

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY

**ROLE OF FAMILY SUPPORT AND ASSOCIATED
FACTORS FOR A HYPERTENSIVE PATIENTS IN
ADHERENCE WITH MEDICATION AND DIET
MODIFICATION AT SELECTED HOSPITALS IN ADDIS
ABABA; ETHIOPIA; 2021.**

BY: TEMAM HUSSEN (B.sc)

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

JUNE, 2021

ADDIS ABABA; ETHIOPIA

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LIST OF ACRONYMS AND ABBREVIATIONS

ACC/AHA _____ American College of cardiology/American heart association

AOR _____ Adjusted Odds Ratio

CAM _____ complementary and alternative medicine

COR _____ Crude Odds Ratio

DASH _____ dietary approach to stop hypertension

DBP _____ diastolic blood pressure

FGD _____ focus group discussion

JNC 7 _____ seventh report of joint national committee

LDL _____ low density lipoprotein

SAH _____ systemic arterial hypertension

SBP _____ systolic blood pressure

SR _____ systematic review

UK _____ united Kingdom

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ABSTRACT

Background- Hypertension by its nature needs lifelong treatment with medication and diet modification. One factor that determines successful treatment is role of family support. As many literatures showed that family support has important role in adherence with medication and diet modification on hypertension management.

Objective- to assess role of family support and associated factors for hypertensive patients in adherence with medication and diet modification at selected hospital in Addis Ababa; Ethiopia 2021.

Methodology- Institution based cross sectional study was conducted from Feb. 15, 2021 to May 15, 2021 on patients who had follow up at hypertension clinics of selected hospitals. Study participants were selected using simple random sampling method. Data was collected using interview administered questionnaire. It was checked for its completeness and entered to Epi data version 4.1 and transferred and analysed with SPSS version 25. The magnitude of association between independent variables in relation to dependent was analysed using binary logistic regression and further multiple logistic regressions with 95% confidence interval (CI) and P values ≤ 0.05 considered statistically significant.

Result- The study included 398 respondents with 99.25% response rate. The study consisted of 214 (53.8%) females. The mean age of the respondents was 54.63 ± 12.9 years while majority of the respondents (45.2%) were in 40 - 59 age groups. 168(42.2%) have strong role of family support in adherence with medication and diet modification. Age, gender and education level have significant association with adherence to medication and diet modification.

Conclusion- Participants from selected government hospitals involved in this study have weak family support. **Recommendation-** Including family members in managing patients is recommended to health professionals.

Key words: - Hypertension, family support, adherence to medication and diet modification.

1. INTRODUCTION

1.1 Background

Hypertension is defined as a systolic blood pressure (SBP) > 140 mm of Hg and diastolic blood pressure (DBP) > 90 mm of Hg (1,2). It is estimated to be a cause for 4.5% of current global disease burden and the global prevalence of hypertension is estimated to be 1.13 billion in 2015G.C(1). It is as prevalent in many developing countries as in the developed world.

In individuals aged from 35 to 49 years the age-standardized prevalence of hypertension ranged from 12% to 30% in Bangladesh, Egypt, Thailand, Armenia, Lesotho and Ukraine. It exceeds 40% in Germany, the Russian Federation and Turkey and further exceeds 89.3% in USA(3). Highest prevalence of hypertension was recorded on Bangladeshi urban residents aged 45-60 which is 18% based on the original JNC 7 guidelines. It was increased to approximately 41% on the 2017 ACC/AHA guidelines(4).

In Sub Saharan African countries overall crude prevalence as being hypertensive is 36.9 % and age adjusted prevalence was approximately 26%(5). In Ethiopia, due to difference in participant mean ages, source population, and study settings; varied prevalence of hypertension was reported on different studies. Because of these variation; the prevalence in population-based studies showed 9.3–30.3%, in institution-based studies 7–37%, in hospital-based studies 13.2–18.8% (6). Pooled prevalence of hypertension was 19.6%. The prevalence in urban population was 23.5% and both urban and rural population was 14.7%. The highest prevalence of hypertension, which is 30.2%, was reported in study done in Addis Ababa urban population. This study also shows that prevalence is more in males than females which is 20.6% and 19.2% respectively(7).

Adherence to (or compliance with) a medication is defined as the extent to which patients take medications as prescribed by their health care providers(8). Poor drug adherence is one of the main reasons for the failure to achieve treatment targets in hypertensive patients. In patients who receive pharmacological treatment, assessment of drug adherence is of the utmost importance.

Adherence to diet modification is compliance of a patient with diet recommended to decrease hypertension by health care providers which include diets free of salt and saturated fat; Avoiding smoking, alcohol drinking and tobacco use(8,9).

Family support is a help given to hypertensive patient to accompany her/him in adherence with medication and diet modification. Family play important role for hypertensive patient in taking medication regularly and diets suitable to help decrease their blood pressure. This idea is supported by the study done at Addis Ababa which shows that hypertensive patients who have family support were ~11 times more adhered to diet modification than those who didn't have family support(10).

A cross sectional study done in Addis Ababa on hypertensive patients showed that 50.5% of participants got support from family members(11).

1.2 Statement of problem

Control of blood pressure efficiently reduces risk of cardiac complications. However, one of the biggest challenges in combatting hypertension is adherence to treatment. Family support is important ally for patients and health care services to overcome non adherence to medication and diet modification. It is perceived by patients as a source of security, support and understanding(12).

Adherence to medication and diet modification is varied according to level of family support. Research done in Kerala, India shows this concept in which more than half (53.2 %) of men and 62.1% of women reported minimal to mild family support and 47.6% and 37.7% of men and women reported moderate to strong family support to medication adherence and diet modification , respectively(13).

According to the proposed classification levels, 54% of participants had a low level of perception of family support, 26% showed a middle-low level, 10% had a medium-high level, and 10% had high perception level. The results indicated that majority of patients had low levels of perception of family support. There is, therefore, a need for greater attention toward psychosocial factors of hypertensive patients, highlighting the importance of social support, mainly family support(14).

The research done by using descriptive study design in Indonesia shows that most individuals who received strong family support (53%) adhered to their hypertension medication regimens and adversely, individuals with weak family support showed poor adherence to taking the hypertension medication(15).

Patients stay long time with their families after they visit their physician or other health professional. So it is obvious that they got family support among one of their family members and the above literatures show that family support has positive and negative effect on adherence to medications and diet modification. This study aims to search information on role of family support to hypertensive patients.

1.3 Significance of the study

This research helps to identify the role of family support in adherence with medication and diet modification for hypertensive patients. It helps to increase perception of hypertensive patients to role of family support to adhere to their medication and diet modification; and help to increase their adherence level. Health professionals should include family members of hypertensive patients in management of hypertension. So, they can use the result of this study.

This study will be a source of information for health professionals who educate the community about role of family support for hypertensive patients. Health professionals will use the result from this study when they educate about family support for hypertensive patients in adherence with medication and diet modification. Researcher, trainers and policy makers can use the result from this study when they want to investigate, to train anyone who concerned and to make or change policy regarding role of family support for hypertensive patients.

2. LITERATURE REVIEW

2.1. Role of family support for hypertensive patients

Family support has positive and negative influence on adherence to hypertensive medications and diet modification. A descriptive qualitative study done on 18 SAH patients in Brazil showed that family support has important effect on patient's adherence to medication and diet modification. The patient response in this study was that their family helps them to remember the medication time with its dose and help them to take salt free diet starting from preparation(12).

Focus group discussion (FGD) between patients and their family was designed in USA on adults to assess facilitators and barriers to hypertension self-management in urban African Americans; patient with controlled and uncontrolled hypertension reported that family members often facilitated their hypertension self-management. They appreciated how family members helped prepare meals and reminded them to take their medication(16).

A correlational study was designed in Indonesia on adults to assess whether family support improves medication adherence or not; reported that most individuals who received strong family support (53%) adhered to their hypertension medication regiments; adversely, individuals with weak family support showed poor adherence to taking the hypertension medication(15).

Community based cross sectional study done on Kollam district, Kerala at India on adults aimed to assess role of family support ; Minimal to mild family support in 53% of men and 62% of women ; and moderate to strong family support in 48% of men and 38% of women to management of hypertension were reported(13).

Qualitative study done with in-depth interview and FGD in Tehran reported that nearly all participants mentioned positive effect of family support on adopting appropriate health behaviours such as smoking cessation, weight loss, following a proper diet, regular measurement of blood pressure, periodic medical visits, exercise and drug consumption(17).

Cross sectional study designed to assess anxiety and perception of family support in adult hypertensive patients in Sao Francisco; 54% of patients reported a low level of perception of family support, 26% reported middle low level, 10% reported middle high and 10% reported high level family support(14). On the other hospital based cross sectional study in Nigeria designed to assess role of perceived spousal support to medication adherence on adults reported that 42.3% of the subjects perceived that their spouses were extremely helpful in reminding them to use their medications and less than one-quarter of the respondents, 22.5% achieved high medication adherence(18).

2.2. Adherence to medication

Good adherence is taking a medication as ordered by physicians as much as possible. It depends on taking medicine once a day, free of cost medicine, perception of being healthy and having a controlled blood pressure. Observational study which aimed to assess adherence to anti-hypertensive drug in adults in north India showed that adherence to antihypertensive medication is 57.2%(19).

The research done in UK reported that 44.8% of patients who used antihypertensive medication showed perfect adherence. This was not influenced by differences in gender ,CAM use, ethnicity, duration since hypertension diagnosis and education(20).

The result from cross sectional study done in Addis Ababa shows that 66.8% of the respondents were found to be adherent to their hypertension medication(11). Institutional based cross sectional study done on adults aged 18 years and above in Addis Ababa reported that out of the 404 respondents, 22.8% forgot taking medicines regularly, 12.6% were careless about taking their medications, 18.8% stopped medication on feeling worse and 9.2% stopped on feeling better(11).

2.3. Adherence to diet modification

On a cross sectional design done on adults aged 18 and above at government hospitals in Jordan reported that 59.6% of participants were adhered to low salt diet and 54.5% were never smoke(21).

The result of SR with meta-analysis done in UK shows that the DASH diet resulted in significant decreases in systolic BP and diastolic BP and in the concentrations of total cholesterol and LDL(22).

Observational descriptive research done on adults to assess factors responsible for adherence to antihypertensive treatment in urban area of north India poor adherence was seen in patients who have unrestricted salt intake, habit of alcohol consumption, tobacco chewing and smoking(19).

A clinic-based, observational, cross-sectional study done in west Bengal reported that among the study participants 29.1% never tried to avoid high salt and 28.2% never tried to avoid fat foods. However, 48% of respondents tried to avoid high salt foods, 36.3% consumed fruits and vegetables for more than 3 time a week(23). In line with this, Institutional based cross sectional study done on adults aged 18 years and above in Addis Ababa reported that out of the 404 respondents, 22.8% forgot taking medicines regularly, 12.6% were careless about taking their medications, 18.8% stopped medication on feeling worse and 9.2% stopped on feeling better(11).

A result from institutional-based cross-sectional study designed to assess adherence to lifestyle modifications and associated factors among adult hypertensive patients in Dessie showed that majority (62.5%) of the respondents after they were diagnosed as hypertensive included fruits, vegetables, grains and beans in their diet(24).

Institutional-based cross-sectional study done on hypertensive patients who have follow-up at public health hospitals in Addis Ababa, Ethiopia; Among 404 study participants 69.1% were adhered to diet related modifications(10)which are avoiding saturated fats , minimizing consumption of salt ,avoiding Cigarette smoking, tobacco usage and alcohol consumption.

2.4. Associated factors for adherence to medication and diet modification

Observational descriptive research done on adults to assess factors responsible for adherence to antihypertensive treatment in urban area of north India; good adherence was seen in the age group of ≥ 50 years as compared to those below 50 years (OR = 2.67), among males than among females (OR = 1.25), among married as compared to unmarried patients (OR = 1.95), and those having co-morbidities (OR=2.93) (19).

A descriptive cross sectional study done in Turkey on participants aged 20 and more showed that presence of chronic disease other than hypertension help them to adhere better (OR:2.767; 95% CI-1.219-6.257; $p=0.035$), respondents who have higher education level adhere better (OR=7.364; 95% CI -2.243-23.957; $p=0.017$) and on lower income level adhere better (OR=0.297; 95% CI -0.132-0.666; $p<0.001$)(8).

A clinic based cross sectional study done in Nigeria on adults aged 20 and above showed that hypertensive females adhere better to medication and diet modification than males ($\chi^2=8.63$, $p\text{-value}=0.045$)(9).

The result from institutional based cross sectional study done in Harar town showed that older age, absence of co-morbidities and attending formal education has positive effect on adherence to medication and diet modification(25).

2.5. Justification of the study

Hypertension is global health problem and cause for most of cardiovascular disease, and stroke. Its management is not only medication but also needs diet modification, regular exercise, regular follow up of blood pressure and adherence to all of these recommendations. The most important concept beyond these recommendations is family support. Family support has basic impact on adherence to above recommendations. Literatures done abroad shows that patients who have better family support adhere better. I didn't found recent information regarding this concept in our county. This research will fill this gap.

2.6. Conceptual framework

Conceptual framework of family support for hypertensive patient in adherence with medication and diet modification was adapted from literatures by principal investigator after literature review(11). The reviewed literatures show that presence/absence of family support has positive and negative effect on adherence to medication and diet modification. Associated factors like socio-demographic data, comorbidities and follow up duration also have this effect.

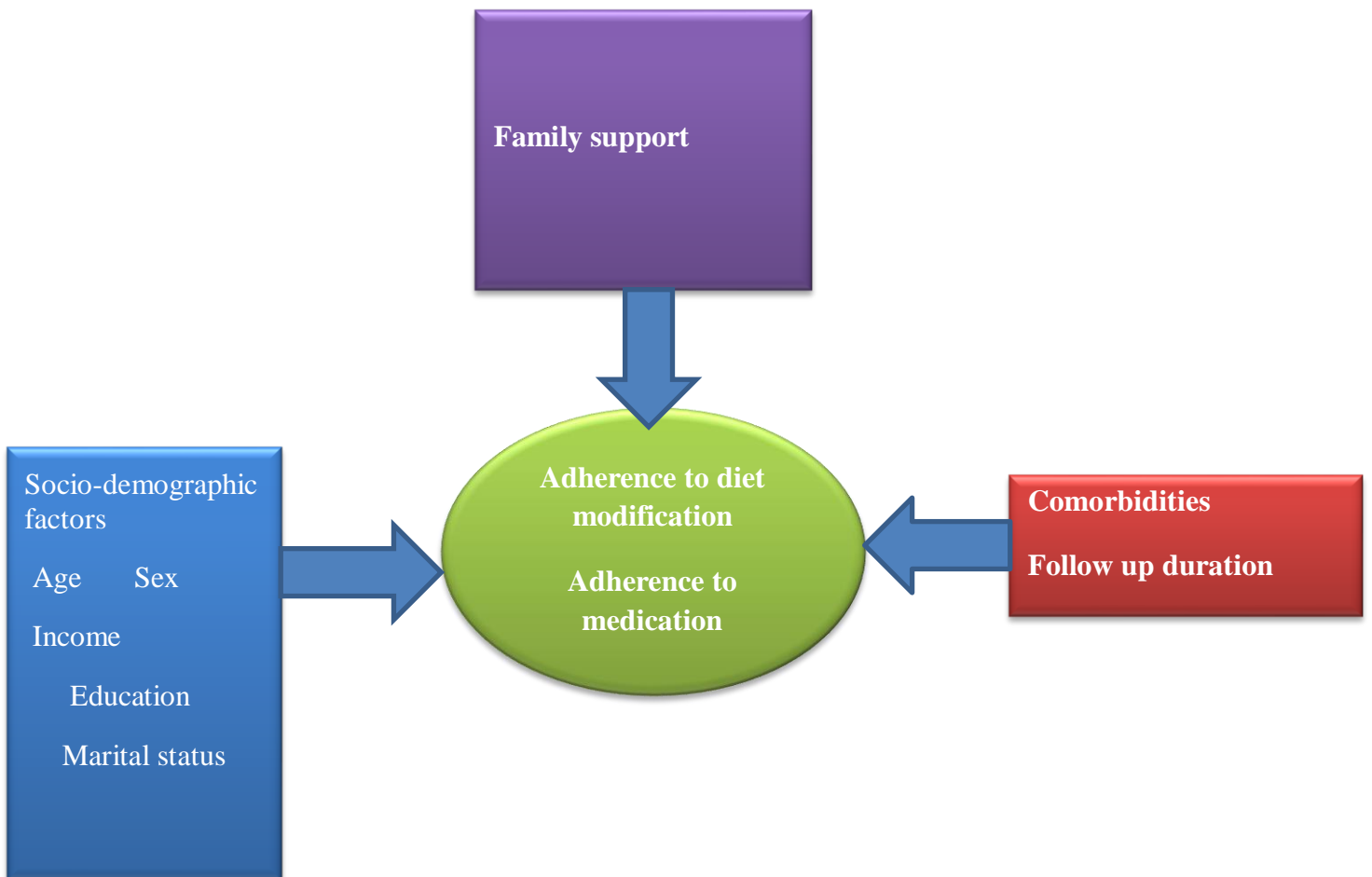


Figure 1 proposed conceptual framework showing family support and factors associated with adherence to medication and diet modification for hypertensive patients; adapted and modified from review of literatures.

3. OBJECTIVE OF THE STUDY

3.1. General objective

To assess the role of family support and associated factors for hypertensive patient in adherence with medication and diet modification at selected Hospitals, Addis Ababa Ethiopia, 2021.

3.2. Specific objectives

1. To assess the role of family support for hypertensive patient in adherence with medication and diet modification
2. To identify factors associated with adherence to medication and diet modification of hypertensive patients.

4. MATERIALS AND METHODS

4.1. Study Area and the Study Period

The study will be conducted on follow up clinics for hypertension which are found in Tikur Anbesa Specialized Hospital, St. Paul's Hospital Millennium Medical College and Yekatit 12 Hospital. According to the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), Addis Ababa city has had a total population of 3,384,569. It lies at an altitude of 7,546 feet (2,300 meters). The City has surface area of about 530.14 km². Languages spoken include Amharic (71.0%), Oromiffa (10.7%), Gurage (8.37%), Tigrigna (3.60%), Silt'e (1.82%) and Gamo (1.03%) (26,27). There are more than 40 hospitals in Addis Ababa; among them 12 are government hospitals. As oral information obtained from internal medicine department of these government hospitals was that; they give hypertension follow up service for hypertensive patients.

The study was conducted from Feb. 15 to May 15, 2021.

4.2. Study Design

Institutional based cross sectional study design was used.

4.3. Study population

Source of population: - All hypertensive patients who are on follow up at government hospitals in Addis Ababa.

Sample population: - Sample from hypertensive patients who have follow up in selected hospitals in Addis Ababa and who fulfil inclusion criteria.

4.4. Variables

4.4.1 Dependent variable

- Adherence to Medication
- Adherence to Diet modification

4.4.2. Independent t variable

- Socio-demographic factors:- Age, sex, Education, Marital status, residence area
- Family support
- Comorbidity and follow up duration

4.5. Operational definition

Family for this study is relatives of a patient which include patient`s father/mother, daughter/son, spouse and other relatives who give support for the patient.

Family support is any support given to patient in adherence with medication and diet modification by family member.

Role of family support includes remembering medication time, help them to minimize salt, avoid alcohol, cigarette, and tobacco use, avoid saturated fats, remembering follow-up day, help them to come hospital for follow-up, and appreciate them to go recreational area.

Adherence to medication is compliance with anti-hypertensive medication according health professionals` direction.

Adherence to diet modification is arranging diet to recommended way of consumption. This will include reducing salt consumption, avoiding saturated fats, minimizing alcohol consumption and avoid smoking cigarette and tobacco.

Associated factors are factors which can affect adherence to medication and diet modification other than family support. This includes socio demographics, comorbidity and follow up duration for hypertension.

4.6. Eligibility criteria

4.6.1 Inclusive criteria

- Patients who are 18 years old and above were included.
- Patients who were available at the day of data collection.

4.6.2. Exclusive Criteria

- Patients who were at emergency and ICU were not included.
- Patients who were not fully conscious and not volunteer were not included.

4.7. Sample size Determination

The size of study participants who were recruited in to the study was calculated using the single population proportion formula by considering p value 0.53, level of confidence 95% and marginal error of 0.05. Prevalence of strong family support from literature is 0.53(15).

The formula to calculate sample size is

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

$$P = 0.53, \quad 1-p = 0.47, \quad d = 0.05, \quad Z\alpha/2 = 1.96$$

By substituting the above values in to the formula and the result was 383.

The total hypertensive patients (N) who have follow up at selected government hospitals was 7700 which is less than 10,000. The correction formula is as follows;

$$n_f = \frac{n}{1 + \frac{n}{N}} \quad n = 383, \quad N = 7700$$

by substituting the values in to the above formula and we got 365; and 10% non-response rate is added and final sample size was **401**.

4.5. Sampling Technique and procedure

Among the 12 government hospitals in Addis Ababa which serve hypertension follow up for hypertensive patients; three were selected by using simple random sampling(lottery) method. The numbers of study units were selected by using proportional allocation of sample size to these hospitals which were selected by using lottery method. A simple random sampling technique was used to collect data from patients. Procedure of sampling is presented on the below.

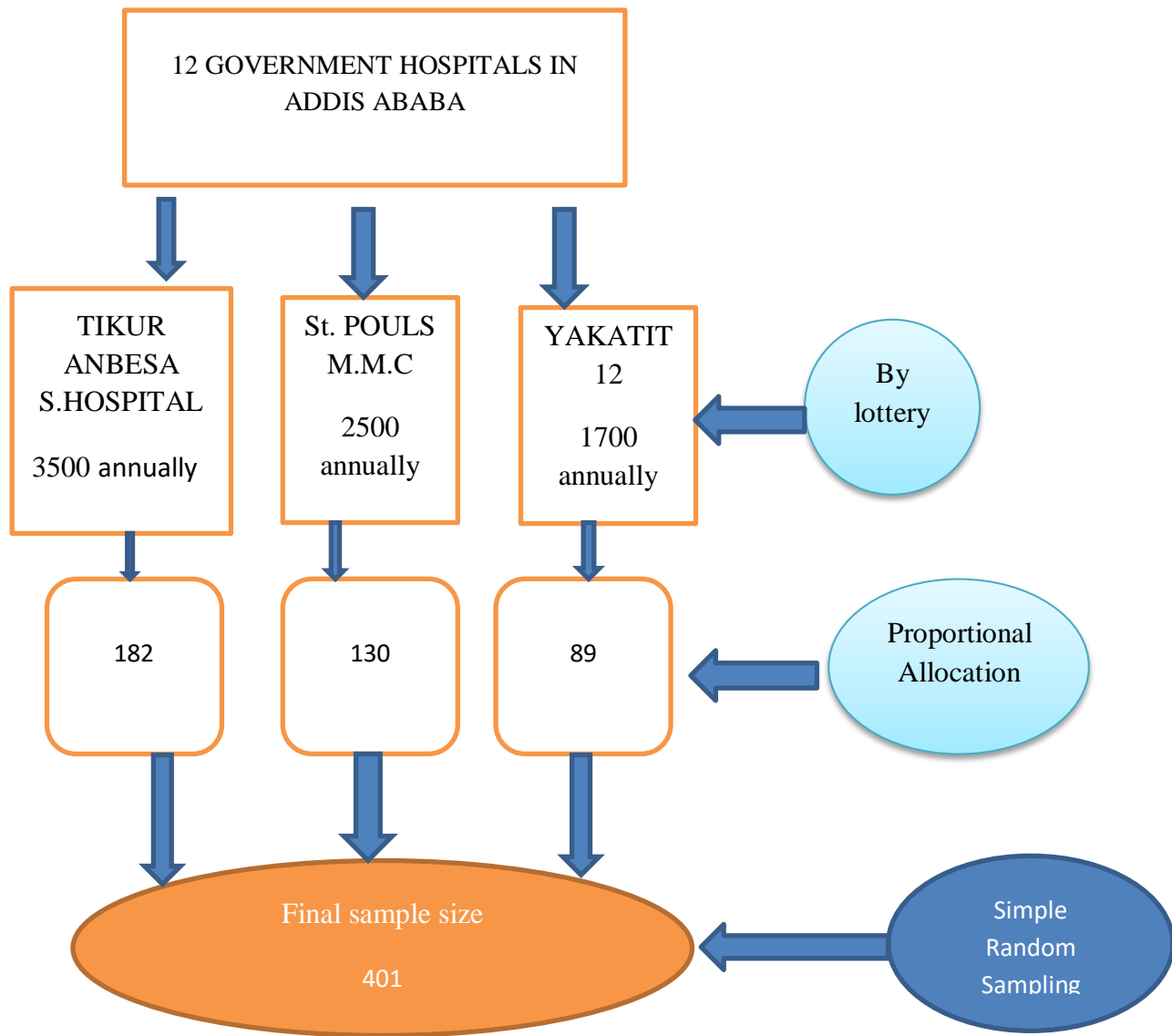


Figure 2 Schematic presentation of sampling techniques used to select study subjects from Government hospitals in Addis Ababa, 2021.

4.9. Data Collection Methods

4.9.1 Data Collection Tool

A pre-tested, validated, structured and adapted English version interviewer administered questionnaire was prepared first and then translated in to Amharic language and translated back to English by language expert to make it consistent. The questionnaire has had four parts. Part one is socio-demographic which is adapted tools contains nine questions tools to assess socio-demographic characteristics(25). Part two is a questionnaire to assess adherence to medication. Medication adherence was assessed with using modified Morisky Medication Adherence Scale (MMAS)(28). This scale has 8 items used to assess medication adherence behaviour of patient. It contains 8 point questions and the last or eighth is based on 5 point Likert-scale rating(29–31). If the patient response is YES for questions 1-7 score 1 for each and NO scores 0 for each; and for the eighth question hold(Never/rarely= 4, Once in a while= 3, Sometimes= 2 ,Usually =1 All the time= 0). Patients who scored ≤ 7 were labelled as poor adherence, and ≥ 8 were labelled as good adherence(32).

Part three is a questionnaire to assess adherence to diet modification. Dietary modification was measured by using 6 items which are intake of sodium diet, overeating, diet rich in fruit and vegetable, well balanced diet, spicy food consumption and reading packed food labels for their sodium level. Well balanced diet means including carbohydrate, protein, vitamin and mineral containing foods in the diet; and modifying the diets to help treat hypertension. Scoring was on likert scale rating i.e strongly disagree , disagree, agree and strongly agree. Each will score one point and the patients who have had scored above 5 labelled as adhered and below 5 were not adhered(33,34).

Part four is a questionnaire to assess role of family support for hypertensive patients. It is adapted and modified from literature. The research done by Rya D., Lorenz B. and their colleagues used Oslo 3 tools by referring Ben and colleagues(35) to assess social support. This tool was modified and used to assess role of family support for hypertensive patients in adherence with medication and diet modification. The question under source of family support score one for each alternative. Those three questions under level of family support scores 3-14points. And those six questions under effect

of family support for hypertensive patient in adherence to medication and diet modification each score” 1” if the participant’s response is Yes and “0” if the participant’s response is No. The total score is 4-21 points. Participants who scored 4-17 points have had weak family support and 18- 21 points have had strong family support.

4.9.2 Data Collection Procedure

Data were collected by pre-coded face to face interviewer administered questionnaire. Three qualified B.sc nurses to collect data and one BSc nurse supervisor were trained for two days by the principal investigator. They were trained on the purpose of the study, how to use data collection tools; and how to keep confidentiality of study units. Those three BSc Nurses were assigned to the selected three hospitals separately to collect the data. Pre-test was done on the same participants and was not included on the main study. The principal investigator and supervisor controlled the entire data collection procedure every day.

4.10. Data Quality Assurance

The questionnaire was translated to Amharic language and back translated into English by another person to check for consistency. Pre-test was conducted in 5% of the samples on Yekatit 12 hospital that was not included in the final study. The data collection instrument was assessed for its completeness, consistency, and applicability and was ratified accordingly. The study procedures protected the patient's privacy by allowing voluntary participation. The principal investigator and supervisor made close supervision during data collection to check for completeness, accuracy and consistency of the questionnaire and to take the appropriate measure on time.

4.11. Data Analysis

Data was checked for its completeness every day. The collected data was coded and entered in to Epi-data version 4.1 software and exported to SPSS version 25 software computer applications for analysis. Descriptive statistics was computed and presented in texts, graphs, and tables. The association between each independent variable and dependent variables was assessed by using binary logistic regression. That variable which was found to have had an association with the outcome variable was entered to

multiple logistic regression to test for independent association. The association between independent variables in relation to dependent was measured using odds ratios and 95% confidence interval (CI) and P values below 0.05 was considered statistically significant.

4.12. Ethical consideration

Ethical clearance and official letter was obtained from the Research and Ethics Committee of School of Nursing and midwifery of Addis Ababa University College of Health Sciences to selected government hospitals in Addis Ababa. These selected government hospitals wrote permission letter for hypertension follow up clinics. Finally, the participants were asked verbally to participate in the study voluntarily. The participants were told that there is no incentive given for participation and the information s/he gave is confidential. Confidentiality was maintained by avoiding access to information given by participant other than authorized personnel and used only for this research. The participant can terminate the interview at any point of the data collection time.

4.13. Dissemination of finding

The report of this study with its main finding was disseminated to Addis Ababa University, college health science and school of nursing and Midwifery. It was also disseminated to selected hospitals and their stakeholders in Addis Ababa. Additional effort was exerted to publish the finding of this study on local /international journals.

5. RESULT

5.1. Socio-demographic characteristics of participants

Out of the total patients who were attending Hypertension follow up clinics of government hospitals during the study period, 398 eligible clients were included in the study, with response rate of 99.25%. Analysis was made based on the 398 completed questionnaires.

The study consisted of 214 (53.8%) females. The mean age of the respondents was 54.63 ± 12.9 years of which majority of the respondents (45.2%) were in 40 - 59 age groups. Majority of the respondents 287 (72.1%) were orthodox Christians by religion and 256 (64.3%) were married. Out of the participants 113 (28.4%) attended college or university and 185 (46.5%) of respondents were government employers.

Table 1 Socio demographic characteristics of respondents attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398)

Variable	Characteristics	Frequency	Percent(%)
Gender	Male	184	46.2
	Female	214	53.8
Age	20-39	54	13.6
	40-59	180	45.2
	>60	164	41.2
Religion	Orthodox	287	72.1
	Muslim	49	12.3
	Protestant	49	12.3
	Catholic	3	0.8
	Others (Jova witness)	10	2.5
Marital status	Single	25	6.3
	married	256	64.3
	Divorced	36	9.0
	Widowed	81	20.4
Education	Illiterate	68	17.1
	Primary	105	26.4
	Secondary	112	28.1
	Higher Education	113	28.4
Main occupation	Employed	185	46.5
	Labourer	15	3.8
	Merchant	69	17.3
	Farmer	8	2.0
	Others(House hold wife and no occupation)	121	30.4
Residence area	Urban	365	91.7
	Rural	33	8.3

5.2. Comorbidities and Follow-up duration

Among 398 participants, 309 have had comorbidities; of which 81 had renal comorbidities. The duration of follow-up for hypertensive participants in hypertension follow-up clinics of selected government hospitals was 3 to 10 years in 50.8% of participants.

Table 2 Comorbidities and Follow-up duration characteristics of respondents attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398)

Variable	Characteristics	Frequency	Percent(%)
Comorbidities	Cardiac	63	15.8
	Renal	81	20.4
	Others(DM,SLE, Asthma, Cholesterol)	78	19.6
	cardiac and renal	29	7.3
	Cardiac and Others	34	8.5
	Renal and Others	24	6.0
	No co-morbidity	89	22.4
	Follow-up duration	≤2years	91
3-10 years		202	50.8
≥11 years		105	26.5

5.3. Adherence to Medication and Diet modification

The table shows that 212 (53.3%) of participants has had good adherence to medication. And 218(54.8%) of participants has had good adherence to diet modification.

Table 3 Adherence to Medication and Diet modification of respondents attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398)

Variable	Characteristics	Frequency	Percen(%)
Medication Adherence	Good	212	53.3%
	Poor	186	46.7%
Diet Adherence	Good	218	54.8%
	Poor	180	45.2%

5.4. Role of Family support

5.4.1 Source of family support

One hundred forty nine (37.4%) participants, who has follow-up on hypertension clinics of selected government hospitals in Addis Ababa; has got family support from both their wife/husband and Son/daughter at the same time,

Table 4 Source family support for participants attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398)

Family member	Frequency	Percent
Wife/husband	71	17.8
Son/Daughter	130	32.7
Father/mother	2	0.5
Brother/sister	33	8.3
Others	13	3.3
Wife/husband and Son/daughter	149	37.4

5.4.2 Interest and voluntariness of family to participants

241(60.6%) participants who has follow-up on hypertension clinics of selected government hospitals in Addis Ababa responded that their families showed some interest and voluntariness to help them in adherence to medication and diet modification.

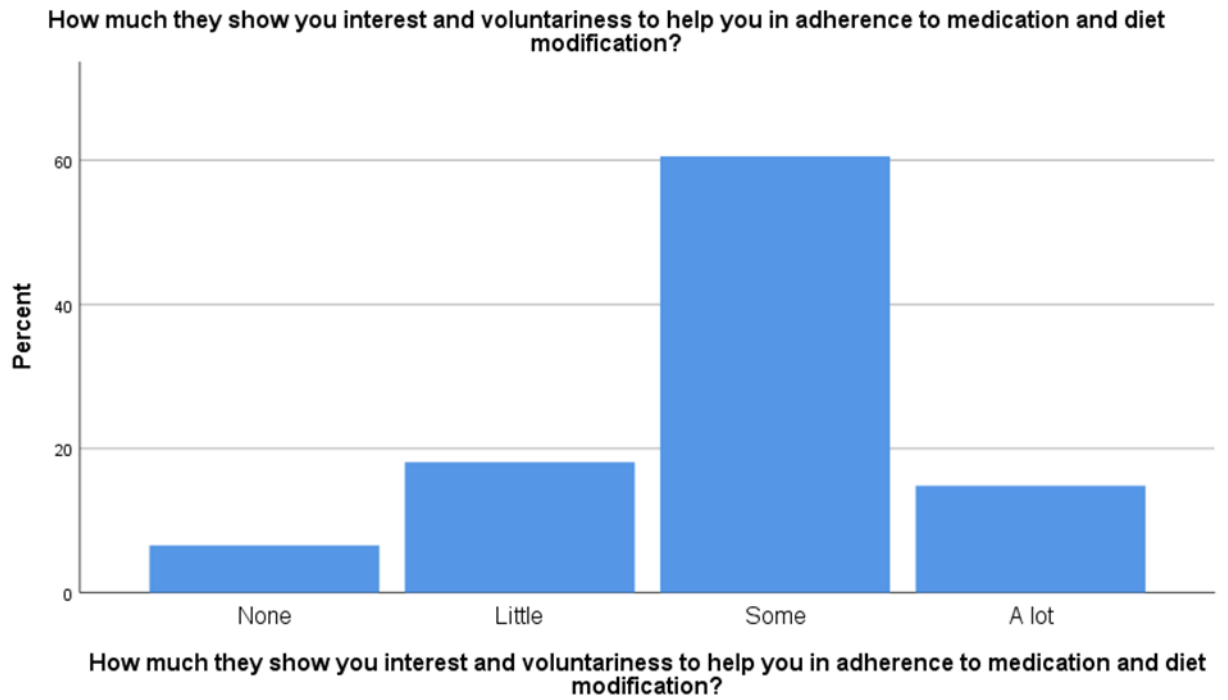


Figure 3 Interest and voluntariness of family members to participants attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398)

5.4.3 Difficulty to have family support

One hundred forty four (36.2%) participants who has follow-up on hypertension clinics of selected government hospitals in Addis Ababa responded that it is easy to get support from their family members.

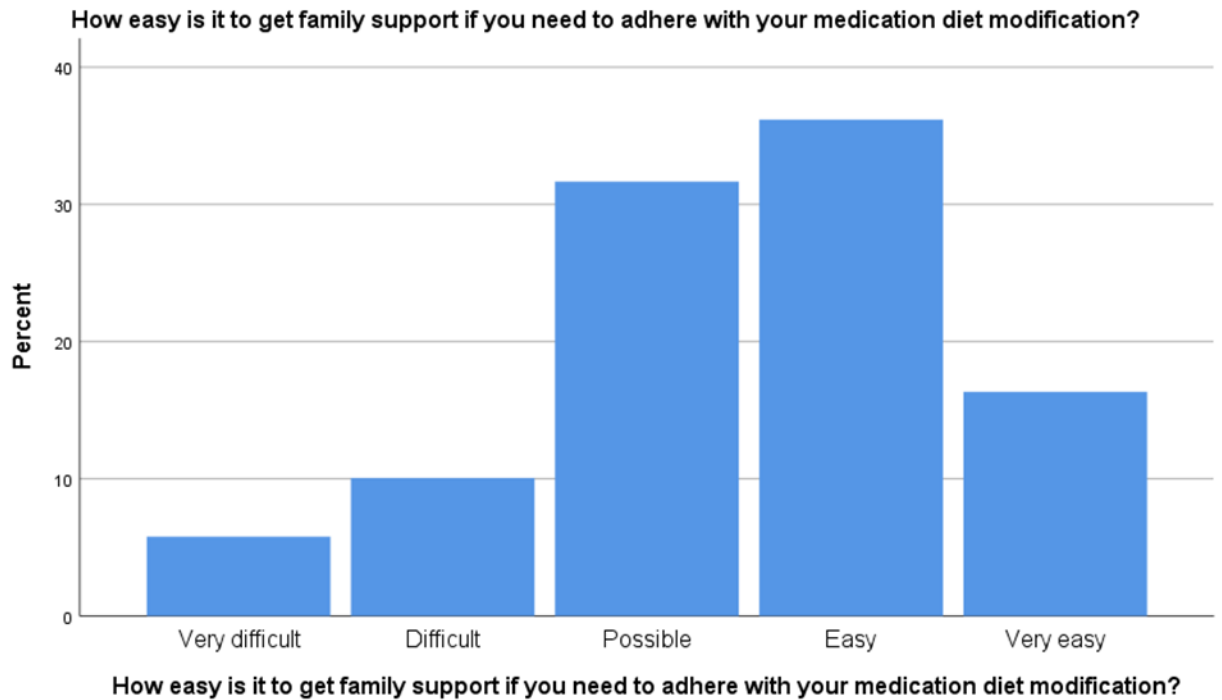


Figure 4 Difficulty to have family support from member for participants attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398)

5.4.4 Role of Family support in adherence to medication and diet

Among 398 study participants; 230(57.8%) have weak role of family support and among them 168(42.2%) have strong role of family support in adherence with medication and diet modification.

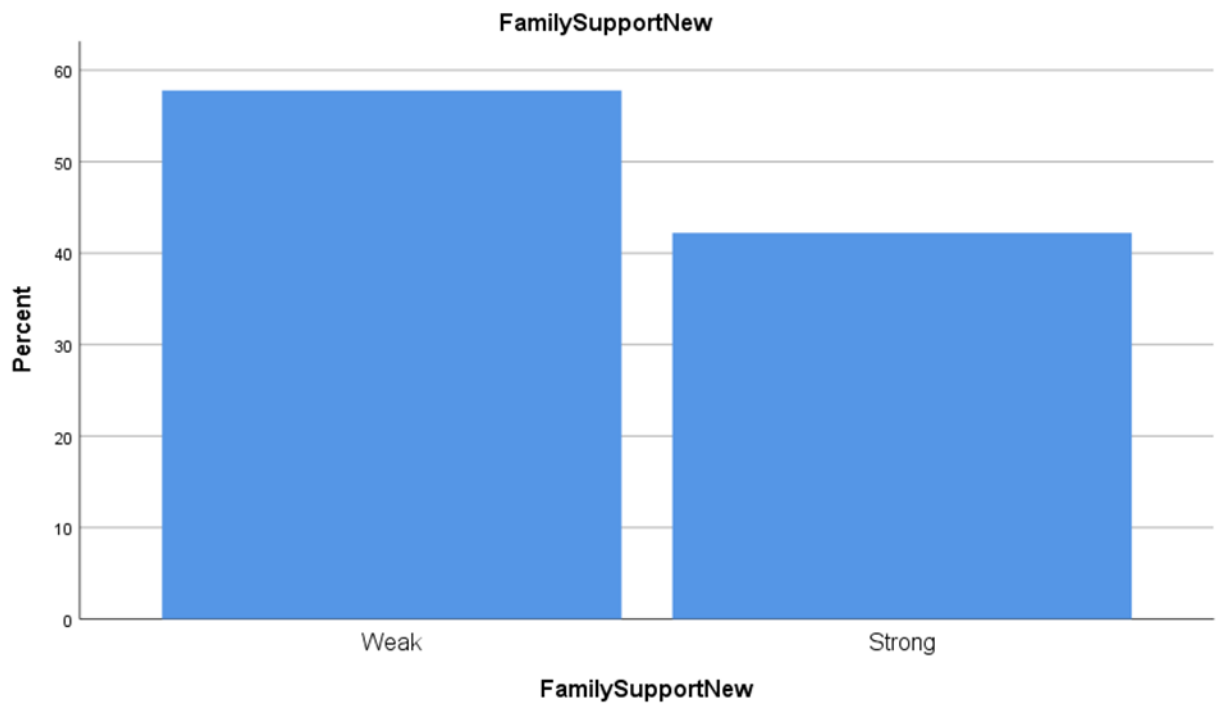


Figure 5 Role of family support for hypertensive patient in adherence to medication and diet attending hypertension follow up clinics of government hospitals, Addis Ababa, Ethiopia, 2021 (n=398) .

5.5 Factors associated with adherence to medication and diet modification of hypertensive patients

Adherence to medication:-After controlling possible confounding effects of other covariates, education level, residency, co-morbidity and follow-up duration of participant were found to be significantly associated with adherence to medication. Participants who attend secondary school were found to be 2 times more adhered than those participants with below and above secondary school education level ($P = 0.04$, $AOR = 2$, $95\% CI = 1.0-3.8$). Urban residents from study participants were found to be 3 times more adhered than rural residents from study participants ($P = 0.04$, $AOR = 3$, $95\% CI = 1.1-8.5$). Study participants with cardiac co-morbidity were found to be 3.6 times more adhered than those participants with other comorbidities (like renal DM, hyperlipidemia, ...) and without comorbidities($P=0.01$, $AOR=3.6$, $95\%CI=1.3-11$). Participants who has less than two years of follow-up duration were 60% less likely to adhere to medication than those participants who has more than two years of follow-up duration($p=0.007$, $AOR=0.4$, $95\%CI 0. 0.2-0.8$).

Adherence to diet modification:- After controlling possible confounding effects of other covariates, participants' gender and level of education were found to be significantly associated with adherence to diet modification. Male participants were found to be 50% less likely to adhered to diet modification than female participants ($P = 0.02$, $AOR = 0.5$, $95\% CI = 0.3-0.9$). Illiterate participants were found to be 12 times more adhered to diet modification than those participants who attend education ($P = 0.00$, $AOR = 12$, $95\% CI = 4.4-34$).

Table 5 Association of adherence to medication and diet modification by selected socio-demographic characteristics among hypertensive patients in government hospitals of Addis Ababa, Ethiopia 2021.

Variable	Frequency	COR	AOR	p-value
Medication				
Education level				
Illiterate	68	0.6(0.23-1.5)	1.6(0.7 -4.2)	0.28
Primary (<8)	105	0.6(0.3-1.1)	1.7(0.9-3.4)	0.12
Secondary(9-12)	112	0.5(0.3-1)	2 (1.0-3.8)	0.04
Higher education	113	1	1	
Residency				
Rural	33	1	1	
Urban	365	0.3(0.12-1)	3(1.1-8.5)	0.04
Co-morbidity				
Cardiac	63	0.3(0.1-0.8)	3.6(1.3-11)	0.01
Renal	81	0.4(0.15-1.1)	2.5(0.9-6.8)	0.08
Others(DM,SLE,Asthma, Cholesterol)	78	0.7(0.2-1.9)	1.5(0.5-4.1)	0.45
cardiac and renal	29	0.6(0.2-2.1)	1.6(0.5-5.4)	0.45
Cardiac and Others	34	0.4(0.13-1.3)	2.5(0.8-8)	0.12
Renal and Other	24	1		
Follow-up duration				
<=2years	91	2.8(1.3-5.8)	0.4(0.2-0.8)	0.007
3-10 years	202	1.4(0.8-2.5)	0.7(0.4-1.3)	0.26
>11 years	105	1	1	
Diet				
Gender				
Male	184	1.9(1-3.5)	0.5(0.3-0.9)	0.02
Female	214		1	
Education				
Illiterate	68	0.1(0.03-0.3)	12(4.4-34)	0.00
Primary	105	0.7(0.4-1.5)	1.4(0.7-2.8)	0.3
Secondary	112	1(0.5-2.1)	1(0.5-2.0)	0.9
Higher Education	113	1	1	

6. DISCUSSION

The result from this study showed that 230 (57.8%) of participants who has had follow-up on selected government hospitals in Addis Ababa has got weak family support. This result is similar to the study done in India which is 53% of men participants involved in that study was weak family support. On the same study, 38% of women participants involved on that study reported strong family support(13). This result approaches to our study result which is 42% of participants has had strong family support. This similarity is probably due to similarity in socio-economic status and life style of participants.

Our study result contradicts the qualitative study done in Tehran in which all study participants mentioned positive effect of family support on adopting adherence to medication, diet and other lifestyle modification(17); which is may be due to difference in study area and design. The result from cross sectional study done in Indonesia showed that 53% of participants has got strong family support(15); which also contradicts our study result which is 42% of participants has got strong family support.

The hospital based cross sectional study in Nigeria designed to assess role of spousal support to medication adherence on adults reported that 42.3% of the subjects has got strong spousal support in adherence with medication by reminding them to use their medications(18). It is similar to our study result; which is strongly assumed that due to similarity on economic and cultural status.

This study established that 53.3% of the study participants were found to be adherent to their hypertension medication. The result from research done in Addis Ababa contradicts our study result in which participants adhere to medication more than our participants which is 66.8%(11). This contradiction is may be due to difference in study period. Our study result approximately similar to the result from research done in north India which is 57.2%(19) and it is greater than that of the study done in UK which is 44.8%(20).

The study done Addis Ababa reported that 22.8% forgot taking medicines regularly, 12.6% were careless about taking their medications, 18.8% stopped medication on feeling worse and 9.2% stopped on feeling better(11). However, from our study participants; 35.2% forgot taking medicines regularly, 20.9% were careless about taking their medications, 14.1% stopped medication on feeling worse and 12.8% stopped on feeling better. So this comparison shows that our study participants have low adherence level to medication than those study participants.

The result reported from our study is that 54.8% of participants have good adherence to diet modification. The study participants involved in study done in Addis Ababa adhere more than our study participants which is 69.1% to diet related recommendations which are avoiding saturated fats , minimizing consumption of salt, avoiding Cigar rete smoking, tobacco usage and alcohol consumption(11). This discrepancy is assumed to be due to difference in study period.

Our study shows that 12.6% of study participants never limit intake of salt containing diet, 77.9% eat diet rich in fruit and vegetable, 30.4% never limit consumption of spicy foods since being diagnosed, and 60.3% doesn't read nutritional facts on food labels to compare the amount of sodium in products. The study done in west Bangal showed that 29.1% never tried to avoid high salt consumption and 36.3% consumed fruits and vegetables(23). The study done in Dessie; Ethiopia showed that 62.5% participants included fruits, vegetables, grains and beans in their diet(24) which is less than our study participants.

Our study result establishes that old age (>60) participants were found to be more adhered medication than young age participants. This result in line with study done in urban area of north India in which old age ≥ 50 adhere to their medication more than adults(19).

Secondary school education level of participants involved in our study was found to be more adhered to medication than those of lower and higher education level of participants. This fact is supported by result of research done in Turkey which reported that respondents who have higher education level adhere better to medication(8). Another study done in Harar town showed that older age and attending formal education has positive effect on adherence to medication(25) which supports our study.

Female participants in our study were found to be more adhered to diet modification than male participants. Study done in Nigeria on adults aged 20 and above showed that hypertensive females adhere better to diet modification than males(9) which supports our study. This similarity is assumed to be due to cultural similarity.

7. CONCLUSION AND RECOMMENDATION

As already known fact is that hypertension is a global burden and being cause for crisis on the society among all aspect of life. Hospital management of hypertension needs support from at least one of family members to adhere to their antihypertensive drugs and lifestyle modifications.

This study found that role of family support for hypertensive patients in adherence with medication and diet modification is 42.2%. This figure shows that the role of family support is weak. This study also assess participants adherence to medication and diet modification. Fifty three (53.3%) of participants has good adherence to medication and 54.7% of participants has good adherence to diet modification. The factors affecting dependant variables positively or negatively were thoroughly analysed. Age and Education level were found to be significantly associated with adherence to medication; while gender and Education level were found to be significantly associated with adherence to diet modification.

As family support plays important role for hypertensive patients in adherence to medication and diet modification; including family members in managing patients is recommended to health professionals. This study focuses on role of family support only; perception of patients to family support is another important component to be studied. For future we recommend researchers to dig out information on this concept which is perception of family support in hypertensive patients.

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APPENDIX

Appendix I: Information sheet

English version

Hello. My name is _____ and I am here on behalf of Temam Hussien; a post graduate student from Addis Ababa University, College of Health Sciences, school of Nursing and Midwifery. I am conducting a study on assessment of role of family support and associated factors for hypertensive patients in adherence with medication and diet modification at this hospital. The result that will come out of this study will be used by the hospital to base their rational decision to develop appropriate strategies to combat this problem. The research is intended to benefit the community including the people that will be participating in this research and will introduce no risk to the participant. The questionnaire requires maximum of 20 minutes to complete. Your participation is entirely voluntarily, and you can quit from the study any time you want. You will have no penalty if you fail to show desire to participate. I, however, do hope that you will participate in the study since the data that will come from you will be important for us. Your name and other personal identity will not be used, and hence the information we will collect from you will completely be kept confidential and will not be disclosed to any third person other than the people participating in this study. For any question you want to ask us, you can use the contact address here under.

May I now begin the interview? Yes No

If yes, continue interviewing

If No, thank and stop interviewing

Temam Hussien Email: temam7y@gmail.com Cell phone +251 944 12 7586

Amharic version

የመረጃ መግለጫ ቅፅ

እንደምን ዋሉ/አደሩ ?

ስሜ..... ሲሆን የስራ ባሌ-ቀረባዬ ተማም ሁሴን ይባላል ። በአዲስ አበባ ዩኒቨርሲቲ በነርሲንግ እና ሚድዋይሬሪ ትምህርት ቤት የድህረ ምረቃ ተማሪ ሲሆን የመመረቂያ ፅሁፍን ወደ መንግስት ሆስፒታልች ለደም ግፊት ህመም ክትትል የሚመጡ ታካሚዎች የቤተሰቦቻቸው ድጋፍ እና ተያያዥ ጉዳዮች በመድሃኒት አወሳሰድ እና ምግብ ማስተካከል ላይ ያላቸው ተፅኖ በሚል ርዕስ ላይ ይሰራል። የሚሰበሰቡ መረጃ ሙሉ በሙሉ በሚስጥር የሚያዝ መሆኑን እናረጋግጥልዎታለን። የእርስዎ ስም፤ መለያ አድራሻ አይመዘገብም። መረጃ መስጠት ካልፈለጉ መብትዎ ነው። መመለስ ያልፈለጉትን ጥያቄ መዝለል/ማለፍ/ ይችላሉ። ይሁን እንጂ የእርስዎ ትብብር እና ትክክለኛ ምላሽ ጥናቱ ና ምርምሩ እንዲሳካ ትልቅ አስተዋጽኦ ይኖረዋል። ስለዚህ ለሚቀርብልዎት ጥያቄ ትክክለኛ መልስ ለመስጠት ፍቃደኛ ሆነው በትዕግስት እንዲመልሱልን እንጠይቅዎታለን። ቃለ መጠይቁ በግምት 20 ደቂቃ ይፈጃል።

በጥናቱ ውስጥ ለመሳተፍ ፍቃደኛ ነዎት?

ፊቃደኛ ካልሆኑ አመሰግነው ያሰናብቱ

አዎ ካሉ ይቀጥሉ

የመረጃ ሰብሳቢው ስም ----- ፊርማ -----

መጠይቁን በሚመለከት ማንኛውም አይነት ችግር ካለ በሚከተለው አድራሻ ያሳውቁ

የጥናቱ ባለቤት:- ተማም ሁሴን

ስልክ ቁጥር - 09 44 12 75 86

ኢሜይል - temam7y@gmail.com

Appendix II: Consent Form

English version

Code number -----

I'm clear with that the purpose of this study is to assess role of family support and associated factors for hypertensive patients in adherence with medication and diet modification. Similarly I understand that participating in this study is completely voluntarily and my privacy is guaranteed and does not expose to the third party. I promise to answer honestly to all questions and not provide any false information or in any other way purposely mislead the researcher.

Signature of participantDate

Name of the data collector who sought the consent.....Signature.....

Name of the supervisor..... signature.....

Amharic version

የስምምነት መግለጫ ቅፅ

ከላይ የተጠቀሰውን መረጃ በደንብ ተገንዝቢያለሁ። በዚህ ጥናት በመሳተፊ የማገኘው ጥቅማጥቅምም ሆነ የሚደርስብኝ ጉዳት አለመኖሩን ስለተረዳሁ በጥናቱ ላይ ለመሳተፍ ፍቃደኝነቴን በፋርማዬ አረጋግጣለሁ።

የተጠያቂው ፋርማ _____

የስምምነት ፍቃዱን የወሰደው (የተቀበለው) ጠያቂ ስም _____ ፋርማ _____

Appendix III: Questionnaire

A-English version

ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES SCHOOL OF NURSING AND MIDWIFERY

This questionnaire is planned to collect Socio-demographic data from participants. Please indicate your response by circling your choice or by writing the appropriate information on the space provided.

PART I. Socio-demographic characteristics of respondents.

Instruction: Please encircle your response among the given alternatives

Code	Socio-demographics	Alternatives
001	Gender	1. Male 2. Female
002	Age	_____ in years
003	Religion	1. Orthodox 3. Protestant 2. Muslim 4. Catholic 5. Others(specify)....
004	marital status	1.Single 4.widowed 2.Married 5.Co-habited 3.Divorced
005	Education	1.Illiterate 3.Secondary >=8 2.Primary<=8 4.Higher education
006	Main occupation	1.Employed 4.Farmer 2.Labourer 5.Others(specify.....) 3.Merchants
007	Residence area	1.Rural 2.Urban
008	Comorbidity	1.Cardiac: 2.renal: 3. others: specify_____
009	Follow-up duration	_____in years

PART II. Medication adherence assessment tools

This tool is designed to assess adherence to medication. Tick (√) on the responses from the given alternatives.

S.N	Question	Yes	No
101	Do you sometimes forget to take your medications?		
102	People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your medications?		
103	Have you ever cut back or stopped taking your medications without telling your doctor, because you felt worse when you took it?		
104	When you travel or leave home, do you sometimes forget to bring along your medications?		
105	Did you take your medications yesterday?		
106	When you feel like your health condition is under control, do you sometimes stop taking you medications?		
107	Taking medications every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?		
108	How often do you have difficulty remembering to take all your medications?	Never/rarely	
		Once in a while	
		Sometimes	
		Usually	
		All the time	

PART III. Diet modification adherence assessment tools

This tool is designed to assess adherence to diet modification of respondents. Tick(√) on the responses from the given alternatives.

Code	Question	strongly disagree	Disagree	agree	strongly agree
201	Limited intake of salt containing diet				
202	Proper amount without overeating				
203	Eat diet rich in fruit and vegetable				
204	Eat well balanced diet				
205	Limit Consumption of spicy foods since being diagnosed				
206	Read nutritional Facts on food labels to compare the amount of sodium in products				

PART IV .Family support Assessment tools

Tools to assess role of family support. Please indicate your response by circling your choice.

i-Source of family support

301. From which family member you have got support?

a. wife/husband b. son/daughter c. father/mother d. brother/sister e. others
specify

ii-Level of family support

302. How many family members are close to you to help you in adherence to medication and diet modification?

a. None b. 1-2 c. 3-5 d. >5

303. How much they show you interest and voluntariness to help you in adherence to medication and diet modification?

a. None b. little d. Some e. a lot

304. How easy is it to get family support if you need to adhere with your medication diet modification?

a. very difficult b. difficult c. possible d. easy e. very easy

iii- Effect of family support for hypertensive patient in adherence to medication and diet modification

305. Do your family members remember your medication time?

a. Yes b. No

306. Do your family members help you to minimize salt on your diet?

a. Yes b. No

307. Do your family members help you to avoid alcohol usage, cigarette smoking and tobacco use?

a. Yes b. No

308. Do they help you to avoid saturated fats(e.g., cheese, coconut oil, cottonseed oil, mutton fat etc.)?

a. Yes b. No

309. Do they remember you your follow up day?

a. Yes b. No

310. Do they help you to come to hospital for your follow up?

a. Yes b. No

311. Do they appreciate you to go to recreational areas?

a. Yes b. No

ክፍል 2

ዚህ የመድሃኒት አወሳሰድን ሁኔታ ለማወቅ የተዘጋጀ ጥያቄ ነው። መልሱን በዚህ ምልክት(✓) ያሳዩ።

ተ.ቁ	ጥያቄ	መልስ	
		አው	የለም
101	አንዳንዴ ረስተህ መድሃኒት ሳትወስድ ትቀራለህ እንዴ?		
102	አንዳንዴ ሰዎች አውቀው መድሃኒት ይዘላሉ(ያቸርጣሉ)፤ባለፉት ሁለት ሳምንታት ዉስጥ መድሃኒት ዘላሉ እንዴ?		
103	መሻሻል ባለማሳየትዎ ምክንያት ለሃኪምዎ ሳይነግሩ መድሃኒት አቸርጠው ያውቃሉ እንዴ?		
104	መንገድ ሲገዛዎት አንዳንዴ መድሃኒት ሳይዙ ይወጣሉ እንዴ?		
105	ትናንት መድሃኒትዎን ወሰዱ እንዴ?		
106	ደህና እንደሆኑ ሲሰማዎ መድሃኒት መውሰድ ያቆማሉ እንዴ?		
107	አንዳንድ ሰዎች ሁልጊዜ መድሃኒት መውሰድ አይመቻቸውም፤አንተ መድሃኒትህን ሲትወስድ አለመመቻት ስሜት ተሰምቶህ ያውቃል እንዴ?		
108	መድሃኒት ሲወስዱ ምን ያህል ጊዜ የማስታወስ ችግር ይገጥምዎታል?	በጭራሻ	
		ከብዙ ጊዜ አንዴ	
		አንዳንዴ	
		ብዙ ጊዜ	
		ሁልጊዜ	

ክፍል 3

ከደም ግፊት በሽታ ጋር በተያያዘ ስለሚደረግ ቋሚ የአመጋገብ ለውጥ

እባክዎ የታካሚዎቹን መለስ ምልክት (✓) በማድረግ ክፍት ቦታው ላይ ያሰቀሙጡ::

ተ.ቁ	ጥያቄ	በጣምአልስ ማማም	አልስማ ማም	እስማማለሁ	በጣም እስማማለሁ
201	ጨው በብዛት ያላቸውን ምግቦች እቆጠባልሁ				
202	ምግብ ሳለበዛ በመጠኑ እመገባለሁ				
203	ፍራፍሬ እና አትክልት እመገባለሁ				
204	የተመጣጠነ ምግብ እመገባለሁ				
205	የደም ግፊት ህመም አለብህ ከተባልኩ ጀምሮ ጣፋጭ ምግብ ቀንሻለሁ				
206	የተሻጉ ምግቦች ላይ የተፅፈውን ፅሁፍ የሶድየም መጠን ለማወቅ አነባለሁ				

ክፍል 4

የቤተሰብ ድጋፍ ሚናን በተመለከተ ለማወቅ የተዘጋጀ መጠይቅ፡፡

1. ከየትኛው የቤተሰብ አባል ድጋፍ ያገኛሉ?

ሀ. ባል/ምስት ለ. ልጅ ሐ. እናት/አባት ሙ. ወንድም/እህት ሠ. ሌላ ካለ ጥቀስ.....

2. ከቤተሰብ አባል ውስጥ ስነቴ ናቸው ላንተ/ች ቅርብ ሆነው የሚረዱህ?

ሀ. 1 ለ. 2 ሐ. 3-5 ሙ. ከ5 በላይ

3. ቤተሰብዎ እርስዎን ለመርዳት ምን ያህል ፍላጎት እና ፍቃደኝነት ያሳያሉ?

ሀ. ምንም ለ. በጣም ሐ. ትንሽ ሙ. ብዙ

4. የቤተሰብዎን እርዳታ ለማግኘት ሲፈልጉ ለማግኘት

ሀ. በጣም ከባድ ለ. ከባድ ሐ. ይቻላል ሙ. ቀላል ሠ. በጣም ቀላል

5. ቤተሰብዎ መድሃኒት የምትወስድበትን ግዜ ያስታውሱሃል/ሻል?

ሀ. አው ለ. አይ

6. ቤተሰብዎ ምግብ ላይ የሚደረገውን እንዲቀነስ ያግዝዎታል ወይ?

ሀ. አው ለ. አይ

7. ቤተሰብዎ መጠጥ እንዳይጠቀሙ፣ ሲጋር እንዳያጫዱ እና ቴባካ እንዳይጠቀሙ ያግዝዎታል ወይ?

ሀ. አው ለ. አይ

8. ቤተሰብዎ ስብከት ያላቸው ምግቦች (እንደ ጫማ፣ አይብ፣የመሳሰሉትን) እንዲከለከሉ ያግዝዎታል? ወይ

ሀ. አው ለ. አይ

9. ቤተሰብዎ የክትትል ቀንህን ያስታውሱሃል?

ሀ. አው ለ. አይ

10. ቤተሰብዎ ለክትትል ወደ ሆስፒታል እንዲትመጡ የግዝዎታል?

ሀ. አው ለ. አይ

11. መዝናኛ ቦታዎችን እንዲሄዱ ቤተሰብዎ ያበረታታዎታል ወይ? ሀ. አው ለ. አይ