated by summing the six responses in both sections (family and non-family support); based on the reply to the last question, 2 was added to either the family or non-family support. The total result was divided by 22 and multiplied by 100 to give a 0 to 100 score (72). All question was first prepared in English and translated to the local language of the community “Afan Oromo and Amharic” for data collection and translated back to English by independent language expert in order to ensure its consistency. The question contains around six components: sociodemographic, clinical, personal, organizational factors, social supporting factors, and antihypertensive medication adherence status evaluation tools.

4.10. Data Collection Methods

Data was collected through face-to -face interviewers. Three BSc nurse were assigned as data collector separately to three hospitals which had a follow-up unit of HTN and supervised by two experienced BSc nurse. The principal investigator supervises the overall activity done daily. The training was given by the principal investigators for two days on overview of the study topics, interview technique, ethical issues and the rights of participants for the sake of keeping consistence in all of the data collectors and to minimize bias through the data collection.

4.11. Data Quality Control

Pretest was done on 5% of the total sample size at Chanco hospital to assess whether the checklist item was easily understood by data collectors. Data collectors and supervisors were trained for two days on the purpose of the study, details of the questionnaire, on interviewing techniques, importance of privacy, and ensuring the confidentiality of the respondents. The questionnaire was prepared in English language and translated to “Afan Oromo and Amharic” then back to the English language by language experts to check its consistency. Close supervisions at the end of every data collection was made; the questionnaire was reviewed and checked for completeness, accuracy and consistency by supervisor and principal investigator to take timely corrective measures.

4.12. Data Processing and Analysis

All the interviewed questionnaires were checked visually by the principal investigator. Data were coded, cleaned and entered using Epi Data version 3.1 software. Double entry was made to cross-check the data for completeness before analysis. The entered data was be exported and analyzed with Statistical Package for Social Science (SPSS) version 23 software. Descriptive analysis was done in frequencies, percentages, means, and standard deviation, and presented by tables, graphs, and pi-chart.

A bivariate analyses was computed to see the frequency distribution and to test whether there is an association between medication adherence and selected independent variables, respectively. Factors associated with medication adherence on bivariate analysis were identified, and the variables with P-values of <0.2 were taken to multivariable logistic regression and analysis was done by controlling the confounding variables. An adjusted odd ratio (AOR) with 95% confidence intervals and P-value<0.05 were declared as having a significant relation ships with the outcome variables. Muticollinearity and fitness of the model was checked. Model fitness was tested by the Hosmer-Lemeshow goodness of fit test and the model was adequately fit with a P-value >0.05.

4.13. Ethical Consideration

Ethical clearance was obtained from the Research and Ethics Committee of the Department of Nursing and midwifery of AAU and the official letter was sent to three public hospitals found in North Showa Zone. After getting permission from the hospitals to participate in the study, verbal and written consent was obtained for the willingness of patients to participate. The patients' privacy was maintained by conducting the interview in a private place and inform them, they were not be any incentive or harm for their participation in this study. Finally, participants' identity was kept anonymous throughout the data collection and analysis process.

4.14. Dissemination of Finding.

The final result of this research will be presented to the community department of nursing and midwifery of AAU and different seminar. It will be disseminated to the North Showa health bureau and three public hospitals found in North Showa Zone. Finally, it will be published in peer-reviewed journals for further utilization

7. RESULT

7.1.Sociodemographic Characteristics of the respondents

In this study, a total of 348 chronic follow-up hypertensive patients were interviewed from three public hospitals in North Showa Zone that fulfill the inclusion criteria with a response rate of 97.4%. As shown in table 1, from the participants more than half (56.3%) were female. The mean age of the respondents was 53.26 ± 11.086 years and majority of the respondents 197(58.1%) were in the 40-59 age group. By their religion: 66.4%, 21.5%, and 12.1% were Orthodox, Muslim, and Protestant respectively. More than three quarter 280(82.6%) of the participants were married and 55.5% of them had four and above four children. Two hundred twenty-seven (67%) of respondents were live in urban. Out of the respondents, 109(32.2%) can't read and write, and 143(42.2%) were farmers while more than half (63.2%) of them were less than 2500 ETB monthly income.

Table 1: Socio demographic characteristic of hypertensive patients (N = 339), North Showa Zone Public Hospitals, Oromia, North Ethiopia, 2021.

Variables		Frequency	Percent
Sex	Male	148	43.7
	Female	191	56.3
Age	18-39	45	13.3
	40-59	197	58.1
	≥60	97	28.6
Religion	Orthodox	225	66.4
	Muslim	73	21.5
	Protestant	41	12.1
Marital status	Single	15	4.4
	Married	280	82.6
	Divorced	16	4.7
	Widowed	28	8.3
Number of children	≤3	151	44.5
	>4	188	55.5
Residence	Urban	227	67

	Rural	112	33
Ethnicity	Oromoo	226	66.7
	Amhara	100	29.5
	Tigre	2	0.6
	Gurage	11	3.2
Educational level	Can't read and write	109	32.2
	Read and write	77	22.7
	Primary	68	20.1
	Secondary	36	10.6
	College/University	49	14.5
Occupation	Farmer	143	42.2
	Merchant	110	32.4
	Gov't employee	58	17.2
	Daily labour	28	8.3
Monthly income	<2500	214	63.2
	≥2500	125	36.9

7.2. Clinical Character of Hypertensive Patients

In this study, more than one -third (39.1%) of the respondents' blood pressure (BP) were greater than or equal to 140/90mmHg, and more than three-quarters (84.4%) of them had a normal range of body mass index. Out of the respondents, more than three-quarters (78.2%) of them was a 5years history of hypertension and 50.4% of them were on treatments for 2-4 years. The mean number of pills taken per day was 1.95 with a standard deviation of 0.84 and 30.1% of them taking three and above drugs **(Table 2)**

From the participants more than half (52.5%) of them had no comorbidities **(Figure 3)** and 62.8% had good knowledge about hypertension and its treatments'. The total mean score of respondents" social support on the Duke's social support and stress scale" was 49.96 $\pm$ 14.63 and more than half (53.4%) of them got support from family or non-family members (**Table 2).**

Table 2: Clinical character of the hypertensive patients' (N=339) in North showa Zone Public Hospitals, Oromia, North Ethiopia, 2021

Variables		Frequency	Percent
Blood pressure	less than 120/80mmHg	30	8.8
	120-129/<80mmHg	57	16.8
	130-139/80-89mmHg	119	35.1
	≥ 140/90mmHg	126	39.2
BMI	Less than 18.5	14	4.1
	18.5 to<25	286	84.4
	≥25	39	11.5
Time of diagnosed in year(s)	<5	265	78.2
	≥5	74	21.8
Duration of treatment	0.5-1	52	15.3
	2-4	171	50.4
	≥4	116	34.2
Types of medication	1	125	36.9
	2	112	33.0
	≥3	102	30.1
Knowledge status	Good	213	62.8
	Poor	126	37.2
Social supporting status	Supported	181	53.4
	Unsupported	158	46.6

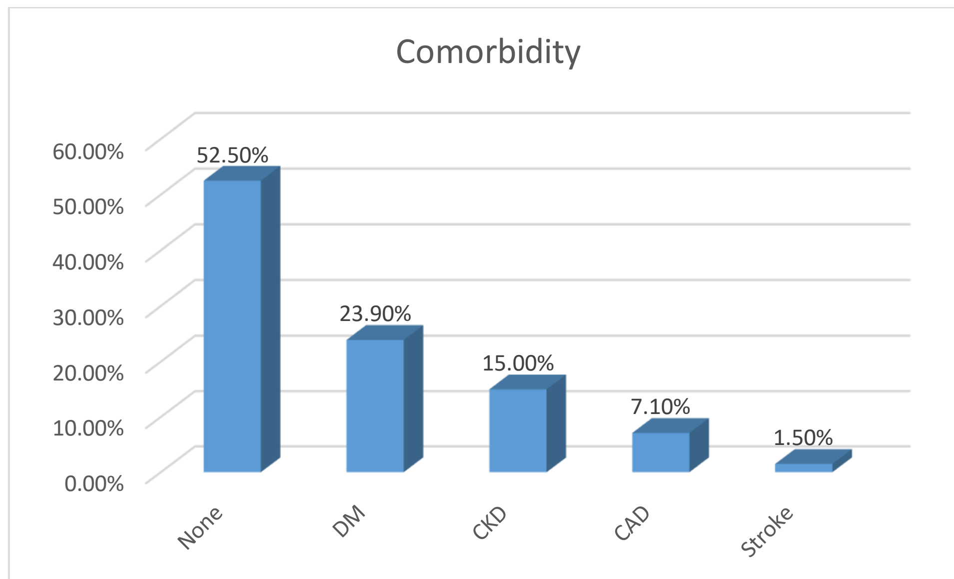


Figure 3: Prevalence of Co -morbidity among hypertensive patients at North Showa Zone, three public hospitals, North Ethiopia, 2021

7.3.Organization and hypertensive patient's relationships.

The relationships of organization and hypertensive patients follow up in North Showa Zone public hospitals show that more than half (57.8%) of them used insurance coverage and got their medication free from the hospitals, however around 43.4 % of the patients respondent that, drugs didn't available in the hospitals. Almost all (95.6%) of the respondents had good relationships with their health care providers. Nearly half (48.1%) of the respondents' drugs changed by their Doctors, and 15.6% had changed three and above three respectively.

Table3: Organization and Hypertensive patients' relationships (N=339), North showa public hospital, Oromia, North Ethiopia, 2021

Variables		Frequency	Percent
Insurance coverage user	Yes	196	57.8
	No	143	42.2
Drug available in hospital	Yes	192	56.6
	No	147	43.4
Relationships with health care providers	Yes	324	95.6
	No	15	4.4
Drugs Changed by Dr.	Yes	163	48.1
	No	176	51.9
If yes, how many	1	57	16.8
	2	53	15.6
	≥3	53	15.6

7.4. Medication adherence characteristics of the respondents.

Through using the MMAS-8 scale individuals who respond 6 and above were considered as adherent and the opposite was true for non-adherence. So out of the 339 chronic follow-up hypertensive patients, more than half (56.9%) of them adhere to their medication (**Figure 4).** Out of the study subjects, more than one-third (34.5%) hadn't taken their medication due to forgetfulness. Besides this 32.7%, 24.2%, and 11.2% didn't take their medication as a result of feeling worse, travel/leave the house, and feel better respectively **(Table 4**). Even though the frequency of remembering differed between the study subjects, almost more than half (56.9%) of respondents had difficulty remembering their medication.

Table 4: Medication Adherence Status of Hypertension Patients follow up at North Showa Zone Public Hospital, Oromia, North Ethiopia, 2021. N=339.

Variables	Frequency and percent	Frequency and percent
	Yes	No
Do you ever forget to take your medicine?	117 (34.5)	222(65.5)
In the last two weeks, is there any day when you did not take your high blood pressure medication?	82(24.2)	257(75.8)
Have you ever stopped taking your medications or decreased the dose without your doctor order, because you felt worse when you took them?	82(24.2)	276(78.8)
Do you forget to take your medications, when you travel or leave the house?	111(32.7)	228 (67.3)
Did you take your high blood pressure medication yesterday?	297 (87.6)	42(12.4)
Do you stop taking your medications, when you feel your blood pressure is controlled?	38 (11.2)	301(88.8)
Have you ever felt distressed for strictly following your high blood pressure treatment?	49 (14.5)	290 (85.5)
How often do you have difficulty to remember taking all your blood pressure medications?		
Never	146(43.1)	
Once	49(14.5)	
Sometimes	110(32.4)	
Usually	33(9.7)	
Always	1(0.3)	
Adherent	193	56.9
Non-adherent	146	43.1

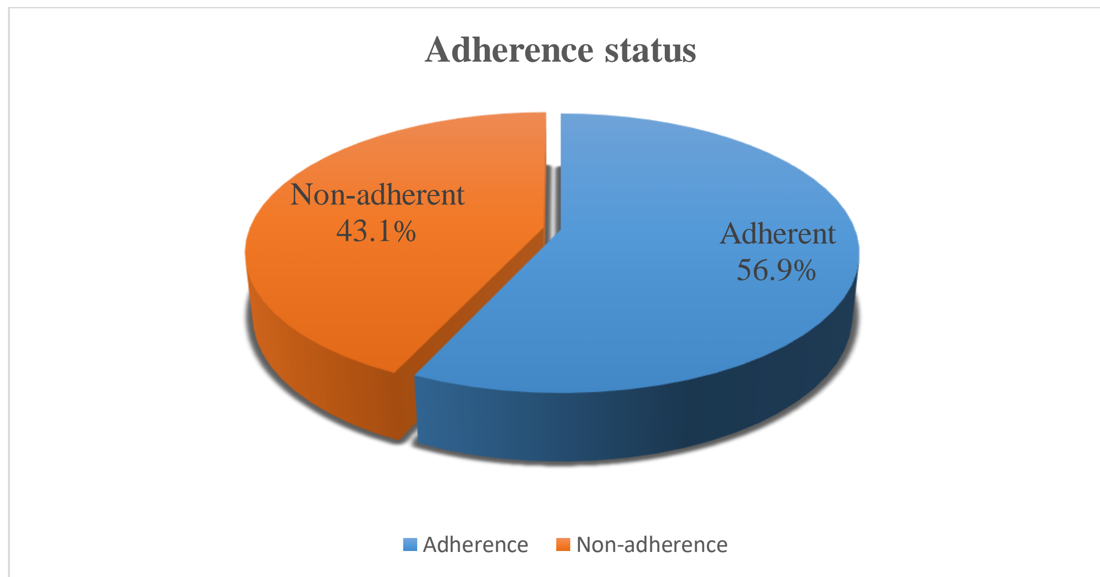


Figure 4: Antihypertensive Medication Adherence Status of North Showa Zone Public Hospital, North Ethiopia. 2021

7.5.Factors Associated with Antihypertensive Medication Adherence

To identify the association between antihypertensive medication adherence and predictive variables, a bivariate logistic regression analysis was first done for all independent variables. A total of nineteen (19) variables were found to be candidates for multivariate analysis with a p-value less than 0.2 **(Table 5).** In order to find out the independent predictors of antihypertensive medication adherence, multivariate logistic regression analysis was done. Before running the multivariable analysis, Hosmer-Lemeshow goodness of fit (P=0.245) and multicollinearity (VIF=1.04-1.58) were tested and the model was adequately fit and no multcollinearity among the variables.

The candidates' variables identified for multivariate logistic regression analysis were entered into SPSS version 23 using the backward method. Seven variables, namely: marital status, residence, BP status, number of medications used, co-morbidity, knowledge status about HTN and its treatments, and insurance user showed significant association with antihypertensive MA among hypertension patients follow-up at P-value <0.05.

Table 5 presented the multivariate logistic regression of factors associated with antihypertensive medication adherence. As table 5 showed that those who got married were 3 times (AOR=3.28, 95%CI= 1.12-9.60) more adhere than widowed. In the same

manner, individuals who live in the Urban area were three times (AOR= 2.59, 95%CI =1.42-4.75) more adhere than the counterpart. Those who have controlled BP had a significantly higher chance of being adherent to their medication (AOR=4.26, 95% CI =2.37-7.67) than uncontrolled BP. The odds of adherence of those who took less than or equal to two drugs were three times (AOR=2.59, 95%CI=1.35-4.97) higher than the odd of adherence among hypertensive patients who took three and more drugs (Table5).

Those who had no comorbidities were two times (AOR=2.48, 95%CI=1.33-4.67) more adhere than those who had any comorbidities. The odds of adherence to anti-HTN medication among those who had good knowledge was five times (AOR = 5.01, 95%CI = 2.69-9.35) higher than the odds of adherence among HTN patients who had poor knowledge. Besides, those whose drug cost covered by insurance was two (AOR=2.20, 95%CI=1.23-3.95) times more adhere to their medication than those paid a cost (Table 5)

Table 5: Bivariate and multivariate logestic regression analysis result showing factor associated with antihypertensive medication adherence among hypertensive patients follow up at North Showa Zone Public Hospitals, Oromia, North Ethiopia, 2021. (N=339)

Variables		Adherence		COR (95%CI	P-value	AOR (95%CI)	P-value
		Adherent	Non-adherent				
Sex	Male	79	69	1			
	Female	124	67	2.12(1.37-3.29)	0.001*		
Age	18-39	23	23	1.21(0.06-2.43	0.604		
	40-59	126	70	2.17(1.32-3.56)	0.002*		
	≥60	53	44	1			
Marital status	Single	3	12	0.63(0.14-2.82	0.54	0.46(0.08-2.64)	0.380
	Married	178	102	4.36(1.86-10.26)	0.001*	**3.28(1.12-9.60)**	**0.030****
	Divorced	4	12	0.83(0.21-3.37)	0.798	0.59(0.11-3.17)	0.539
	Widowed	8	20	1		1	
No. children	≤3	99	52	1.90(2.07-5.31)	0.004*		
	>4	94	94	1			
Residence	Urban	152	76	3.31(2.07-5.31)	0.002*	**2.59(1.42-4.75)**	**0.002****
	Rural	42	70	1		1	
Educational level	Informal	88	103	1			
	Formal	105	43	2.86(1.81-4.50)	<0.001*		
Occupation	Farmer	79	64	2.22(0.96-5.15)	0.063*		
	Merchant	66	44	2.70(1.14-6.39)	0.024*		
	Gov't employe	38	20	3.42(1.33-8.79)	0.011*		
	Daily worker	10	18	1			

Monthly income	<2500	117	97	1			
	≥2500	76	49	1.29(0.82-2.01)	0.27		
BP status	Controlled	145	61	4.21(2.65-6.70)	<0.001*	**4.26(2.37-7.67)**	**<0.001****
	Uncontrolled	48	85	1		1	
BMI	Less than 18.5	6	8	1.08(0.33-3.50)	0.898		
	18.5-24.99	162	102	2.29(1.30-4.03)	0.004*		
	≥25	25	36	1			
Duration of diagnos	<5years	163	102	2.34(1.39-3.97)	0.002*		
	≥5years	30	44	1			
Duration of treatme	<5years	163	102	2.34(1.39-3.97)	0.002*		
	≥5years	30	44	1			
No. of drugs	≤ 2	91	40	2.36(1.49-3.75)	<0.001*	**2.59(1.35-4.97)**	**0.004****
	≥3	102	106	1		1	
Comorbidity	Absence	131	46	4.59(2.90-7.29)	<0.001*	**2.48(1.33-4.61)**	**0.004****
	Presence	62	100	1		1	
Knowledge status	Poor	41	86	1		1	
	Good	152	61	5.17(3.21-8.32)	<0.001*	**5.01(2.69-9.35)**	**<0.001****
Insurance User	Yes	134	62	3.08(1.96-4.82)	<0.001*	**2.20(1.23-3.95)**	**0.008****
	No	84	59	1		1	
Drugs in hospital	Yes	113	79	1.37(0.89-2.16)	0.104*		
	No	80	67	1			

Relation with HCPs	Yes	188	136	2.77(0.92-8.27)	0.069*	3.73(0.98-14.22)	0.054
	No	5	10	1		1	
Drugs changed by Dr.	Yes	86	77	1		1	
	No	107	69	1.39(0.90-2.14)	0.136*	0.56(0.30- 1.07)	0.078
If yes how many	1	32	25	1.55(0.73-3.28)	0.256		
	2	30	23	1.58(0.73-3.39)	0.245		
	≥3	24	29	1			
Social support status	Unsupported	76	82	1		1	
	Supported	117	64	0.51(0.33-0.78)	0.002*	1.78(0.99- 3.20	0.055

Note: "*" Variables with P-value<0.2, "**"variables with p value <0.05, P- value =0.000 considered as P<0.001, AOR adjusted odds ratio, CI confidence interval, COR crude odds ratio," BMI" body mass index, "1" reference category, "BP" blood pressure, "HCPs" health care providers

8. DISCUSSION

The adherence status of hypertension patients to anti-hypertension medications remains a major challenge for public health, especially in developing countries. Poor adherence to antihypertensive medication is the most important reason for uncontrolled HTN, serious complications, and wastage of health care resources. In the absence of new drugs to control BP, drug adherence is a crucial issue in the management of hypertensive patients. As different studies show the major challenge in controlling BP is lack of persistence follow up with poor day to day execution of the prescribed drugs (25)

In this study, more than half (56.9%) of the respondents in North Showa Zone public hospitals were found to be adherent to their antihypertensive medication treatment. This finding consistent with the study done in Nigeria (61.2%) (50), Kenya (62.4%) (51) and JUSH (61.7%) (37)

The observed 56.9 % is higher than the findings of other studies reported in Pakistan (7.58%) (22), India (23.7%) (25), North Vitienema (49.8%) (29), Cameron (43.9 %) (6) and Nedjo general hospital (3.14%) (30). The possible discrepancy might be explained, in the current study more than half (57.8%) of hypertension patients receive free medical care and drugs, whereas, in the other study, patients pay for their treatment. In Nedjo general hospital small (172) sample size was used.

However the present finding is lower than the studies done in Romania (69.8%) (45), Sri Lanka (71.8%) (46) and Korea (81.7%) (47), Debre tabor general hospital (75.1%) (19) and University of Gondar hospital (64.6%) (39)**.** This inconsistency might be due to better health care and health facility, better knowledge toward hypertension and its management among participants and sociodemographic variation in Romania, Sri Lanlka, and Korea, as well as sample size variation (1,523) in Korea than the current study. In Debre tabor general hospital and University of Gondar hospital study, the adherence status was assessed using the four-item Morisky medication adherence scale (MMAS-4)

In the current study, there is a significant association between marital status and antihypertensive medication adherence. Those who got married were three times more adherent than widowed. This finding is in line with the study done in north United Arab Emirates, Ghana and Black Lion hospital (57,58,60). This association could be due to, those who married had a person to whom share their stressor as well as one can remind the others, the time to take medication.

This study shows that those who live in urban area were three times more adherent than the counterpart. This finding is consistent with a study done in Debra tabor general hospital and Hawass referral hospitals (19,24). The association might be explained that urban residents lived to have a high chance to access media, too near the health facility, and took less time to reach the health facility for their medications. Besides this, they might have a high chance to remember the time to take their medication.

However, there is an inconsistent study done in India (23), Korea (54), and Northwest Ethiopia (18). The discrepancy might be due to India and Korea is a developed country in which all communities can easily access the media, health facility and reach the health facility on time. While the local discrepancy could be due to the study setting, more than three quarter (78.2%) of them were urban, whereas in the current study (67%) is urban.

Blood pressure control remains unsatisfactory in all countries of the world and several factors have been identified which hinder blood pressure control. From them, poor medication adherence plays a tremendous role (25). In this study, those who had controlled BP were four-time more adherent than those who had uncontrolled BP. This finding in line with the study done in Uzbekistan (61), Malaysia (32), Romania (45), Gana and Nigeria (59), University of Gondar hospital (39) and Hawassa referral hospital (24).

The association could be explained that controlled BP might be contributing to better outcome of treatment, offer the patient good satisfaction and creates strong motivation of the patients towards the treatment. But, uncontrolled BP could make the patient hopeless and low satisfaction, and come up with stop their treatment.

There is a significant association between the number of antihypertensive drugs taken and the adherence status of patients. In this study, those who took less than or equal to two drugs per day were three times more adherent than those who took three and more. This finding agreed with the study done in Iran (63), Brazil (64), United Arab Emirates (57), Algeria (33), Debre tabor general hospital (19), and JUSH (37). The association might be due to the fact that when the number of drugs taken by patients decreases, their ability to remember and memorize the proper intake of the drugs (right drugs at right time) increased. Besides, fewer drugs have fewer side effects, which ultimately increases the adherence status of patients.

Co-morbidities can worsen the conditions of the patient's diseases and the burden of cost that decrease the adherence to anti-hypertensive medications. This study revealed that individuals with one or more comorbidities were less adhere to their medication than those who had no comorbidity. This finding is supported by the study done in Debra tabor general hospitals, Algeria, and Iran (19,33,63). The possible reason could be due to a complicated treatment regimen (increased the number of prescribed medications) for both HTN and comorbidities could result to polypharmacy, pill burden and create fear on patients about its side effect, that hinder the adherence of prescribed medication. Besides, when patients have another added health problem, their attention could be diverted towards the newly developed disease.

This study inconsistent with the study done in India (25), Namibia (65), and Saudi Arabia (21). The variation might be due to better health facilities accessibility increases the chance of early diagnosis and management of comorbidities, the ability to perceive the seriousness of their health condition and want to prevent further complications. Additionally, experiencing more severe symptoms of other conditions increase the patients' adherence to their medication.

Poor adherence and poor HTN control still unresolved big challenges for health care providers, but having information about the HTN and its treatment is a significant independent determinant of good adherence (40). In this study individuals who had good knowledge about hypertension and its treatments were five-time more adhere than the counterpart.

This finding in line with the study done in Debra tabor general hospital, Poland, United Arab Emirates, Nigeria, Kenya, Uzbekistan and India (19,40,41,50,51,61,62). The association might be due to good knowledge about HTN and its treatment creates a clear understanding and avoids confusion about the disease condition and its treatment.

In this study, those who used insurance coverage were two times more adherent than those who paid cost per their follow-up. This finding similar to the study done in Algeria (33) and Northwest Ethiopia (18). The association might be explained that among insurance users, the burden of cost pay was already covered, they didn't worry about the cost of drugs rather than the time to take the drugs and their effectiveness.

However the present study contrary to the study done in Korea (54) and United Arab Emirates (57). The discrepancy might be due to Korea and the United Arab Emirates is a developed country in which the community can afford the cost of drugs and the health care facility.

8.1. Strength and Limitation of the Study

This study includes the most important variables which have an association with anti-hypertensive MA and it incorporates more public hospitals found in North Showa Zone. Antihypertensive medication adherence was assessed through the 8-item Morisky medication adherence scale (MMAS-8) that had 83% reliability and data were collected from patients through face-to-face interviews with patients; this helps me to have more complete information. It also generalizes all hypertensive patients who had follow-up at North Showa Zone public hospitals.

The study didn't include the private health facility which provides hypertension follow-up services and didn't consider patients who didn't visit the health facility during the data collection. Besides this, it didn't determine the cause and effects as a result of study design and might have a bias of self-response.

9. CONCLUSION AND RECOMMENDATION

9.1 Conclusion

The adherence status of this study was sub-optimal and the knowledge status of hypertension patients about the disease and its treatments was the most associated factor. Besides, the status blood pressure, marital status, residence, number of drugs used, comorbidities and insurance user were stastically significantly associated. Give health education for patients about HTN and its treatments, early diagnosis, and management of comorbidity, and adherence counseling plays a tremendous role in improving the adherence status of clients.

9.2. Recommendation

Based on the findings of the study, the following recommendation are forwarded:

To North Showa Zone health professionals:

- Give health education for hypertensive patients on the diseases and their treatments, and emphasis should be given to rural patients.
- Counseling the patients on antihypertensive MA, especially advising the patients to use medication boxes with dates/times written on the boxes or setting an alarm clock.
- Early diagnosis and management of comorbidities
- Take attention to the selection of medication, especially the number of medications or simplifying regimes.

To North Showa Zone health bureau and Policy makers

- Create awareness and opportunity for the community to use insurance of health coverage
- Increases the accessibility of medical health care as much as possible

To researchers'

- Including the private health facility which provide hypertension follow-up and use another study design to prevent self-report bias as well as to determine cause and effects
- Increases the sample size to enhance the chance of finding out the problems.

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11.APPENDEX

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF NURSING

Annex I: Information sheet

Hello. My name is ________________ I am working on behalf of a research conducted by Asfaw Getaye, a post graduate student from Addis Ababa University, College of Health Sciences, and department of Nursing. I kindly request you to lend me your attention to explain about the study and being selected as a study participant. If you allow me, I would like to ask few questions which takes 20minutes after you understand the following information sheet.

Study title:

Antihypertensive medication adherence and its associated factors among hypertensive patients in North Showa Zone Public hospitals, Ethiopia 2021

Objective of the study:

To assess antihypertensive medication adherence and its associated factors among hypertensive patients in North Showa Zone Public hospitals, Ethiopia 2021

Procedure and duration:

I will be interviewing you using structured questionnaire to provide a data that is helpful for the study. The interview will take about 20 minute, so I kindly request you.

Risk and benefit of the study:

The risk of being participating in this study is very minimal, it only take your time. There won't be any payment for participating in this study. But the findings from this research may reveal necessary information for the Zonal health bureau. On the other hand if you

don't know the associated factors of antihypertensive medication adherence you can capture many information.

Right of the participants:

Participation for this study is fully voluntary. You have the right to declare to participate or not in this study. If you decide to participate, you have the right to withdrawal from the study at any time. You don't have to answer any questions that you don't want to answer

Confidentiality:

The information you will provide us will be confidential. There will no information that will identify you in particular. Any information forward will be kept private and name will not be specified

Contact address:

If there are any question or enquiries at any time about the study or the procedure you can contact by using the following address.

Principal investigator: Asfaw Getaye

E-mail: asfawgetaye11@gmail.com

Mobile phone: +2521-0932498804

Annex II: Informed Consent

I have read this form or it has been read to me in the language I understand. I have clearly understood the purpose of the research, the procedure, the risk and benefits, issue of confidentiality, the right of participating and the contact address for any queries. I have been given the oppounity to ask questions for things that may have be unclear. I was informed that I have the right to withdrawal from that study at any time or not to answer any questions that I don't want. Are you willing to participate in this study?

A. No---------- (say thanks!)
B. Yes-------Continue with the interview

How long have you been taking anti – hypertensive medications?

If < 6 months, thank and stop interviewing.

If >6 months, continue interviewing

Thank you for being voluntary to participate in the study

Name of the interviewer _______________ Sign. _____ Date ________

Identification Code Number:_______________

Annex III: Data collection for English version Questionnaire

Part I – Socio-demography factors: This section is about sociodemographic characteristics of the respondent. Tick (√) on the responses from the given alternatives.

No.	Question	Category
101	Gender of the respondent	Male ◻ Female ◻
102	Age of the respondents	----------------Years
103	Religion	1= Orthodox ◻ 2 = Muslim ◻ 3 = Protestant ◻ 4 = Catholic ◻ 99 = Other --- (Specify)
104	Marital status	1= Single ◻ 2 = Married ◻ 3 = Divorced ◻ 4 = Widowed ◻
105	Number of children	------------
106	Residence	1= Urban 2= Rural
107	Ethnicity	1= Oromo ◻ 2 = Amhara ◻ 3 = Tigre ◻ 4 = Gurage ◻ 99 = Other… (Specify)
108	Level of education	1= Can't read and write ◻ 2 = Read and write ◻ 3 = Primary ◻ 4 = Secondary ◻ 5 = College/University ◻
109	Occupation	1=Farmer ◻ 2: Merchant ◻ 3: Governmental employee ◻ 4 = Daily labor ◻ 99 = Other (Specify)------)------
1010	Monthly income	-----------ETB

Part II: **Clinical Factors:** This section is about the general health condition of the respondent. Ask the questions and fill the given answer from the respondent on the space provided.

No.	Questions	Category
201	What was the respondent's blood pressure measurement today?	------- in mmHg
202	What is the respondent's BMI?	
203	How long has it been since you were diagnosed with hypertension	------months/years?
204	How long have you been taking anti-hypertensive medications?	------in month/years
205	How many types of anti-hypertensive medications do you take?	---------
206	Do you have any of these comorbidities?	1=No comorbidities □ 2=Diabetes mellitus□ 3 = CKD □ 4 = Stroke □ 5=CAD □ 99Others (Specify)-

Part III– Personal Factors (knowledge of hypertension): This section is about knowledge regarding hypertension, measurement of BP and its management. Tick (√) on the box in front of the alternative that is given as an answer by the respondents.

No.	Question	Category
301	Which of the following is true about hypertension?	1=Raised BP □ 2=Raised blood sugar □ 3=Increased stress □ 4= Don't know □

302	A person is considered to have hypertension if either their systolic blood pressure is 140 or their diastolic is 90 or higher on two separate occasions.	True □ False □
303	Which of the following statements about taking blood pressure medicine is true?	1 = More than one type of blood pressure medicine can be taken at the same time □ 2 = Blood pressure medicine should be taken if a person drank alcohol that day □ 3 = Blood pressure medicine should always be taken with food □ 4 = Blood pressure medicine works best if it is taken at bedtime □
304	Most people can tell when their blood pressure is high because they feel bad or sever hedache	True □ False □
305	Which of the following increases your risk of having hypertension?	1=Family history of HTN □ 2=Aging □ 3= Overweight □ 4= Eating high fat contents & salt □
306	Hypertension is a treatable diseases	True □ False □
307	People with hypertension do not need to take medicine if they exercise regularly	True □ False □

308	Which one of the following changes to your diet is most likely to lower blood pressure?	1= Eat more fruits, vegetables, whole grains, and low-fat dairy products □ 2 = Eliminate spicy foods □ 3 = Drink one glass of red wine daily□ 4 = Drink herbal tea instead of coffee□
309	Uncontrolled hypertension can lead to which of the following:	1= Stroke □ 2 = Lung cancer □ 3= Brain cancer □4= High cholesterol

Part IV: Organizational Factors: This section is about health care system and health care provider- patient relationships. Ask the questions and fill or tick (√) the given answer from the respondents on the space provided

NO.	Questionnaire	Responds
401	Are you a health insurance coverage user?	Yes □ No □
402	If not what is the average cost of your hypertension medication per month?	________ETB
403	Are those drugs readily available in the hospital pharmacy?	Yes □ No □
404	Have you good relationships with your health care provider?	Yes □ No □
405	Have you ever been the drugs changed by your Doctor?	Yes □ No □
406	If yes how many times?	________
407	Have you ever been told by your Doctor the importance of taking your high blood pressure medication?	Yes □ No □

Part V – Social Support Factors: This section is about support gained from family and non-family members. After stating the family or non-family member, tick on:-

None - if there is no support at all from the stated individual

Some – if there is minimal support from the stated individual

A lot – if the individual stated is very supportive.

NA – if there is no such family or non-family member

No.	Questions				
	Do you get support from these family members?	None: 0	Some :1	A lot :2	NA: 0
501	Your wife, husband, or significant other person				
502	Your children or grandchildren				
503	Your parents or grandparents				
504	Your brothers or sisters				
505	Your other blood relatives				
506	Your relatives by marriage (for example: in-laws, ex-wife, ex-husband)				
	Do you get support from these non-family members?				
507	Your neighbors				
508	Your co-workers				
509	Your religious peers				
510	Your other friends				
511	Do you have one particular person whom you trust and to whom you can go with personal difficulties?	2=Yes 0=No			
512	Which of the above types of person is he or she?	Family member Non family member			

Part VI – Adherence to Medications: This section is concerned with the respondents adherence to the prescribed anti – hypertensive medications. Tick (√) on the box based on the respondent response.

No.	Question	Category
601	Do you ever forget to take your medicine?	1= Yes □ 0=No □
602	In the last two weeks, is there any day when you did not take your high blood pressure medication?	1= Yes □ 0=No □

603	Have you ever stopped taking your medications or decreased the dose without your doctor order, because you felt worse when you took them?	1= Yes □ 0=No □
604	Do you forget to take your medications, when you travel or leave the house?	1=Yes □ 0=No □
605	Did you take your high blood pressure medication yesterday?	1=Yes □ 0=No □
606	Do you stop taking your medications, when you feel your blood pressure is controlled?	1=Yes □ 0=No □
607	Have you ever felt distressed for strictly following your high blood pressure treatment?	1=Yes □ 0=No □
608	How often do you have difficulty to remembering taking all you blood pressure medication?	1=Never □ 2=Once □ 3=Sometimes □ 4=Usually □ 5=Always □

THANK YOU FOR YOUR PARTICIPATION!!!!!!!!

Annex IV: Data collection for Afaan Oromoo Version Questionnaire

YUNIVARSIITII FINFINNEE

KOLLEEJJII FAYYAA

MANA BARUMSAA NARSINGII FI MIIDWAAYIFERII

DIPPAARTIMENTII NARSIINGII

Odeeffannoo

Akkam bultan? Maqaan Koo----------jedhama ykn gaafataa Asfaaw Getaayyee bakka bu'aa dha. Inni barnoota digirii lammataa isaa Yunivarsiitii Finfinneetti, Kolleejjii fayyaa,dippaartimentii narsiingii barataa jira.Yoo fedhii keessan ta'e yaada keessan naaf ergisaatii waa'ee mata duree qorannoo isaa isiniifan ibsa.Mataa dureen qorannoo isaa "**Sadarkaa dhukkubsattoonni dhiibbaa dhiigaa qoricha isaanii fayyadamaa jiranii fi wantoota isaan akka sirriitti hin hordofne taasisan hospitaalota mootummaa godinaa Shawaa Kaabaa, Motummaa Nannoo Oromiyaa**." Bu'aan qorannoo isaas sadarkaa fi wantoota qoricha dhiibbaa dhiigaa akka sirriitti hin hordofne taasisan erga addaan bahee booda murteen akka irratti fudhatamu yaada dhiiheessudha ykn taasisuudh. Ani gaaffileen isin gaafaadhu jira, gaaffileen kunis yoo baay'ate daqiiqaa 20 qofa isinitti fudhata, kanaan ala dhiibbaa tokko illee isinirratti hin qabu.

Bu'aan isin qorannoo kana irraa argattan, rakkoolee jiran bulchiinsa fayyaa godinaa fi hospitaalaaf ni barreeffama, isinis wantoota akka isin qoricha keessaan sirriitti hin fudhanne taasisan irraa barachuu dandeechu.Qorannoo kana irratti kan hirmaattan fedhii keessaniini, yeroo barbaaddan addaan kutuu, akkasummas gaaffii hin barbaanne deebisuu dhiisuu ni dandeessu.Icitiin keessaan/gaafatama yeroo kammiyyuu kan eegameedha

Yeroo barbaadanittit yaada fi gaaffii kamiyyuu qabdan karaa armaan gadii kanan gaafachuu dandeessu.

Abbaan qorannoo: Asfaaw Getaayyee Tolaa

E-mail: asfawgetaye11@gmail.com

Lakka bilbilaa: +2521-0932498804

Foormii Waliigaltee Afaanii:

Yaadooliin waa'ee bu'aa qorannoo kanaa, mirgii fi dirqamni ani qabu, jechuun yeroon barbaadetti gaafatamuu addaan kutuu fi gaaffii ani hin barbanne deebisuu dhiisuu, akkasumas yaada ifa naaf hin taane gaafachuun mirgaa koo akka ta'e afaan ani beekuun haala sirrii ta'een naaf ibsameera.

Qorranicha irratti hirmaachuuf fedhii qabdaa?

A: Lakkii-------galaatoomi itti dhiisi.

B: Eyyee--------itti fufi

Kanaan dura qoricha dhiibbaa dhiigaa hagamiif fudhattee jirta?....

Ji'a jahaa gadiif itti dhiisi/addaan kuti

Ji'a jahaa oliif gaaffii gafachuu itti fufi

Fedhii keetiin qoranicha irratti hirmachuu keetiif guddaa galatoomi.

Maqaa gaafataa____________ Mallattoo___________ Guyyaa__________

Koodii Gaafannoo___________________

Kutaa II: Dhiibbaa Hawaasummaa fi Dinagdee.

Kutaan Kun akkaataa hawaasummaa fi dinagdeen haala fayyadama qoricha dhiibbaa dhiigaa irratti qabu beekuuf nu fayyada. Deebii gaafatamaan deebisee sanduuqa filannoo jala jiru irratti mallattoo (√) kana godhi.

Lakk.	Gaaffilee	Filannoo Deebii
101	Saala	1: Dhi □ 2: Dha □
102	Umurii	--------(waggaadhaan)
103	Amantaa	1: Ortodoksii □ 2: Musliima □ 3: Pirootestaantii □ 4: Kaatoolikii □ 99: Kan biro----(caqasi)
104	Haala Maatii	1: kan hin fuune/ hin heerumne □ 2: kan fuudhe/ heerumte □ 3: kan wal hike □ 4: kan jala du'e/duute □
105	Baay'ina Daa'immaanii	--------------
106	Iddoo jireenyaa	1: Magaalaa □ 2: Baadiyyaa □
107	Saba	1: Oromoo □ 2: Amara □ 3: Tigree □ 4: Guragee □ 99: kan biro---------(caqasi)
108	Sadarkaa barnootaa	1: kan dubbisuu fi barreessuu hin dandeenye □ 2:kan dubbisuu fi barreessuu danda'u □ 3: Sadarka 1ffaa kan barate/tte □ 4 Sadarkaa 2ffaa kan barate/tte □ 5: Kolloojjii ykn Yunivarsiitii □
109	Gosa hojii	1: Qotee bulaa/bultuu □ 2: Daldalaa/ttuu □ 3. Hojjetaa/ttuu Mootummaa □ 2: Hojjetaa/ttuu guyyaa □ 4: Kan biraa……..(caqasi)
1010	Galii ji'a	----------ETB

Kutaa II: Gaaffilee Haala Fayyaaf Sababa Ta'an.

Kutaan kun haala waliigala fayyaa hirmaataa ittiin qorachuuf fayyaduu dha. Erga gaaffii gafattee booda deebii hirmaataan kenne iddoo duwwaa fi sanduuqaa filannoo deebii jala jiru guuti ykn mallattoo (√) kana godhi.

Lakk.	Gaaffiilee	Filannoo Deebii
1	Dhiibbaan dhiigaa gaafatama/ttu har'aa meeqa?	-----mmHg
2	Ulfaatina hiruu iskuweerii dheerinaa(BMI)	--------
3	Dhukkubaa dhiibbaa dhiigaa kee erga barte hagam ta'a?	-------waggaadhaan/ ji'aan
4	Qoricha dhiibbaa dhiigaa erga fudhachuu eegaltee hagam ta'a?	------waggaadhaan/ ji'aan
5	Qoricha dhiibbaa dhiigaa gosa meeqa fudhataa jirta?	------
6	Dhiibbaa dhiigaatiin alatti dhibeewwan tarreeffaman keessaa kam qabda?	1:Hin qabu □ 2:Dhibee sukkaaraa □ 3:Dhibee kalee □ 4: Dhibee sammuu keessatti dhiigniidhangala'uu □ 5: Dhibee laphee □ 6: kan biroo ----(caqasi)

Kutaa III: **Gaaffilee Beekumsa Dhiibbaa Dhiigaatiin Walqabatan**:

Kutaan kun beekumsa namoonni waa'ee dhiibbaa dhiigaa, haala safartuu isaa fi akkaataa ittiin ofirraa ittisan kan ilaallatuudha. Erga gaaffii gaafattee booda deebii inni/isheen siif deebiste/deebise sanduuqa filannoo deebii jala jiru irratti mallattoo (√) kana godhi.

Lakka	Gaaffilee	Filannoo Deebii
301	Waa'ee dhiibbaa dhiigaa ilaalchisee isa kamtu sirriidha?	1: Dhiibbaan dhiigaa dabaluu□ 2: Sukaarri dhiiga keesssatti dabaluu□ 3:Dhiphinni dabaluu□

		4: Hin beeku□
302	Namnii tokko dhiibbaa dhiigaa qaba kan jedhamu safartuun dhiibbaa dhiigaa isaa yeroo adda addaa lama safaramee yoo 140/90 taheedha.	1: Dhugaa□ 2: Soba□
303	Kanneen armaan gadii tarreeffaman keessaa waa'ee qoricha dhiibbaa dhiigaa fudhaachuu ilaalchisee isa kamtu sirriidha?	1:Gosoota qoricha dhiibbaa dhiigaa tokko ol altokkotti fuudhachuu□ 2: Qoricha dhiibbaa dhiigaa guyyaa alkoolii dhugan hin fudhatamu□ 3:Qorichi dhiibbaa dhiigaa yeroo hunda nyaata faana fudhatamuu qaba□ 4: Qorichii dhiibbaa dhiigaa sirriitti kan hojjetu yeroo hirribaa yoo fudhatameedha□
304	Namootni baay'een dhiibbaan dhiigaa isaanii dabaluu kan himatan, yeroo dhukkubbiin mataa itti cimeedha.	1: Dhugaa□ 2: Soba□
305	Kanneen tarreeffaman keessaa isaa/n kamtu dhiibbaa dhiigaa qabamuuf sababa taha?	1: Maatiin dhiibbaa dhiigaa qabaachuu□ 2: Umuriin guddaachuu/duuloomu□ 3: Ulfaatinni akka malee dabaaluu□ 4: Nyaata cooma fi ashaboo baay'ee qabu fayyadamuu□
306	Dhiibbaa dhiigaa dhukkuba yaalammuu danda'amudha	1: Dhugaa□ 2: Soba□
307	Namootni dhiibbaa dhiigaa qaban yeroo wal-fakkaataa keessa sochii qaamaa yoo godhan qoricha fudhachuun isaan hin barbaachisu.	1: Dhugaa□ 2: Soba□

308	Gosoota nyaataa tarreeffaman keessaa isa kamtu dhiibbaa dhiigaa hir'isuuf gargaara?	1: Yeroo baay'ee kuduraa, muduraa, nyaataa dheedhii fi cooma xiqqoo qaban fayyadamu□ 2: Nyaata zayita qaban gonkumaa fudhachu dhiisuu□ 3: Guyyaatti wayinii qaruuraa tokko dhuguu. □ 4: Bunarra shaayii dhuguu. □
309	To'atamuu dhaabuun dhiibbaa dhiigaa isa kam fiduu danda'aa?	1: Sammuu keessatti dhiiguu. □ 2: Kansarii sombaa□ 3: Kansarii sammuu□ 4: Dhiigaa keessaatti baay'achuu coomaa □

Kutaa IV: Dhiibbaa Dhaabbata Fayyaa: Kutaan kun waa'ee sirna eegumsa fayyaa, walitti dhufeenya dhukkubsataa fi ogeessotaa ilaallata. Erga gaafattee booda deebii isaa iddoo/ sanduuqa filannoo deebii jalatti mallattoo (√) kana godhi.

Lakk.	Gaaffilee	Filannoo Deebii
401	Yaalii kaffaltii bilisaa irraa fayyadamtuu?	Eyye □ Lakki□
402	Yoo lakki tahee gidduu galaan qorichaa dhiibbaa dhiigaa keessan bitachuuf ji'aan qarshii hagam baastu?	-------ETB
403	Qorichi isin fayyadamtan, mana qorichaa hospitaala isin itti yaalamtaniitti ni argamaa?	Eyye□ Lakki□
404	Hariiroo gaarii hojjettoota fayyaa waliin qabduu?	Eyye □ Lakki□
405	Doktoriin qorichaa isin fayyadamaa jirtan isin jalaa jijjiiree beekaa?	Eyyee□ Lakkii□
406	Yoo eyyee tahe almeeqaaf?	---------
407	Kanaan dura Doktoriin keessan faayidaa qoricha dhiibbaa dhiigaa fudhachuu isinitti himee beekaa?	Eyye□ Lakki□

Kutaa V: Dhiibbaa Gargaarsi Namoota Haala Qoricha Fayyadamuu Irratti Qabu. Gaaffileen armaan gadii haala gargaarsa namoota maatii fi maatii hin ta'iin beekuuf

gargaara. Deebii gaafatamaan deebise filannoo deebii armaan gadii irraatti hunda'ii isaan jalatti mallattoo (√) kana godhi.

Homaa: Kan jedhame irraa gargaarsa kan hin arganne

Xiqqoo: Kan jedhame irraa gargaarsa xiqqoo kan argatu

Sirriitti: Kan jedhame sun kan sirriitti isaa/ishee gargaaru

Kan jedhaame hin qabu: Maatiis kan maatii hin ta'iin kan hin qabne.

Lakk.	Gaaffilee				
	Miseensaa maatii kanarraa gargaarsa argachaa jirtaa?	Homaa: 0	Xiqqoo: 1	Sirriiti: 2	Kan jedhamee hin qabu: 0
501	Abbaa manaa/haadha manaa				
502	Ijoollee kee/ijoollee ilmaan keetii				
503	Abbaa/haadha kee ykn akaakayyuu/akkawoo kee				
504	Obboleessa/ Obboleettii				
505	Firoottan dhiigaa irraa				
506	Firoottan karaa fuudhaa fi heerumaa irraa				
	Miseensa maatii kee hin tanee kana irraa gargaarsa argata jirta?				
507	Ollaa kee irraa				
508	Nama waliin hojjetu irraa				
509	Namoota amantaan kee wal fakkaatu irraa				
510	Hiriyoota kee biraa irraa				
511	Namoota sirritti amantu ykn kan yeroo rakkoon sirra gahe siwaliin dhaabbaatu qabdaa?	2: Eyyee 0: Lakki			

512	Namoota armaan olii keessaa isaan kamirraa argattaa?	1: Namoota maatii irraa 2: Namoota maatii hin tane irraa

Kutaa VI: Gaaffilee Qorichaa Sirriitti Hordofuu fi Dhabuu: Kutaan Kun akkaataa hirmaataan tokko qoricha dhiibbaa dhiigaa isaa sirriitti hordoofaa jiraachu fi dhiisuu isaa ilaaluuf fayyada. Deebii gaafatamaan deebisee sanduuqa filaanoo deebii jala jiru irratti mallattoo (√) kana godhi.

Lakk.	Gaaffilee	Filannoo Deebii
601	Qoricha dhiibbaa dhiigaa keessaan irraanfattanii beektuu?	1: Eyye □ 0: Lakki□
602	Torbee lamaan darbaan keessaa qoricha dhiibbaa dhiigaa guyyaan osoo hin fudhatiin hafte jiraa?	1:Eyye□ 0: Lakki□
703	Sababa yeroo fudhattu siyaaddeessuuf qoricha dhiibbaa dhiigaa kee, eeyyamaa Doktoraan ala addaan kuttee ykn hanga isaa hir'istee beektaa?	1: Eyye□ 0: Lakki□
604	Yeroo karaa deemtu ykn manaa baatu qoricha kee irraanfattee beektaa?	1: Eyye□ 0: Lakki□
605	Qoricha dhiibbaa dhiigaa kee kaleessa fudhattee turtee?	1: Eyyee□ 0: lakki□
606	Yeroo dhiibbaan dhiigaa kee to'atame qoricha kee ni dhaabdaa?	1: Eyye□ 0: Lakki□
607	Yeroo qoricha dhiibbaa dhiigaa kee sirriitti hordoftu waanti sidhiphise jiraa?	1: Eyye□ 0: Lakki□
608	Qoricha dhiibbaa dhiigaa kee al meeqa fudhaachuuf yaadachuu rakkattee?	1=Gonkummaa □ 2=Al-tokko □ 3=Darbee darbee □ 4=Yeroo baay'ee □ 5=Yeroo hunda □

HIRMAANNAA KEESSANIIF GUDDAA GALATOOMAA!!!

AnnexV: Data Collection for Amharic Version Questionnaire

አዱስ አበባ ዩኒቨርሲቲ

ጤና ሳይንስ ኮሌጅ

ነርሲንግና ምድዋፈር ትምርት በት

ነርሲንግ ክፍል

አባሪ I: - የመረጃ ወረቀት

ሠላም ፡ስሜ _______________ ነው የምሰራው ከአዲስ አበባ ዩኒቨርስቲ በድህረ ምረቃ ተማሪ በጤና ሳይንስ ኮሌጅ እና በነርሲንግ ክፍል አስፋው ጌታዬ በተካሄደው ጥናት ወክዬ ነው ።ስለ ጥናቱ እና እንደ ጥናቱ ተካፋይ በመመረጥ ለማብራራት ትኩረት እንድትሰጡኝ በአክብሮት እጠይቃለሁ ።ከፈቀዱልኝ የሚከተሉትን የመረጃ ወረቀት ከተረዱ በኋላ ከ 20 ደቂቃ በላይ የማይወስዲ ጥቂት ጥያቄዎችን መጠየቅ እፈልጋለሁ ።

የጥናት ርዕስ-

የደም ግፊት በሽተኞች የደም ግፊት መድሐኒት አወሳሰድ እና ተያያዥ ነገሮች ፤ በሰሜን ሸዋ ዞን የህዝብ ሆስፒታሎች ፣ ኢትዮጵያ 2021 ውስጥ

የጥናቱ ዓላማ

የደም ግፊት በሽተኞች የደም ግፊት መድሐኒት አወሳሰድ እና ተያያዥ ነገሮች ስለማወቅ ፤ በሰሜን ሸዋ ዞን የህዝብ ሆስፒታሎች ፣ ኢትዮጵያ 2021 ውስጥ

የአሠራር ሂደት እና የቆይታ ጊዜ-

ለጥናቱ ጠቃሚ መረጃን ለማቅረብ የተዋቀረ መጠይቅ ተጠቅሜ ቃለ መጠይቅ አደርጋለሁ ፡ቃለመጠይቁ 20 ደቂቃ ያህል ይወስዳል ፣ ስለሆነም በትህትና እጠይቃለሁ ።

የጥናቱ አደጋ እና ጥቅም-

በዚህ ጥናት ውስጥ የመሳተፍ አደጋ በጣም አናሳ ነው ፣ ጊዜዎን ብቻ ይወስዳል ፡በዚህ ጥናት ውስጥ ለመሳተፍ ምንም ክፍያ አይኖርም ።ነገር ግን ከዚህ ጥናት የተገኙት ግኝቶች ለዞን ጤና ቢሮ አስፈላጊ መረጃዎችን ሊያሳዩ ይችላሉ ።በሌላ በኩል ደግሞ የደም-ግፊት ሕክምናን ተጓዳኝ ምክንያቶች ካላወቁ ብዙ መረጃዎችን መያዝ ይችላሉ ።

የተሳታፊዎቹ መብትና ሚስጥሩ

የዚህ ጥናት ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት የሚደረግ ነው ፡በዚህ ጥናት ውስጥ ለመሳተፍ ወይም ላለመሳተፍ የማወጅ መብት አለዎት ።ለመሳተፍ ከወሰኑ በማንኛውም ጊዜ ከጥናቱ የመውጣት መብት አለዎት። ለመመለስ የማይፈልጉትን ማንኛውንም ጥያቄ መመለስ የለብዎትም-ለእኛ የሚሰጡን መረጃዎች።በተለይ እርስዎን የሚለይ መረጃ አይኖርም ።ወደፊት የሚመጣ ማንኛውም መረጃ በግል እንደሚቀመጥ እና ስሙ አይገለጽም

የአጥኑ አድራሻ-

ስለ ጥናቱ ወይም ስለ አሰራሩ በማንኛውም ጊዜ ጥያቄ ካለ የሚከተሉትን አድራሻ በመጠቀም ሊያነጋግሩዋቸው ይችላሉ ፡

የርእሰ መምህሩ መርማሪ አስፋው ጌታዬ

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የሞባይል ስልክ ቁጥሪ: + 2521-0932498804

አባሪ II-በመረጃ ላይ የተመሠረተ ስምምነት

ይህንን ቅጽ አንብቤዋለሁ ወይም በተረዳሁት ቋንቋ ተነበበኝ ።የምርምርውን ዓላማ ፣ አሰራሩን ፣ ስጋት እና ጥቅማጥቅሞችን ፣ የምስጢራዊነትን ጉዳይ ፣ የተሳትፎ መብትን እና ለማንኛውም ጥያቄ አድራሻውን በሚገባ ተረድቻለሁ. ግልጽ ባልሆኑ ነገሮች ላይ ጥያቄዎችን የመጠየቅ እድል ተሰጥቶኛል ።ከዚያ ጥናት በማንኛውም ጊዜ የማግለል ወይም የማልፈልገውን ማንኛውንም ጥያቄ የመመለስ መብት እንዳለኝ ተገለጠልኝ ።በዚህ ጥናት ውስጥ ለመሳተፍ ፈቃደኛ ነዎት?

ሀ አይ ---------- አመሰግናለሁ በሉ!

ቢ አዎ ------- በቃለ መጠይቁ ይቀጥሉ

የደም ግፊት መድኃኒቶችን ምን ያህል ጊዜ ወሰዱዎል ?

ከ 6 ወር በታች ከሆነ አመሰግናለሁ እና ቃለ መጠይቅ ማቆም።

ከ 6 ወር በላይ ከሆነ ቃለ መጠይቁን ይቀጥሉ

በጥናቱ ውስጥ ለመሳተፍ በፈቃደኝነት ስለሆኑ እናመሰግናለን

የቃለ መጠይቁ ስም _____________ ፊርማ።_____ ቀን __________

የመጠይቅ መለያ ቁጥር--------------

ክፍል 1 - የተጠያቂ ማህበራዊ መረጃ

የሚከተለትን ጥያቄዎች በመጠየቅ አማራጭ መሌሶች ፉት ለፉት ባለው ሳጥን ሊይ ምሌክት ያድርጉ፡፡ አማራጭ መሌስ ላላቸዉ ጥያቄዎች የተሰጠው ክፌት ቦታ ሊይ የተጠያቂውን መሌስ ያስቀምጡ፡፡

ተ.ቁ	ጥያቄዎች	አማራጭ መሌስ
101	የተሳታፉው ፆታ	1 =ወንድ □ 2 =ሴት□
102	ዕድሜ	------
103	ኃይማኖት	1 = ኦርቶዶክስ □ 2 = ሙስሉም □ 3 = ኘሮቴስታንት □ 4 = ካቶሉክ □ 9 9 = ላሊ-------
104	የትዲር ሁኔታ	1 = ያሊገባ/ች □ 2 = ያገባ/ች □ 3 = የፋታ/ች □ 4 = በሞት የተለዩ□
105	ልጆች ብዛት	------
106	መኖሪያ ቤት	1 = ከተማ 2 = ገጠር
107	ብሔር	1 = ኦሮሞ □ 2 = አማራ □ 3 = ትግሬ □ 4 = ጉራጌ □ 99 = ላሊ--------
108	የትምህርት ደረጃ	1 = ማንበብ እና መጻፍ የማይችል □ 2 = ማንበብ እና መጻፍ የምችል□ 3 = የመጀመሪያ ደረጃ □ 4 = የሁሇተኛ ደረጃ □ 5 = ኮላጅ/ዩኒቨርስቲ □
110	የስራ ዓይነት	1 = ገበሬ □ 2 ነጋዴ □ 3= የመንግስት ሰራተኛ □ 4 = የዕለት ተዕለት የጉልበት ሥራ □ 99 = ሌላ (ይግለጹ) ------
111	ወርሃዊ ገቢ	--------ETB

ክፍል II-ክሊኒካዊ ምክንያቶች-

ይህ ክፍል ስለ የተጠያቂዉን አጠቃላይ የጤና ሁኔታ ነው ።ጥያቄዎቹን በመጠየቅ በተሰጠው በታ ላይ ከተጠያቂዉ የተሰጠውን መልስ ይሙሉ

ተ.ቁ	ጥያቄዎች	የመሌስ አመራች
201	የተጠሪ የደም ግፊት መለኪያ ዛሬ ስንት ነዉ?	------mmHg
202	የክብደት እና ቁመት ምጣኔ	______________
203	የደም ግፊት እንዳለብዎ ከተመረመሩ ምን ያህል ጊዜ ቆየ?	--------- ወራት / ዓመታት?
204	የደም ግፉት የሚሰጠው መድሀኒቶችን ምን ያህሌ ጊዜ ወሰደ?	----ወራት / ዓመታት?
205	ስንት ዓይነት የደም ግፊት መከላከያ መድኃኒቶችን ትወስዳለህ?	_______________
206	ከእነዚህ ተዛማጅ በሽታዎች አንዳቸውም አሉዎት?	1 = ምንም የለም □ 2 = ስኳር □ 3 = የኩሊሉት ስራ ማቆም □ 4 = የአእምሮ □ 5 = የሌብ ደም ቧንቧ መጥበብ □ 99 = ላላ ካለ ይጠቀሱ-------

ክፌሌ III:፡- ስለ ደም ግፊት እውቀት የሚመለከት

ጥያቄ ቀጣዩ ክፍል ስለ ደም ግፊት እውቀት ፣ የደም ግፊት አለካክ እና መቆጣጠር እውቀትን የመለከታል። መልስዎን ከጥያቄው ፊትለፊት ከሚታየው ሳጥን ውስጥ ምልክት ያደረጉ።

ተ.ቁ	ጥያቄዎች	አማራጭ መሌስ
301	ከሚከተሉት ውስጥ ስለ ደም ግፊት ትክክል የሆነው የቱ ነው?	1 = የደም ግፊት ሲጨምር □ 2 = ከፍ ያለ የደም ስኳር □ 3 = የጭንቀት መጨመር □ 4 = አላውቅም □
302	አንድ ሰው የደም ግፊት አለበት የሚባለው በሁለት በተለያየ ልኬት የላይኛው 140	1 = እውነት □ 2 = ሐሰት□

	ወይም ከዚያ በላይ እና የታችኛው 90 ወይም ከዚያ በላይ ሲሆን ነው።	
303	ከሚከተሉት ውስጥ ስለ ደም ግፊት መድሃኒት አወሳሰድ ትክክል የሆነው የቱ ነው?	1፡ በአንድ ጊዜ ከአንድ በላያ የደም ግፊት መድሃኒት መውሰድ ይቻላል □ 2፡ አልኮሆል በጠጡ ቀን የደም ግፊት መድሃኒት መውሰድ አይቻልም □ 3፡ የደም ግፊት መድሃኒት ሁልጊዜ ከምግብ ጋር መወሰድ አለበት □ 4፡ የደም ግፊት መድሃኒትን ሊተኙ ሲሉ ቢወስዱት ውጤታማነቱን ይጨምረዋል□
304	ብዙ ሰዎች የደም ግፊታቸው ከፍ ማለቱን የሚናገሩት መጥፎ ስሜት ወይሚ ኢራስምታት ሲሰማቸው ነው	1 = እውነት □ 2 = ሐሰት□
305	ከሚከተሉት ውስጥ የትኛው የደም ግፊት የመያዝ እድልን ይጨምራል?	1 = የደም ግፊት የቤተሰብ ታሪክ □ 2 = እርጅና □ 3 = ከመጠን በላይ ክብደት □ 4 = ከፍተኛ የስብ ይዘት እና ጨው መመገብ □
306	ደም ግፊት ሊታከም የሚችል በሽታ ነው	1: እውነት □ 2 = ሐሰት□
307	ሁልጊዜ የአካል ብቃት እንቅስቃሴ የሚያደርጉ የደም ግፊት በሽተኞች መድሃኒት መውሰድ አይጠበቅባቸውም	1: እውነት □ 2 = ሐሰት□
308	ከሚከተሉት ውስጥ የትኛውን የምግብ አይነት መጠቀም የደም ግፊትን ይቀንሳል?	1= ቅጠሊ ቅጠሌ ፣ፌራፌሬ፣ እና ጥራጥሬን አብዝቶ መመገብ □ 2 = ቅባት ያሊቸውን ምግቦች ማስወገድ □ 3 = በቀን አንድ ብርጭቆ የወይን ጠጅ መጠጣት □ 4 = ከቡና ይሌቅ ሻይ መጠጣት□

309	የደም ግፊትን ካልተቆጣጠርነው ምን ያስከትላል ?	1 = ስትሮክ □ 2 = የሳንባ ካንሰር □ 3 = የአንጎል ካንሰር □ 4 =ከፍተኛ ኮሌስትሮል□

ክፍል IV:- ድርጂታዊ መንስኤዎች

ቀጣዩ ክፍል ስለ ጤና ተቋም እና ጤና ባለሙያ - ተገልጋይ ያላቸውን ግንኙነት ይመለከታል፡፡ መልስዎን ከጥያቄው ፊት ለፊት ከሚታየው ሳጥን ውስጥ ምልክት ያደረጉ፡፡

ተ.ቁ	ጥያቄዎች	መልስ
401	የጤና መድህን ተጠቃሚ ነዎት?	1= አዎ □ 2= አደለም □
402	መልስዎ አደለም ከሆነ ለመድሃኒት በአማካኝ በወር ውስጥ ስንት ብር ያወጣሉ?	------------ብር
403	መድሃኒቶቹ ሁሌም በሆስፒታሉ መድሃኒት መደብር ይገኛሉ?	1= አዎ □ 2=አደለም□
404	ከጤና በለሙያዎች ጋር ጥሩ ግንኙነት አለወት?	1,=አዎ □ 2= አደለም□
405	መድሃኒትዎት በሀኪሞች ተቀይሮ ያውቃል?	1=አዎ □ 2= አደለም□
406	መልስዎ አዎ ከሆነ ስንት ጊዜ?	----------
407	ስለ መድሃኒቱ ጠቀሜታ በሀኪሞች ተነግሮዎት ያውቃል?	1=አዎ □ 2= አደለም□

ክፌሌ V – ከማህበረሰብ ስልሚገኝ ድጋፌ

ይሀ የመጠይቅ ክፌሌ ተሳታፉው ከቤተሰብ እና ከቤተሰብ ውጪ ካለ አካሊት ምን ያህሌ ድጋፌ ያገኛለ የሚሆውን ይዲስሳሌ ወደ መጠይቁ ከማለፎት በፉት በአማራጭ መሌሶች ሊይ የሚከተለውን ማብራሪያ ይስጡ፡፡ በተሳታፉው መሌሶች ስር ምሌክት (√) ያድርጉ፡፡

- **ምንም አይዯግፈኝም** - የምጠቅስሌዎ አካሌ ቓፅሞ ድጋፌ የማይሰጦ ከሆነ
- **ትንሽ ይዯግፈኛሌ** - የምጠቅስሌዎ አካሌ አሌፍ አሌፍ (የተወሰነ) ድጋፌ የሚሰጥዎ ከሆነ
- **ሁላም ከጓኔ ናቸው** - የምጠቅስሌዎ አካሌ ሁሌጊዜ (ብዙ ጊዜ) ድጋፌ የሚሰጥዎ ከሆነ
- **ጥያቄው አይመለከተኝም** - የምጠቅስሌዎ አካሌ በህይወትዎ ውስጥ ከላሌ

ተ.ቁ	ጥያቄዎች				
	ከነዚህ የቤተሰብ አባሊት ምን ያህሌ ድጋፌ ያገኛለ?	ምንም አይደግፈኝ ም (0)	ትንሽ ይደግፈኛ ሌ (1)	ሁላም ከጎኔ ናቸው (2)	ጥያቄው አይመለከተኝም (0)
501	ባልቤትዎ/ፌቅረኛዎ				
502	ሌጆችዎ /የሌጅ ሌጆችዎ				
503	እናትዎ/አባትዎ/አያቶችዎ				
504	ወንድምዎ/ እህትዎ				
505	ላሊ የስጋ ዘመድዎ				
506	በጋብቻ የተዘመደዎት /የሚስት እናት/አባት ወዘተ...../				
	ከእነዚህ ከቤተሰብ ውጪ ካለ አካሊት ምን ያህሌ ድጋፌ ያገኛለ				
507	ጎረቤቶችዎ				
508	አብርዎት የሚሰሩ				
509	የሀይማኖት አቻዎችዎ(ጓደኞችዎ)				
510	ጓዯኛዎ				
511	ችግር ቢሚገጥምዎት ጊዜ ሉረዲዎት የሚችሌ ወይም የሚተማመኑበት ሰው አለ?	2=አዎ 0 = አደለም			
512	ከሊይ ከተጠቀሱት ውስጥ የቱ ነው?	የቤተሰብ አባሌ ከቤተሰብ ውጪ			

ክፍል V:- ስለ መድሃኒት አጠቃቀም ጥብቅ እምነት በተመለከተ።

ከዚህ ከጥሎ የቀረቡት ጥያቄቆች ለሚታዘዙ የደም ግፊት መድሃኒቶች የተሳታፊዎች ጥብቅ እምነትን ይመለከታል። ከተሳታፊው መልስ ፊትለፊት ከሚታየው ሳጥን ውስጥ ምልክት ያደረጉ።

ተ.ቁ	ጥያቄዎች	አማራጩ መለስ
601	መድሃኒትዎን መውሰድዎን ረስትዉ ያውቃሉ?	1=አዎ □ 0 = አደለም □
602	ባለፉት ሁለት ሳምንቶች የደም ግፊትዎን መድሃኒት ያልወሰዱበት ቀን ይኖር ይሆን?	1=አዎ □ 0 = አደለም □
603	መድሃኒት ሲወስዱ ጥሩ ስሜት ባልመሰማት ምክንያት ያለ ሀኪም ትዕዛዝ የደም ግፊት መድሃኒትዎትን መውሰድ አቁመው ወይም ቀንሰው ያውቃሉ?	1=አዎ □ 0 = አደለም □
604	ሲጓዙ ወይም ከቤት ሲወጡ መድኃኒቶችዎን መውሰድዎን ይረሳሉ?	1=አዎ □ 0 = አደለም □
605	ትናንት የደም ግፊትዎን መድሃኒት ወስደዋል?	1= አዎ □ 0 = አደለም □
606	የደም ግፊትዎትን የተቆጣጠሩት መስሎ ሲሰማዎት መድሃኒተዎትን መውሰድ ያቆማሉ ?	1=አዎ □ 0 = አደለም □
607	የከፍተኛ የደም ግፊት ህክምናዎን በጥብቅ በመከተሉ ጭንቀት ተሰምቶዎት ያውቃል?	1 = አዎ □ 0 = አደለም□
608	ሁሉንም የደም ግፊት መድኃኒቶችን መውሰድዎን ለማስታወስ ምን ያህል ጊዜ ይቸግረዎታል?	1=በጭራሽ □ 2=አንዴ □ 3=አንዳንድ ጊዜ□ 4=ብዙውን ጊዜ □ 5=ሁልጊዜ□

ለትብብራቸው ከሌብ አመስግናለው!!!!!!!!