ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARMENT OF NURSING AND MIDWIFERY

BLOOD PRESSURE SELF-MONITORING, AWARENESS OF HYPERTENSION COMPLICATION AND ASSOCIATED FACTORS AMONG ADULT HYPERTENSIVE PATIENTS ON FOLLOW UP AT SELECTED PUBLIC HOSPITALS IN ARSI ZONE, SOUTH EASTERN, ETHIOPIA, 2019.

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A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, DEPARTMENT OF NURSING AND MIDWIFERY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE IN ADULT HEALTH NURSING.

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Blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, Southeastern, Ethiopia, 2019.

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I hereby certify that I have read and evaluate this Thesis entitled '' Blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, Southeastern, Ethiopia, 2019.'' I recommend that it is submitted as fulfilling the thesis requirement.

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ACRONYMS AND ABBREVIATIONS

AAU	Addis Ababa University
AOR	Adjusted Odds Ratio
BP	Blood Pressure
BPSM	Blood Pressure Self-Monitoring
BSc	Bachelor of Science
CI	Confidence Interval
COR	Crude Odds Ratio
CVDs	Cardiovascular Diseases
DBP	Diastolic Blood Pressure
HBPM	Home Blood Pressure Monitoring
HBPM	Home Blood Pressure Monitoring
HCP	Health Care Professional
JNC 7	Seventh Joint National Committee
MDBP	Mean Diastolic Blood Pressure
MI	Myocardial Infarction
MPH	Master of Public Health
MSBP	Mean Systolic Blood Pressure
MSc	Masters of Science
NGO	Non-Governmental Organization
PASCAR	Pan-African Society of Cardiology
SBP	Systolic Blood Pressure
SPSS	Statistical Package for Social Science

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ABSTRACT

Background: Hypertension is a systolic blood pressure ≥ 140 mm Hg and a diastolic pressure ≥ 90 mm Hg based on the average of two or more accurate blood pressure measurements taken during two or more contacts with a health care provider.

Objectives: The aim of the study was to assess blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, Southeastern, Ethiopia, 2019.

Methods: Institution based cross-sectional survey was conducted on a sample of 400 hypertensive patients from March 01-31/2019. Data was entered in to Epi-data version 4.2.0.0 and then exported to SPSS version 21.0 software for analysis. Binary and multivariable Logistic regression was performed to determine the association between the independent and awareness of hypertension complication and BP self-monitoring.

Result: The proportion of having awareness of hypertension complication and BP self-monitoring among hypertensive patients was 32.5% [95%CI; 28.3, 37.0] and 7.75% [95%CI; 5.3, 10.5] respectively. Educational level, monthly income, duration of hypertension, marital status, occupation, current smoking status and regular healthcare professional visit were factors positively associated with having awareness of hypertension complication. Educational level, monthly income, duration of hypertension, comorbidities, recommendation toward BP self-monitoring and having awareness of hypertension complication were associated factors with BP self-monitoring.

Conclusion and recommendation: The proportion of having awareness toward hypertension complication and BP self-monitoring among hypertensive patients of the study area were low. This describes the presence of a problem concerning to both having awareness toward hypertension complication and BP self-monitoring. Whereas, educational level, monthly income, duration of hypertension, marital status, occupation, current smoking status and regular healthcare professional visit were factors positively predicted having awareness of hypertension complication. Educational level, monthly income, duration of hypertension, comorbidities, recommendation toward BP self-monitoring and awareness of hypertension complication were positively associated factors with BP self-monitoring. This study had identified areas of significance that need to be deliberated by health education programs which recommended to minimize the problem.

Key words: BP self-monitoring; Awareness, Hypertension; complication; Arsi Zone; Ethiopia

1. INTRODUCTION

1.1. Background

Hypertension is a systolic blood pressure ≥ 140 mm Hg and a diastolic pressure ≥ 90 mm Hg based on the average of two or more accurate blood pressure measurements taken during two or more contacts with a health care provider (1). It's also expressed as a "silent killer" because, usually hyper-pressure does not show any symptoms for years or even decades. So, it is important that we take advantage of the early warning signal by taking our blood pressure regularly(2). Hypertension can be classified as hypertensive urgencies which are associated with severe BP elevation in otherwise stable patients without acute or impending change in target organ damage or dysfunction and hypertensive emergencies which are severe elevations in BP associated with evidence of new or worsening target organ damage(3).

Hypertension is a principal cause of cardiovascular diseases (CVDs) such as myocardial infarction and stroke worldwide. The proportion of the global burden of disease attributable to hypertension has significantly increased from about 4.5 % in 2000 to 7 % in 2010. This makes hypertension the single most key cause of morbidity and mortality globally and highlights the critical requirement of action to address the problem(4). The studies from several African countries indicate that the projected rate of SBP of ≥140 mm Hg increased from 17,307 to 20,526 per 100 000 persons while the related annual deaths were increased from 97.9 to 106.3 per 100 000 persons between 1990 and 2015 years (5).

The Meta-analysis outcomes from 9 studies in Ethiopia shows that the prevalence of the hypertension among the Ethiopian population was 19.6 % of which 23.7 % was in rural and 14.7 % was urban combined population while 20.6 % was in males and 19.2 % was in females (6).

Blood Pressure self-monitoring (BPSM) is more broadly refers to the regular use of a personal BP measurement device that is used by the patient outside a clinical setting. While these devices may be used in settings such as a workplace or church, they are typically used at home and often referred to as home BP monitors (7). BPSM aids, to identify white-coat hypertension (a BP of at least 140/90 mmHg measured at the doctor's office on at least three occasions, but a normal BP measured outside the office) (8) and masked hypertension (a decrease of BP that

occurs in the medical care environment, but increased BP when measured outside the medical care environment) (9).

Japanese hypertension guideline have explained that BPSM has a number of benefits; highly reproducible , greater prognostic value , extremely effective for the evaluation of drug effects and their duration, used for telemedicine, facilitates long-term BP control, improve the adherence to medications, detect seasonal variations and long-term changes in BP, essential for the diagnosis of white-coat hypertension and masked hypertension , detect morning and nighttime hypertension, important for the diagnosis and treatment of hypertension principally (in diabetes mellitus, pregnancy, children and renal diseases), a great effect on the medical economy (10).

Blood pressure self-monitoring is becoming a fundamental part of hypertension management and primary care patients who self-initiated BPSM reported being more self-efficacious, but lack of participation and guidance from their doctors generated confusion and hindered the true advantage of BPSM (11). However, the act of discussing their BPSM readings with their health care providers gives rise to a greater doctor-patient therapeutic relationship (12).

Blood pressure self-monitoring could be an effective method to improve hypertension control and it could be integrated into the usual care of hypertensive patients in the hypertension management center of the community (13).The practice of BPSM has numerous benefits in relation to control of BP of improving the adherence rates to antihypertensive medications and approval of better life style (14).

The systematic review reveals that there were low levels of awareness and treatment of hypertension and even lower levels of control. Custom-made research is required to discover particular causes behind these low levels of awareness, treatment and particularly control in order to notify the policy design for the upgrading of the consequences of hypertensive patients in Africa (15).

1.2. Statement of the problem

Hypertension remains a massive public health and economic burden globally regardless of recent improvement in the trend of BP control. It is an independent prognosticator of cardiovascular disease and entirely cause mortality (16). The burden of hypertension is substantial. The prevalence and the health significances of uncontrolled hypertension make it among the world's most lethal disease (17).

Globally, over the past 25 years, the estimated associated deaths of individuals with SBP levels of ≥140 mm Hg has increased substantially worldwide (18). High BP is one of the most essential causes of premature death worldwide, killing nearly 9.4 million people every year and the problem is growing (19). The studies have explored that hypertension accounts for 45% of all heart disease deaths and 51% of all strokes related deaths, which together are the biggest causes of morbidity and mortality worldwide. Annually, there are >17 million deaths due to CVD worldwide, of which 9.4 million are attributable to complications of raised BP (20).

According to Status report on hypertension in Africa the prevalence of hypertension has increased significantly over the past two to three decades. There were approximately 80 million adults with hypertension in sub-Saharan Africa in 2000 and projections based on current epidemiological data suggests that this figure will rise to 150 million by 2025 (21).

The systematic analysis shows that the prevalence of hypertension is increasing in Africa and many hypertensive individuals are not aware of their condition. The prevalence of hypertension in Africa was 19.7%, 27.4% and 30.8% in 1990, 2000 and 2010 year respectively. Each with awareness rate of hypertension 16.9%, 29.2% and 33.7%, respectively. Above 54.6 million cases of hypertension were estimated at 1990, 92.3 million cases in 2000, 130.2 million cases in 2010, and a projected increase to 216.8 million cases of hypertension by 2030 (22).

The study done in Bahir Dar city, northwest Ethiopia reveals that 19.8% and 2.2% of respondents were stage I hypertension and stage II hypertension respectively. The overall prevalence of hypertension (SBP ≥140 mmHg or DBP ≥90 mmHg or known hypertensive patient taking medications) was 25.1% (23). The same study done in Gondar, northwest Ethiopia shows that the prevalence of hypertension was found to be 27.9% with the

proportion of the urban and rural residents being 30.7% and 25.3% respectively. Whereas, the prevalence of hypertension was 29.3% for women and 26.3% for men (24).

A study reveals that there is increasing evidence that the office BP measurement procedure may yield misleading estimates of a patient's true BP status. Those identified limitations were, inherent variability of BP coupled with the small number of readings that are typically taken in the doctor's office, poor technique, white coat effect and the masked effect (9).

The studies have confirmed that BPSM can yield a small but clinically substantial decrease in blood pressure (33). However, several studies have reported that the prevalence of BP self –monitoring among hypertensive patients was 24% up to 82% among different European countries (34–46). Similarly, several studies reveal that factors associated with BPSM were age (34,36,39–41,44), occupation (34,36), level of education (39,41), family history of hypertension (41), healthcare professional visit (34), doctor's recommendation toward using BPSM (40,44), gender (39), awareness of hypertension(40), comorbidities (40,44), monthly income(42), health insurance (40).

The prevalence of hypertension was 46%, 35% and 40% among adults aged 25 years and older of African region, Americas and elsewhere in the world respectively. Hypertension is the greatest in the African region. The Pan-African Society of Cardiology (PASCAR) has recognized hypertension as the main area of priority for action to decrease heart disease and stroke on the continent. It has explored government and health-system related, healthcare professional and patient related as the major roadblocks. The PASCAR hypertension task force identified a 10-point action plan to be implemented by African ministries of health to achieve 25% control of hypertension in Africa by 2025 (47).

Home BP monitoring is useful in discovering white-coat and masked hypertension and is recommended for patients with suspected or treated hypertension (48). A study findings recommend that home BP measurement has a better predictive precision than office BP measurement. BP should scientifically be measured at home in patients getting treatment for hypertension (49). BPSM is a complementary system. Patients are involved with their self-care practice when they self-monitor their own BP. These consequences in improved

faithfulness to treatment and decrease BP. BPSM among hypertensive patients is expected as a routine part of their management (8).

As aftermentioned, it had been observed that the burden of hypertension is rising globally. Obtaining information about the level of awareness toward hypertension related complications are the primary stage in formulating a preventive program for any health problem and information regarding to BP self-monitoring will be used as integrated management in controlling hypertension. However, there is a lack of study that have addressed blood pressure self-monitoring, awareness of hypertension related complications and associated factors among adult hypertensive patients on follow up in the study area and even in our country, Ethiopia. Therefore, this study was intended to determine the blood pressure self-monitoring, awareness of hypertension related complications and associated factors among adult hypertensive patients on follow up at the study area.

1.3. Justification of the study

Hypertension is associated with a number of serious complications like: premature cardiovascular disease, Left ventricular hypertrophy, chronic kidney disease, end-stage renal disease, stroke, heart attack, visual disturbance and life-threatening emergency condition. With this serious morbidity and mortality, it is still inadequately controlled.

Inadequate blood Pressure self-monitoring and low awareness regarding to hypertension complication, remains a significant problem faced by health care providers and populations in all settings. This will increase the patient's morbidity and mortality. Though general health education regarding hypertension self- care activities being provided by health care providers working in different health settings, still the prevalence of the disease and its complication is rising.

Prevalence of blood pressure self-monitoring, level of awareness regarding hypertension complication and associated factors among adult hypertensive patients were not studied. Consequently, this study addressed this gap by assessing prevalence of blood pressure self-monitoring, level of awareness regarding to hypertension complication and associated factors among adult hypertensive patients of the study area. This is significant to know and design awareness program to reduce the occurrence of hypertension related complication, to achieve better blood pressure controls and to inhibit sudden cardiovascular related deaths among hypertensive patients.

1.4. The significance of the study

Blood pressure self-monitoring and awareness of complication regarding to hypertension is the foundation of care for all individuals with hypertension to achieve successful outcomes, principally in minimizing disease related complications. This supports to improve the preventive approach of occurrence of hypertension complications among hypertensive patients. This study provides important information concerning to blood pressure self-monitoring and level of awareness regarding to hypertension complication for health care providers and hypertensive patients for appropriate interventions to prevent complications of hypertension. Moreover, it also explicitly suggests information to local as well as national policy makers to revise health policies, guides hospitals on training toward practice and for program implementers. In addition to these, it offers insight to stakeholders. Furthermore; it provides baseline information to any interested researcher who would conduct further research on issues related to this topic.

2. LITERATURE REVIEW

2.1. Introduction to Hypertension

Hypertension is a state of elevated SBP that causes a marked increment of cardiovascular risk. It is one of the major, but preventable risk factors of coronary artery disease, hemorrhagic and ischemic stroke, heart failure and chronic kidney disease. The risk of cardiovascular and renal disease continuously rises over the entire range of blood pressure based on the level of blood pressure. Hypertension is defined as SBP of ≥140 mmHg or DBP of ≥90mmHg or both (50).

Hypertension can be classified as primary hypertension, which is high BP from an unidentified cause and accounts for (90% to 95%) whereas secondary hypertension is high BP related to identified causes with 5% to 10%. Hypertension is a major contributor to death from cardiac, cerebrovascular, renal and peripheral vascular disease. Prolonged BP elevation eventually damages blood vessels throughout the body, particularly in target organs such as the heart, kidneys, brain and eyes. The usual complications are myocardial infarction, heart failure, renal failure, strokes and impaired vision (51).

It is clear that hypertension is a global public health issue. Complications of hypertension are thought to cause 9.4 million deaths each year, more than all the deaths from infectious diseases collectively. It is supposed to account for about 45% of deaths due to heart disease and 51% of deaths due to stroke. Globally, three out of ten deaths are due to CVD whereas, partial of the total of CVD deaths are due to hypertension complication and hypertension also the principal risk factor for death and disability. It contributes to the burden of heart disease, stroke, kidney failure, premature mortality and morbidity. Whereas, above 40% of deaths in people with diabetes are caused by increased blood pressure (52).

Most hypertensive patients do not show symptoms entirely. There is a common misconception that people with hypertension always experience symptoms, but the reality is that most hypertensive people have no symptoms at all. However, symptoms like headache, shortness of breath, dizziness, chest pain, palpitations of the heart and nose bleeds can be seen occasionally in some hypertensive patients. It can be dangerous to ignore such symptoms, but neither can they be relied upon to signify hypertension (53).

2.2. Awareness of patients toward Hypertension complication

A study in Karachi, south Asia reports that the level of an awareness toward hypertension related complications among hypertensive patients was, 100%, 95.5%, 59.1% and 54.5% for stroke, heart diseases, kidney disease and eye disease respectively (28).

According to the research conducted in Rohilkhand region, India the level of an awareness toward hypertension related complications among hypertensive patients were, 66.7% , 35.71%, 34.7% and 19% for heart damage, kidney damage, brain damage and others respectively (29).

The study done in Dallas County, Texas and Pokhara, western Nepal reveals that the overall level of an awareness toward hypertension related complications among hypertensive patients was 64.4% and 73.1% respectively (32,54).

A study done in Estonia, Russia shows that the level of an awareness toward hypertension related complications among hypertensive patients were 24.9%, 21.1% and 17.9% for stroke, cerebral infarction and cardiac infarction respectively (30).

A study done in Jaffna Peninsula, northern Sri Lanka brought that the level of an awareness toward hypertension related complications among hypertensive patients were 48.2% of which, 23.7%, 42.2%, 46.7% and 13.8% for kidney damage, heart damage, brain damage and eye damage respectively (31).

The research conducted in southern Tanzania brought that the level of an awareness toward hypertension related complications among hypertensive patients were, 58.9%, 83.3%, 32.0%, 44.2% and 36.9% for Stroke, Heart diseases, Renal diseases, Eye disease and Arterial diseases respectively (27).

2.3. Factors Associated to Awareness of Hypertension related complication

A study from Karachi, southern Asia reports that having an awareness toward hypertension related complications among hypertensive patients was significantly associated with age (<30 years, P<0.001) and positive family history of hypertension (28).

A study done in Estonia, Russia shows that the educational status (higher education) was factors significantly associated with having an awareness toward hypertension related complications among hypertensive patients (30).

A study conducted in Dallas County, Texas reveals that having a regular healthcare professional visit (AOR= 3.81, 95% CI: 2.86-5.07) and co-morbidities (diagnosed diabetes mellitus) (AOR= 2.02, 95% CI: 1.35-3.01) was significantly associated with having awareness regarding to hypertension (32).

According to research information from southern Tanzania, educational status (higher education, P< 0.001), duration of hypertension (5-9 years, P= 0.020 and ≥10 years, P< 0.001) and family history of hypertension (positive, P= 0.020) were all significantly associated factors with having an awareness toward hypertension related complication among hypertensive patients (27).

2.4. Prevalence of Blood Pressure self-monitoring

The study done in America, Czech (Czech Republic), United states, Canada and Italy show that BP self –monitoring among hypertensive patients was 53.8%, 40%, 41.6%, 50% and 74.7% respectively (34,35,37–39).

The research outcomes from the west Midlands, UK reveals that the prevalence of BP self-monitoring among hypertensive patients was 30.7, in which 11%, 3%, 18%, 10%, 23% and 35% of hypertensive patients monitor their BP once per day, more than once per day, once per week, twice a week, once per month, irregularly respectively (36).

A study done in Muscat, governorate of Sultanate of Oman reveals that the prevalence of blood pressure self –monitoring among hypertensive patients was 40% in which 62% participants were irregular in monitoring their BP .In spite of monitoring their BP at home 58% and 50% respondents were, not write a chart of their measurement and compare their device reading with the clinical reading to rule out the possibility of white coat hypertension respectively (43).

Another research conducted in the United States shows the prevalence of BP self-monitoring among hypertensive patients was 24.7% with a frequency of 9.5%, 7.2% and 8.0% patients measure their BP weekly, monthly and less than once a month respectively (40).

A research done in Amman, Jordan shows that the prevalence of BP self-monitoring among hypertensive patients was 82.0 % in which 51.2 % participants' monitors once

weekly and the rest were monitored daily. From those who told monitoring daily 30.5 %, 13.4 % and 4.9 % participants' monitors once a day, twice a day and three times a day respectively (45).

A research done in Karachi (southern Asia), northeastern Singapore (Asia) and northern Carolina reveal the prevalence of BP Self-Monitoring among hypertensive patients was 25%, 24%, and 43.1% respectively (41,42,44).

A survey conducted in China reveals that the prevalence of BP self-monitoring among hypertensive patients was 24.5% in which 6.4%, 39.7%, 24.3%, 19.2% and 10.2% of hypertensive patients monitor their BP every day or almost every day, once or more per week, once per month, twice or trice per month and irregularly respectively (46).

2.5. Factors Associated to Blood Pressure self-monitoring

According American survey reports, age (65 years and older, P=0.001), having regular healthcare professional visit (P=0.047), occupation (retired, P=0.020) were significantly associated factors with the use of BP self-monitoring among hypertensive patients (34).

The research outcomes from the west Midlands, UK reveals that, hypertensive patients who were aged between 18 to 60 years were 1.5 times more likely to measure their own BP than patients who were aged above 60 years (AOR= 1.48, 95% CI 1.11 to 1.97, P= 0.008) Whereas, employed hypertensive patients were two times more likely to measure their own BP than those who were not employed (AOR = 1.95, 95% CI 1.45–2.63, P= 0.001) (36).

A study done in Italy shows that, gender (male, P=0.03) , age (46-70 years, P=0.01) and educational level (higher education, P=0.02) were factors significantly associated with the use of BP self-monitoring among hypertensive patients (39).

Research done in United States shows that having an awareness about hypertension (AOR=2.00, 95%CI:1.52–2.63), co-morbidities (diagnosed diabetes mellitus, AOR= 23.2 95% CI: 20.8–25.6), doctor's recommendation toward using BP self-monitoring (AOR = 8.75, 95% CI : 7.18–10.67), age (60–79 years, AOR=19.0, 95%CI: 16.8–21.2) and 80 years and above, AOR= 29.5, 95%CI: 26.7–32.3) and having health insurance (AOR=

10.7, 95%CI: 9.8–11.6) were factors significantly associated with more frequent use of BP self-monitoring among hypertensive patients (40).

Another study from Karachi, southern Asia reveals that age (between 40 and 59 years, P=0.002), level of education (tertiary level of education, P <0.001), family history of hypertension (positive, P=0.005), were significantly associated with the use of BP self-monitoring among hypertensive patients (41).

A study done in northern Carolina reveals that age (45–65 years, AOR= 2.06, 95%CI: 1.03–4.11 , P=0.04 and >65 years, AOR= 2.53, 95%CI: 1.20–5.33, P=0.02), doctor's recommendation toward using BP self-monitoring (P<0.001), co-morbidities (diagnosed a stroke, P=0.050) were factors significantly associated with the use of BP self-monitoring among hypertensive patients (44).

A research done in northeastern Singapore, Asia reveals that, monthly income (middle-income group, AOR= 2.85, 95% CI: 1.2–6.87, P =0.018 and high-income group, AOR= 2.26, 95% CI: 1.06–4.82, P= 0.034) was factors significantly associated with the use of BP self-monitoring among hypertensive patients whereas the study also have identified reason for not using BP self-monitoring of which, 56.1%, 38.3%, 18.8%, 14.3% and 10.5% of participants did not see the need to carry out BP self-monitoring, were unaware of BP self-monitoring, did not understand how to operate the device, were unable to afford to purchase the device and perceived to be inaccurate were reasons told for not using BP self-monitoring among hypertensive patients respectively (42).

A survey conducted in China reveals that among hypertensive patients who states using BP self-monitoring, 48.7%, 42.3% and 5.1% mentioned their reason as personal motivation for monitoring their BP, had monitors in their home and doctor's recommendation toward using a BP self-monitoring respectively. whereas, 44.7%, 16.8% ,8.4% and 10.2% of participants mentioned their reason as did not understand how to operate the device, were unable to afford the device, did not think carrying out home BP measurements was important and never having heard of home blood pressure monitoring(HBPM) devices for not using BP self-monitoring respectively(46).

2.6. Conceptual frame work

The Conceptual frame work is developed after a thorough reviewing of the literatures (27,28,30,34,36,39–42,44).

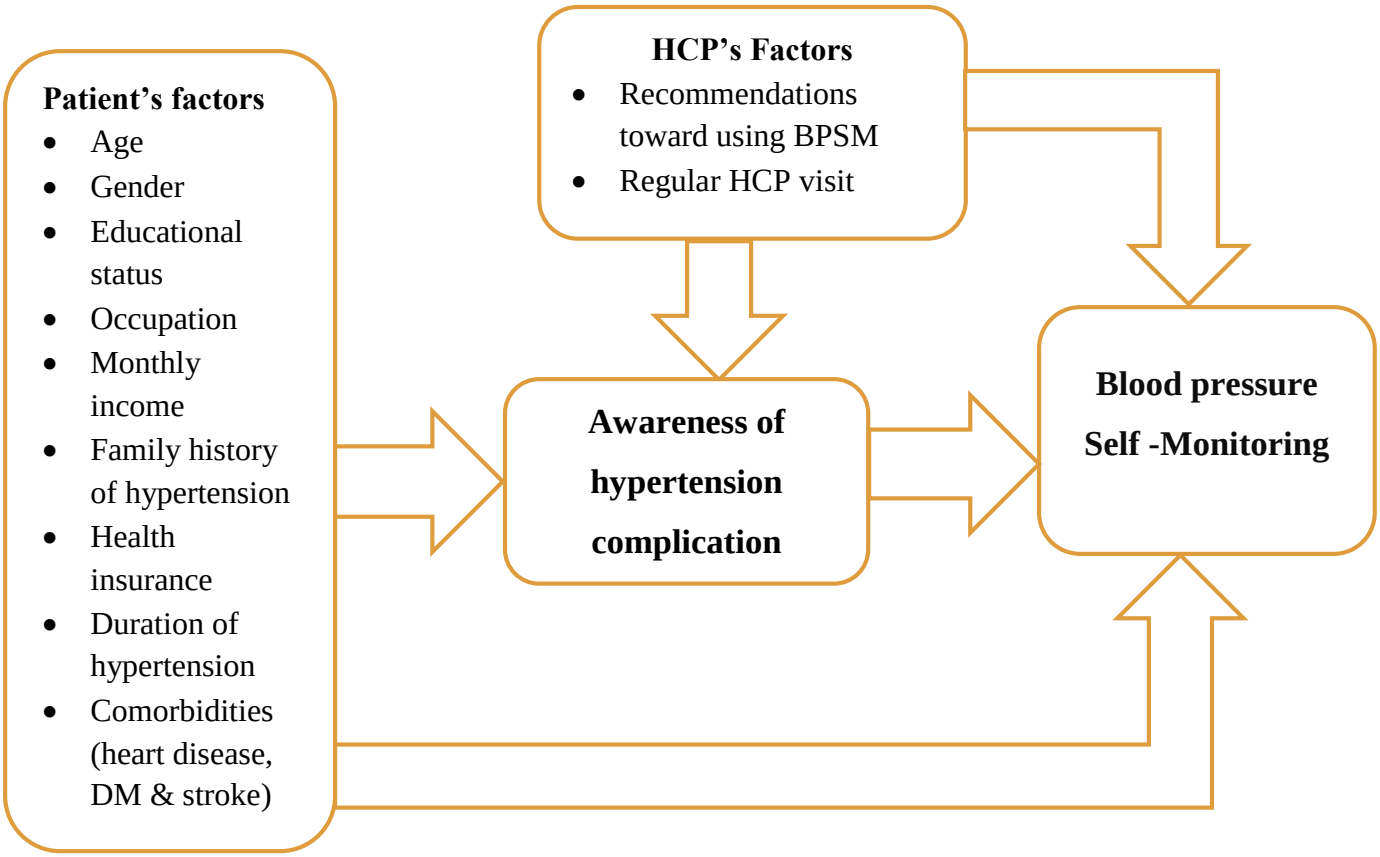

Figure 1: Conceptual frame work indicating factors related to blood pressure self-monitoring and awareness of hypertension related complication.

3. OBJECTIVES

3.1. General objective

To assess blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, South Eastern Ethiopia, 2019.

3.2. Specific objectives

1. To assess the prevalence of blood pressure self-monitoring among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, 2019.
2. To assess the level of awareness regarding to hypertension related complication among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, 2019.
3. To identify factors associated with blood pressure self-monitoring among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone,2019.
4. To identify factors affecting awareness of hypertension complication among adult hypertensive patients on follow up at selected public hospitals in Arsi Zone, 2019.

4. METHODS

4.1. Study area and period

Arsi zone is one of the zones which is found in Oromia regional states and is located in Southeast of Ethiopia. The zone contains about 3.5 million of total populations. Arsi Zone contains 24 Woredas which is classified into 499 rural villages and 58 towns with 1 administrative Town. There are 497 health posts, 97 governmental health centers and 7 governmental Hospitals (Asella hospital, Arsi Robe hospital, Abomsa hospital, Gobesa hospital, Kersa hospital, Bele hospital and Bokoji hospital). There is also 261 private clinics found in this zone (55). The study was conducted at public hospitals of Arsi zone from march 01- 30/2011.

4.2. Study design

Institution based cross-sectional survey was conducted among hypertensive patients on follow up at public hospitals of Arsi zone.

4.3. Source population

All adult hypertensive patients visiting public hospitals of Arsi zone for follow up.

4.4. Study population

The study population were selected adult hypertensive patients on follow up

4.5. Inclusion and Exclusion criteria

Inclusion criteria

- All hypertensive patients aged 18 years and above who have been on follow up at least for 3 months

4.6. Sample size determination

Since the number of hypertensive patients attending on follow up at selected public hospitals of Arsi zone is reasonably not large enough the study was included all of the hypertensive patients on follow up.

4.7. Sampling technique and procedures

First four public hospitals were selected with simple random Sampling technique out of the total seven public hospitals in Arsi zone. Then survey was conducted among selected four hospitals (Asella, Bokoji, Bele and Gobesa hospital). During a survey, primary the hypertensive patients were identified from other patients on chronic follow up clinic. Then the duration of follow up of the hypertensive patient was checked from the medical

registration card. Afterwards, all hypertensive patients present on the days of survey, who were on follow up for at least three months and who were willing to participate in the survey were included in the study.

Since survey was undertaken to include the whole hypertensive patients coming during data collection period, Primarily the patient was asked for his/her willingness to participate on the study. Then the patient who was willing to participate was interviewed after service was accomplished.

4.8. Variables of the Study

Independent variables:

- Age
- Gender
- Educational level
- Occupation
- Monthly income
- Family history of hypertension
- Duration of the disease
- Health insurance
- Co-morbidities
- Recommendations toward using blood pressure self-monitoring
- Regular healthcare professional visits

Dependent variables:

- Awareness of hypertension related complication
- Blood pressure self-monitoring

4.9. Operational definitions

Self-monitoring device: is an instrument used in measuring one's own Blood pressure without the assistance of a health care professional.

BP Self-monitoring: is self-measurement of blood pressure by patients at home using a self-monitoring device.

BP Self-monitoring: was assessed by asking the question 'Do you currently self-monitor your blood pressure (i.e. check your blood pressure by yourself using a self-monitoring blood pressure device at home)?'

Awareness: Is the ability to directly know and perceive, to feel, or to be cognizant of events. More broadly, it is the state of being conscious of something.

Awareness of complication on this study mean the patients awareness toward the complication of hypertension on target organs (Brain, Heart, Kidney and Eye).

Awareness of hypertension complication: was assessed by asking the question 'Can uncontrolled hypertension lead to your organ's damage?'. The proportion for specific target organ damage were questioned with questions like 'Do you think hypertension could prone to stroke, heart disease, kidney disease and eye disease? separately.

4.10. Data collection and procedures

4.10.1. Data collection instrument

The questionnaire was prepared after reviewing relevant literature with the problem under study and semi structured questionnaire was used. Afan Oromo language version of questionnaire was used for data collection purpose. Besides, for Amharic language only speaker study subject, in order to avoid translation bias at the spot, each data collector had Amharic language version questionnaire. Four BSc holder health professionals who were fluent in speaking Amharic and Afan Oromo were involved in the data collection. Two MSc holder health professionals were recruited as supervisors. Data was collected by using pretested questionnaire through face to face interview.

4.10.2. Data quality control

The quality of the data was assured by using translation and retranslation as well as pretesting of the questionnaire. The questionnaire was translated from English language version to Amharic and Afan Oromo version by different translator and back to English by second other translator who is a health professional to compare its consistency. The questionnaire was pretested on 5% of the total sample size among hypertensive patients on follow up at Kersa hospital and necessary adjustments was made on the questionnaire before its used for actual data collection. Data collectors and supervisors was trained for

two days on the study instrument and data collection procedure. The principal investigator and the supervisors were checked the collected data for completeness.

4.10.3. Data processing and analysis

Data was checked, coded and entered in to Epi-Data version 4.2.0.0 and then it was exported to Statistical Package for the Social Sciences (SPSS) version 21.0 (IBM Corporation, North Castle Drive, Armonk, NY, U.S.A) for statistical analysis.

Descriptive statistics such as frequency, percentage and measures of central tendency was used to describe the study participants. Tables and charts were used for data presentation. Then, two separate binary logistic regression analysis was applied for awareness of hypertension complication and BP self-monitoring to identify factors associated with them. COR, 95% CI, *p*-values ≤0.25 were used to present outcomes of the bivariate logistic regression analysis.

All independent variables with *p*-value of ≤0.25 were included in the multivariable logistic regression model to check the association between dependent and independent variables. AOR with 95% CI were estimated to identify the factor associated with BP self-monitoring and awareness of hypertension complication using multivariable logistic regression analysis where the level of statistical significance was stated at *P*-value <0.05.

4.10.4. Ethical considerations

Ethical clearance was obtained from institutional review board of Addis Ababa University, college of health sciences, school of Nursing and Midwifery, department of Nursing and Midwifery research committee. Then, the letter was submitted to Asella, Bokoji, Bele and Gobesa hospital. Permission was attained from those concerned bodies. Prior to data collection; all participants recruited to the study was received written information sheet about the study. Respondents was insured about the confidentiality of information acquired and the respondents name was not queried. Then consents were gained from each study subjects after explaining the objectives of the study and procedures. Lastly, they were confirmed it with their signature.

5. RESULTS

5.1 Socio-demographic characteristics of study participants

A total of 400 respondents were enrolled in the study making a response rate of 96.2%. The median age of the participants was 49 years with a range from 23 to 90 years and 187(46.8%) of them were middle age. A bit more than half 225 (56.3%) of the respondents were males. The majority 160(40.0%) of the respondents were married. More than two-third 282(70.5%) were Oromo by ethnic background and 187(46.8%) were orthodox followers. Regarding to educational status, 179(44.8%) of the respondents have attended primary educational level, while about 79(19.8%) of them had no formal education. About one-third 137(34.3%) of the respondents were farmers. Regarding to average monthly income, nearly one-third 134(33.5%) of the respondents had ≥ 3000 average monthly income. Whereas, the majority 242(60.5%) of the respondents were urban dwellers. (Table 1)

Table 1: Sociodemographic characteristics of hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=400]

Variable	Category	Frequency	Percent (%)
Age	21-40	113	28.2
	40-60	187	46.8
	>60	100	25.0
Gender	Male	225	56.2
	Female	175	43.8
Ethnicity	Oromo	282	70.5
	Amhara	87	21.8
	Gurage	27	6.7
	Other	4	1.0
Religion	Orthodox	187	46.7
	Muslim	159	39.8
	Protestant	51	12.7
	Other	3	0.8
Educational level	No formal education	79	19.7
	Primary	179	44.8
	Secondary	78	19.5

	Above secondary	64	16.0
Marital status	Single	95	23.8
	Married	160	40.0
	Divorced	72	18.0
	Widowed	73	18.2
Occupation	Farmer	137	34.2
	House wife	80	20.0
	Governmental employee	96	24.0
	Privet business	43	10.8
	Unemployed	44	11.0
Residency	Urban	242	60.5
	Rular	158	39.5
Average monthly income	≤ 999	127	31.8
	1000-1999	79	19.7
	2000-2999	60	15.0
	≥ 3000	134	33.5
Family history of HTN	Present	154	38.5
	Not sure	104	26.0
	Absent	142	35.5
Duration of hypertension	≤ 5	219	54.8
	6-10	113	28.2
	> 10	68	17.0
Health insurance	Yes	72	18.0
	No	328	82.0
Presence of Co-morbidities	Yes	88	22.0
	No	312	78.0
Diagnosed Co-morbidities (*n=88*) (multiple response)	Stroke	17	19.3
	Heart disease	25	28.4
	Kidney disease	37	42.0
	Eye disease	20	22.7
	Diabetes mellitus	33	37.5
Current smoking status	Yes	65	16.2
	No	335	83.8

5.2 Health care professional related Factors

Of the total respondents', more than half 221(55.3%) of the respondents had no regular healthcare professional visit, around eight in every ten 332(83.0%) of them were not recommended toward using BP self-monitoring while, a bit more than half 212(53%) of them were told about hypertension related target organ complications by health care professional during follow up. (Table 2)

Table 2: Health care professional related factors among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=400]

Variable	Response	Frequency	Percent (%)
Regular healthcare professional visit	Yes	179	44.8
	No	221	55.2
Recommendation toward using BP	Yes	68	17.0
self-monitoring	No	332	83.0
Advised on the procedure of BP self-	Yes	15	3.8
monitoring	No	385	96.2
Advised on type of BP self-monitoring	Yes	9	2.2
device	No	391	97.8
Told about hypertension related target	Yes	212	53.0
organ complication	No	188	47.0

5.3 Awareness of hypertensive patients about hypertension complication

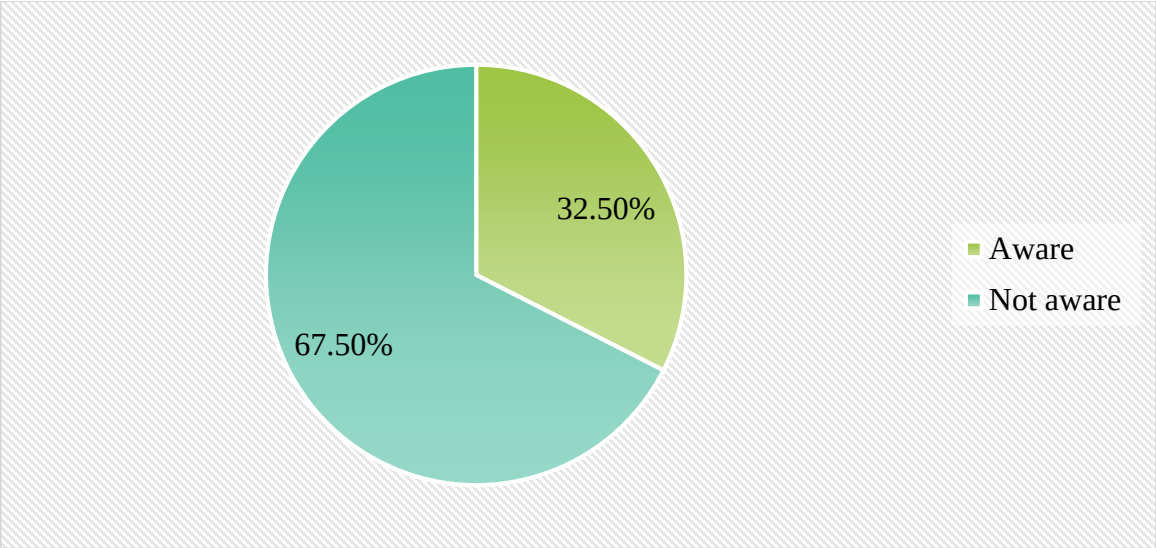

Figure 2: Awareness level of hypertension complication among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=400]

Primarily, four hundred (400) hypertensive patients were invited to answer a question asked about 'Can uncontrolled hypertension lead to your organ's damage?'. Subsequently, those patients who were answered 'Yes' (n=130) were asked for further specific awareness questions regarding to hypertension related target organ complication. They were asked whether hypertension could prone them to stroke, heart disease, kidney disease and eye disease.

The overall proportion of respondents' who had awareness toward hypertension related organ complication was 32.5% [95%CI; 28.3, 37.0] as shown above. (Figure 2)

5.4 Awareness toward hypertension related target organ complication

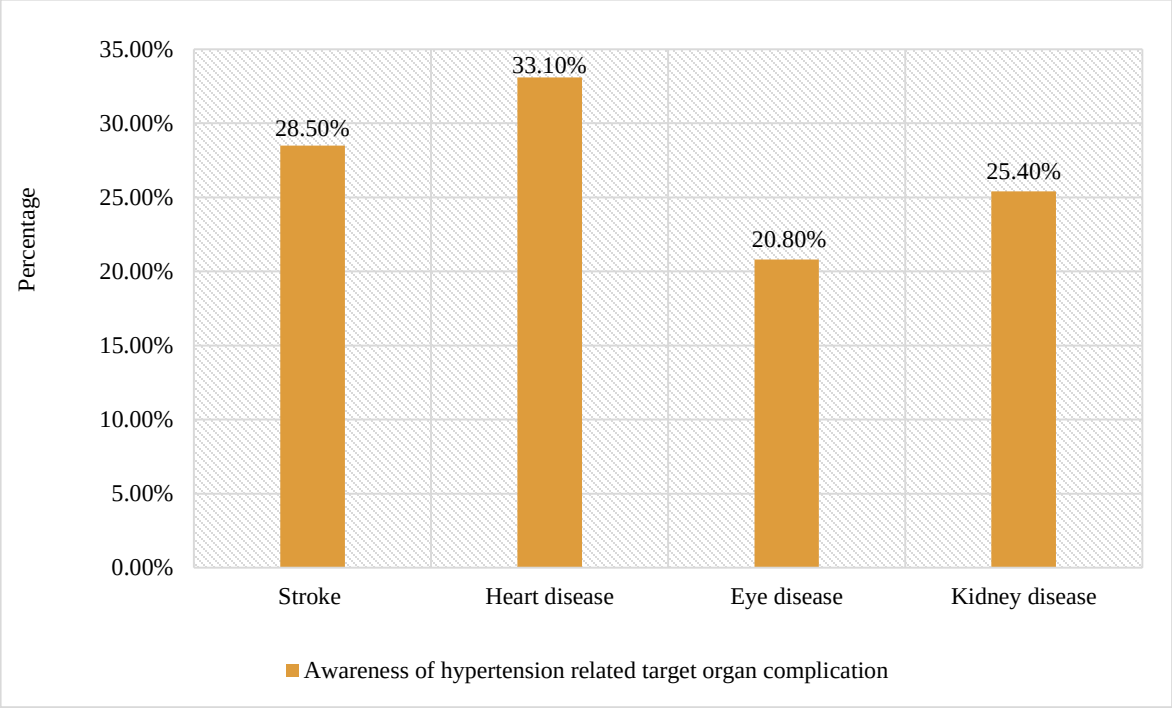

Figure 3: Awareness of hypertension organ complication among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=130]

The proportion of an awareness toward hypertension related target organ complications among hypertensive patients were about one-third (33.1%) [95%CI; 25.4, 40.8] for heart disease and about a fifth (20.8%) [95%CI; 14.6, 28.5] for Eye disease as displayed above. (Figure 3)

5.5 Respondents' source of information toward hypertension related complication

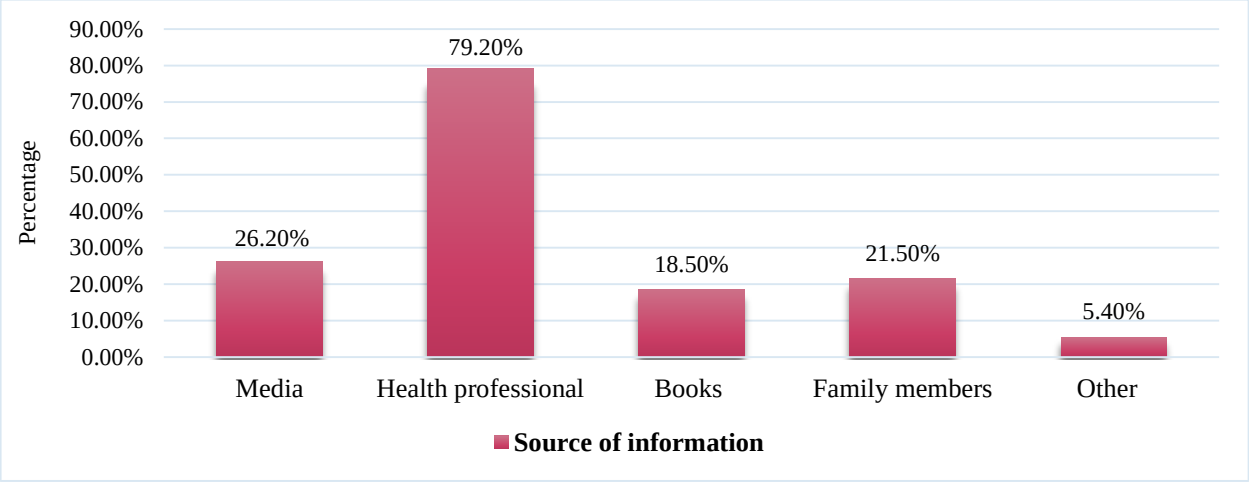

Figure 4: Source of information for hypertension complication for hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=130]

The majority (79.2%) of the respondents receive information regarding to hypertension related organ complication from healthcare professional and the smallest proportion (5.40%) of them acquire from other sources like friends and hypertensive patients as shown above. (Figure 4)

5.6 Blood Pressure self-monitoring among hypertensive patients

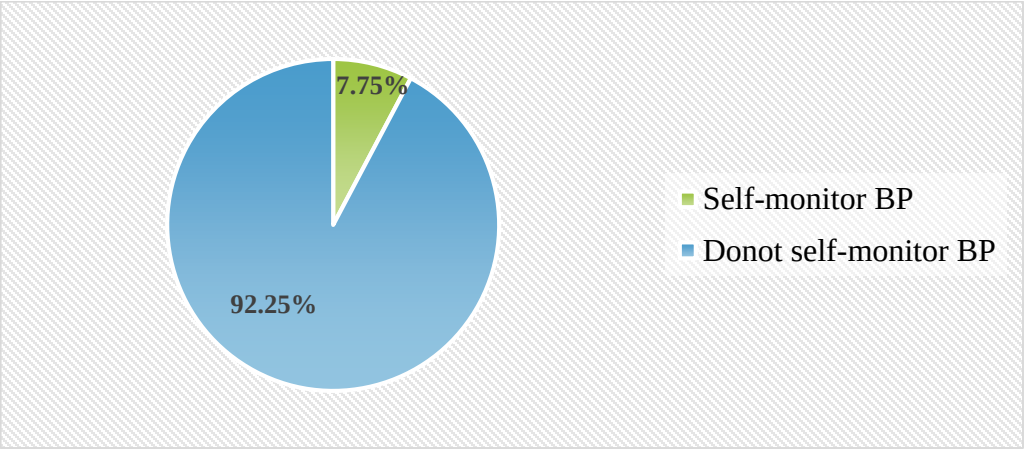

Figure 5: Prevalence of BP self-monitoring among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=400]

The proportion of BP self-monitoring practice among hypertensive patients was 7.75% [95%CI; 5.3, 10.5] as shown above. (Figure 5)

5.7 BP self-monitoring practice among hypertensive patients who self-monitor their BP

Four hundred (400) hypertensive patients were invited to answer a question asked about 'Do you currently self-monitor your blood pressure (i.e. check your Blood Pressure by yourself using a self-monitoring blood pressure device at home)?' and it was found that 7.75% (n=31) of them use personal BP device to monitor their BP at home. Then those patients were asked nine items further questions regarding to the BP self-monitoring.

The result of this study showed that about two-third 21(67.7%) of the respondents were remembered their last BP reading. The respondents were asked their last BP reading to check whether they remember or not because if not remembered they couldn't compare to the office BP reading. Regarding frequency, one-fourth 8(25.8%) of the participants were irregular in monitoring their BP. In addition to this, around one-sixth 5(16.1%) of them even don't know how frequent they were self-monitoring their BP which shows that they were not fully conscious about BP self-monitoring practice.

Nearly half 16(51.6%) of the respondents had no specific time to measure their BP. In spite of monitoring their BP, about two-third 21(67.7%) of the respondents did not write a chart of their measurement. Of all the precautions listed, the majority 14(45.2%) of respondents sidestepped measuring their BP within 30 minutes of caffeine intake. While 13(41.9%) of them had no any precautions during measuring their BP even though, they were practicing BP self-monitoring.

A bit less than two-third 19(61.3%) of the respondents were not compare their home BP reading to their office BP reading. Comparing those two readings was used to rule out the likelihood of white coat hypertension and to confirm that their device is operative fine.

Of those respondents who were comparing office BP reading with home BP reading, about one-third 4(33.3%) of them responded as their readings were match always whereas, the majority 5(41.7%) of them answered as it was match sometimes. Office BP was higher among three-fourth 6(75.0%) of the respondents for whom their home BP reading was not match always with their office readings. (Table 3)

Table 3: BP self-monitoring of patients who self-monitor their BP among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=31]

Variable	Response	Frequency	Percent	95%CI
Did you remember your last Blood Pressure reading?	Yes	21	67.7	[48.4, 83.9]
	No	10	32.3	[16.1, 51.6]
How frequently do you assess your blood pressure?	Once a day	4	12.9	[3.2, 25.8]
	More than Once a day	4	12.9	[3.2, 25.8]
	Once a week	3	9.7	[0.0, 22.6]
	Twice a week	4	12.9	[3.2, 25.8]
	Once a month	3	9.7	[0.0, 22.6]
	Irregularly	8	25.8	[12.9, 41.9]
	Don't know	5	16.1	[6.5, 32.2]
What time of the day do you measure your blood pressure?	At the morning	6	19.4	[6.5, 35.5]
	At the evening	3	9.7	[0, 19.4]
	At the morning & evening	6	19.4	[6.5, 32.3]
	No specific time	16	51.6	[35.5, 71.0]
Do you maintain a record of your measurement?	Yes	10	32.3	[13.0, 48.4]
	No	21	67.7	[51.6, 87.0]
Which of the following precautions do you take when measuring your Blood pressure?	Within 30 min of caffeine intake	14	45.2	[25.8, 64.4]
	Within 30 minutes of exercise	9	29.0	[13.0, 45.2]
	In a noisy environment	10	32.3	[16.1, 48.4]
	During having stress	4	12.9	[3.2, 25.8]
	No precautions	13	41.9	[25.8, 58.1]
Do you compare your home Blood pressure reading with office Blood pressure reading?	Yes	12	38.7	[22.6, 54.8]
	No	19	61.3	[45.2, 77.4]
If yes, does your Blood Pressure reading at home match with your Blood Pressure taken at a clinic? (*n=12*)	Always	4	33.3	[8.3, 58.3]
	Sometimes	5	41.7	[16.7,66.7]
	Rarely	3	25.0	[0.0, 50.0]
If not match always, is your Blood Pressure higher when measured by a doctor as compared to when measured at home?(*n=8*)	Yes	6	75.0	[37.5, 100.0]
	No	2	25.0	[0.0, 62.5]

5.8 Reason for using BP self-monitoring

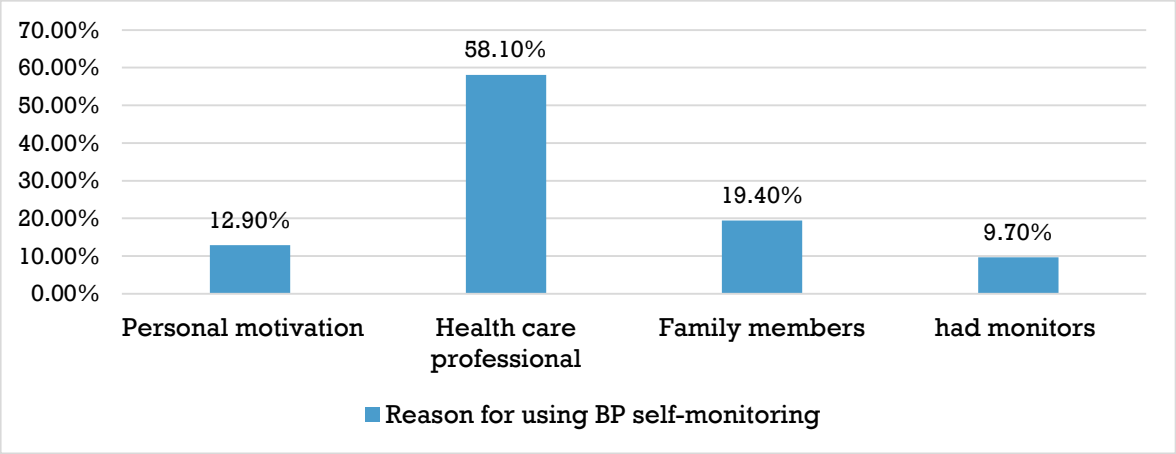

Figure 6: Reason for using BP self-monitoring among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=31]

The majority (58.10%) of hypertensive patients were mentioned their reason as health care professional recommendation for using BPSM and (9.70%) of them were told they were using BPSM because of they had BP monitors at their home as shown above. (Figure 6)

5.9 Reason for not using BP self-monitoring

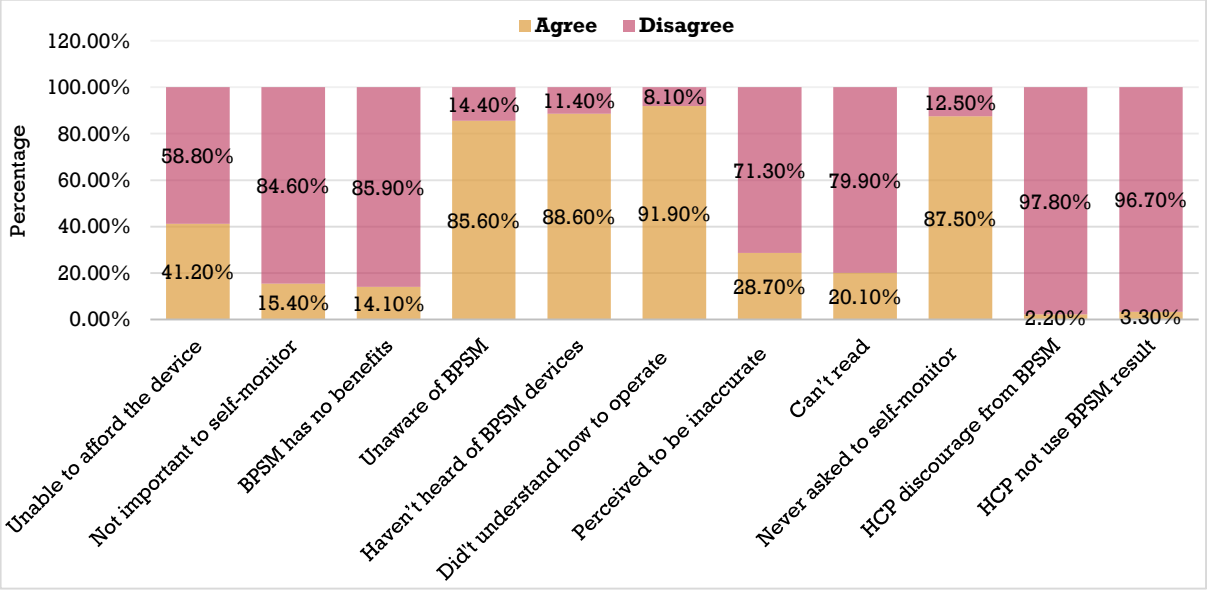

Figure 7: Reason for not using BP self-monitoring among hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=369]

Around nine in ten (91.9%) of the respondents who were not using BPSM told, they didn't understand how to operate the device as a reason for not using BPSM and (2.20%) mention healthcare professional discourages them from BPSM as displayed above. (Figure 7)

5.10 Factors associated with Awareness about hypertension related complication

Those variables with a *P*-value of ≤ 0.25 in the Binary logistic analysis was entered to multivariable logistic analysis using enter method to identify the independent factors associated with awareness of hypertension related target organ damage. Several associations were found to be significant in the bivariate analysis at *P*-value of ≤ 0.25. Thus, a multivariate approach was applied to determine which factors best explained and predicted awareness of hypertension related target organ damage as an outcome variable.

Factors associated with awareness of hypertension related target organ complication were classified as sociodemographic factors and health professional related factors. In bi-variable analysis, gender, educational level, monthly income, occupation, duration of hypertension, Co-morbidities, regular healthcare professional visit, recommendation toward using BP self-monitoring, marital status, family history of hypertension, smocking status, residency and BP self-monitoring were factors had *p*-value ≤ 0.25.

However, age and health insurance were factors that had *p*-value > 0.25 and they were avoided from entering in to multivariable analysis. Consequently, in the multivariable analysis a number of independent variables such as, educational level, monthly income, duration of hypertension, marital status, occupation, smoking status and regular healthcare professional visit were the factors have shown association with having awareness of hypertension related organ damage.

The odds of having awareness regarding hypertension complication among respondents who have attended secondary and above secondary educational level were almost three times [AOR=3.45, 95%CI (1.14, 10.45)] and nearly five times [AOR=4.73, 95%CI (1.81, 12.33)] higher than who had no formal education respectively. Respondents who were belonging income category of 2000-2999 and ≥ 3000 birr were almost three times [AOR=3.26, 95%CI (1.07, 9.89)] and nearly four times [AOR=4.23, 95%CI (1.53, 11.67)] more likely to have awareness regarding hypertension related target organ damage when compared to respondents who belonging to income category of ≤999 birr respectively.

Besides, those respondents who were nonsmoker almost three times [AOR=2.98, 95%CI (1.24, 7.15)] more likely to have awareness regarding hypertension related target organ damage when compared to their contraries. The likelihood of having awareness regarding

hypertension organ complication among respondents who had regular healthcare professional visit were almost ten [AOR=9.82, 95%CI (5.10, 18.91)] folds more when compared to their contraries. Likewise, the odds of having awareness among participants who were belonging to duration of hypertension > 10 years were nearly four times [AOR=3.55, 95%CI (1.48, 8.51)] higher than participants who was belonging to duration of hypertension diagnosis ≤ 5 years.

Furthermore, respondents who were married were closely twice [AOR=2.41, 95%CI (1.08, 5.41)] more likely to have awareness toward hypertension related organ damage compared to single. Respondents who were governmental employed were almost six times [AOR=5.89, 95%CI (1.80, 19.23)] more likely to have awareness regarding hypertension related target organ damage when compared to farmers. (Table 4)

Table 4: Bivariate and Multivariate analysis of factors associated with Awareness of hypertension complication among adult hypertensive patients who were attending at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=400]

Variables	**Category**	**Awareness of HTN**		**COR (95%CI)**	**AOR (95%CI)**
		Aware	**Not aware**		
Gender	Male	85(37.8%)	140(62.2%)	1.75(1.14, 2.71)	1.29(0.67, 2.51)
	Female	45(25.7%)	130(74.3%)	1	1
Educational level	No formal education	18(22.8%)	61(77.2%)	1	1
	Primary	33(18.4%)	146(81.6%)	0.77(0.40, 1.46)	1.56(0.67, 3.64)
	Secondary	42(53.8%)	36(46.2%)	3.95(1.99, 7.87)	**3.45(1.14, 10.45)***
	Above secondary	37(57.8%)	27(42.2%)	4.64(2.25, 9.57)	**4.73(1.81, 12.33)***
Marital status	Single	20(21.1%	75(78.9%)	1	1
	Married	70(43.8%)	90(56.3%)	2.92(1.63, 5.23)	**2.41(1.08, 5.41)***
	Divorced	25(34.7%)	47(65.3%)	1.99(0.99, 3.98)	1.93(0.72, 5.16)
	Widowed	15(20.5%)	58(79.5%)	0.97(0.46, 2.06)	0.83(0.29, 2.32)
Occupation	Farmer	25(18.2%)	112(81.8%)	1	1
	House wife	23(28.8%)	57(71.3%)	1.81(0.94, 3.46)	2.30(0.78, 6.76)
	Employed	50(52.1%)	46(47.9%)	4.87(2.70, 8.79)	**5.89(1.80, 19.23)***
	Privet business	12(27.9%)	31(72.1%)	1.73(0.78, 3.84)	1.94(0.63, 6.01)
	Unemployed	20(45.5%)	24(54.5%)	3.73(1.79, 7.79)	3.65(0.10, 12.97)
Residency	Urban	90(37.2%)	152(62.8%)	1.75(1.12, 2.72)	1.02(0.47, 2.24)
	Rular	40(25.3%)	118(74.7%)	1	1

Monthly income	≤ 999	24(18.9%)	103(81.1%)	1	1
	1000-1999	21(26.6%)	58(73.4%)	1.55(0.79, 3.03)	1.80(0.59, 5.47)
	2000-2999	18(30.0%)	42(70.0%)	1.84(0.91, 3.74)	**3.26(1.07, 9.89)***
	≥ 3000	67(50.0%)	67(50.0%)	4.29(2.46, 7.50)	**4.23(1.53, 11.67)***
Family Hx of HTN	Present	53(34.4%)	101(65.6%)	0.97(0.59, 1.56)	0.82(0.42, 1.61)
	Not sure	27(26.0%)	77(74.0%)	0.645(0.37, 1.23)	0.95(0.42, 2.13)
	Absent	50(35.2%)	92(64.8%)	1	1
Duration of HTN	≤ 5	57(26.0%)	162(74.0%)	1	1
	6-10	36(31.9%)	77(68.1%)	1.33(0.81, 2.19)	1.48(0.72, 3.02)
	> 10	37(54.4%)	31(45.6%)	3.39(1.93, 5.97)	**3.55(1.48, 8.51)***
Co-morbidities	Yes	38(43.2%)	50(56.8%)	1.82(1.12, 2.96)	0.82(0.41, 1.65)
	No	92(29.5%)	220(70.5%)	1	1
Current smoking status	Yes	15(23.1%)	50(76.9%)	1	1
	No	115(34.3%)	220(65.7%)	1.74(0.94, 3.24)	**2.98(1.24, 7.15)***
Regular HCP visit	Yes	106(59.2%)	73(40.8%)	11.92(7.10, 20.01)	**9.82(5.10, 18.91)*****
	No	24(10.9%)	197(89.1%)	1	1
Recommendation for BPSM	Yes	31(45.6%)	37(54.4%)	1.97(1.16, 3.36)	0.72(0.32,1.60)
	No	99(29.8%)	233(70.2%)	1	1
BPSM	User	22(71.0%)	9(29.0%)	5.91(2.64, 13.24)	2.24(0.73, 6.91)
	Nonuser	108(29.3%)	261(70.7%)	1	1

Note: - *p-value<0.05 and ***p-value<0.000. Number (1) represents the reference category. And variables with p value >0.25 in Bivariate analysis were omitted from entering in to multivariate analysis.

Model fitness was checked by Hosmer-Lemeshow's goodness of fit test while the result was (p-value = 0.39) which is (p-value >0.05) for awareness of hypertension complication.

Abbreviations: COR, Crude Odds Ratio; AOR, Adjusted Odds Ratio; CI, Confidence Interval; HTN, Hypertension; HCP, Health Care Professional; BPSM, Blood pressure self-monitoring.

5.11 Factors associated with BP self-monitoring

Factors associated with BP self-monitoring were classified as sociodemographic factors and health professional related factors. In bi-variable analysis, gender, educational level, monthly income, occupation, duration of hypertension, health insurance, comorbidity, regular healthcare professional visit, recommendation toward BP self-monitoring and awareness of hypertension related target organ complication were factors had *p*-value ≤ 0.25.

However, age, family history of hypertension, residency, marital status and current smoking status were factors that had *p*-value > 0.25 and they were avoided from entering in to multivariable analysis. In the multivariable analysis, nevertheless, educational level, monthly income, duration of hypertension, presence of co-morbidities, recommendation toward BP self-monitoring and awareness of hypertension related target organ complication were the factors that have shown association with BP self-monitoring.

The odds of BP self-monitoring among participants who have attended above secondary education was almost six times [AOR=6.4, 95%CI (1.17, 35.03)] higher than who had no formal education. Participants who were belonging to income category of ≥ 3000 birr were nearly twice [AOR=2.41, 95%CI (1.28, 7.12)] more likely to have BP self-monitoring practice when compared to those who were belonging to income category of ≤999 birr.

The odds of BP self-monitoring among participants who were belonging to duration of hypertension > 10 years were nearly eight times [AOR=8.05, 95%CI (2.21, 29.41)] higher than participants who was belonging to duration of hypertension diagnosis ≤ 5 years. The likelihood of having BP self-monitoring among participants who had awareness about hypertension related target organ complication were nearly three [AOR=3.27, 95%CI (1.05, 10.25)] folds more as compared to their opposites.

Moreover, the likelihood of having BP self-monitoring practice among participants who were with comorbidities like (stroke, heart disease, kidney disease, eye disease and diabetic mellitus) were nearly four [AOR=3.91, 95%CI (1.39, 11.03)] folds more as compared to their contraries. The odds of BP self-monitoring among participants who were recommended toward using BP self-monitoring were nearly seven times [AOR=7.11, 95%CI (2.56, 19.74)] higher than participants who were not recommended. (Table 5)

Table 5: Bivariate and Multivariate analysis of factors associated with BP Self-monitoring among adult hypertensive patients at public hospitals in Arsi Zone, Southeastern Ethiopia, June, 2019. [n=400]

Variables	**Category**	**BP Self-monitoring**		**COR (95%CI)**	**AOR (95%CI)**
		User	**Nonuser**		
Gender	Male	21(9.3%)	204(90.7%)	1.70(0.78, 3.71)	0.61(0.20, 1.86)
	Female	10(5.7%)	165(94.3%)	1	1
Educational	No formal education	5(6.3%)	74(93.7%)	1	1
level	Primary	6(3.4%)	173(96.6%)	0.51(0.15, 1.74)	0.78(0.16, 3.72)
	Secondary	6(7.7%)	72(92.3%)	1.23(0.36, 4.22)	1.06(0.19, 6.0)
	Above secondary	14(21.9%)	50(78.1%)	4.14(1.40, 12.23)	**6.4(1.17, 35.03)***
Occupation	Farmer	5(3.6%)	132(96.4%)	1	1
	House wife	6(7.5%)	74(92.5%)	2.14(0.62, 7.25)	1.34(0.21, 8.93)
	Employed	9(9.4%)	87(90.6%)	2.73(0.89, 8.42)	0.63(0.10, 4.02)
	Privet business	6(14.0%)	37(86.0%)	4.28(1.24, 14.82)	2.27(0.37, 14.07)
	Un employed	5(11.4%)	39(88.6%)	3.39(0.93, 12.30)	0.35(0.05, 2.35)
Monthly	≤ 999	5(3.9%)	122(96.1%)	1	
income	1000-1999	5(6.3%)	74(93.7%)	1.65(0.46, 5.89)	1.80(0.29, 11.14)
	2000-2999	6(10.0%)	54(90.0%)	2.71(0.79, 9.27)	1.81(0.28, 11.40)
	≥ 3000	15(11.2%)	119(88.8%)	3.08(1.08, 8.73)	**2.41(1.28, 7.12)***
Duration of	≤ 5	5(2.3%)	214(97.7%)	1	
HTN	6-10	8(7.1%)	105(92.9%)	3.26(1.04, 10.21)	2.03(0.50, 8.26)
	> 10	18(26.5%)	50(73.5%)	15.41(5.5, 43.49)	**8.05(2.21, 29.41)***
Health	Yes	13(18.1%)	59(81.9%)	3.80(1.76, 8.16)	2.34(0.74, 7.44)
insurance	No	18(5.5%)	310(94.5%)	1	1
Co-morbidities	Yes	18(20.5%)	70(79.5%)	5.91(2.77, 12.64)	**3.91(1.39, 11.03)***
	No	13(4.2%)	299(95.8%)	1	1
Regular HCP	Yes	24(13.4%)	155(86.6%)	4.73(1.99, 11.26)	2.11(0.61, 7.26)
visit	No	7(3.2%)	214(96.8%)	1	1
Recommendati	Yes	18(26.5%)	50(73.5%)	8.83(4.08, 19.14)	**7.11(2.56, 19.74)*****
on for BPSM	No	13(3.9%)	319(96.1%)	1	1
Awareness of	Aware	22(16.9%)	108(83.1%)	5.91(2.64, 13.24)	**3.27(1.05, 10.25)***
HTNC	Not aware	9(3.3%)	261(96.7%)	1	1

Note: - **p*-value<0.05 and ****p*-value<0.000**.** Number (1) represents the reference category. And variables with *p* value > 0.25 in Bivariate analysis were omitted from entering in to multivariate analysis.

Model fitness was checked by Hosmer-Lemeshow's goodness of fit test while the result was (*p*-value = 0.89) which is (*p*-value >0.05) for BP self-monitoring.

Abbreviations: COR, Crude Odds Ratio; AOR, Adjusted Odds Ratio; CI, Confidence Interval; HTNC, hypertension Complication; BP, Blood Pressure; BPSM, Blood pressure self-monitoring; HCP; Health Care professional

6. DISCUSSION

6.1 Prevalence of awareness of hypertension complication and associated factors

The overall proportion of respondents' who had awareness toward hypertension related target organ complication was 32.5% [95%CI; 28.3, 37.0] of which 28.5% [95%CI; 20.8, 35.4], 33.1% [95%CI; 25.4, 40.8], 20.8% [95%CI; 14.6, 28.5] and 25.4% [95%CI; 17.7, 33.1] of respondents were aware that hypertension can prone them to Stroke, Heart disease, Eye disease and Kidney disease respectively. The proportion of awareness toward hypertension related complication of this finding was lower when compared to the study report from Jaffna Peninsula (northern Sri Lanka), Dallas County (Texas) and Pokhara (western Nepal) where the proportion were (48.2%), (64.4%) and (73.1%) (31,32,54) respectively. For the study conducted in Dallas County, Texas the variation might be due to differences in sample size (1514), population segment (18-64 years) and the high proportion of respondents had regular healthcare professional visits (92.2%) which was (44.8%) for this study. Particularly having regular healthcare professional visits could lead to the differences because this could create a favorable occasion for the patients to discuss with health care professionals up on hypertension complication in detail. Whereas, the variation might be due to sociodemographic background like educational status of the respondents in which (71.6%) were literate for the study done at Pokhara, western Nepal when compared to this study where educational status of secondary and above of the respondents were 35.5%. Since education is a tool for information transfer the more the individual attended the high level education they will be expected to be aware of their health status. The variation might be due to differences in study setting (tertiary care centre) for the study conducted in Jaffna Peninsula, northern Sri Lanka. This could overestimate the result because the service quality and qualification of the physician of tertiary hospital differs from that of primary hospitals for this study setting.

The proportion of awareness for target organ complication of hypertension of this findings were lower when compared to the study conducted in Karachi, south Asia and Rohilkhand region, India where the awareness level of hypertension complication was (100%) for stroke, (95.5%) heart diseases, (59.1%) kidney disease and (54.5%) eye disease in Karachi, south Asia and (66.7%) for heart disease, (35.71%) for kidney damage, (34.7%) for brain damage and (19%) for other complication like Eye damage and Arterial damage in Rohilkhand region, India respectively (28,29). The variation might be due to differences in study setting where a

study was done among CVD inpatient wards for a study in Karachi, south Asia. In fact, this can overemphasize the results particularly the awareness regarding to heart disease. whereas, differences might be due to sample size (480) for study in Rohilkhand region, India. This finding was consistent (24.9%) for stroke and higher (17.9%) for heart damage when compared to the study conducted in Estonia, Russia (30). This finding were higher (13.8%) for eye damage, consistent (23.7%) for Kidney damage and lower (42.2%) for heart damage and (46.7%) brain damage when compared to the study conducted in Jaffna Peninsula, northern Sri Lanka (31). This finding were lower than the study done in southern Tanzania where the awareness level of hypertension complication were (58.9%) for Stroke, (83.3%) for Heart disease, (32.0%) for Renal diseases and (44.2%) for Eye diseases (27). The variation might be due to the differences in sample size (450) and study setting where the study was done in referral and teaching hospital providing tertiary care services to both urban and rural population.

Those respondents who had regular healthcare professional visit were almost ten times more likely to have awareness regarding hypertension organ complication when compared to those who had no regular healthcare professional visit. This study was supported by a study conducted at Dallas County, Texas (32). The reason could be due to, the regular visits to health care professional are significant in improving awareness on hypertension among hypertensive patients. This is because the patient will take along enough time of contact with the health care professional. In fact, this could create a conducive opportunity for the patients to discuss with health care professionals up on their disease conditions like its complication in detail. Furthermore, the patient could also have the chance to enquire and recognize about the weightiness of the disease.

Those Respondents who have attended secondary and above secondary educational level were almost three times and nearly five times more likely to have awareness regarding hypertension organ complication than who had no formal education respectively. This study was supported by a study conducted in southern Tanzania and Estonia, Russia (27,30). The reason might be due to the higher education updates better information about health status of the individual. In fact, education is the tool to provide health education for creation of awareness regarding to hypertension related organ damage. Relatively individuals who have attended high level of education are more expected to have regular healthcare professional visits, read different

books and internet about their disease conditions because they have more awareness they will care themselves. And respondents who were belonging to duration of hypertension > 10 years were nearly four times more likely to have awareness regarding hypertension organ complication than participants who were belonging to duration of hypertension diagnosis ≤ 5 years. This study was supported by a study conducted in southern Tanzania (27). The reason might be due to the fact that patients could be conversant with the disease condition through time course. Within this time frame the patient might be accessible to different source of information like health care professional, media, Books, friends and other hypertensive patients.

Respondents who were belonging to monthly income category of 2000-2999 and ≥ 3000 birr were almost three times and nearly four times more likely to have awareness regarding hypertension related target organ damage when compared to respondents who belonging to income category of ≤999 birr respectively. The reason might be due to; the fact that the patient could afford the cost of a trip and other services during follow up which could be the barrier for those respondents who had no regular healthcare professional visits. Additionally, the patient could be accessible to internet and media where another source of information concerning to the disease could be reached. Those respondents who were nonsmoker were almost three times more likely to have awareness regarding hypertension related target organ damage when compared to their contraries. The reason might be due to; if the individual is substance abuser, relatively this is fact that they don't worry about their health status except how to satisfy they addiction.

Also, respondents who were married were almost twice more likely to have awareness toward hypertension related organ damage compared to single. The reason might be due to; relatively married individual is free from activities like substance abusing. This is because due to the responsibility of the individual for the family rather they might think of their health status to serve the family more. This might drive the individual toward health seeking behavior. Lastly, respondents who were governmental employed were almost six times more likely to have awareness regarding hypertension related target organ damage when compared to farmers. The reason might be due to; relatively thinking almost all of the governmental employed individuals are well educated. This describes that they are more likely to have awareness toward their health status.

6.2 Prevalence of Blood pressure self-monitoring and associated factors

The proportion of BP self-monitoring among hypertensive patients was 7.75% [95%CI; 5.3, 10.5]. This finding was lower when compared to study conducted in America, Czech (Czech Republic), United states, Canada and Italy which were 53.8%, 40%, 41.6%, 50% and 74.7% respectively (34,35,37–39). This variation might be due to different in sample size (559) and sampling procedure where a study was undertaken with online survey. Patients with low income category might not be involved due to service inaccessibility which could overestimate the proportion BP self-monitoring for a study in America. Population segment and sample size differences for Czech (Czech Republic) study where the study were conducted among 552 hypertensive patients of aged (25- 75 years), study design and study setting differences for United states study where a cross-sectional, correlational design were used among urban community population, study setting differences for Canada study where the study conducted among community pharmacies hypertensive patients and differences in sample size for study in Italy where it was conducted among 855 hypertensive patients. This result was also lower than findings reported from studies done at west Midlands (UK), Muscat (governorate of Sultanate of Oman) and Amman (Jordan) that shows the proportion of BP self-monitoring; 30.7%, 40% and 82% respectively (36,43,45). Whereas, the variation might be due differences in sample size (1815) for study done at west Midlands, UK while the highest proportion in Amman, Jordan might be due to difference in study setting where it was conducted among institutions in Amman, the capital city of Jordan and the pharmacist participation for counseling patients on the proper use of blood pressure monitors and delivering needed relevant education in addition to other health care professional as a study report. This finding was also lower than results reported from a study done in Karachi (southern Asia), northeastern Singapore (Asia), northern Carolina and China where the prevalence of BP Self-Monitoring among hypertensive patients was 25%, 24%, 43.1% and 24.5% respectively (41,42,44,46). The variation might be due to differences in study setting where study was conducted at tertiary hospital for the study of Karachi, southern Asia and differences in sample size (700) for the study done at northern Carolina.

Those respondents who have attended above secondary education was almost six times more likely to have BP self-monitoring than who had no formal education. This finding was supported by study conducted in Italy and Karachi, southern Asia (39,41). This indicates that

educational level of the participant was positively associated with their BP self-monitoring which reveals it could be due to the reason that higher education apprises better information about BP self-monitoring, a self-care practice used to control hypertension related complication among hypertensive patients. In fact, the education helps to make the patient conscious of their health status. The individual will utilize different sources like reading books which will create the possibility of being aware about the disease condition and its weightiness. They will also be mindful of managing it through home BP monitoring.

Recommendation toward using BP self-monitoring was important significant factor for BP self-monitoring such that respondents who were recommended toward using BP self-monitoring were nearly seven times more likely to have BP self-monitoring than who were not recommended. This study was similar with a study done at united states and northern Carolina (40,44). The reason might be due to awareness creation regarding to hypertension complication if not managed carefully and about BP self-monitoring such that, training up on procedures by health care professional while recommending the utilization of BP self-monitoring.

Participants who were belonging to monthly income category of ≥ 3000 birr were nearly twice more likely to have BP self-monitoring when compared to those who were belonging to income category of ≤999 birr. This result was consistent with studies conducted at northeastern Singapore, Asia (42). The reason might be the patient can afford the device if they had enough monthly income and also could be familiar with media where another source information concerning to disease and BP self-monitoring. Similarly, respondents who had awareness about hypertension related target organ complication were nearly three folds more to have BP self-monitoring when compared to their contraries. This result was consistent with studies conducted at United States (40). The reason might be the fact that having awareness of hypertension related organ complication will make the patient more conscious about the seriousness of the disease and the patient might be tensioned to control the disease and focuses on strategies of managing the disease like BP self-monitoring because the patient might have think that he will die due to the complication of the disease if not controlled.

Those respondents who were with co-morbidities were nearly four times more likely to have BP self-monitoring than those who were not with co-morbidities. This result was supported

by a study done at United States and northern Carolina (40,44).The reason might be due to awareness of the patients concerning to co-morbidities as a complication of uncontrolled hypertension and thinking that the patient is expected to find the strategy to handle hypertension which is BP self-monitoring. In addition to this, respondents who were belonging to duration of hypertension > 10 years were eight time times more likely to have BP self-monitoring than participants who were belonging to duration of hypertension diagnosis ≤ 5 years. The reason might be due to possibility of mindful of the importance of the disease condition if not controlled during early time and the patient is expected to care himself because of time course of the disease.

Collectively, the study assessed the proportion of the blood pressure self-monitoring, proportion of awareness regarding to hypertension related target organ complication and identified associated factors.

6.3 Strength and Limitations of the study

Strength

- Included more different variables to identify factors associated to blood pressure self-monitoring and awareness of hypertension complication.
- Probability based population sample survey

Limitations

- Lack of related literatures to discuss with certain findings
- The study design was cross sectional, where cross-sectional study design cannot create causal attribution between independent variables and dependent variable

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

The proportion of both awareness toward hypertension related organ complication and BP self-monitoring among hypertensive patients who were attending at public hospitals in Arsi Zone, southeastern Ethiopia were 32.5% [95%CI; 28.3, 37.0] and 7.75% [95%CI; 5.3, 10.5] respectively. Educational level, monthly income, duration of hypertension, regular healthcare professional visit, current smoking status, marital status and occupation were factors significantly associated to having awareness of hypertension related organ complication. And educational level, monthly income, duration of hypertension, presence of Co-morbidities, recommendation toward BP self-monitoring and awareness of hypertension related organ complication were factors significantly associated with BP self-monitoring.

7.2 Recommendation

Based on this study result subsequent recommendations were forwarded to the following respective responsible bodies.

To Arsi Zone health bureau:

The Zone health bureau should link those hypertensive patients with NGO or any other supportive groups to acquire financial support for those patients who had low monthly income. Besides, to this they should encourage and design awareness programmes for hypertension related complication and BP self-monitoring. Furthermore, they should incorporate BP self-monitoring into hypertension self-care programmes.

To Arsi Zone public hospitals:

Health care providers should focus on hypertensive patients those who had low educational level, low monthly income, co-morbidities, smoking habit, no regular healthcare professional visits and who had short duration (≤ 5 years) of the disease. Awareness programs should be set and the patients should be taught on the hypertension related complication and BP self-monitoring practice procedure and its precaution required during utilization. Furthermore, they should inform the patient to self-monitor their BP.

To nursing practice:

All nurses' workings on hypertension should teach hypertensive patients on hypertension related complication and emphasize up on the importance of BP self-monitoring during their follow up program. They should develop educational programs to teach patients on hypertension related complication, BP self-monitoring and smoking habit. In addition to this, they should teach BP self-monitoring practice through demonstration.

To researcher:

I suggest further research that might include Institutional based barriers toward BP self-monitoring to be studied at the study area. Besides, to this I suggest a research with multisite and large scale to be studied up on this study Topic.

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ANNEXES

Annex 1: English version Questionnaires

Information Sheet

Title of the Research Project: Blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at public hospitals in Arsi Zone, Southeastern, Ethiopia, 2019.

Name of Principal Investigator: Addisu Dabi(BSc)

Name of the Organization: public hospitals in Arsi Zone

Name of the Sponsor: Addis Ababa University

Introduction: This information sheet is prepared for public hospitals in Arsi Zone and chronic follow up clinic coordinating office. The purpose of this information sheet is to create the overhead concerned office clarification about the purpose of the research, data collection procedures and acquire authorization to conduct the research.

Purpose of the Research Project: To assess the blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at public hospitals in Arsi Zone, Southeastern, Ethiopia, 2019.

Procedure: In order to achieve the above objective, information which is necessary for the study will be taken by interviewing those hypertensive patients which will come at follow up clinic.

Risk and /or Discomfort: There is no probable risk associated with participating in this study except the time spent for responding to the questionnaire. This study will be accompanied through interviews and you are being questioned for a little of your time, a maximum of 25 minutes, to support me in this study.

Benefits: no payment or no any special privilege will be allowed to you for your participation in this study. Study has indirect profit for the participant and other hypertensive patients by creating awareness of hypertensive complication and blood pressure self-monitoring, identifying factors that affects their awareness and practice of Blood pressure self-monitoring depending on the study findings.

Confidentiality: Your name will not be written on this information sheet and any information you tell us will not be disclosed to other.

Person to contact: Addisu Dabi (principal investigator)

Cell phone: +2519 1028 6766 or +2519 4906 9568 and E-mail: addansa12@gmail.com

Consent Form

In undersigning this document, I am giving my consent to participate in the study entitled as "Blood pressure self-monitoring, awareness of hypertension complication and associated factors among adult hypertensive patients on follow up at public hospitals in Arsi Zone, Southeastern, Ethiopia." I have been informed about the purpose of this study and I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me.

I understood that participation in this study does not involve risks. I understood that Addisu Dabi is the contact person if I have questions about the study or about my rights as a study participant.

Dear respondents!

If you are willing to take part in the study, please you are kindly requested to respond to all questions honestly!

Now do you agree to participate in the study? Yes _____ No _____

Respondent's signature_______

Thank you very much!

Dear data collectors!

Instruction: - Please Kindly go through the questions below & **encircle** or **write** the answer of the respondents on space provided during interviewing the respondents.

Data collection date----------month----------Year----------

Name of the hospital ----------

Name of data collector---------- signature----------

Name of supervisor----------signature----------

Part I: - Socio demographic data			
S.N	**Variable**	**Response**	**Skip to…**
101	What is your Age?	_____years	
102	Gender	1. Male 2. Female	
103	What is your Ethnicity?	1. Oromo 2. Amhara 3. Gurage 4. Other(specify)____	
104	What is your Religion?	1. Orthodox 2. Muslim 3. Protestant 4. Other(specify)_____	
105	What is your highest educational level completed?	1. Illiterate 2. Primary 3. Secondary 4. Above secondary	
106	What is your marital status?	1. Single 2. Married 3. Divorced 4. Widowed	
107	What is your job?	1. Farmer 2. House wife 3. Government employee 4. Other(Specify)_____	
108	Where is your place of residency?	1. Urban 2. Rular	
109	How much is your average monthly income?	_____ETB	
110	Do you have a family history of Hypertension?	1. Absent 2. Not sure 3. Present	
111	How many years now since you were told by a Doctor that you have hypertension?	1. ≤5 2. 6–10 3. >10	
112	Do you have any one who covers your medicine ?	1. Yes 2. No	
113	Have you been told by a Doctor to have any other disease?	1. Yes 2. No	If No Skip to Q #115

114	If Yes, which of the following disease you have been told by a Doctor?	1. Stroke 2. Heart disease 3. Kidney disease 4. Eye disease 5. Diabetes mellitus	
115	Have you been smoking currently?	1. Yes 2. No	
Part II: - Questionnaires on health care professional related Factors			
S.N	**Variable**	**Response**	**Skip to…**
201	Did you have a regular follow up for your blood pressure according to your appointment?	1. Yes 2. No	
202	Have you been recommended toward using blood pressure self-monitoring by doctor's/nurse's?	1. Yes 2. No	
203	Have you been advised on the procedure of blood pressure self-monitoring by doctor's/nurse's?	1. Yes 2. No	
204	Have you been advised on the type of device you should use for blood pressure self-monitoring by doctor's/nurse's?	1. Yes 2. No	
205	Have you been told about hypertension related complications by doctor's/nurse's?	1. Yes 2. No	
Part III: - Awareness of patients about hypertension related complication questionnaires			
S.N	**Variable**	**Response**	**Skip to…**
301	Can uncontrolled hypertension lead to your organ's damage?	1. Yes 2. No	If No Skip to Part IV
302	Do you think that hypertension will prone you to stroke/ brain damage?	1. Yes 2. No	
303	Do you think that hypertension will lead you to heart disease?	1. Yes 2. No	
304	Do you think that hypertension will prone you to eye disease?	1. Yes 2. No	
305	Do you think that hypertension will prone you to kidney disease?	1. Yes 2. No	
306	If "yes to **Q #301"** What was your primary source of information?	1. Media 2. Health care professional 3. Books 4. Family members 5. Other(specify)_____	
Part IV: - Blood pressure self-monitoring practice questionnaire			
S.N	**Variable**	**Response**	**Skip to…**

401	Do you currently self-monitor your blood pressure (i.e. check your blood pressure by yourself using a self-monitoring blood pressure device at home)?	1. Yes 2. No	If No skip to Q #411
402	Did you remember your last blood pressure reading?	1. Yes 2. No	
403	How frequently do you assess your blood pressure?	1. Once a day 2. More than Once a day 3. Once a week 4. Twice a week 5. Once a month 6. Irregularly 7. Don't know	
404	What time of the day do you measure your blood pressure?	1. At the morning 2. At the evening 3. At the morning &evening 4. No specific time	
405	Do you maintain a record of your measurement?	1. Yes 2. No	
406	Which of the following precautions you take when measuring your blood pressure?	1. Within 30 minutes of caffeine intake 2. Within 30 minutes of exercise 3. In a noisy environment 4. During having stress 5. No precautions	
407	Do you compare your home blood pressure reading with office Blood pressure reading?	1. Yes 2. No	
408	If yes, does your blood pressure reading at home match with your Blood Pressure taken at a clinic?	1. Always 2. Sometimes 3. Rarely	
409	If not match always, is your blood pressure higher when measured by a doctor as compared to when measured at home?	1. Yes 2. No	
410	What was your reasons to use home blood pressure monitoring?	1. Personal motivation 2. Health care professional 3. Family members 4. I have monitors in my home	

		5. Other(specify)_____	
Dear data collectors! Please indicate whether the respondents answer is **1. Agree or 2. Disagree** for each of statements **411 – 421** by writing the corresponding number in the space provided. Which of the following statement describes your reason for not self-monitoring your blood pressure?			
411	I don't have money to buy blood pressure self-monitoring devices _____		
412	It is not important to self-monitor my blood pressure _____		
413	Blood pressure self-monitoring has no benefits for me _____		
414	I am unaware of about blood pressure self-monitoring _____		
415	I haven't heard of blood pressure self-monitoring devices _____		
416	I Did not understand how to operate the device _____		
417	I Perceived blood pressure self-monitoring to be inaccurate _____		
418	I can't read _____ why? 1. I am blind 2. I am illiterate		
419	My doctor/nurse never asked me to self-monitor my blood pressure _____		
420	My doctor/nurse discourages me from blood pressure self-monitoring _____		
421	My doctor/nurse does not use my self-monitored blood pressure results _____		

Annex 2: Afan Oromo version Questionnaires

Unka Odeeffannoo

Mata duree qorannoo: "Dhiibbaa dhiigaa ofiin of safaruu fi hubannoo waa'ee rakkinoota dhiibbaa dhiigaan wal-qabatanii dhufan kan Namoota dhiibbaa dhiigaan qabamanii hospitalota godina Arsiiti hordofirra jiran irrati hojetamu''

Maqaa nama qorannoo adeemsisuu: Addisuu Dhaabii(BSc.)

Maqaa dhabbataa: hospitalota godina Arsii

Maqaa dhabbata ispoonsara ta'ee: Yuuniversiitii Finfinnee

Seensa: waraqaan ragaa kun kan qophaa'e hospitalota godina Arsii fi Biiroo haalamijesituu dhukkuboota hordoffii barbadaanittif. Kaayyon raga kanaa ibsa barbachisaa ta'ee waa'ee qorannoon wal-qabate akkaataa odeeffannoon itti funanaamuu fi qorannoo kana adeemsisuuf mirkaneessumaa barbachissu aragchuuf.

Kaayyoo qorannoo kanaa: "Dhiibbaa dhiigaa ofiin of safaruu fi hubannoo waa'ee rakkinoota dhiibbaa dhiigaan wal-qabatanii dhufan kan namoota dhiibbaa dhiigaan qabamanii hospitaalota godina Arsiitti hordofira jiran odeefannoo barbachisaa tahee funanuuf.

Adeemsa: kaayyoo armaan olii kana galmaan gahuuf, odeefannoo barbachisaa tahee dhukkubsattoota dhiibbaa dhiigaan qabamanii hordoffiidhaf gara hospitalaa dhufaan waliin gaaffii fi deebii tasiisun kan funanaamu ta'a.

Miidhaaf saaxiluu: qorannoo kanarratti hirmachuun miidhaa kaamifiyyuu isiin hin saaxiluu. Garuu yeroo keessaan irraa turtii gaaffii fi deebiif tasifamuf isiin jala ni fudhata. Qorannoon kun kan adeemsifamu gaaffii fi deebiin wan ta'eef qorannoo kanaaf nagargaruuf daqiiqaa 25 f kan waliin turru ta'a.

Faayidaa: qorannoo kanaratti hirmachuu keessaniif wantii addaa yookkiin qarshiin kan isiniif hin kaffalamnee ta'uu isaa sinbeeksisa. Garuu faayidaan isaa kara biraan odeefannoon itti kennitan kun sirnaa yaalii fi rakkinotaa dhiibbaa dhiigaan wal-qabatanii dhufaan irratti jijjirama barbaachisu fiduuf gahee guddaa taphata.

Icciitii eegu: Maqaan keessan waraqaa ragaa irratti hin barreeffamu. Akkasumas odeeffannoo isin naf kennitan eenyutiyyuu hin himamuu.

Nama ittin wal-qunamuu dandeessan: Addisuu Dhaabii (BSc.)

L.B: +2519 1028 6766 or +2519 4906 9568 fi E-mail: addansa12@gmail.com

Unka walii-galtee

Mallattoo koo armaan gadittii mallatteesudhaan, ani qoranno namoota dhiibbaa dhiigaan qabamanii hospitaalota godina Arsiitti hordofirra jiran irratti hojjetamu kan mata dureen isaa, "Dhiibbaa dhiigaa ofiin of safaruu fi hubannoo waa'ee rakkinota dhiibbaa dhiigaan wal-qabatani dhufanii" jedhuuf heeyyama koo kennera. Duraan dursee waa'een kaayyoo qorannoo kanaa kan natti himamee fi anis hirmannaan isaa feedhiidhan ta'uu isaa naaf galeera. Deebiiwwan ani deebise eenyuuttiyyuu akka hin keennamnee fi eenyuyyuu karaa kaminiyyuu addaan baasee ana nabeekuu akka hin dandeenye natti himameera. Dabalataanis, qorannoo kanarratti hirmaachuu diduun anaratti miidhaa akka hin uumne natti himameara. Qorannoo kanarratti hirmaachuun miidhaa kaamiifiyyuu akka na saaxiluu hin dandeenyee hubadheera.

Akkasumas Addisuu Dhaabii naman ani yeroo gaaffii waa'ee qorannoo kanarratti yookkiin waa'ee mirga kootii akka hirmataa tokkootti qabaadhee gaaffachuu danda'uu ta'uusaa bareera.

Yoo qorannoo kanarratti hirmaachuudhaaf fedhii qabaattan, gaaffiiwwan hundaaf akka deebii naf kennitan kabaajan isiin gafaadha.

Amma qorannoo kanarratti hirmaachuuf fedhii qabdaa? Eeyyeen ____ Lakkii ____

Mallattoo hirmaataa _____

Baayyee Galatoomaa!

Namoota odeeffannoo funananiif!

Ajeja: - Tasgabbiidhan gaaffiiwwan armaan gadii hunda gaafachuudhan deebii argattan irratti marsuudhan ykn iddoo duwwaa kename irratti barreessaa.

odeeffannoo funanamee, guyyaa----------Ji'a ----------Waggaa----------

Maqaa hospitaalaa ----------

Nama odeeffannoo funane ---------- Mallattoo ----------

Maqaa supervayizeerii ----------Mallattoo----------

Kutaa 1 ffaa:- Gaaffii hawasummaan wal-qabate			
T.L	**Gaaffii**	**Deebii**	**Darbii…**
101	Umuriin kee meeqa?	_____waggaadhan	
102	Saala	1. Dhiira 2. Dubara	
103	Sabni kee maali?	1. Oromoo 2. Amaaraa 3. Guraagee 4. kanbiroo(ibsii)____	
104	Amantiin kee maali?	1. Ortodoksii 2. Musliima 3. Protestantii 4. kanbiroo(ibsii)____	
105	Sadarkaan barumsaa kee meeqa?	1. Bareessuu fi dubbisuu kan hin dandeenye 2. Sadarkaa tokkoffaa 3. Sadarkaa lammaffaa 4. Sadarkaa lammaffaa ol	
106	Bultii godhateertaa?	1. Hinfuune/hinheerumne 2. Fuudhe/heerume 3. Gargar baanera 4. Du'eera/Duteerti	
107	Hojiin kee maali?	1. Qotee bulaa 2. Haadha manaa 3. Hojetaa mootummaa 4. kanbiroo(ibsii)____	
108	Iddoo jireenyaa	1. Magaalaa 2. Baadiyyaa	
109	Galii ji'aanii	_____qarshiidhaan	
110	Maatii keessaa namni dhiibbaa dhiigaa qabu jiraa?	1. Hinjiru 2. Hinbeeku 3. Jira	
111	Waggaa meeqa dhiibbaa dhiigaa qabdu erga jedhamtee?	1. ≤ 5 2. 6–10 3. >10	
112	Namni yookiin dhaabni Yaalidhaaf gargarsa qarshii siigodhu jiraa?	1. Eeyyeen 2. Lakkii	
113	Dhukkuba biroo akka qabdu sitti himameraa?	1. Eeyyeen 2. Lakkii	Yoo Lakkii ta'e gara 115 darbii!

114	Dhukkuboota armaan gadittii eramaan keessaa kam akka qabdu sitti himame?	1. Sammuu keessaatti dhiigni dhangala'uu 2. Dhukkuba laphee 3. Dhukkuba Kalee 4. Dhukkuba Ijaa 5. Dhukkuba sukkaaraa	
115	Yeroo ammaa kana tamboo xuuxaa jirtuu?	1. Eeyyeen 2. Lakkii	
Kutaa 2 ffaa:- Gaaffii ogeessa Fayyaa waliin wal-qabate			
T.L	**Gaaffii**	**Deebii**	**darbii…**
201	Hordoffii dhiibbaa dhiigaaf guyyaa beellama keessanii Yeroo hundaa ni deemtuu?	1. Eeyyeen 2. Lakkii	
202	Ogeessi fayyaa akka dhiibbaa dhiigaa kee meeshaa keetin mana keetti ofiin of safartu sigorseeraa?	1. Eeyyeen 2. Lakkii	
203	Ogeessi fayyaa dhiibbaa dhiigaa kee akkamitti akka safaruu qabdu sitti himeraa?	1. Eeyyeen 2. Lakkii	
204	Dhiibbaa dhiigaa kee safaruuf Meeshaa akkamii akka fayyadamuu qabdu sitti himeraa?	1. Eeyyeen 2. Lakkii	
205	Ogeessi fayyaa dhukkuboota dhiibbaan dhiigaa fiduu danda'u isinitti himee turee?	1. Eeyyeen 2. Lakkii	
Kutaa 3 ffaa:- Gaaffii hubannoo			
T.L	**Gaaffii**	**Deebii**	**darbii…**
301	Dhiibbaan dhiigaa dhukkuboota adda addaaf ni saaxila jette ni yaadaa?	1. Eeyyeen 2. Lakkii	Yoo Lakkii tahe gara Kuta 4ffaa darbii!
302	Dhiibbaan dhiigaa dhiigni sammuu keessatti akka dhangala'u ni godha jettee ni yaadaa?	1. Eeyyeen 2. Lakkii	
303	Dhiibbaan dhiigaa dhukkuba laphee ni fida jettee ni yaadaa?	1. Eeyyeen 2. Lakkii	
304	Dhiibbaan dhiigaa dhukkuba ijaa ni fida jettee ni yaadaa?	1. Eeyyeen 2. Lakkii	
305	Dhiibbaan dhiigaa dhukkuba kalee ni fida jettee ni yaadaa?	1. Eeyyeen 2. Lakkii	
306	**Gaaffii T.L 301** deebiin eeyyeen yoo ta'e, odeeffannoo waa'ee fayyaa eessaa argattuu?	1. Miidiyaa 2. Ogeessa fayyaa 3. Kitaabota 4. Maatii irraa 5. Kanbiroo(ibsii)____	

Kutaa 4 ffaa:- Gaaffii dhiibbaa dhiigaa ofiin of safaruun wal-qabate			
T.L	**Gaaffii**	**Deebii**	**Darbii …**
401	Yeroo ammaa kana dhiibbaa dhiigaa kee manatti meeshaa dhiibbaa dhiigaa ittin of safaranin ofiin of safaraa jirtaa?	1. Eeyyeen 2. Lakkii	Yoo Lakkii tahe gara 411 darbii!
402	Lakkoofsa dhiibbaa dhiigaa kee dhumarra safartee argatte ni yaadataa?	1. Eeyyeen 2. Lakkii	
403	Dhiibbaa dhiigaa kee yoom yoom safartaa?	1. Guyyaatti aal tokko 2. Guyyaatti aal tokkoo ol 3. Torbeetti aal tokko 4. Torbeetti aal lama 5. Ji'atti aal tokko 6. Darbee Darbee 7. Hin beeku	
404	Guyyaa keessaa yeroo kam dhiibbaa dhiigaa kee safartaa?	1. Ganama 2. Galgala 3. Ganama fi Galgala 4. Yeroo murtawaa hin qabuu	
405	Dhiibbaa dhiigaa kee erga safartee booda Lakkoofsa argatte barreesitee ni keessaa?	1. Eeyyeen 2. Lakkii	
406	Kan armaan gadii keessaa ofeeggannoon ati yeroo dhiibbaa dhiigaa kee safartu gotuu isa kam?	1. Buna ykn shaay'ii dhugaanii daqiiqaa 30 keessatti safaruu 2. Sochii qaamaa godhanii daqiiqaa 30 keessatti safaruu 3. Iddoo jeequmsi sagalee jirutti safaruu 4. Yeroo dhiphinnii sammuu namatti dhagahamutti safaruu 5. Ofeeggannoo homatuu hingodhu	
407	Lakkoofsa dhiibbaa dhiigaa kee safartee argatte sana kan Ogeessa fayyaa waliin ni madaltaa?	1. Eeyyeen 2. Lakkii	
408	Eeyyeen, yoo ta'e Lakkoofsi ati safartee argattee fi kan Ogeessa fayyaa wal-fakkaataa?	1. Yeroo hundaa 2. Darbee darbee 3. Yeroo xiqqaa	

409	Yeroo hundaa kan wal hin fakkaanne yoo ta'e kan Oggeessi fayyaa safare kan atti ofiikeef manatti of safartee argatte ni caala?	1. Eeyyeen 2. Lakkii	
410	Sababa maaliif Dhiibbaa dhiigaa kee manakeetti ofiikeef of safartaa?	1. Kaka'uumsa koon 2. Gorsa ogeessa fayyaatin 3. Gorsa maatiin 4. Meeshaan mana wanjiruf 5. kanbiroo(ibsii)____	

Nama odeeffannoo funaanuuf!

Deebii argattee Lakkoofsan **1. Nan-fudhadha** yookkiin **2. Hin-fudhadhu** jechuudhan gaaffiiwwan 411 – 421 jiraniif Iddoo duwwaa irratti guuti. sababoota armaan gadiitti eramaan keessaa sababa kamtuu akka ati dhiibbaa dhiigaa kee mana keetti ofii keetif maalif akka of hin safarre ibsa?

411	Qarshii meeshaa dhiibbaa dhiigaa safaru ittin bitu hin qabu. ____
412	Dhiibbaa dhiigaa koo ofiin of safaruun barbachisaa miti ____
413	Dhiibbaa dhiigaa koo ofiin of safaruun nan fayyadu ____
414	Waa'ee Dhiibbaa dhiigaa ofiin of safaruu hubannoo hin qabu ____
415	Waa'ee meeshaa Dhiibbaa dhiigaa ittin of safaranii dhagahee hin beeku ____
416	Meeshaa dhiibbaa dhiigaa ittin of safaran akkamitti akka fayyadaman hin beeku ____
417	Dhiibbaa dhiigaa ofin of safaruun sirrii ta'uu bachuu danda'a jedheen yaada ____
418	Dubbisuu hin danda'u ____ Maaliif? 1. Arguu hin danda'u 2. Bareessuu fi dubbisuu hin danda'u
419	Ogeessi fayyaa akkan Dhiibbaa dhiigaa koo ofiin of safaru nan gaafannee ____
420	Ogeessi fayyaa akkan Dhiibbaa dhiigaa koo ofiin of hin safarre na dhorkee ____
421	Ogeessi fayyaa Lakkoofsa Dhiibbaa dhiigaa koo ofiin of safaree argadhe hin fayyadamu ____

Annex 3: Amharic Version Questionnaires

የመረጃ ፎርም

የጥናቱ እና ምርምር ርዕስ፡ "የደም ግፊት ታካሚወች በደም ግፊት በሽታ ዙሪያ ስላላቸዉ አጠቃላይ ግንዛቤ እና የራስን የደም ግፊት መጠን በራስ የመለካት ተግባር"

የጥናቱ እና ምርምሩ ባለቤት፡ አድሱ ዳቢ(BSc)

የድሪጂቱ ስም፡ አሰላ ሪፈራል እና ትችንግ ሆስፒታል

የስፖንሰሩ ስም፡ አድስ አበባ ዩንቨርሲቲ

መግቢያ፡ *ይህ መረጃ የተዘጋጀዉ ለአሰላ ሆስፒታል ስሆን አላማዉም በጥናቱ እና ምርምሩ ላይ አስፈላጊዉን ገለጻ ለማድርግ ያህል ነዉ።*

የጥናቱ እና ምርምሩ አላማ፡ በክትትል ላይ ካሉት ከደም ግፊት ታካሚወች በደም ግፊት በሽታ ዙሪያ ስላላቸዉ አጠቃላይ ግንዛቤ እና የራስን የደም ግፊት መጠን በራስ የመለካት ተግባር ላይ መረጃ ለማሰባሰብ ነዉ።

ሂደት፡ ከላይ የተጠቀሰዉን አላማ ለማሳካት አስፈላጊዉ መረጃ የምሰበሰበዉ በክትትል ላይ ካሉት ከደም ግፊት ታካሚወች ስሆን ጥናቱ እና ምርምሩ የምካሄደዉ በቃለ መጠየቅ ይሆናል።

ጉዳት፡ በዚህ ጥናት እና ምርምር ላይ በመሳተፌዎ ምንም አይነት ጉዳት አይደርሲብዎትም። ነገር ግን ይህ ጥናት እና ምርምር የምካሄደዉ በቃለ መጠየቅ ስለሆነ ከለዎት ጊዜ 25 ደቂቃ ይሰጡኝ ዘንድ በአክብሮት እጠይቃለሁኝ።

ጥቅም፡ በዚህ ጥናት እና ምርምር ላይ በመሳተፌዎ የተለየ ክፍያ አያገኙም። ነገር ግን ይህ ጥናት እና ምርምሩ ከተሳካ ለደም ግፊት ታካሚዎች በደም ግፊት በሽታ ዙሪያ አጠቃላይ ግንዛቤ እና የራስን የደም ግፊት መጠን በራስ የመለካት ተግባር ላይ አስፈላጊ መረጃ ስለሚኖረዉ በደም ግፊት በሽታ ህክምና ዙሪያ ላይ ትልቅ ምና ይጫወታል።

ሚስጥር መጠበቅ፡ የርስዎ ስም አይጻፍም እና የትኛዉም የነገሩን *መረጃ ሙሉ* በሙሉ በሚስጥር የሚያዝ መሆኑን አረጋግጥልዎታለዉ;

ጥናቱን በተመለከተ ማንኛዉም ዓይነት ጥያቄ ወይንም አሰተያየት ካለዎት በሚከተለው አድራሻ ከጥናቱ ባለቤት መረጃ ማግኘት ትችላላችሁ፡፡

- አድሱ ዳቢ

  ስ.ቁ: +2519 1028 6766 or +2519 4906 9568

  ኢ-ሜይል፣ addansa12@gmail.com

የስምምነት ቅፅ

ከታች በመፈረም በዚህ ጥናት እና ምርምር ‘‘የደም ግፊት ታካሚዎች በደም ግፊት በሽታ ዙሪያ ስላላቸዉ አጠቃላይ ግንዛቤ እና የራስን የደም ግፊት መጠን በራስ የመለካት ተግባር’’ ላይ ለመሳታፍ ፍቃደኛ መሆኔን እገልጻለዉ። ስለ ጥናቱ እና ምርምሩ አላማ ተነግሮኝ መሳተፍም በፈቃደኝነት መሆኑን ተረድቻለዉ። የሚሰበሰበዉ መረጃ ሙሉ በሙሉ በሚስጥር የሚያዝ መሆኑን እና ማንም በየትኛዉም መንገድ ሊለየኝ እንደማይችል ተነግሮኛል።በተጨማሪም የ እኔ መሳተፍም ሆነ አለመሳተፍ በ እኔ ላይ ምንም ጉዳት እንደማያመጣ ተነግሮኛል። በዚህ ጥናት እና ምርምር ላይ መሳተፍ ምንም ጉዳት እንደማያመጣ እና አድሱ ደግሞ ስለ መብቴ ፣ ስለ ጥናቱ እና ምርምሩ ጥያቄ ካለኝ ማነጋገር የምችለዉ ሰዉ መሆኑን ተረድቻለዉ።

ዉድ ተሳታፊዬ በዚህ ጥናት እና ምርምር ላይ ለመሳተፍ ፍቃደኛ ከሆኑ ሁሉንም ያቃለ መጠየቅ ጥያቄዎች በትክክል በመመለስ እንዲተባበሩኝ ስል በአክብሮት እጠይቃለዉ።

አሁን በጥናቱ እና ምርምሩ ላይ ለመሳተፍ ፍቃደኛ ነዎት? አዎ _____ አልፈልግም _____

ፊርማ_____

አመሰግናለሁ!

ለጠያቂ!

መመሪያ፡ ጥያቄዉን በደንብ በማንበብ የተሳታፊዉን የቃለ መጠየቁን መልስ አክብብ ወይም በተሰጠዉ ቦታ ላይ ጻፍ።

የቃለ መጠየቅ ቀን ----------ወር----------ዓ/ም----------

የሆስፒታሉ ስም ----------

የጠያቂ ስም---------- ፊርማ----------

የሱፐርቫይዘር ስም----------ፊርማ----------

ክፍል አንድ: - የማህብራዊ ሁኔታ ቃለ መጠየቅ			
ተ.ቁ	**ጥያቄ**	**መልስ**	**ወደ ጥያቄ--እለፍ**
101	እድሜ	_____ዓመት	
102	ጾታ	1. ወንድ 2. ሴት	
103	ብሄር	1. ኦሮሞ 2. አማራ 3. ጉራጌ 4. ሌላ(ግለጽ)_____	
104	ሀይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ(ግለጽ)_____	
105	የትምህርት ደረጃ	1. ማንበብ እና መጻፍ የማይችል 2. የመጀመሪያ ደረጃ 3. ሁለተኛ ደረጃ 4. ከሁለተኛ ደረጃ በላይ	
106	የጋብቻ ሁኔታ	1. ያላገባ/ች 2. ያገባ/ች 3. የፈታ/ች 4. በሞት የተለዩ	
107	የስራ ሁኔታ	1. ግብርና 2. የቤት እመቤት 3. የመንግስት ሰራተኛ 4. ሌላ(ግለጽ)_____	
108	የመኖሪያ ቦታ	1. ከተማ 2. ገጠር	
109	አማካይ ወርኃዊ ገቢ	_____ብር	
110	ከቤተሰብዎ ዉስጥ በደም ጊፊት የተያዘ ሰዉ አለ?	1. የለም 2. እርግጠኛ አይደለሁም 3. አዎ	
111	የደም ግፊት ከያዘዎት ስንት ጊዜ ሆነዎት?	1. ≤5 ዓመት 2. 6–10 ዓመት 3. >10 ዓመት	
112	የህክምና ወጪዎትን የሚሸፍን አካል አለ?	1. አዎ 2. የለም	
113	ከደም ግፊት ዉጪ ሌላ በሽታ እንዳለብዎት በሃኪም ተነግሮታል?	1. አዎ 2. የለም	የለም ከሆነ ወደ ተ.ቁ 115 እለፍ

114	ከሚከተሉት ዉስጥ ምን በሽታ እንዳለብዎት ነዉ የተነገሮዎት?	1. የአዕምሮ የደም መፍሰስ 2. የልብ በሽታ 3. የኩላልት በሽታ 4. የአይን በሽታ 5. የስኳር በሽታ	
115	ባሁን ጊዜ ሲጋራ ያጨሳሉ?	1. አዎ 2. የለም	
ክፍል ሁለት: - ከጤና ባለሙያ ጋር የተያያዘ ቃለ መጠየቅ			
ተ.ቁ	**ጥያቄ**	**መልስ**	**ወደ ጥያቄ-እለፍ**
201	ለደም ግፊትዎ ክትትል በተቀጠሮለት ቀን ዘወትር ይሄዳሉ?	1. አዎ 2. የለም	
202	በጤና ባለሙያ የደም ግፊትዎን መጠን በቤትዎ እራስዎ እንዲለኩ ተመክሮዋል?	1. አዎ 2. የለም	
203	የደም ግፊትዎን መጠን በቤትዎ እንዴት መለካት እንዳለብዎት ተመክሮዋል?	1. አዎ 2. የለም	
204	የደም ግፊትዎን መጠን በቤትዎ ለመለካት ምን ዓይነት ማሽን መጠቀም አንዳለብዎት ተመክሮዋል?	1. አዎ 2. የለም	
205	የጤና ባለሙያ ከደም ግፊት ጋር ተያይዞ ሊመጡ የምችሉትን በሽታዎች ነግሮታል?	1. አዎ 2. የለም	
ክፍል ሶስት: - የግንዛቤ ቃለ መጠየቅ			
ተ.ቁ	**ጥያቄ**	**መልስ**	**ወደ ጥያቄ- እለፍ**
301	የደም ግፊት ለሌላ በሽታ ይዳሪጋል ብሎ ያስባሉ?	1. አዎ 2. የለም	የለም ከሆነ ወደ ክፍል አራት እለፍ!
302	የደም ግፊት ለአዕምሮ የደም መፍሰስ ይዳሪጋል ብሎ ያስባሉ?	1. አዎ 2. የለም	
303	የደም ግፊት ለልብ በሽታ ይዳሪጋል ብሎ ያስባሉ?	1. አዎ 2. የለም	
304	የደም ግፊት ለዓይን በሽታ ይዳሪጋል ብሎ ያስባሉ?	1. አዎ 2. የለም	
305	የደም ግፊት ለኩላሊት በሽታ ይዳሪጋል ብሎ ያስባሉ?	1. አዎ 2. የለም	
306	ለ ጥያቄ ” **ተ.ቁ 301 አዎ**” ከሆነ መረጃዉን በዋናነት ከምን ነዉ የምያገኙት?	1. ሚዲያ 2. ጤና ባለሙያ 3. መጽሐፍ 4. ቤተሰብ 5. ሌላ(ግለጽ)_____	
ክፍል አራት: - የተግባር ቃለ መጠየቅ			
ተ.ቁ	**ጥያቄ**	**መልስ**	**ወደ ጥያቄ--እለፍ**

401	በአሁን ግዜ በራስዎ በቤትዎ የደም ግፊትዎን መጠን እራስዎን በራስዎ በምለካቤት ማሽን እየለኩነዉ?	1. አዎ 2. የለም	የለም ከሆነ ወደ ጥያቄ ተ.ቁ 411 እለፍ!
402	በራስዎ ለክቶ ያገኙት የደም ግፊትዎ መጠን የመጨረሻዉ ስንት እንደ ነበር ያስታዉሳሉ?	1. አዎ 2. የለም	
403	በየስንት ጊዜ ነዉ የደም ግፊትዎን የምለኩት?	1. በቀን አንዴ 2. በቀን ከ አንድ ጊዜ በላይ 3. በሳምንት አንዴ 4. በሳምንት ሁለቴ 5. በ ወር አንዴ 6. ባልተስተካከለ ሁነታ 7. አላዉቅም	
404	በየትኛዉ ሰዓት ነዉ የደም ግፊትዎን የምለኩት?	1. ጠዋት 2. ማታ 3. ጠዋት እና ማታ 4. ባልተወሰነ ጊዜ	
405	ከለኩ በኃላ ያገኙትን ቁጥር ጽፎ ያስቀምጣሉ?	3. አዎ 4. የለም	
406	የደም ግፊትዎን መጠን በራስዎ በቤትዎ በምለኩበት ጊዜ ለየትኛዉ ነዉ ጥንቃቄ የምያደርጉት?	1. ቡና ወይም ሻይ ጠጪቶ በ 30 ደቂቃ ዉስጥ አለመለካት 2. የሰዉነት እንቅስቃሴ አድርጎ በ 30 ደቂቃ ዉስጥ አለመለካት 3. ጫጫታ በምበዛቤት ቦታ አለመለካት 4. ዉጥረት ባጋጠምዎት ጊዜ አለመለካት 5. ምንም ጥንቃቄ አላደርግም	
407	በቤትዎ ለክቶ ያገኙትን ዉጤት በሆስፒታል ከተለኩት ጋር አወዳድሮ ያዉቃሉ?	1. አዎ 2. የለም	
408	በቤትዎ ለክቶ ያገኙት ዉጤት በሆስፒታሉ ከተለኩት ጋር ይመሳሰላል?	1. ሁል ጊዜ 2. አንዳንዴ 3. ከስንት አንዴ	
409	በሆስፒታሉ የተለኩት የደም ግፊትዎ መጠን በቤትዎ ተሌክቶ ያገኙትን ይበልጣል?	1. አዎ 2. የለም	
410	በምን ምክንያት ነዉ የደም ግፊትዎን መጠን በቤትዎ የምለኩት?	1. በራሴ ተነሳሽነት 2. የጤና ባለሙያ መክሮኝ 3. ቤተሰብ መክሮኝ	

		4. ማሽኑ በቤቱ ስላለ 5. ሌላ(ግለጽ)_____	
ዉድ ጠያቂ ዎይ! የተሳታፊዎችን መልስ **1. እስማማለዉ** ወይም **2. አልስማማም** በማለት **ከ 411-421** ላሉት ዓረፍተ ነገሮች ሁሉ በተስጠዉ ቦታ ለይ ቁጥሩን ሙሉት። ከታች ከተዘረሩት ምክኒያቶች ዉስጥ የትኛዉ ምክኒያት ነዉ የደም ግፊትዎን መጠን በቤትዎ እንዳይለኩ ያደረገዎትን የምገልጽ?			
411	የደም ግፊት መለኪያ ማሽን ለመግዛት ብር የለኝም።_____		
412	የደም ግፊቴን መጠን በራሴ መለካት አስፈላጊ አይደለም።_____		
413	የደም ግፊቴን መጠን በራሴ መለካት አይጠቅመኝም።_____		
414	ስለ ደም ግፊት መጠን በራስ መለካት ምንም ግንዛቤ የለኝም።_____		
415	ስለ ደም ግፊት መጠን መለኪያ ማሽን ሰምቼ አልአዉቅም።_____		
416	የደም ግፊት መጠን መለኪያ ማሽን አጠቃቀምን አላዉቅም።		
417	የደም ግፊትን መጠን በራስ መለካት ትክክል ላይሆን ይችላል ብዬ ስለማስብ።_____		
418	ማንበብ ስለማልችል። _____ እስማማለዉ ከሆነ ለምን? 3. ማየት አልችልም 4. ማንበብ እና መጻፍ አልችልም		
419	የጤና ባለሙያ የደም ግፊቴን መጠን በራሴ እንዲለካዉ አልጠየቀኝም። _____		
420	የጤና ባለሙያ የደም ግፊቴን መጠን በራሴ እንዳልለካዉ ከልክሎኝ ነዉ።_____		
421	የጤና ባለሙያ በራሴ ለክቼ ያገኘሁትን የደም ግፊቴን መጠን ዉጤት ስለማይጠቀም። _____		