Table of contents

LIST OF ACRONYMS AND ABBREVIATIONS

AAC	Addis Ababa City
AHC	Adara Health Centre
AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted Odd Ratio
BMI	Body Mass Index
BP	Blood Pressure
CHW	Community Health Workers
CI	Confidence Interval
Cm	Centimetre
CVD	Cardio Vascular Disease
CSA	Central Statistics Agency
DBP	Diastolic Blood Pressure
DM	Diabetes Mellitus
e-HMIS	electronic-Health Management Information system
ETB	Ethiopian Birr
FGD	Focus Group Discussions
FMoH	Federal Minister of Health
GO	Government Organization
HBM	Health Belief Model

HCPs	Health Care Providers
HEP	Health Extension programme
HEW	Health Extension Worker
HH	Household
HIV	Human Immunodeficiency Virus
KAP	Knowledge Attitude and Practice
Kg	Kilogram
LMIC	Low and Middle-Income Countries
MCH	Maternal and Child health
MHC	Millennium Health centre
MM	Mixed Method
Mm	Millimetre
mmHg	Millimetre of mercury
MPH	Master of public health
NCDs	Non-Communicable Diseases
NGO	Non-Government Organization
NHNES	National Health and Nutrition Examination Survey
OPD	Outpatient department
OR	Odds Ratio
PHC	Primary Health Care
P-value	Probability value

RCT	Randomized Control Trial
RHB	Regional Health Bureau
SA	South Africa
SBP	Systolic Blood Pressure
SD	Standard Deviation
SNNPRS	Southern Nation Nationalitys People Regional State
SSA	Sub-Saharan Africa
Unisa	University of South Africa
TB	Tuberculosis
UK	United Kingdom
USA	United States of America
USD	American dollar
WHO	World Health Organization
WI	Wealth Index
X^2	Chi-square

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE
ORIENTATION TO THE STUDY

1.1 INTRODUCTION

This chapter provides the overall orientation of the study. The background relates to the Ethiopian context starting from the global setting, statement of the problem, research objectives and summary of research methods used are presented.

The chapter gives an overview of hypertension, which is the force of blood against the wall of arteries and one of the cardio vascular disease and risk factor for other life threatening problems. Blood pressure measurement for adults is classified as normal with systolic and/or diastolic blood pressure measure <120 and <80 mmHg, pre-hypertension 120-139 or 80-89 mmHg, hypertension stage 1 140–159 or 90–99 mm Hg, hypertension Stage 2 ≥160 or ≥100, and isolated systolic hypertension 140 and < 90 mmHg (WHO 2013:17; Kotcher 2012).

Hypertension is generally classified as essential (primary) and secondary. Essential hypertension is diagnosed in individuals with generalised or functional abnormalities but no specific causes are identified. Nearly 10% of hypertensive have secondary hypertension. Common causes of secondary hypertension are chronic renal disease, renovascular hypertension, primary aldosteronism, and pheochromocytoma (Kotcher 2012).

Rapid elevation of blood pressure with a systolic blood pressure usually greater than 180 mmHg or a diastolic blood pressure greater than 110 mmHg is known as hypertensive crisis. Based on the presence or absence of target organ damage, hypertensive crisis is divided into two, namely, hypertension emergency and hypertension urgency (Feridoun, Nizal, Alireza & Elham 2012:111).

This problem of high blood pressure or called hypertension is steadily increasing in the lower and middle-income countries (Sarki, Nduka, Stranges, Kandala & Uthman 2015:8).

In association with the epidemiological, nutritional and demographic transition, many research findings showed that the number of risk factors that leads to increased prevalence of hypertension in lower and middle income countries like Ethiopia is increasing (Steven, Hilda, Samuel, et al. 2013:3).

According to the 2014 non-communicable diseases (NCD) country profiles, it was estimated that 30% of all death of which 9% attributed to cardio vascular disease were from Ethiopia (WHO 2014:72).

The current study focused on hypertension as one of the most common NCD in the world. However, the setting for this study is Hawassa City, 273 KM in the southern direction of Addis Ababa, Ethiopia.

1.2   BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

Analysis of data from six countries across the world showed that the prevalence of hypertension around the world has a variation ranging from 3.4% to 78%, the lowest prevalence being among men in rural India and the highest prevalence in South Africa (Wu, Guo, Chatterji, et al. 2015:6). It is also reported that globally the overall prevalence of hypertension was estimated to be 26.4% in 2000 and it is predicted to increase by 60% (1.56 billion) in the year 2025 (Kearney, Wheltonm, Reynolds, Muntner & Whelton 2005:220).

In developed countries like America, the review of data from the National Health and Nutrition Examination Survey to analyse nine years trend of blood pressure showed the percentage of hypertensive adults with optimal blood pressure increased from 13% to 19% and pre-hypertension from 27% to 33% (Yoon, Gu, Nwankwo, Wright, Hong & Burt 2015:2).

A population-based study in an indigenous community of central Brazil showed the prevalence of hypertension to be 29.5%. The study also revealed that the prevalence of hypertension is higher among those who are obese, diabetic, older, consuming alcohol,

and had family history of hypertension (Oliveira, Oliveira, Ikejiri, Andraus, Galvao, Silva & Pereira 2014:4).

In African countries like Cameroon and Tunisia, community-based multicentre and national cross-sectional study conducted in major cities presented the overall prevalence of hypertension to be 47.5% and 35.1% respectively (Dzudie, Kengne, Muna, et al. 2012:3; Aounallah-Skhiri, El Ati, Traissac, et al. 2012:3).

Cross-sectional household surveys conducted in four rural and urban communities of African countries reported the crude prevalence of hypertension range from 19.0% in Tanzania to 32.0% in Namibia. In the same study, age adjusted prevalence was reported to be 19.3% in Nigeria, 21.4% in rural Kenya, 23.7% in urban Tanzania and 38.0% in urban Namibia (Hendriks, Wit, Roos Brewster, et al. 2012:5).

A large-scale prevalence study of hypertension in the elderly population of the sub-Saharan Africa (SSA) showed the prevalence of hypertension to be 69.9% of which 62.3 % were newly screened. This report shows that hypertension is among rapidly growing health problems in the elderly population (Dewhurst, Dewhurst, Gray, et al. 2013: 377).

A population-based survey in an urban slum in Nairobi showed that age-standardised prevalence of hypertension is 22.8% of which 20% of the hypertensive participants were aware of their status (Joshi, Ayah, Njan, Wanjiru, Kayima, Njeru & Mutai 2014:4). Another study conducted in Ethiopia showed the prevalence of chronic disease to be 8.9% of which hypertension accounts 2.6% report like this can give insight that hypertension is taking the share of contribution to increase the number of mortality and morbidity related to chronic diseases (Prevett 2012:1; Helelo, Gelaw & Adane 2014:4).

A cross-sectional study conducted among adults in Addis Ababa City (AAC) showed the age-adjusted prevalence of high blood pressure or reported use of anti-hypertensive medication to be 31.5% among males and 28.9% among females (Tesfaye, Byass & Wall 2009:5).

A cross sectional survey conducted in Sidama zone of Southern Nation Nationality People Region (SNNPR) State of Ethiopia showed the prevalence of hypertension to be 9.9%. Being over 30 years, having a family history of hypertension, Body Mass Index (BMI) ≥25 kg/m^2 and excess meat consumption were found to be significantly associated with hypertension whereas tea drinking was found as a protective factor for hypertension (Giday & Tadesse 2011:142).

Overall prevalence of hypertension in Gondar City from community based study among adults was found to be 28.3%. It was also presented that participants who had self-reported diabetes were about four times more likely to be hypertensive. Those who did not walk at least for 10 minutes continuously on daily basis were about three times more likely to be hypertensive. Compared to those having normal BMI, obesity was significantly associated with hypertension (Awoke, Awoke, Alemu & Megabiaw 2012:3). A community-based study among adults in Durame Town indicated the prevalence of hypertension to be 22.4% and 40% of those hypertensive patients in the study were newly screened (Helelo, et al. 2014:4).

The developed countries such as USA and United Kingdom (UK) have developed new evidence based guidelines on preventing of hypertension. They outline the nine specific recommendations for initiating and modifying pharmacotherapy for patients with elevated blood pressure including prevention strategies (James, Oparil, Carter, et al. 2014:511). Unfortunately, Ethiopia does not have guidelines on prevention of hypertension; hence, the researcher undertook to develop one.

1.3   STATEMENT OF THE RESEARCH PROBLEM

While much effort is being applied to the prevention of communicable disease and in opposition to the trendy opinion that NCD are associated with affluent communities, available data show that nearly 80% of NCD mortality and morbidity occur in low and middle-income countries situating the countries in a double burden of disease (Omoleke 2013:3). Moreover, non-communicable disease historically considered as a disease of

the developed countries are now highly threatening the developing countries. It is projected that by 2030, NCD will exceed communicable diseases as the most common causes of death in African nations particularly the sub-Saharan Africa. Among these diseases, hypertension takes the lion's share in worsening the problem (Bloom, Cafiero, Jané-Llopis, et al. 2012:7).

Scholars around the world have explored what the medical, economic and religions perspectives looks like on activities done to curb hypertension, which has helped in identifying factors associated with hypertension in order to act on them accordingly (Hashmi, Afridi, Abbas, et al. 2014; Narayan, Case & Edward 2011:4; Kabir, Iliyasum, Abubakar & Jibril 2004:17). However, to the best of literature search done by the researcher and evidenced by Prevett (2012:2) lack of concrete evidences and the ambiguity about the burden and associated factors of hypertension in Ethiopia and what effort is exerted for the prevention of hypertension in the view of health providers is not yet examined and remained covered to come to evidence based solution for the prevention of hypertension in Ethiopia.

The clue gained from Federal Minister of Health (FMOH) of Ethiopia electronic –Health Management Information system (e-HMIS) report of a data collected in routine base among clients visiting health facility only when they are sick shows the increasing trend of the burden of hypertension. This gives insight that there is covered epidemic of hypertension in the community, which cannot be uncovered unless individuals are visiting health facilities for check-ups regularly or investigation is done in the community to track those staying home, not to visit health facilities, unless they feel sick.

Until the conception of this study, the researcher as a public health specialist did not see any plan for the prevention activity of hypertension in the woreda-based planning, which is a national plan done annually across the country with a bottom to up and up to bottom approach involving all stockholders for health activity, for more than seven years throughout the country. This prompted the researcher to undertake the research.

Beside this, there is no any community-based study conducted in the study area in particular and in Ethiopia in general that show the burden of hypertension comparatively among urban and peri-urban setting, including factors associated with hypertension, knowledge and attitudes of the community regarding hypertension risky behaviour and prevention. The efforts exerted for the prevention of hypertension in the study area, according to health care provider's perspectives, have not been investigated. On top of the inadequate evidence about the disease and its prevention, there is no guideline developed in a tailored manner according to contexts for the prevention activity of hypertension in Ethiopia.

Therefore, to make clear were the problem is intense and have sufficient evidence researching is the magic bullet which can give direction to the development of evidences based guidelines for the prevention of hypertension as a solution.

1.4   RESEARCH PURPOSE

The purpose of this study was to develop guidelines for the prevention of hypertension among adults in Hawassa City, Ethiopia.

1.5   RESEARCH OBJECTIVES

- To determine the urban and peri-urban difference of the burden of hypertension.
- To identify factors associated with hypertension.
- To explore and describe adult age groups knowledge and attitudes regarding hypertension risky behaviour and prevention.
- To explore health care provider's perspectives regarding efforts exerted for the prevention of hypertension.
- To develop guidelines for the prevention of hypertension as NCD in Ethiopia.

1.6   RESEARCH QUESTIONS

- What is the burden of hypertension in the urban and peri-urban area?
- What are the determinate factors of hypertension?
- How is the knowledge and attitude of adult age groups regarding hypertension risk behaviour and its prevention?
- What are health care provider's perspectives regarding efforts exerted for the prevention of hypertension as non-communicable disease?
- What can be done to prevent hypertension as non-communicable disease?

1.7   THEORETICAL FRAMEWORK

Theories utilised for disease prevention and health promotion can be categorised as individual, community and organisational theories based on their level. The theoretical grounding with which this study underpins is on the Health Belief Model (HBM) from the individual-level theories, which is widely used to assess behaviour of a person that affects his/her, health (Watkins & Cousins 2010:104). The Health Belief Model contains numerous concepts that foretell why people will act to prevent a conditions, what barriers hinder them, how do they feel like the seriousness of the condition and their susceptibility and what promotes them to take action. The model is constructed of six blocks, namely, the perceived severity / threat, perceived susceptibility, perceived benefit, perceived barriers, cues to action, and self-efficacy (Glanz, Rimer & Lewis 2008:42).

If individuals regard themselves as susceptible to a condition, believe that condition would have potentially to bring serious consequences, they are likely to take action that they believe will reduce their risks. In addition, if they believe that a course of action available to them would be beneficial in reducing either their susceptibility to or severity of the condition, and believe the anticipated benefits of taking action outweigh the barriers to action, they are likely to take action that they believe will reduce their risks (Burak & Meyer 1997:251).

For instance, a person must be pursued that there is a possibility of getting hypertension before engaging into prevention activities of hypertension and must perceive the potential seriousness of; hypertension; in terms of discomfort, time lost from work, economic difficulties, etc. in order to take some preventive action. Individuals generally must believe that the recommended health action will actually do something good if they are to comply. If the change is perceived as difficult, unpleasant or inconvenient and outweighs the perceived benefits, it is less likely to take corrective or preventive health action of hypertension.

Self-efficacy is described as the belief of individual about his/her ability to develop, practice and maintain healthy lifestyles (Ali & Tonekaboni 2009:29). If a person has strong self-efficacy he/she can develop, practice or maintain the desired healthy behaviours even with the presence of challenging conditions (WHO 2012a).

In this study, the researcher assessed adults in the context of the constructs of the health belief model by putting responses in the constructs to assess the development of preventive health behaviour regarding hypertension as a chronic non-communicable disease and come up with a recommendation, which can best suit to the respective problems.

1.8   SIGNIFICANCE OF THE STUDY

The results obtained from the study will lead to the development of evidence-based guidelines for the prevention of hypertension among adults in Ethiopia. The policy makers might be alerted from the findings on different prevention strategies that might be effected in the country.

1.9   DEFINITIONS OF TERMS

Guidelines
According to Polit and Beck (2012:44), a guideline is the rule or instruction that is given by an official organisation telling how to do something and according to WHO (2014),

8

guideline is any document developed by the World Health Organization (WHO) containing recommendations for clinical practice or public health policy. In this study, guidelines refers to the recommendations, rules and instructions for hypertension prevention among adults in Ethiopia.

Burden

According to Oxford Advanced Learner's Dictionary (2010), a burden is a duty, responsibility that cause worry, difficulty or hard work. In this study, burden refers to the burden of hypertension among permanent dwellers adult of Hawassa City.

Perspectives

Collins English Dictionary (2014) defines a perspective as a particular attitude towards something or view point. In this study, perspective refers to health care provider views towards efforts exerted for the prevention of hypertension.

Health Care Provider (HCP)

A health care provider refers to the individual who helps in identifying, preventing or treating an illness. In this study, it refers to health workers who provide preventive, promotive and basic curative services including early recognition and follow–up treatment at health facilities and during household's visits or outreach services (FMOH 2014).

Adult

According to Oxford Advanced Learner's Dictionary (2010), an adult is a person who is fully grown and developed; a person who has reached the age of majority. In this study, adult refers to a person whose age is greater than 30 years old which can show the actual estimation of the problem under investigation in the country.

Urban area

Collins English Dictionary (2014) defines urban area as a city considered as the inner city plus built-up environs, irrespective of body administrative boundaries. In this study urban area refers the place where urban residents live.

Peri-urban area

According to Collins English Dictionary (2014), peri-urban area is partly urban; between urban and rural; somewhat but not wholly characteristic of urban area. In this study urban area refers the place where in the middle of urban and rural residents live.

Hypertension

Hypertension is the force of blood against the wall of arteries with systolic and/or diastolic blood pressure measure ≥ 140 /90 mmHg. In this study, hypertension refers to systolic and/or diastolic blood pressure measure ≥ 140 /90 mmHg and /or participants on antihypertensive medication (Kotcher 2012).

1.10   RESEARCH METHODOLOGY

1.10.1   Research approach

According to Creswell (2014:29), research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation. Generally, there are three approaches to research: qualitative, quantitative and mixed method. These approaches are not separate entities, especially the mixed method is found incorporating or mixing components of both qualitative and quantitative approach with in a single study. Mixed method approach involves collecting, analysis and interpretation of both qualitative and quantitative elements to produce a fuller account of the research question (Glogowska 2011:253; Creswell 2014:29).

Often times the reasons for using mixed methods research designs is corroboration, complementarity, development, initiation, and expansion. In the expansion the depth and breadth of the study is expanded by using different methods for various components of the research (Halcomb & Hickman 2015:5).

The rationale of selecting a research approach should be based on the research question to be addressed. The current study used mixed methods approach. Both quantitative and

qualitative approaches were used for the purpose of expansion of the study. The two phases of the study used the two methods to expand the depth and breadth of the study so that the study findings can sufficiently answer the objective of the study and to minimise possible bias that may arise when using a single research method.

1.10.2   Philosophy

Philosophical approach is the lens through which a researcher sees the world. According to Creswell and Clark (2011), different philosophical stances are existing on implementing worldviews in mixed methods researchs that underpin the studys. The most common approaches are critical realism, transformative and pragmatism. Pragmatic approach is the widely used philosophical approach by most mixed method researches who aim at looking what works to reach at the responses of research questions (Halcomb & Hickman 2015:6). Pragmatism focuses on solving problems in the "real world" by avoiding the argumentative issues of truth and reality (Feilzer 2010:3; Glogowska 2011:254).

In the current study, pragmatism was used after evaluating the approach in different literatures, examining the extent to which it is used widely and how it fits the proposed study in terms of reaching at answers to the research question.

1.10.3   Research design

Research design is the blue print or overall plan and architectural building block of how the study is to be conducted starting from the conception to responses of research questions under investigation which maximize advantage of controlling over factors that could interfere with the desired outcomes of the study finding (Polit & Beck 2014:51; Grove, Burns & Gray 2013:43).

Sequential explanatory, sequential exploratory, embedded or nested and parallel or concurrent design are research design of the mixed methods. In the sequential explanatory design, qualitative data are collected to explain the quantitative findings, whereas in the sequential exploratory quantitative data builds on qualitative findings to

11

provide generalisability. The embedded or nested design is used to obtain different data to answer a complementary research question (Halcomb & Hickman, 2015:8).

The parallel mixed method design is a design with two independent phases aimed to obtain different but complementary data to answer single research question, one with qualitative data collection and analysis techniques and the other with quantitative data collection and analysis techniques alongside or with a time lag (Halcomb & Hickman, 2015:8).

This study utilised a parallel mixed method design, which is conducted in phases, as described below:

- In phase one, a community-based comparative cross sectional design was used to determine the urban and peri-urban difference in the burden of hypertension and to identify associated factors and describe adult age groups knowledge and attitudes regarding hypertension risky behaviour and prevention.
- In phase two, a qualitative study design was used to explore health care provider's perspectives towards efforts exerted for the prevention of the disease.
- In phase three, guidelines were developed following the results of phase one and phase two of the current study, reviewing relevant aspects of literatures, the researcher's insights and exploring expertise opinion using a Delphi technique.

1.10.4   Study setting and population

Study setting

The study was carried out in Hawassa City administration. Hawassa City is located in the SNNPR on the shores of Lake Hawassa in the great rift valley; 273 km south of the capital, Addis Ababa via Debre Zeit and 1125 km north of Nairobi, Kenya.

Population

Population is a total group of persons or objects that is of interest to a study to make conclusion based on sample (Yin 2011:99). According to the population projection of

Central Statistics Agency (CSA), Hawassa City administration has a population of 351,567 people out of which 170,510 are female and 181,057 are male out of the total number of the population of the administration 250,777 people live in urban area while the remaining 100,790 peoples are living in the peri-urban area of the administration. However, the population for this study is permanent dweller adult's age greater than 30 years old of the city administration and health care providers working among public health facilities of the city administration.

1.10.5   Sample and sampling methods

Sampling techniques

Phase One

A multi-stage sampling technique was used to select the study participants. At the first stage, three sub-cities were selected out of the eight sub-cities in the City administration; two urban sub-cities were selected randomly and one peri-urban sub-city was selected purposively. At second stage, from the selected three sub-cities, nine kebele's were selected using simple random sampling. Then the sample size required in each kebele was determined by simple random sampling using a sampling frame found in the kebeles. In households where there is more than one adult, random sampling method was used to select one adult.

Phase two

Focus Group Discussions (FGD) were employed among health care providers working at public health facilities found in the selected sub cities for the first phase of the study.

Sample size

Phase One

Sample size in this phase is calculated by using Raosoft sample size calculation software (Raosoft 2004) at 95% confidence interval, margin of error 0.5, 80% power of the study and 1 to 2 ratios and proportion of 50%. A sample size of 384 was generated. However,

by anticipating a non-response rate of 10% and considering the design effect of 1.5., a final sample size of 633 respondents, which was adequately powered to estimate the process parameters, was generated.

Phase Two

A sample size for qualitative study is determined based on the information needs where no new information is obtained and saturation of data is reached. Data saturation could be reached with a relatively small sample if participants are sufficiently informed about the problem (Polit & Beck 2008:357). Hence, in this study, a total of three FGDs consisting of 21 health care providers (six to eight members in each) selected purposively in a manner that maintains homogeneity was conducted among health care providers working in the City administration.

1.10.6   Data collection period and procedure

Data were collected from February to March 2017 using a structured questionnaire for the quantitative phase and notes were taken, and discussions were recorded with an audio recorder for the qualitative.

1.10.7   Data analysis

Phase One

Polit and Beck (2014:345) outlined data analysis as systematic organisation and synthesis of research data with the purpose of organising, giving structure and meaning to data and using the acquired data. The choice of data analysis method mainly depends on outcome variables.

In this phase of the study, the outcome variables have binary outcome type characterised by yes/no alternatives responses for hypertension.

Both descriptive and inferential statistics were used for the analysis of the study. In the descriptive statistics frequency, percentages, measures of central tendency (mean, median and mode), standard deviations and graphs were used to report findings.

The economic status of household was represented by a variable called 'wealth index' which is exploited out by running principal component analysis.

Fourteen items of which the six items were under on question were used to assess knowledge of respondents about hypertension risky behaviour and prevention. Each items were used to assess knowledge of the respondents by giving one (1) to correct answer and zero (0) to the wrong answer.

A single variable of knowledge on hypertension risky behaviour and prevention with three ordinal response options was computed from 14 knowledge items to show the overall knowledge level of the respondents and for further analysis. Respondents who got eight and less correct answers from the 14 knowledge assessment items were assigned in the category of "low level of knowledge", those who score 9-10 correct answers were categorised as having "medium level of knowledge" and finally respondents with an overall knowledge score of 11 and more are considered to have "high level of knowledge".

The six constructs of the HBM were used to assess respondents' attitude towards hypertension and its prevention. There were 37 questions of which 32 of them had response options ranging from strongly disagree to strongly agree, rated on a 1–5 scale. The questions were in the direction that desirable responses were an optimal score. The remaining five questions had options ranging from not at all to always rated on a 1–4 scale under the cues to action construct of the model.

Findings under the HBM are presented in frequencies of responses of each individual question and as a single computed variable, which represents the respective construct. The frequencies were calculated after categorising the five scale (strongly disagree to strongly agree) responses into three (Agree, uncertain and disagree). Composite score to generate a single variable representing the constructs was done after performing

Cronbach's alpha coefficients to make sure reliability of the measurements.Cronbach's alpha of 0.7 and above was considered as evidence of adequate reliability for the constructs (Burns & Grove 2005:374). In this study, a Cronbach's alpha value of 0.71 and more was found among items measuring the constructs.

Phase Two

After consulting different approaches for qualitative data analysis and making sure data on the audio recorder and written notes are transcribed in to paper and translated from Amharic to English, the researcher followed Tesch's eight steps of data analysis for qualitative research.

1.10.8   Rigour and trustworthiness

Phase One

In this phase construct, content and criterion approaches were used to ensure validity in the study and reliability was ensured through pre-testing of the questionnaires in a setting other than where the actual data collection was commenced. Anthropometric and blood pressures measuring equipment were checked every time.

Phase Two

Trustworthiness is the degree to which results of a research can be trusted, findings are believable and gain attention by the reader, which can be ensured using four criteria; credibility, transferability, dependability and confirmability (Mathison 2005:425; Rolfe 2006: 307).

Credibility

In this study, prolonged engagement of the researcher with the study participant is secured because the researcher is a permanent resident of the study area working as a public health specialist in the same region the study is conducted. Findings were presented to colleagues in the field of public health, experts in the field and study participant to make sure the data is not prejudiced to personal interest to compel with the concept of peer debriefing and member check.

Transferability

In this study detail, description of research method, data analysis and interpretation of the findings was done to ensure transferability.

Dependability

Dependability refers to the reliability equivalent of quantitative study that refers to the stability or consistency of data when evaluation is replicated in the same context with the same subject (Polit & Beck 2008:539). In this study, checking the presence of phenomenon by careful documentation of the interviews was upheld.

Conformability

Conformability is researcher's objectivity equivalent of quantitative study which is the analogy between two or more independent people about the accuracy and meaning of data and whether the researcher's claims are from data and ensures that interpretations match data (Polit & Beck 2008:539; Given & Saumure 2008:896). In the current study, the researcher remains faithful to academic and ethical requirement by keeping field notes and audio recordings at a secured place for a minimum of five years.

1.11   ETHICAL CLEARANCE

Ethical clearance was obtained from the Research and Ethics Committee, Department of Health Studies at Unisa to conduct the study. Support letter that indicates the objective of the study was written to SNNPR health bureau from Unisa Akaki Regional Learning Centre. Permission letter was obtained from the SNNPR health bureau and Hawassa City Administration Health Department.

1.12   ETHICAL CONSIDERATIONS

In a study that involves human beings, researchers need to carefully adhere to ethical issues that may arise while conducting a study to protect both the researcher and participants in the course of the study (Liamputtong 2011:32). In this study, the researcher adhered to principles of beneficence, justice, autonomy and non-maleficence.

1.13   SCOPE AND LIMITATIONS OF THE STUDY

The study was carried out in Hawassa City administration located in the SNNPR of Ethiopia. Therefore, this study includes permanent residents of the city administration who lived in the area for more than six months and age greater than 30 years old.

The study focuses on assessing the urban and peri-urban difference of the burden of hypertension, identifying determinate factors of the disease and describing adult age groups knowledge and attitudes on hypertension risky behaviour and prevention. Health care provider perspectives towards efforts exerted for the prevention of hypertension was also explored and guideline for the prevention of the burden of hypertension among adults in Ethiopia were developed.

1.14   STRUCTURE OF THE THESIS

The thesis is divided into the following chapters:

Chapter 1: Orientation to the study
Chapter 2: Literature review for the study
Chapter 3: Research methodology
Chapter 4: Data analysis and presentation of the study findings
Chapter 5: Discussion on research findings
Chapter 6: Guidelines for hypertension prevention among adults in Ethiopia
Chapter 7: Conclusion, recommendation and limitations.

1.15   CONCLUSION

The current chapter presented an overview of the study. The chapter covered introduction, background information, statement of the problem, objectives of the study, the HBM as a theoretical foundation to the study, research methodology and structure of the thesis. Literatures reviewed are presented in the next chapter.

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

The preceding chapter presented the overall orientation of the study. This current chapter present literature review of the study. Literature review lays out the foundation of a particular study and informs the researcher about the existing scientific knowledge gaps regarding the study (Boswell & Cannon 2011:118). The global burden of hypertension, the burden of hypertension in Ethiopia, factors associated with hypertension, hypertension prevention and the HBM are areas covered in the literature review.

A meticulous literature review was conducted after searching for literatures using a key word search like hypertension, factors associated with hypertension, hypertension prevention and health belief model on different databases such as Google Scholar, PubMed and University of South Africa (Unisa) Library. Relevant journals, research reports, WHO reports and books were also consulted to suit the need of literature of the study.

2.2 THE WORLDWIDE PROBLEM OF HYPERTENSION

The World Health Organisation (WHO) Statistics 2012 Report showed that one in three adults worldwide have high blood pressure (WHO 2013). A meta-analysis on prevalence of hypertension in Low and Middle-Income Countries (LMIC) also indicated one in three adults in the developing world is hypertensive (32.3%). Moreover, the systematic review showed that highest estimate (39.1%) was reported from Latin America and Caribbean region (Sarki et al. 2015:4).

Cross-sectional studies conducted in India and Malaysia reported that the prevalence of hypertension to be 50.5% and 27.8% respectively (Rampala, Rampal, Azhar & Rahman 2008:14; Manimunda, Sugunan, Benegal, et al. 2011:290). In the western pacific and

south-eastern Asia regions, the prevalence of hypertension ranges from 5 to 47% in men and from 7 to 38% in women (Martiniuk, Alexandra, Lee, et al. 2007:75).

National diabetes and metabolic disorders study in China among Chinese adults revealed 26.6% of the adults had hypertension (Gao, Chen, Tian, et al., 2013:4). Prevalence of hypertension in Bareilly District of India was found to be 10.81 % (Mahmood, Srivastava, Shrotriya, Iram & Payal 2011:45).

2.3   THE PROBLEM OF HYPERTENSION IN AFRICA

Cross-sectional household surveys conducted in four rural and urban communities with a primary outcome of measuring the prevalence of hypertension showed the crude prevalence of hypertension. Their findings ranged from 19.0% in Tanzania to 32.0% in Namibia and age adjusted prevalence was 19.3% in Nigeria, 21.4% in rural Kenya, 23.7% in Urban Tanzania and 38.0% in urban Namibia (Hendriks et al. 2012:5).

In African countries like Cameroon and Tunisia, community-based multicentre and national cross-sectional study conducted in major cities presented prevalence of hypertension to be 47.5% and 35.1% respectively (Aounallah et al. 2012:3; Dzudie et al. 2012:3).

A large-scale prevalence study of hypertension in the elderly population of the sub-Saharan Africa reported prevalence of hypertension to be 69.9% of which 62.3 % had not been previously diagnosed (Dewhurst et al. 2013:377). In Africa, 40% of the adult population has hypertension (Steven et al., 2013:16). Overall, prevalence of hypertension is 30.6% in Tunisia, 29.4% in Ghana, 46% in Senegal and 23% in Angola (Agyemang, Bruijnzeels & Owusu-Dabo 2006:70; Pessinaba, Mbaye, Yabeta, et al. 2013:181; Capingana, Magalhães, Silva, et al. 2013:3). A cross-sectional study conducted in public sector workers in Angola informed that the prevalence of hypertension among public-sector workers in Angola was 45.2% (men 46.3% & women 44.2%). Prevalence of hypertension in paid workers in Nigeria was 27.1%, (28.4% in males and 22.9% in

females) (Romdhane, Ali, Skhiri, et al. 2012:342; Oghagbon, Okesina & Biliaminu 2008:344).

A cross-sectional study conducted in the rural area of Karimnagar showed the prevalence of hypertension to be 38.5% (Bodhare, Venkatesh, Bele, et al. 2013: 440). A population-based survey in an urban slum in Nairobi showed that age-standardized prevalence of hypertension to be 22.8%, of which 20% of the hypertensive participants were aware of their status (Joshi et al. 2014:4). An analysis of cross-sectional data from Ghana (West Africa) indicated the overall prevalence of hypertension is 29.4 % (Agyemang, et al. 2006: 69).

A community-based study that was conducted in semi-urban community of Nigeria indicated prevalence of hypertension to be 13.3% based on the definition of hypertension at the cut-off point of 160/95. The study concluded that lifestyle changes in the semi-urban community foster the increase in the prevalence of hypertension in the community (Adedoyin, Mbada, Balogun, et al. 2008: 685).

A review from Nigeria indicated the prevalence of hypertension in both men and women ranged from 8% to 46.4%; with regards to gender, the prevalence of hypertension ranged from 7.9% to 50.2% and 3.5% to 6.8.8% in men and women, respectively. The reported prevalence in rural areas ranged from 13.5%-46.4% in both sexes, 14.7%-49.5% in men and 14.3-68.8% in women. Data from urban studies revealed a prevalence range of 8.1%-42.0% in both men and women, 7.9%-46.3% for men and 3.5%-37.7% for women. In general, it is reported that hypertension prevalence was higher in urban than rural areas (Ogah, Okpechi, Chukwuonye, et al., 2012:329).

Studies from sub-Saharan Africa urban and rural adult populations indicate overall prevalence of hypertension to be 16.2% ranging from 10.6% to 26.9% the lowest from Ethiopia and the highest from Ghana and 13.7% in rural area to 20.7% in urban (Twagirumukiza, De Bacquer, Kips, et al. 2011: 1247).

According to the WHO, approximately one billion persons are living with uncontrolled hypertension worldwide. Many studies conducted in different parts of the world show that uncontrolled blood pressure is a common phenomenon among hypertensive patients on treatment. Blood Pressure (BP) control was achieved only in 31.7% of patients in a Turkish study and BP control was more difficult to be achieved in hypertensive patients who are smoker, obese/overweight, and patients with renal disease (WHO 2011:3-18; Seravalle, Koylan, Nalbantgil, et al. 2015: 167).

2.4   THE NATIONAL BURDEN OF HYPERTENSION IN ETHIOPIA

In recognition of the 2014 World Hypertension Day, a cross-sectional survey conducted in Addis Ababa among 2,716 adults indicated that 677 (25%) of the adults have hypertension (Abdissa, Feleke & Awol 2015:24). A systematic meta-analysis on the burden of hypertension in Ethiopia showed the prevalence of hypertension estimated to be 19.6% (Kibret & Mesfin 2015:8). Furthermore, a cross sectional study conducted in 2008 among adults of Addis Ababa City (AAC) showed that age-adjusted prevalence of hypertension or known hypertensive to be 31.5% for males and 28.9% for females (Tesfaye, Byass & Wall 2009:5).

Studies in 2013 at South West Ethiopia and in 2014 at North West Ethiopia revealed that the overall prevalence of hypertension to be 13.2% and 18.1% respectively (Gudina, Michael & Assegid 2013:113; Mengistu 2014:3). The overall prevalence of hypertension was found to be 28.3% in a community-based cross-sectional study conducted among adults in Gondar City, northern part of Ethiopia (Awoke et al., 2012:3).

A community-based study among adults in Durame Town, southern part of Ethiopia showed the prevalence of hypertension to be 22.4%. The same study revealed 40% of those hypertensive patients in the study were detected during study period or found to be screened newly (Helelo, et al. 2014:4). Another cross sectional survey conducted in Sidama Zone of SNNPR of Ethiopia showed the prevalence of hypertension to be 9.9% (Giday & Tadesse 2011:142).

An institutional-based cross-sectional study conducted among federal ministry civil servants revealed prevalence of hypertension to be 27.3 % (Angaw, Dadi & Alene 2015:4). A community-based cross-sectional survey conducted in Bedele Town among adults revealed prevalence of hypertension to be 16.9%. The study showed only 44.8% of the hypertensive participants were aware of their status (Gudina, Bonsa & Hajito 2014:23).

2.5   FACTORS ASSOCIATED WITH HYPERTENSION

A study form China presented one between two (56.5%) elderly people aged 65 years is hypertensive, which shows the strong association of hypertension increasing with age. In the same study, it was reported that prevalence of hypertension was higher among rural residents compared to urban residents in economically developed regions of China (Gao et al. 2013:5).

In India, a study showed that having consumed alcohol in the last 30 days was significantly associated with hypertension (Manimunda et al. 2011:290). NCD risk factors such as age, gender and overweight or obesity were reported as predictors of hypertension in Nigeria (Okpechi et al. 2013:5).

A cross-sectional study conducted at Gilgel Gibe Field Research Centre reported prevalences of determents factors of hypertension to be 9.3% for smoking, 7.3% for alcohol consumption, 27% for fruits and vegetables consumption below adequate level ,16.9% for low physical activity, and 38.6% for chat chewing (Alemseged, Haileamlak, Tegegn, Tessema, et al. 2012:22).

Being over 30 years, having a family history of hypertension, BMI ≥25 kg/m2, and excess meat consumption were found to be significantly associated with hypertension whereas tea drinking was found as a protective factor for hypertension from a study in Sidama Zone (Giday & Tadesse 2011:142).

A meta-analysis in Low and Middle-Income Countries (LMIC) showed that there was no significant difference in the burden of the disease between male and female. Rather older age (>65 years), not having formal education, overweight/obese and urban residence were factors strongly associated with hypertension (Sarki et al 2015:9). Moreover, obesity or higher BMI and increase in age are strongly associated with hypertension (Hendriks et al., 2012:5).

A study from Ethiopia reported age and BMI were significantly associated with mean systolic blood pressure and diastolic blood pressure in males and females, while educational level was inversely associated with both blood pressures in males. Current daily smoking was strongly associated with hypertension while the level of total physical activity was inversely associated with Systolic Blood Pressure (SBP) in males (Tesfaye, et al. 2009:5).

Studies showed that having hypertension increased with in males and with decreasing levels of education in Malaysia, Nigeria and India (Rampala et al. 2008:14; Manimunda et al. 2011:290; Okpechi et al. 2013:5). However, in Tunisia, the prevalence of hypertension was higher among women than men and it was more prevalent among the illiterate group in comparison with the lower and intermediate or higher education level groups. In the same study, hypertension was found to be more prevalent among widowed/divorced subjects (Romdhane et al. 2012: 342).

A cross-sectional study has shown association between hypertension with overweight/obesity in India, in Nigeria and in north-west Ethiopia (Manimunda et al. 2011:290; Okpechi et al. 2013:5; Mengistu 2014:4). In line with this, a survey in Senegal reported that hypertension was associated significantly with obesity and diabetes (Pessinaba et al. 2013:182).

Prevalence of hypertension was significantly higher among individuals aged 40 years and above, with high BMI (Mahmood et al. 2011: 46). Increased age, cigarette smoking, family history of hypertension, self-reported Diabetes Mellitus (DM), and BMI > 25 kg/m^2 were found to be significantly associated with hypertension (Angaw et al. 2015:4). A population-

based study in Eastern Uganda identifying peri-urban residence, increasing age and being over-weight were factors associated with being hypertensive (Mayega, Makumbi, Rutebemberwa, et al. 2012:5).

Being unmarried among women is identified to be factors associated with hypertension in a population-based survey in rural Uganda (Maher, Waswa, Baisley, Karabarinde & Unwin 2011:1066).

In study from Ethiopia, it was found that participants who had self-reported diabetes were about four times more likely to be hypertensive. Those who did not walk at least for 10 minutes continuously on daily basis were about three times more likely to be hypertensive. Compared to those having normal BMI, obesity were significantly associated with hypertension (Awoke et al. 2012:3). A case control study in north Ethiopia reported the association between work involving vigorous intensity physical activity that cause large increases in breathing or heart rate was protective from hypertension (Bayray & Berhe 2012: 4209).

In Ethiopia, the association of hypertension for those who have used tobacco in their lifetime is higher than those who never used tobacco and also there is significant association between alcohol consumption and hypertension (Getahun et al. 2010). Cigarette smoking, alcohol consumption and chat chewing were associated with increased mean Diastolic Blood Pressure (DBP) in Addis Ababa (Prevett 2012:1). Similar study conducted in Butajera, southern Ethiopia indicated chat chewing is high risk of developing hypertension. However, another cross sectional study revealed that there was no significant association between smoking and hypertension in south-west Ethiopia (Getahun & Tesfaye 2010; Gudina, et al. 2013:114).

A hospital-based cross-sectional survey in south west Ethiopia reported the prevalence rate of hypertension was found to be high in diabetic individuals than in non-diabetic individuals and family history of hypertension were associated with high blood pressure (Gudina, et al. 2013:114).
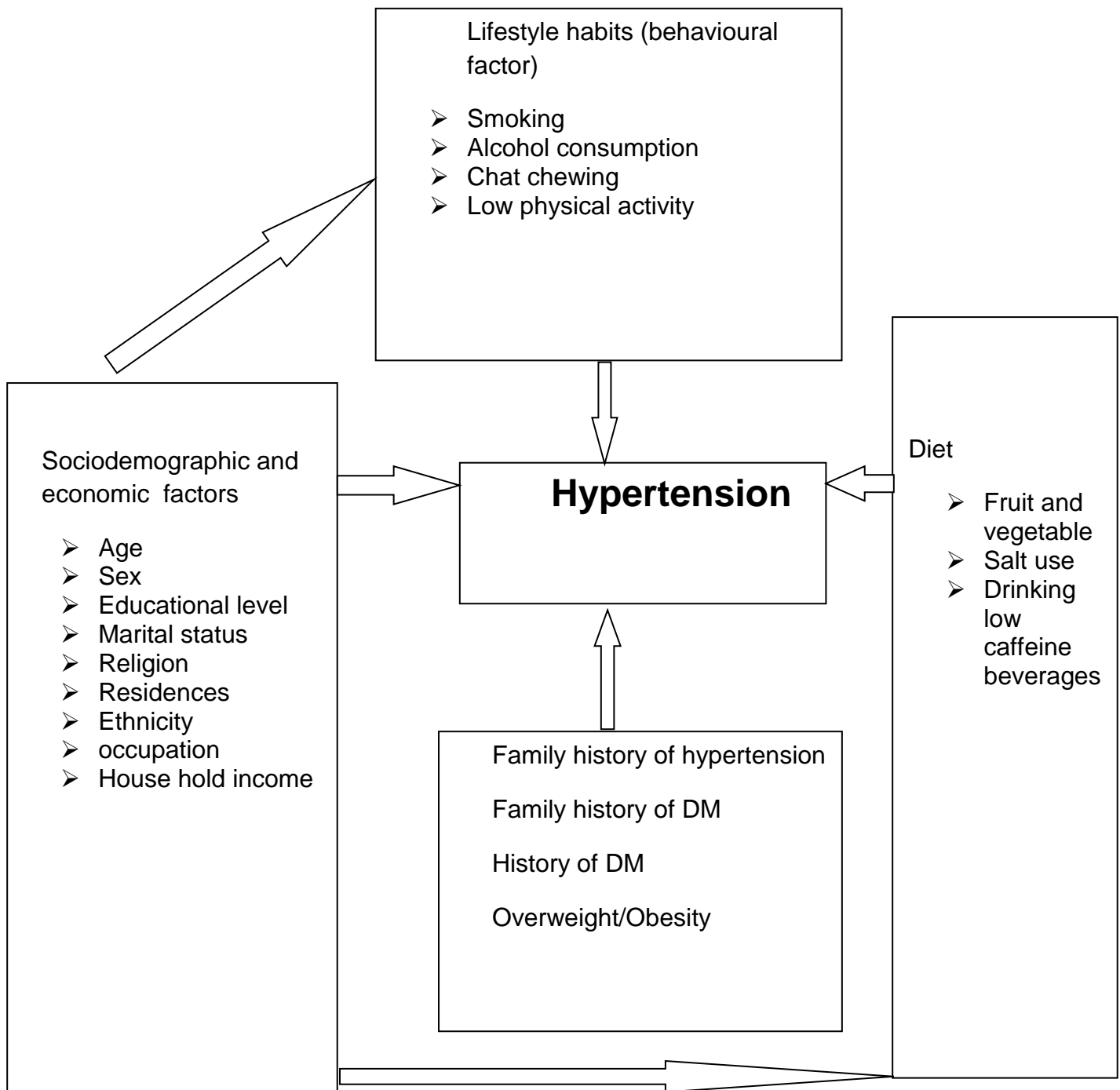
Figure 2.1 : Conceptual frame work of hypertension and associated factors

2.6   LEVELS OF HYPERTENSION PREVENTION

Generally, disease prevention is categorised into three levels: the primary, secondary and tertiary level of disease prevention. The primary level disease prevention is aimed at reduction of the risk factors of a disease thereby avoiding its occurrences in the future (WHO 2018).

As one of the preventable diseases, hypertension prevention is undertaken at all levels of disease prevention that is at the primary, secondary and tertiary level of disease prevention (WHO 2018). Hypertension prevention and control is achieved by both non-pharmacological and pharmacological interventions. In order to prevent and treat hypertension, parameters like nutrition, body weight and physical exercise should be evaluated and considered for improvement (Vamvakis, Gkaliagkousi, Triantafillou, et al. 2017:2).

Primary prevention is prevention of hypertension before it happens, which is the first and the most important step to interrupt and prevent the disease before its management become costly and complicated (Addo, Agyemang, Smeeth, et al. 2012:4). Although globally, improvement has been seen in awareness, treatment and control of hypertension still there are gaps in securing the cost effective hypertension prevention strategies sustainably (Shrivastava, Shrivastava & Ramasamy 2014 :809).

Engaging in regular aerobic physical activity and maintaining a normal BMI, reduction of dietary salt intake to not more than 100mmol/day, moderation in alcohol intake, maintaining adequate intake of dietary potassium and consumption on a diet rich in fruits and vegetables and low in fat dairy products, have been shown to be beneficial in the prevention of hypertension (Addo et al. 2012:5). Evidence suggests that individuals who perform regular physical activity have low mortality risk than individuals with sedentary lifestyle (Keith & Daichi 2013:664; Hegde & Solomon 2015:80). Vigorous physical activity seemed to be more important than moderate and light activity to induce beneficial effects on prevention of hypertension (You, Teng, Wang, et al. 2018:4). Exercise is medicine. Australia factsheet (2014) reported that on average, exercise reduces blood pressure by

about 6–7 mmHg. If systolic BP is reduced by 5 mmHg, deaths from strokes decrease by 14% and deaths from coronary heart disease decrease by 9%.

Preventing hypertension through dietary intervention includes adopting a dietary pattern such as eating less saturated fat and total fat, getting plenty of potassium, limiting the amount of sodium in the diet and limiting alcohol consumption (Bazzano, Green, Harrison & Reynolds 2013: 697). As evidenced by different studies, lowering BMI and fat percentage has significant role in the primary prevention of hypertension (Dua, Bhuker, Sharma, et al. 2014:93).

In Finland, a population-based observational study of primary prevention on risk factor of CVD has showed a positive trend in the reduction of the disease after executing activates like anti-smoking campaigns and promotion of dietary change. A report in the same study stipulated that activities that were not common in Finland in the 1970s, like the physical inactivity and obesity. The latter went in the unfavourable direction, which become evident health problems later on. In the same way, total alcohol consumption has doubled in Finland in the past four decades (Jousilahti, Laatikainen, Peltonen, et al. 2016:4-5).

To engage on hypertension prevention, an individual's measurement of their blood pressure is pivotal. However, a study from Poland reported that vast majority of respondents did not measure blood pressure regularly and the majority of the female respondents are problematic to keep their body weight in the normal range. In the same study, behavioural and nutritional preventions were assessed and alcohol consumption behaviour was less favourable and in the nutritional side men's diet contains more calories and less fibre because men eat far less fruit and vegetables. Moreover, reduction of salt intake is the other important element of hypertension prevention which is reported by more than half of the respondents that they try not to over use salt which is considered to be positive phenomena (Jana, Ewelina, Anna & Piotr 2013:222).

The preceding paragraph mainly concentrated on primary prevention and its ultimate goal is to introduce measures to be taken before it happens. There are also measures targeting

to prevent the severe stages of hypertension and basically focuses on control of the blood pressure level as narrated form different literatures reviewed.

Secondary prevention measures are those that identify and treat persons who have already developed a disease. Secondary prevention is a two-step process involving a screening test and follow-up diagnosis and treatment for those with the condition of interest. Most secondary prevention actions are done in clinical settings. Therefore, patients' presence at health facilities needs to be utilised to the maximum for disease prevention (Fletcher, Fletcher & Fletcher 2014:154).

Uncontrolled hypertension potentially increases the risk of developing complications of hypertension with grave consequences on the individual, family and the entire society. Ignoring the need to institute effective prevention strategies now would certainly result in a greater burden with increased challenges in the near future (Addo et al., 2012:9).

Although antihypertensive therapy clearly reduces the risks of cardiovascular and renal disease, large segments of the hypertensive population are either untreated or inadequately treated and the detection, treatment and control of hypertension are inadequate worldwide (WHO 2011). The overall goals of antihypertensive therapy are to lower both systemic and intraglomerular pressure. Lowering systemic blood pressure can, but does not invariably reduce intraglomerular pressure. However, angiotensin converting enzyme inhibitors and angiotensin receptor blockers will lower intraglomerular pressure in a manner that is not directly dependent on reducing systemic BP (Hollenberg 2000: 198).

The rate of adequate BP control was less than 50% in Japan and was even worse in patients with diabetes. Percentages of persons with controlled hypertension are significantly higher among persons who were married and reported using lifestyle modification to control their hypertension (Mori, Ukai, Yamamoto, et al. 2006:147; Maginga, Guerrero, Koh, Het al. 2015: 212).

Inadequate diagnosis and suboptimal control of hypertension is a major driver of cardiovascular morbidity and mortality in Africa. A systematic review in Africa shows a uniformly low control rate of hypertension, which never exceeds 45% among adults on treatment (Kayima, Wanyenze, Katamba, Leontsini & Nuwaha 2013:4). According to a Tanzanian study on hypertensive adults, the BP is controlled only for less than half (47.7%) of the patients at the study visit and 28.3% over three consecutive visits (Maginga et al. 2015:210).

Aggressive treatment of hypertension is effective in reducing both microvascular and macrovascular complications in type 2 diabetes and target BP less than 130/85 or 130/80 mmHg are ecommended. Inhibition of renin angiotensin aldosterone system plays an essential role in the treatment of hypertension and diabetes-related complications (Deferrari, Ravera, Deferrari, et al. 2002:225).

A study examining Knowledge Attitude and Practice (KAP) on hypertension among adults from Seychelles Islands (Indian Ocean) concluded that most adults who are hypertensive, non-hypertensive or unaware hypertensive had good knowledge about risk factors of hypertension owing to the effect of a nationwide cardiovascular disease prevention programme. Positive attitudes and appropriate practices for hypertension prevention were found in few of the participants in the same study (Aubert, Bovet, Gervasoni, et al. 1998:1138).

Every adult with hypertension should have a clear, detailed and current evidence-based plan of care that ensures the achievement of treatment and self-management goals; effective management of co-morbidity conditions; timely follow-up with the healthcare team; and adheres to CVD evidence-based guidelines (Long & Dagogo-Jack 2011:248).

2.7 THE HEALTH BELIEF MODEL

2.7.1 Introduction

The HBM was developed in the USA's public health service by three social psychologists Hochbaum, Rosenstock, and Kegel. The Model attempts to explain and predict health behaviours focusing on the attitudes and beliefs of individuals (Hochbaum, et al. 1952).

Many theories and models of behaviour postulate that beliefs play a major role in explaining behaviour. The HBM put forward that individuals will engage in preventive health behaviour if they believe themselves threatened by an illness or condition and believe that the benefits of taking preventive action outweigh the barriers to or costs of the said action (Burak & Meyer 1997:251). Most importantly, The Model suggests that factors may motivate people to consider a change in behaviour and may be in the form of health messages from the media or health professionals, illness of self or relative (Watkins & Cousins 2010:104).

According to Ersin and Bahar (2013:4979), the HBM is effective in determining the impeding factors in disease prevention activities. In the HBM, individuals consider the positive and the negative results of the behaviour in the perceived barrier and consequentially will turn the behaviour into an action or not. The HBM argues that the perceived severity of any problem, perceived susceptibility as well as the perceived effectiveness of available solutions strongly influence the adoption of perceived susceptibility.

2.7.2   The constructs of HBM

2.7.2.1   Perceived susceptibility

Perceived susceptibility refers to individual's belief that he or she has regarding the likelihood of getting a disease or harmful condition because of pandering to a certain behaviour. In other words, perceived susceptibility is one's opinion of the chance of vulnerability to a certain health condition (Day, Dort & Tay-Teo 2010). This domain of the model tells us that the extant of individual's motivation to act in healthy way depend on his or her belief of vulnerability to particular outcomes of activates influencing on his/her health. The more individuals perceived risk of a condition, the more likely that individual engages in behaviours that decrease the risk, there for variation in perception of individuals to a certain condition highly depends on his or her perception of susceptibility (Ali & Tonekaboni 2009:29).

Onoruoiza, Musa, Umar and Kunle (2015:14) used HBM in their study as an intervention to non-compliance with hypertension information. They found that perceived susceptibility is very important in order to ensure compliance. Before one will accept a diagnosis of hypertension and follow a prescribed treatment regimen, one must believe that she or he can have the condition without symptoms. The research further suggests applying the perceived susceptibility construct of the HBM by hypertension information programmer who is interested in designing a programme. This will ensure compliance asking questions like "What are the perceptions of peoples about hypertension and its complications, and what are the cultural beliefs that guide the knowledge of hypertensions?"

A cross-sectional study among adults in Diepsloot Township on age-group differences in risk perceptions of NCD based on the HBM presented factors like family medical history and smoking. The latter were significantly associated with age groups in the perceived susceptibility construct. The middle-aged adults perceived that these factors that would increase their risk of NCDs than young and older-aged adults. In the same study, it was revealed that greater proportion of middle-aged adults compared with young and older-

aged adults perceived family history and smoking as risk factors that would increase their risk of NCDs (Kaba, Khamisa & Tshuma 2017:800).

2.7.2.2 Perceived severity

Perceived severity is defined as how serious an individual believes of developing disease will be and its consequences are. The domain deals with if an individual believes or not that the condition or acquiring illness is very serious with the consequences of certain behaviour. If the unhealthy condition will not have serious impact, individuals might not take preventive action to avoid even if when at risk of the condition (Ali & Tonekaboni 2009:29).

Perceived severity is the sense of seriousness of the disease. Therefore, before one will comply with hypertension information, one must perceive that it can lead to strokes and heart attack. It is dangerous to ignore high blood pressure because this increases the chances of life threatening complication (Onoruoiza, Musa, Umar & Kunle 2015:15). For hypertension information programmer, it is figured out that the question how people understand the consequences of hypertension to be asked in the perceived severity construct as far as one must perceive that ignore high blood pressure increases the chances of life threatening complication (Onoruoiza, et al. 2015:15).

In a study from South Africa, which used the perceived severity construct to show relation of age and factors of hypertension, it was reported that higher proportion of older-aged adults than young and middle-aged adults perceived effects on life and family and adverse thoughts as risks of NCD (Kaba, Khamisa & Tshuma 2017:799).

2.7.2.3 Perceived benefit

Perceived benefit is an individual's subjective opinion of the result of the evaluation of preventive action actually preventing disease.

The drive to get into changing behaviour needs the belief that the deterrent behaviour will effectively prevent the condition. In this domain of the model, the individual must perceive that the target behaviour will provide strong positive benefits. If the target behaviour believed to be acted by the individual do not work out to prevent disease, then the tendency of adopting the preventive behaviour will be minimal (Ali & Tonekaboni 2009:29).

In a study conducted by Onoruoiza et al. (2015: 14), the benefits of complying with hypertension information was linked under the construct of perceived benefit and knowledge was shared on how noncompliance to hypertension information can be averted. In the attempt made by a study under the perceived benefits construct of the HBM factors like physical activity, healthy lifestyle, weight management, not smoking and regular health check-ups were significantly associated with age group, where more older-aged adults perceive the usefulness of these factors as NCDs preventive measures compared with young and middle-aged adults (Kaba, et al. 2017:801).

2.7.2.4   Perceived barriers

Perceived barrier is defined as an individual's subjective evaluation of the hindering factor associated with the target behaviour. Individuals think about hindering factors or barriers of performing preventive action, despite his or her belief about the benefit of taking the action in reducing the threat and subjectively evaluate if the barrier outweighs the benefit. If an individual accept that an action is problematic to act it may not be done. This includes costliness of activity versus resource at hand, accessible, skill needed, pain, and inconveniences (Champion & Skinner 2008:50).

"Perceive barrier, the belief that benefit of complying with hypertension information must outweigh challenges of complying with hypertension information" (Onoruoiza, et al. 2015:15). It is suggested that using the perceive barrier construct question like what challenges are there using information about hypertension and how can challenges in attempt to comply with hypertension information be overcome can be entertained by researchers (Onoruoiza, et al. 2015:15).

Kaba et al (2017: 801) report the perception of health check-ups as a time-consuming process, which is among the potential barriers to prevent risks of NCDs. This is manifested on more young adults compared with middle-aged and older-aged adults perceived health check-ups as a time-consuming process.

2.7.2.5   Cues to action

This domain of the HBM is one of the lately added on the four domains of the model discussed earlier. Cues to action could include mass media information, advice from others, illness of family member or friend, and negative change in bodily state (Watkins & Cousins 2010:104).

Studies suggest applying cues to action and reaching at evidence of, what internal and external factors make individuals to act promptly on information about hypertension. Cues to action such as messages on television, radio, social media, print material, and text messages can be used to instigate compliance to hypertension information (Onoruoiza, et al. 2015:15). In a study conducted to determine predictive power of the HBM constructs in self-care behaviours of patients with hypertension cues to action was a significant and positive relationship with self-care behaviours (Kasmaei, Yousefi, Farmanbar, Omidi & Hassankiadeh 2015:8). In the cues to action, another study showed perception of eating small portions to improve health outcomes of NCD was significantly associated with age group. This association was greater among middle-aged adults compared with young and older-aged adults (Kaba, et al. 2017:801).

2.7.2.6   Self-efficacy

Like the cues to action, self-efficacy was the other variable added to the model lately. Self-efficacy refers to one's ability in performing the health behaviour. People may not want to attempt to do something new unless they think that they can do it. If a person has high perceived benefit of acting on a certain health behaviour but does not believe that he/she have the ability to do it, the probability of engaging into the new behaviour will be less (Champion & Skinner 2008:49).

A study conducted to determine the association between self-efficacy of individuals' perception of having the ability to actively work on health to prevent risk of NCDs against their age showed significant association, where the association was higher among middle-aged adults than young and older-aged adults (Kaba, et al. 2017:801). If people consider that they can manage it they are in a high probability that they develop a health behaviour. A question like "What are the factors that shape individuals to comply with hypertension information?" is suggested to be addressed using the self-efficacy construct of the HBM (Onoruoiza, et al. 2015:15).

Individual perceptions   **Modifying factors**   **Likelihood of action**

```
                        ┌──────────────────────┐    ┌──────────────────────┐
                        │ Demographic variables │    │ Perceived benefits of │
                        │ (Age, sex, Ethnicity, │──▶ │ preventive action     │
                        │ etc...)               │    │ versus perceived      │
                        │ Socio-economics,      │    │ barriers to           │
                        │ Knowledge             │    │ preventive action     │
                        └──────────────────────┘    └──────────────────────┘
```

```
┌──────────────────────┐    ┌──────────────────┐    ┌──────────────────────┐
│ Perceived            │    │ Perceived threat │    │ Likelihood of taking │
│ susceptibility to    │──▶ │ of Hypertension  │──▶ │ recommended          │
│ Hypertension         │    │                  │    │ preventive action    │
│ Perceived severity of│    │                  │    │                      │
│ Hypertension         │    │                  │    │                      │
└──────────────────────┘    └──────────────────┘    └──────────────────────┘
```

```
                        ┌──────────────────────┐
                        │ Cue to action         │
                        │ Mass Media information │
                        │ Advice from others    │
                        │ Illness of family     │
                        │ member or friend      │
                        └──────────────────────┘
```

Figure 2.2: Adapted from Janz & Becker (1984)

2.8   CONCLUSION

This chapter reviewed literature on the global burden of hypertension, the burden of hypertension in Ethiopia, factors associated with hypertension, hypertension prevention and the HBM. The next chapter presents research methodology used in the study.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1   INTRODUCTION

The previous chapter reviewed literature on the worldwide problem of hypertension, the problem of hypertension in Ethiopia, factors associated with hypertension, hypertension prevention and the HBM. The current chapter presents the method used in the stud. Purpose and objectives, the design used in the study are described in detail in their respective sections, which are presented as phase one for the quantitative part and phase two for the qualitative part.

3.2   RESEARCH PURPOSE AND OBJECTIVES

3.2.1   Research purpose

The purpose of the study was to develop guidelines for the prevention of hypertension among adults in Hawassa City, Ethiopia.

3.2.2   Research objectives

- To determine the urban and peri-urban difference in the burden of hypertension.
- To identify factors associated with hypertension.
- To explore and describe adult age groups knowledge and attitudes regarding hypertension risky behaviour and prevention.
- To explore health care provider's perspectives regarding efforts exerted for the prevention of hypertension.
- To develop guidelines for the prevention of hypertension as NCD in Ethiopia.

3.2.3   Research questions

The research questions in this study are:

- What is the burden of hypertension in the urban and peri-urban area?
- What are the determinate factors of the hypertension?
- How is the knowledge and attitudes of adult age groups regarding hypertension risky behaviour and prevention?
- What are health care provider's perspectives regarding efforts exerted for the prevention of hypertension as non-communicable disease?
- What can be done to prevent hypertension as non-communicable disease?

3.3   RESEARCH APPROACH

According to Creswell (2014:29), research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation.

Generally, there are three approaches to research: qualitative, quantitative and mixed method. These approaches are not separate entities, especially the mixed method is found incorporating or mixing components of both qualitative and quantitative approach with in a single study. A mixed method approach involves collecting, analysis and interpretation of both qualitative and quantitative elements to produce a fuller account of the research question (Glogowska 2011:253; Creswell 2014:29).

Often times, the reasons for using mixed methods research designs is corroboration, complementarity, development, initiation, and expansion. In the expansion the depth and breadth of the study is expanded by using different methods for various components of the research (Halcomb & Hickman 2015:5).

The rationale of selecting a research approach should be based on the research question to be addressed. The current study used mixed methods approach. Both quantitative and qualitative approaches were used for the purpose of expansion of the study were each approach have equal status in their respective phase's. The two phases of the study used the two methods to expand the depth and breadth of the study so that the study findings can sufficiently answer the objective of the study and to minimise possible bias that may arise when using a single research method.

3.4   PHILOSOPHY

Philosophical approach is the lens through which a researcher sees the world. According to Creswell and Clark (2011), different philosophical stances are existing on implementing worldviews in mixed methods research that underpin the entire study. The most common approaches are critical realism, transformative and pragmatism. Pragmatic approach is widely used by most mixed method researches who aim at looking what works to reach at the answers of research questions (Halcomb & Hickman 2015:5). Pragmatism focuses on solving problem in the ''real world'' by avoiding the argumentative issues of truth and reality (Feilzer 2010:3; Glogowska 2011:254).

In the current study, pragmatic stances was followed after evaluating the approach in different literatures, examining the extent to which it is used and how it fits the proposed study in terms of reaching at answers to the research question.

3.5   RESEARCH DESIGN

Research design is the blue print or overall plan and architectural building block of how the study is to be conducted starting from the conception to responses of research questions under investigation, which maximise advantage of controlling over factors that could interfere with the desired outcomes of the study finding (Polit & Beck 2014:51; Grove, Burns & Gray 2013:43).

Sequential explanatory, sequential exploratory, embedded or nested and parallel or concurrent are research designs of the mixed methods. In the sequential explanatory design qualitative data are collected to explain the quantitative findings whereas in the sequential exploratory quantitative data build on qualitative findings to provide generalisability. On the contrary, the embedded or nested design is used to obtain different data to answer a complementary research question (Halcomb & Hickman 2015:8).

The parallel mixed method design is design with two independent phases aimed to obtain different but complementary data to answer single research question, one with qualitative data collection and analysis techniques and the other with quantitative data collection and analysis techniques alongside or with a time lag (Halcomb & Hickman, 2015:8). This study utilised a parallel mixed method design, which is conducted in phases, as follows:

- In Phase 1, a community based comparative cross sectional design was used to determine the urban and peri-urban difference in the burden of hypertension and to identify associated factors and describe adult age groups knowledge and attitudes regarding hypertension risky behaviour and prevention.

- In Phase 2, a qualitative study design was used to explore health care provider's perspectives towards efforts exerted for the prevention of the disease.

- In Phase 3, a guidelines were developed following the results of phase one and phase two of the current study, reviewing relevant aspects of literatures, the researcher's insights and exploring expertise opinion using a Delphi technique.

Both quantitative and qualitative approaches have equal status in their respective phases.

3.6   RESEARCH METHOD

3.6.1   Study area

The study was carried out in Hawassa City administration. Hawassa City is located in the SNNPR on the shores of Lake Hawassa in the Great Rift Valley; 273 kilometres south of the capital, Addis Ababa via DebreZeit and 1125 kilometres north of Nairobi, Kenya.

Hawassa is serving as the capital of the SNNPR city. The city lays on the Trans-African High Way- 4 an international road that stretched from Cairo (Egypt) to Cape Town (South Africa). Geographically, the city is located between 7^03' latitude north and 38^0 28' longitudes east.

Hawassa City is bounded by Lake Hawassa in the west, Oromia region in the north, Wendogenet woreda in the east and Shebedino woreda in the south. The City administration has an area of 157.2 km^2, administratively divided in to eight sub-cities (which is an administrative unit between city administration and kebele): Hawela-Tula, Hayek Dare, Menehariya, Tabore, Misrak, Bahile Adarash, Addis Ketema and Mehal Ketema. Of the eight sub-cities Hawela-Tula is the only sub-city in the peri-urban area of the City administration. The total number of kebeles are 32 where kebele is the lowest administrative level.

The mean annual precipitation is 72.21 mm. Temperatures vary between 6°C in winter and 34°C in summer. The city experiences sub-humid type of climate. The average annual temperature is 20.6°c. Hawassa gets rainfall twice in a year owing to the City's location in rift valley and nearby lake.

The potential health coverage of the City administration is 100%. There are seven health centres, one referral hospital, one-district hospitals, three private hospitals, 15 health posts, 47 private clinics, 47 drug stores, 12 diagnostic laboratories and 12 pharmacies in the City administration.
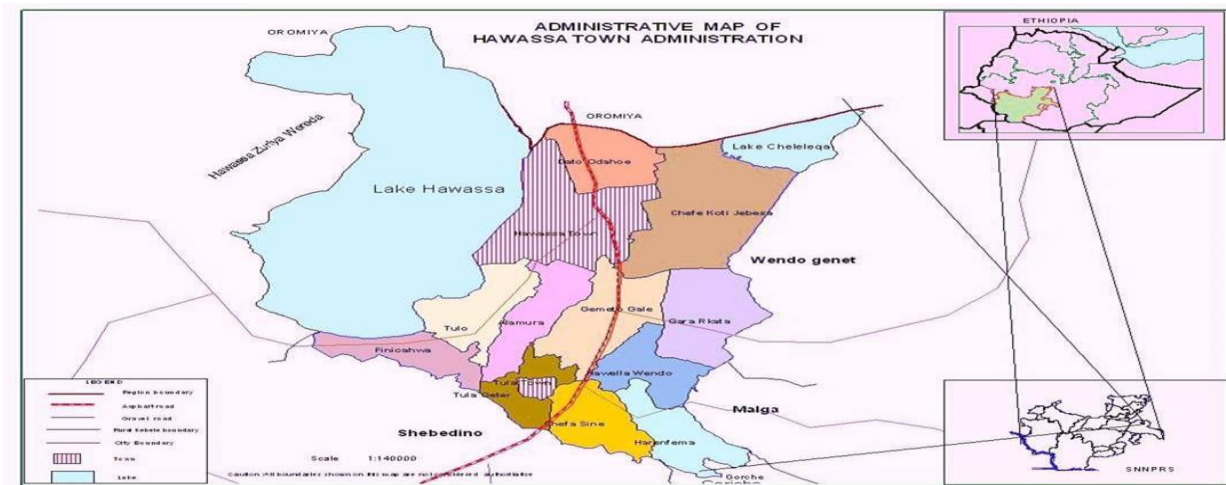
Figure 3.1: Administrative map of Hawassa City Administration SNNPR, Ethiopia,
(Hawassa City Administration Health Department)

3.6.2 Phase I Quantitative approach

3.6.2.1 Population

Population is a total group of persons or objects that is of interest to a study to make conclusion based on sample (Yin 2011:99). According to the population projection of Central Statistics Agency (CSA), Hawassa City administration has a population of 351,567 people out of which 170,510 are female and 181,057 are male. Out of the total number of the population of the administration 250,777 people live in urban area and the remaining 100,790 peoples live in the peri-urban area of the administration. However, the population for this study is permanent dweller adult's age greater than 30 years old of the City administration.

3.6.2.2 Eligibility criteria

Eligibility criterion is defined as list of characteristics essential for eligibility in the target population (Burns & Grove 2005:342). In this study, adults (age >30) who lived six months and/or more in the study area were included in the study and pregnant women's of

gestational age greater than five months were excluded to avoid over estimation due to pregnancy induced hypertension.

3.6.2.3 Sampling technique

A multi-stage sampling technique was used to select the study participants. At first stage, three sub-cities were selected out of the eight sub-cities in the City administration; two urban sub-cities (Hayek Dare and Addis Ketema sub-city) were selected randomly and one peri-urban sub-city (Hawela-Tula sub-city) was selected purposively. Hawela-Tula sub-city was selected purposively because it is the only peri-urban sub-city in the City administration two urban sub cities were selected in order to maintain the assumption of one to two proportion of urban and peri-urban area.

Simple random sampling was used in the second stage to select nine kebele's among kebele's found in the three sub-cities. Then based on number of households in the kebele the required sample size was determined by proportional allocation to each kebele. The actual households from which the data is to be collected was determined by using a simple random sampling technique from the list of households with its composition generated in the kebeles as sampling frame. A sampling frame is a list of the entire target population (Guest & Namey 2015:513).

After selecting households' random sampling method was used to select one adult in households where there are more than one adult in a household fulfilling the eligibility criteria of the study.

3.6.2.4 Study sample

Sample size in this phase is calculated by using Raosoft sample size calculation software (Rao soft 2004) at 95% confidence interval, margin of error 0.5, 80% power of the study and 1 to 2 ratios and proportion of 50%. A sample size of 384 was generated. However, by anticipating a non-response rate of 10% and considering design effect of 1.5. A final

sample size of 633 respondents, which was adequately powered to estimate the process parameters, was generated.

3.6.2.5   Data collection

Data collection is a means of gathering required information in detail from different sources (Yin 2011:49). The data were collected using a structured questionnaire.

3.6.2.6   Data collection tools

Structured questionnaire organised based on review of similar literature and WHO STEP wise approach to surveillance a non-communicable disease instrument adapted in line with the local context was used to collect data for this phase (WHO 2005).
The instrument contained six sections:

Section I: Demographic and Socio-Economic variable
There are 12 questions used to record demographic and Socio -economic data of respondents. These included: permanent residence, sex, age, marital status, level of education, religious affiliation, ethnicity, occupation, household size, income, owner ship of the house and house hold asset. Other 14 questions were used to collect data to comput wealth index based on house hold asset.

Section II: Knowledge of respondents regarding hypertension prevention
Twelve questions were prepared to gather data on knowledge of respondents regarding hypertension prevention.

Section III: Health Belief Model Concepts
Thirty-seven questions were used to measure the HBM. These include eight questions for perceived susceptibility to hypertension, 11 for perceived severity, five items for perceived benefit of practicing hypertension prevention activities, seven items to assess perceived barrier to practice hypertension prevention activities, five questions for cues to taking action of preventing hypertension and one question for self-efficacy.

Section IV: Behavioural Measurements

There are thirty-three questions used to record behavioural information of respondets that include cigarettes use, alcohol consumption, chat chewing, coffee consumption, diet, salt consumption, physical activity, travel to and from places, and recreational activities.

Section V: History of raised blood pressure and co-morbidity

Five questions were prepared to gather data on history of raised blood pressure and co-morbidity.

Section VI: Physical Measurements

Five items were used to capture the physical measurements of respondents. These include height, weight and three separate measurements of blood pressure.

3.6.2.7   Data quality assurance

To assure the data quality, the questionnaire was translated from English into Amharic, considering the ease of comprehension of respondents and was again translated back to English by language expert to check the consistency of meanings.

Nine data collectors with one assistant for each and three supervisors were recruited among health professionals working in public health facility and universities in Hawssa city based on their experiences on data collection and supervision. All the three supervisors were master degree holders in public health and six of the data collectors were Bsc nurses the reaming three were health officer.

The principal investigator trained the data collectors and supervisors on the data collection techniques, ethics and measurements for three days. During the training mock data collection was performed among data collectors so that they can get accustomed to the tool and to make sure that they have understood the training well before going to the field for pre-test.

The instrument was pre-tested in two urban (Negat Kokeb & Andenet) and one per-urban kebeles (Cheffe Kotejabesa) on a total of 27 households, which were not selected for the actual study. During the mock data collection, at the training section and the pre-test on the field to test the tool, limitation were identified and improvements were made to maintain the reliability as noted in the next paragraph.

In section one of the tool a questions asking about what wall and floor of house is made of (code 111 and 112) were omitted because it was observed that the variable do not have any meaning to measure in association with the preceding question; the owner ship of house(code 110). In section two leading questions were rephrased (code210-217) and order of questions were re-shuffled to get a smooth flow by maintaining coherency of questions. Redundant questions were omitted (code 204) and new question was added following to question do you know where to get measured for blood pressure like asking where the place is. In section three double barrelled questions were merged in to one (code 308) and questions which have similar concept and which give the same meaning when asked were merged together. In section four questions were re-shuffled and vague questions were given an explanation (300ml for beer, tea cup for local drink) (code 409).

All the code numbers in the brackets mentioned in this above are as per pretested version of the instrument.

To assure fidelity and how data collectors are abiding to ethical issues during the twenty days of data collection data collectors were having a meeting with supervisors each night to discuss what happened on the day. The filled out questionnaire were collected by supervisors at the meeting after checking for the completeness and the next day supervisors were making a random visit to marked house at which data were collected if they were really visited or not by the data collectors. Each day all the questionnaire were submitted to the principal investigator.

3.6.2.8 Data collection period and procedure

Data were collected from February to March 2017 using interview followed by BP measurement and responses were recorded on the data collection tool by the trained

data collectors. So far as the study is community based study data collectors made home to home visit to the selected households to collect data and all interviews and measurements were made in a manner that maintain the privacy of participants. During the BP measurement, three separate measurements were obtained on the left upper arm of the seated subject using aneroid sphygmamometer of an appropriate size. The average of the last two readings was taken as the blood pressure of the participant. The BP measurement was obtained after the subject had rested for at least five minutes in a seated position and with 15 minutes interval. It was assured that the subjects have not consumed any hot beverages, such as tea or coffee, smoked cigarette or undertaken any vigorous-intensity physical activity within the last 30 minutes preceding the interview. If so, the measurement was postponed the next 30 minutes. The height of the participant was measured at standing upright position on bare footed with 0.1 cm resolution and weight of participant wearing light cloth with 0.1 kilogram resolution.

3.6.2.9 Variables of the study

Dependent variables

Hypertension/ Not Hypertension

Independents variables

Sociodemographic and economic factors

- ➢ Age
- ➢ Sex
- ➢ Educational level
- ➢ Marital status
- ➢ Religion
- ➢ Residences (urban/peri-urban)
- ➢ Ethnicity
- ➢ Occupation
- ➢ House hold income
- ➢ Household population size

Lifestyle habits (behavioural factor)

- ➢ Smoking
- ➢ Alcohol consumption
- ➢ Chat chewing
- ➢ Low physical activity

Diet

- ➢ Salt use
- ➢ Fruit and vegetable intake
- ➢ Drinking low caffeine beverages

Anthropometrics and others factors

- ➢ BMI
- ➢ Family history of hypertension
- ➢ Family history of DM

3.6.2.10 Data analysis

Polit and Beck (2014) describe data analysis as systematic organisation and synthesis of research data with the purpose of organising, giving structure and meaning to data and using the acquired data. The choice of method for data analysis manly depends on the study objective and method used.

In this phase of the study, the outcome variables have binary outcome type characterised by yes/no (hypertension/ not hypertension) alternatives responses. In addition, both descriptive and inferential statistics were used for the analysis of the study. In the descriptive statistics frequency, percentages, measures of central tendency (mean, median), standard deviations and graphs were used to report findings.

A wealth index representing economic status was computed using the principal component analysis to choose items that best explained it among 14 variables that measure wealth. These items are average monthly income, house ownership, radio, television, mobile phone, bicycle, motorbike, car, table and chair, bed with mattress, refrigerator, electric mitad, kerosene lamp and bank or microfinance saving account.

Scores of 7 factors (television, mobile phone, motorbike, refrigerator, kerosene lamp, bank or microfinance saving account and electric mitad) which are confirmed to describe 53% of the wealth variance were computed to produce wealth index. The wealth quintiles range from the poorest in the lowest quintile (quintile 1) to the last poor in the highest quintile (quintile 5). The wealth index was used for more analysis in the study.

Fourteen items of which six were under one heading, 'what the risk behaviours for developing hypertension are?' were used to assess the knowledge of respondents regarding hypertension risky behaviour and prevention. Each item was used to assess knowledge by assigning one (1) to correct answer and zero (0) to the wrong answer.

A single variable of comprehensive knowledge on hypertension risky behaviour and prevention with three ordinal response options was computed from 14 knowledge items to show the overall knowledge level of the respondents and for further analysis. Respondents who got eight and less correct answers from the 14 knowledge assessment items were assigned in the category of "low level of knowledge and those who score 9-10 correct answers were categorised as having "medium level of knowledge" and finally respondents with overall knowledge score of 11 and more were considered to have "high level of knowledge".

The six constructs of the HBM were used to assess respondents' attitude towards hypertension and its prevention. There were 37 questions, of which 32 questions had response options ranging from strongly disagree to strongly agree, rated on a 1–5 scale. The questions were arranged in way that positive responses get optimal score. The remaining five questions having options ranging from, not at all to always, rated on a 1–4 scale under the cues to action construct of the model.

Findings under the HBM are presented in frequencies of responses of each individual question and as a single computed variable, which represents the respective construct. The frequencies were calculated after categorising the five scale (strongly disagree to strongly agree) responses into three (Agree, uncertain and disagree). Composite score

to generate a single variable representing the constructs was conducted after the measure of reliability of the measurements was evaluated by performing Cronbach's alpha coefficients. A Cronbach's alpha of 0.7 and above was considered as evidence of adequate reliability for the constructs (Burns & Grove 2005:374). In this study, a Cronbach's alpha value of 0.71 and more was found among the subscale measuring the constructs.

Table 3.1: Cronbach's alpha value of the HBM constructs

	Mean	Std. D	Cronbach's Alpha
Perceived susceptibility (8 items)			**0.8**
Everybody is at risk of developing hypertension.	3.57	0.931	
Cigarette smokers are more prone to contract hypertension.	3.21	0.953	
Physically inactivity peoples are more prone to contract hypertension.	3.52	0.949	
Excessive alcohol consumers are more prone to contract hypertension.	3.54	0.978	
People consuming animal fat frequently are more prone to contract hypertension.	3.36	1.057	
People using excess salt are more prone to contract hypertension.	3.85	0.929	
I might contract hypertension.	3.9	0.912	
Hypertension is a health problem of Ethiopia.	4.04	0.984	
Perceived severity (11 items)			**0.75**
Hypertension causes sudden death.	4.26	.736	
Complications of hypertension is dangerous for life.	3.78	.840	
Hypertension is chronic disease.	3.10	1.043	
Hypertension is severe disease.	3.12	1.141	

Hypertension is more severe disease in old adults.	3.28	1.032
Hypertension is more severe disease in obese.	3.52	.937
Hypertension is more severe disease among cigarette smokers.	3.13	1.052
Hypertension is more severe disease in alcohol consumers.	3.50	1.013
Hypertension is more severe disease in high salt consumer.	3.97	.942
Hypertension is more severe disease in high animal fat consuming peoples.	3.92	.935
Hypertension is more severe disease among peoples with stressful life.	4.08	.912
Perceived benefit (5 items)			**0.72**
Limiting alcohol consumption prevents developing hypertension	3.51	0.904
Reducing dietary sodium intake prevents developing hypertension.	3.74	0.882
Consuming diet that is rich in fruits and vegetable prevents developing hypertension.	3.69	0.841
Maintaining normal body weight prevents developing hypertension	3.68	0.931
Quitting cigarette smoking prevents developing hypertension	3.26	1.049
Perceived barrier (7 items)			**0.71**
There are several diseases of my priorities than hypertension.	3.3	1.097
I have no adequate knowledge to protect myself against hypertension.	3.24	1.095
Health facilities are not accessible to get measured for BP.	3.15	1.16

I don't like to think about any disease while I am healthy.	3.1	1.15	
I don't think it is worthy thinking about hypertension prevention activities.	2.9	1.199	
I am not encouraged by family or friends to perform hypertension prevention.	3.09	1.103	
Hypertension prevention activities need me to have enough time, money and space.	3.03	1.291	
Cues to action (5 items)			**0.839**
Get sufficient information from mass media and try to apply hypertension prevention activities.	2.15	1.026	
Health extension workers advise me how to prevent hypertension.	2.16	0.927	
My family's and friends' advice motivates me to involve in hypertension prevention activities.	2.08	0.947	
Fear of hypertension being chronic disease motivates me to involve in the prevention activities.	2.27	0.988	
People close to me who are ill with hypertension make me to be involved in hypertension prevention activities.	2.57	1.012	

Binary logistic regression model was used to assess the association between the dependent and independent variables. Variables found to have p-value less than 0.2 in the bi-variate analysis were fitted into multivariate logistic regression to control the possible effect of confounders and finally the variables which have significant association with hypertension were identified on the basis of Odds Ratio (OR), 95% CI, p-values <0.05 and Hosmers–lemeshow goodness of fit test for the model was checked.

The Statistical Package for the Social Sciences (SPSS) version 23 was used for data entry and analysis.

3.6.2.11 Validity and reliability of the tool

According to Polit and Beck (2008:457), validity is the suitability of instrument to measure what it intends to measure and a measurement is valid when it measures attribute that it intends to measure. The four main approaches for measuring the validity of research instruments are face, construct, content and criterion-related validity (Polit & Beck 2008:458).

In this study construct, content and criterion approaches were used to ensure validity in the study. Construct validity is the extent to which questions actually measure the presence of the variables intended to measure. In this study, the researcher ensured construct validity by extensive literature search that defines meanings of construct. Criterion validity is use of external criteria to validate a given measurement instrument that have qualities of relevance free from bias and availability. Content validity is scope to which measuring instrument sufficiently addresses the research questions. In the current study, careful sampling and structured formulation of items in the tool address content validity.

Reliability refers to consistency of instrument in measuring whatever it is intended to measure. Under comparable conditions, a research instrument is considered to be reliable if findings are repeated when evaluation were replicated in the same context with the same subjects (Polit & Beck 2008:452). In this study, reliability was ensured by pre-testing of the tool on 27 households in two urban and one per-urban kebeles, which were not selected for the actual study. Anthropometric and blood pressures measuring equipment were checked every time.

3.6.3   Phase II Qualitative approach

3.6.3.1   Population

Population is a total group of persons or objects that is of interest to a study to make conclusion based on sample (Yin 2011:99). In this phase, health care providers working in the City administration were the study population.

3.6.3.2   Sampling

FGDs were employed among health care providers working among public health facilities found in the selected sub-cities for the first phase of the study.

3.6.3.3   Sample size

A sample size for qualitative study is determined based on the information needs where no new information is obtained and saturation of data is reached. Data saturation could be reached with a relatively small sample if participants are sufficiently informed about the problem (Polit & Beck 2008:357). Hence, in this study, a total of three FGDs consisting of 21 health care providers (six to eight members in each) selected in a manner that maintains homogeneity was conducted among health care providers working in the city administration.

3.6.3.4   Data collection

Data were collected in a quiet place at meeting halls of respective health facilities of which the FGD participates were selected. All FGDs were managed by the principal investigator and two data collectors were taking notes and recording discussions with an audio recorder at the permission of the respondents.

3.6.3.5 Data collection tools

FGD guide with open-ended probing questions were used to discuss and probe the participants to give responses.

3.6.3.6 Data analysis

The choice of data analysis is based on the study objective and method used. Accordingly, this phase of the study follows qualitative data analysis. According to Poggenpoel (1998:338), in qualitative research, there are five different type of data analysis approaches, namely, the Morse and Field's approach, the constant comparative method of Lincoln and Guma, the method of Marshall and Rossman, the approach of Huberman and Miles, and Tesch's approach.

Morse and Field's approach follows four process for the analysis of data starting by comprehending data to be understood then synthesising followed by theorising to get a suitable explanation of the data and lastly re-contextualising to insure applicability. The constant comparative method of Lincoln and Guma use four steps to data analysis. The first step is comparing units applicable to each category, which facilitate the creation of categories for the codes, second step integrating categories and their properties, third step delimiting the construction that comes with a less but saturated categories and fourth is writing the construction to present a meaningful results and verify validity with participate.

The approach of Huberman and Miles passes through three courses. The data reduction comes first followed by data display which ease to look at the meanings and lastly conclusion drawing and verification. The method of Marshall and Rossman starts with organising the data, which makes the researcher to be familiar with the data so that can led to generating categories, themes and patterns and pass to the next step of testing emergent hypotheses and searching for alternative explanations to end up with writing the report.

As analysis of qualitative data start at note taking during data collection and transcription, the principal investigator collected all notes from data collectors and transcribe it with the audio recoded data in to paper and translated from Amharic to English. To make sure meanings are not lost the English version translated by the principal investigator was back translated into Amharic by language expert and it was assured no meanings were lost during translation.

After consulting all the approaches for qualitative data analysis and making sure data are ready as noted in the aforesaid paragraph the researcher followed Tesch's eight steps of data analysis for qualitative research.

The steps were used to enhance thick descriptions and sound flow of the data analysis accordingly (Tesch 1992: 142).

- The researcher carefully read through all the data to get a sense of the contents and gain the necessary background information and short notes were made.
- The researchers re-read the documents asking, what is this about to focus on its contents.
- After completing this procedure for several times, the researchers made a list of all topics. Similar topics were grouped together and were written down with headings that represent the major topics.
- These topics were abbreviated as codes.
- Themes were created by finding most descriptive words for topics.
- The researcher made a final decision on the abbreviation of each themes.
- A preliminary analysis was performed putting data that belong to each theme together. This time the researcher focused on the content of each theme keep the research question in mind in order to discard irrelevant data.
- The existing data was checked again to see if re-coding was necessary.

After going through all this steps data analysis process was finalised and presented.

3.6.3.7　Trustworthiness

Trustworthiness is the degree to which research results can be trusted, findings are believable and gain attention by the reader, which can be ensured using four criteria; credibility, transferability, dependability and confirmability (Mathison 2005:425; Rolfe 2006: 307).

Credibility

Credibility of a research ensures an accurate and convincing description of phenomenon which is being researched (Given & Saumure 2008:896). Credibility is achieved through prolonged engagement, referential adequacy, triangulation, peer debriefing, negative case analysis, and member checks. In this study, prolonged engagement of the researcher with the study participant is secured as the researcher is a permanent resident of the study area working as public health specialist in the region the study is conducted. Findings were presented to colleagues in the field of public health, experts in the field and study participant to make sure the data is not prejudiced to personal interest to compel with the concept of peer debriefing and member checking.

Transferability

Transferability is the external validity or generalisability equivalent of quantitative study to which study findings can be generalised to other situations, which address the issue of how applicable our results are to other subjects and contexts. Transferability can be assured by thick descriptions of participant's voices, context and methodology (Polit & Beck 2008:539). In this study detail, description of research method, data analysis and interpretation of the findings was held to ensure transferability.

Dependability

Dependability is the reliability equivalent of quantitative study that refers to the stability or consistency of data when evaluation is replicated in the same context (Polit & Beck

2008:539). In this study, checking the presence of phenomenon by careful documentation of the interviews was upheld.

Conformability

Conformability is researcher's objectivity equivalent of quantitative study, which is the analogy between two or more independent people about the accuracy and meaning of data and whether the researcher's claims are from data and ensures that interpretations match data (Polit & Beck 2008:539; Given & Saumure 2008:896). In the current study, the researcher remains faithful to academic and ethical requirement by keeping field notes, audio recordings at the personal office of the principal investigator in a secured lockable cabinet where no one have access to for a minimum of five years and discarding safely after five years.

3.7   ETHICAL CLEARANCE

Ethical clearance with ethics approval number REC-012714-039 was obtained from the Research and Ethics Committee, Department of Health Studies at Unisa to conduct the study. Support letter that indicates the objective of the study was written to SNNPR health bureau from Unisa Akaki Regional Learning Centre. Permission letter was obtained from the SNNPR health bureau and Hawassa City Administration Health Department.

The purpose and importance of the study was explained to each participant. Data were collected after full consent was obtained and confidentiality of the information was maintained by omitting name of participants and keeping their privacy.

3.8   ETHICAL CONSIDERATIONS

In a study that involves human being, researchers need to carefully adhere to ethical issues that may arise while conducting a study to protects both the researcher and participants in the course of the study (Liamputtong 2011:32). In this study, the researcher adhered to principles of beneficence, justice, autonomy, and non-maleficence.

Beneficence

Beneficence is one of the ethical principles in research defined as actions that allege to be benevolence and avoiding harm to the other person. The researcher is responsible to minimising harm and maximising benefits to ensure the wellbeing of the study participants (Greaney, Sheehy, Heffernan, et al. 2012:40). The study benefits the participants by giving information on their blood pressure status and how to control and/or prevent hypertensive and participants who were identified to be hypertensive during the survey were linked to their nearby health facility. The researcher ensures minimal risk during the process of the study through physical and psychological preparation before the actual data collection and using well trained data collectors.

Justice

Justice is an ethical principle of equity and fair treatment and privacy (Schmidt & Brown 2012:482). This study uses simple random sampling technique to select participants for comparative cross-sectional survey. All participants were equally assessed by the same eligibility criteria to be recruited in the study.

Autonomy

Autonomy is the other principle of ethics defined as the right of participants to do the things they want to do. In this study, the free will of participants to withdraw or not answer some or all questions during the interview without any punishment was respected after all necessary information about the research protocol and procedures is given and getting their informed consent.

Non-maleficence

Non-maleficence is the protection of participants from any harm during the study (Greaney et al. 2012:40). In this study, the researcher avoided possible adverse events with respect to physical, social, financial and psychological that could be experienced by the participants owing to their participation in the study.

3.9   CONCLUSION

This chapter presented the overarching elements of the study that is the research purpose, objectives and the research question. The chapter also described the research approach, design, method, population, sampling technique, sample size, and ethical issues related to sampling and study participants in detail. Interview guides of FGDs and questionnaires used to collect data in different phases of the study and how the data analysis was carried out were presented. The rigour and trustworthiness were followed in the study to keep the research ethical principles were also discussed. The next chapter presents data analysis and presentation of the study findings.

CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION OF RESULTS

4.1 INTRODUCTION

The previous chapter described the methods employed in conducting this research study. It addressed the research approach, design and methodology adopted for the study and described the ethical considerations related to the study. The chapter further explained the procedure followed when implementing the research, the data-gathering instruments and method of data analysis used. This chapter presents findings of both the quantitative and qualitative part of the study done in two phases. In quantitative phase of the study, out of the total 633 adults approached for interviews and measurements, 612 agreed to fully participate in the study voluntarily, yielding a response rate of 96.68 %. The statistical analysis of the quantitative data was performed using descriptive and analytical statistics first by describing the socio-demographic characteristics of the study subjects and then addressing the objectives of the study:

- To explore and describe adult age groups knowledge and attitudes regarding hypertension risky behaviour and prevention.
- To determine the urban and peri-urban difference of the burden of hypertension.
- To identify factors associated with hypertension.

In qualitative phase of the study, three FGDs with six to eight participants, in each group, were conducted with health care providers working in health facilities found in the selected sub cities of the study, in a manner that maintained the homogeneity of the groups. Four themes and twelve sub-themes were found from the study, which was meant to obtain answer with respect to the objective of the study:

- To explore health care providers' perspectives regarding efforts exerted for the prevention of hypertension.

4.2   FINDINGS OF THE QUANTITATIVE PHASE

4.2.1   Socio-demographic characteristics of respondents

4.2.1.1   Age

As discussed in the study inclusion criteria, adults above age 30 were the target population, therefore the ages of the respondents' ranges from 31 to 90 years with a mean age of 47.56 years (SD ±13.40). However, participation of respondents range from 42.5% (n=260) in the age group 31-40 to 15 %(n=92) in the age group 51-60.

4.2.1.2   Gender

Among 612 respondents of the study, male respondents accounted for 53.4 %(n=327), which is slightly higher than females 46.6 %(n=285) of which, 46.1 %(n=188) females and 53.9% (n=220) males were urban residents.

Table 4.1: Sex and age distribution of respondents (N=612)

Parameter	Urban(n=408)		Peri-Urban(n=204)		Total(N=612)	
Age group	Frequency	Percent	Frequency	Percent	Frequency	Percent
Mean and SD	49.07(SD±13.27)		44.53(SD±13.16)		47.57(SD±13.40)	
31-40	144	35.3	116	56.9	260	42.5
41-50	110	27.0	42	20.6	152	24.8
51-60	68	16.7	24	11.8	92	15
=>61	86	21.1	22	10.8	108	17.6
Sex						
Male	220	53.9	107	52.5	327	53.4
Female	188	46.1	97	47.5	285	46.6

4.2.1.3 Marital status

The majority of the study participant 81.7% (n=500) reported that they are married while 9.6 %(n=59) of the respondents were widowed followed by single at 4.7 % (n=29) of the participant.

Table 4.2: Marital status distribution of respondents (N=612)

Parameter	Urban(n=408)		Peri-Urban(n=204)		Total(N=612)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Marital status						
Single	23	5.6	6	2.9	29	4.7
Married	322	78.9	178	87.3	500	81.7
Divorced	18	4.4	6	2.9	24	3.9
Widowed	45	11	14	6.9	59	9.6

4.2.1.4 Educational status

One hundred eighty-three (183) of the study participant's level of education was diploma and above followed by 22.7% (n=139) of respondents who cannot read and write. One third of the peri-urban residents were in the category of cannot read and write and on the other hand in the urban setting 31.6 %(n=129) of residents are in the category of educational level of diploma and above.

Table 4.3: Educational status distribution of respondents (N=612)

Parameter	Urban(n=408)		Peri-Urban(n=204)		Total(N=612)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Educational status						
Cannot read and write	75	18.4	64	31.4	139	22.7
Read and write only	73	17.9	25	12.3	98	16.0
Primary education(1-8)	54	13.2	30	14.7	84	13.7
Secondary education(9-12)	77	18.9	31	15.2	108	17.6
Diploma and above	129	31.6	54	26.5	183	29.9

4.2.1.5   Religion

Protestant religion was reported to be the most predominant religion of respondents in the study area where more than half 55.1 %(n=337) of the total respondent reported that they belong to, which is followed by Orthodox 29.6 %(n=181), Muslims 8.2 %(n=50) and Catholic 6.2 %(n=38). Only one percent of the respondents indicated that they belong to other types of religions.

Table 4.4: Religion distribution of respondents (N=612)

Parameter	Urban(n=408)		Peri-Urban(n=204)		Total(N=612)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Religious affiliation						
Protestant	207	50.7	130	63.7	337	55.1
Orthodox	143	35	38	18.6	181	29.6
Catholic	25	6.1	13	6.4	38	6.2
Muslim	30	7.4	20	9.8	50	8.2
Other	3	0.7	3	1.5	6	1.0

4.2.1.6 Ethnicity

Out of the total number of respondents, 36.3 %(n=222) reported that they belong to Sidama ethnic group. This is followed by Walayita 23.9% (n=146) and Kembata 17.2 %(n=105). The rest 22.6 %(n=139) belong to other ethnic groups such as Guraga, Amahra, Oromo, and Hadiya.

Table 4.5: Ethnicity distribution of respondents (N=612)

Parameter	Urban(n=408)		Peri-Urban(n=204)		Total(N=612)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Ethnicity						
Sidama	91	22.3	131	64.2	222	36.3
Walayita	124	30.4	22	10.8	146	23.9
Kembata	87	21.3	18	8.8	105	17.2
Guraga	43	10.5	15	7.4	58	9.5
Amahra	37	9.1	7	3.4	44	7.2
Oromo	21	5.1	6	2.9	27	4.4
Hadiya	5	1.2	5	2.5	10	1.6

4.2.1.7 Family size and ownership of house

The mean family size in the households of respondents was 4.79 with a standard deviation of 1.91 persons with a median of five. The number of person in a house range from the minimum one person to the maximum 12. With regard to the ownership of house, 67.6% (n=414) of the respondents own their own house and 32.4% (n=198) live in a rental house.

4.2.1.8 Average monthly household income and occupations

The total average monthly income reported in this study range from the minimum 500 Ethiopian Birr (21.7 USD) to the maximum 13,600 Ethiopian Birr (591 USD) with a median income of 2,900 Ethiopian birr (126 USD). Thirty-two percent of the respondents were employees followed by 27 %(n=165) merchants.

An analysis of the monthly income of respondents against their occupation shows merchants earn the highest income of 4,066 birr (176.7 USD) per month on average followed by employed earning 3,893 birr (169 USD). The lowest earners were daily-labourer who earn 1,692 birr (73 USD) per month on average while housewife, which make their income from house rent and gifts from their sons and daughters, reported average incomes of 1,935 birr (84 USD) per month.

As occupation had more than two categories, ANOVA was used to compare differences in monthly incomes of the respondents. The monthly income difference was statistically significant at 0.05 p-value using ANOVA (p<0.01).
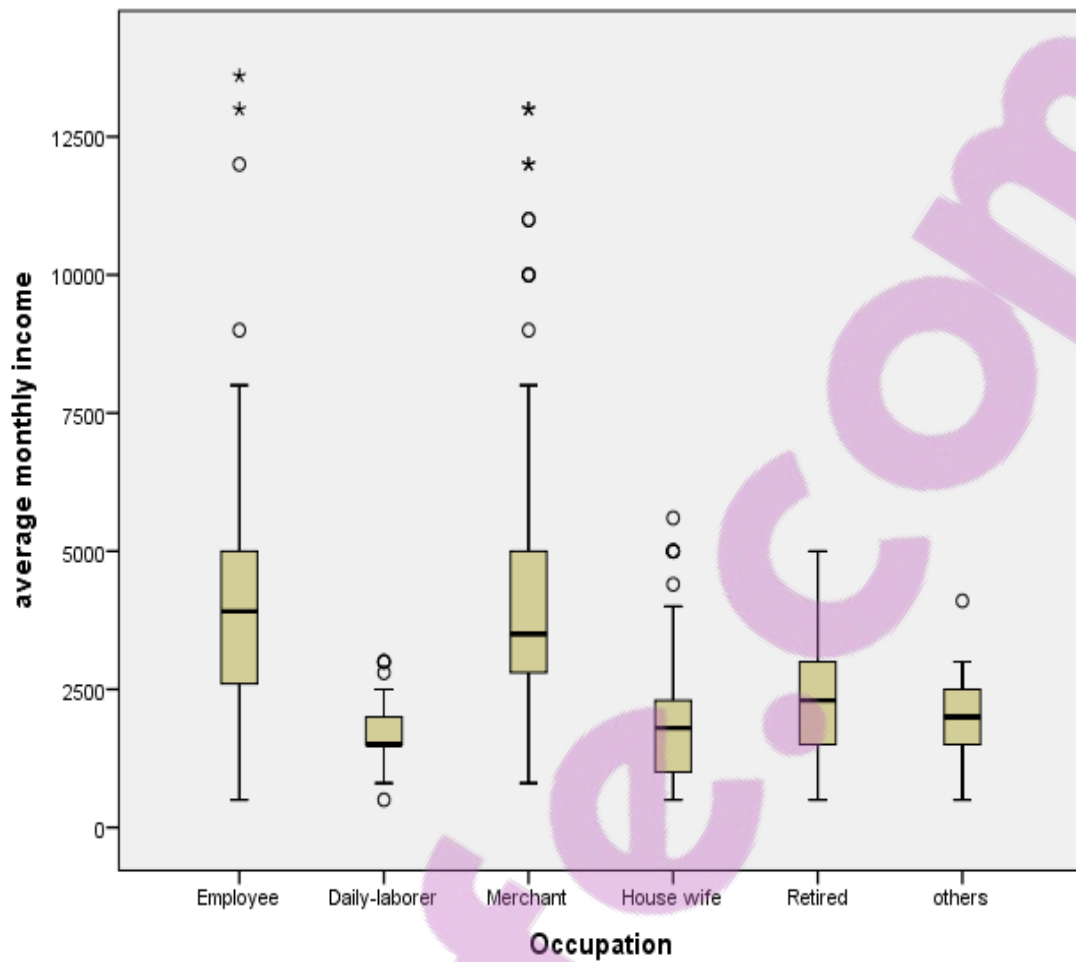
Figure 4.1: Box plots of occupation versus average monthly incomes in Ethiopian birr (N=612)

Table 4.6 ANOVA of respondents' occupation versus their average monthly incomes (N=612)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	593936699.4	5	118787339.9	38.937	0
Within Groups	1848762805	606	3050763.704		
Total	2442699504	611			

4.2.2 Knowledge of respondents regarding hypertension risky behaviour and prevention

Nine items of which one variable has multiple responses of six items were used to assess the knowledge of respondents regarding hypertension risky behaviour and prevention. Each item was used to describe the knowledge of the respondents and a single variable comprehensive knowledge on hypertension prevention was computed to describe the total knowledge level of respondents and for further analysis (see the detail on section 3.6.2.9).

Eighty-three percent (83%) (n=508) of the respondents had heard about hypertension. With regard to mentioning place for measuring BP and knowing the normal blood pressure value, only 40.5% (n=248) of the respondents mentioned at least one place to get BP measure and 42%(n=257) of the respondents know the normal BP value.

From the total number of respondents, 33.7 %(n=206) agreed that hypertension cannot be transmitted from one person to another. On the contrary, 66.2% (n=405) of the respondents agreed that hypertension is preventable disease while 63.4% (n=388) agreed hypertension is hereditary disease. In addition, 56.9% (n=348) responded that

hypertension is a chronic disease. A vast majority 95.9 % (n=587) of the subjects agreed hypertension may cause sudden death (table 4.7). To assess the knowledge of respondents with regard to risky behaviour to contract hypertension a single question with multiple responses was asked and the proportion of the respondents with knowledge regarding risky behaviour ranged from 51% (n=312) for eating animal fat frequently to 80 % (n=493) for stressful living and working condition.

Table 4.7: Knowledge of respondents regarding hypertension risky behaviour and prevention (N=612)

Variables		Frequency	Percentage (%)
Have ever had heard about hypertension	Yes	508	83
	No	104	17
Hypertension cannot be transmitted from one person to another.	Yes	206	33.7
	No	406	66.3
Hypertension is a preventable disease.	Yes	405	66.2
	No	207	33.8
Mentioned at least one place for measuring BP.	Yes	248	40.5
	No	364	59.5
Hypertension is a hereditary disease.	Yes	388	63.4
	No	224	36.6
Hypertension is a chronic disease.	Yes	348	56.9
	No	264	43.1
Hypertension may cause sudden death.	Yes	587	95.9
	No	25	4.1
Know the normal blood pressure value.	Yes	257	42
	No	355	58
Cigarette smoking is a risk behaviour for developing hypertension.	Yes	474	77.5
	No	138	22.5
Physical inactivity is a risk behaviour for developing hypertension.	Yes	371	60.6
	No	241	39.4
Excessive alcohol consumption is a risk behaviour for developing hypertension.	Yes	398	65
	No	214	35
Eating animal fat frequently is a risk behaviour for developing hypertension.	Yes	312	51
	No	300	49
Excess salt consumption is a risk behaviour for developing hypertension.	Yes	327	53.4
	No	285	46.6
Stress is a risk behaviour for developing hypertension.	Yes	493	80.6
	No	119	19.4

A single variable of knowledge with three ordinal response options was computed from 14 knowledge items to show the knowledge level of the respondents on hypertension risky behaviour and prevention. Study respondents which got 8 and less correct answers from the 14 knowledge assessment items were assigned in the category of "low knowledge level"; 9 to 10 correct answers in the "medium level" and >=11 "high level". Among the total participates 46.1% (n=282) of the respondents were with "low level" of knowledge about hypertension risky behaviour and prevention, 37.6% (n=230) with "medium level" of knowledge and 16.3% (n=100) had "high level" knowledge of hypertension risky behaviour and prevention.

Table 4.8: Respondents' knowledge levels regarding hypertension risky behaviour and prevention (N= 612).

	Frequency	Percent	Valid Percent	Cumulative Percent
Low level	282	46.1	46.1	46.1
Medium level	230	37.6	37.6	83.7
High level	100	16.3	16.3	100.0
Total	612	100.0	100.0	

4.2.3 Attitudes of participant on hypertension risky behaviour and prevention in terms of the Health Belief Model (HBM)

The six constructs of the HBM were used to assess respondents' perception of hypertension and its prevention. There were 37 questions, of which 32 questions had response options ranging from strongly disagree to strongly agree, rated on a 1–5 scale. The remaining five questions had options ranging from not at all to always rated on a 1–4 scale under the cues to action construct of the model.

Findings under the HBM are presented in frequencies of responses of each individual question and as a single computed variable, which represents the respective construct. The frequencies were calculated after categorising the five scale (strongly disagree to strongly agree) responses into three (Agree, Uncertain and Disagree). Composite score to generate a single variable representing the constructs was conducted after the measure of reliability of the measurements was evaluated by performing Cronbach's alpha coefficients. A Cronbach's alpha of 0.7 and above was considered as evidence of adequate reliability for the constructs (Burns & Grove 2005:374). In this study, a Cronbach's alpha value of 0.71 and more was found among items measuring the constructs as shown in Table 4.9.

Table 4.9: Cronbach's alpha value of the HBM constructs

HBM Construct	Cronbach's Alpha
Perceived susceptibility	0.80
Perceived severity	0.75
Perceived benefit	0.72
Perceived barrier	0.71
Cues to action	0.839

4.2.3.1 Perceived susceptibility

Perceived susceptibility in this study implies respondents' attitude toward behavioural risk factors of developing hypertension, their risk of developing hypertension and the level of the problem in Ethiopia. In view of this, out of 612 respondents assessed, 69% (n=420) responded that they agreed that everybody is at risk of hypertension and 67 %(n=412) reflected there susceptible by agreeing that they might contract the disease. Furthermore, 76 %(n=467) of the respondents agreed that hypertension is health problem in Ethiopia. With regard to the susceptibility of people to contract hypertension, 59% (n=364) of the study respondents agreed that physically inactivate people, 60% (n=370) of the study

participant agreed excessive alcohol consumers, 50% (n=305) of the study participant agreed people consuming animal fat frequently and 67% (n=413) of the study participant agreed people using excess salt are more susceptibility to contract hypertension.

A single variable of attitude of perceived susceptibility of respondents toward behavioural risk factors of developing hypertension was computed from the eight assessment questions under the construct after items were reverse-scored in the same direction, where attitude scores ranging between 0 and 4 were considered as poor attitude whereas attitude scores >4 were considered as positive attitude. The result showed that 33.8 %(n=207) of respondents demonstrated positive attitude toward perceived susceptibility, 61.8 %(n=378) were neutral and the remaining 4.4 %(n=27) had poor attitude.

4.2.3.2   Perceived severity of hypertension

Findings of the current study about the perceived severity of hypertension showed that 43% (n=261), 90% (n=551) and 70% (n=429) of the respondents respectively agreed that hypertension is chronic disease, cause sudden death and the complications are dangerous to life.

In the effort made to explore respondents' perception of the severity of hypertension with regard to modifiable and non-modifiable risky behaviours, 50% (n=303) agreed that hypertension is more severe disease in old adults, among the non-modifiable factor. In the modifiable factors category, 60% (n=365) agreed that hypertension is more severe disease in obese individuals. In addition, 40% (n=242) agreed that hypertension is more severe disease among cigarette smokers. Furthermore, 60% (n=366) agreed that hypertension is more severe disease in alcohol consumers, 77% (n=470) agreed that hypertension is more severe disease in high salt consumer, 69% (424) agreed that hypertension is more severe disease in high animal fat consuming people, and 77% (n=474) among people with stressful life.

In general, respondents' attitude toward the severity of hypertension with regard to modifiable and non-modifiable risky behaviours was computed after items were reverse-

scored in the same direction. There were 11 assessment questions under the construct where attitude scores ranging between zero and six was considered as poor attitude whereas attitude scores >6 were considered as positive attitude. The result showed that 90.8 %(n=188) of respondents demonstrated positive attitude toward their perceived severity and 9.2 %(n=19) had poor attitude.

4.2.3.3   Perceived benefits of applying hypertension prevention activities

Out of 612 respondents, 64% (n=391) said that they believe maintaining normal body weight prevents hypertension. Forty-four percent (44%) (n=270) and 60% (n=365) believed that quitting cigarette smoking and limiting alcohol consumption prevent developing hypertension respectively. Sixty-seven percent (67%) believed that reducing dietary sodium intake, consuming diet that is rich in fruits and vegetable prevent developing hypertension.

A single variable of attitude towards perceived benefit of applying hypertension prevention activity of respondents was computed from five assessment questions under the construct after items were reverse-scored in the same direction, where attitude scores ranging between 0 and 3 were considered as poor attitude whereas attitude scores >3 were considered as positive attitude. The result showed that 77.9 %(n=209) of respondents demonstrated positive attitude toward their perceived benefit of applying hypertension prevention activity and 22.1 %(n=59) had poor attitude.

4.2.3.4   Perceived barriers on hypertension prevention activities

Different barriers could hinder people's hypertension prevention activities. In this study, 54% of the study respondents agreed that they lack enough knowledge on the prevention activity and they have other diseases of priority for prevention activity than hypertension. Of the total participant in the study, 53% (n=287) agreed that the inaccessibility of health facility to get measured for blood pressures is one of the obstacles for hypertension prevention activities. Forty-one per cent (41%) of respondents agreed that they are not

encouraged by family or friends to perform hypertension prevention and believe that hypertension prevention activities need time, money and space.

A single variable of attitude of perceived barriers toward applying hypertension prevention activity was computed from seven assessment questions under the construct after items were reverse-scored in the same direction, where attitude scores ranging between 0 and 4 were considered as poor attitude whereas attitude scores >4 were considered as positive attitude. The result showed that 47.8% (n=148) of respondents demonstrated positive attitude toward their perceived barriers and 52.2% (n=161) had poor attitude.

4.2.3.5　Cue to action

In questions aroused to the study respondents regarding what prompts them to apply hypertension prevention activity, only 20% (n=123) of the subjects responded that they always apply hypertension prevention action after they had got sufficient information about hypertension from the mass media, got advice from family and/or friends and heard from Health Extension Workers (HEW).

Despite the fact that hypertension is chronic disease, 28.3% (n=173) of the respondents responded that they are not nodded or signaled to apply hypertension prevention activities at all fearing that the disease is a chronic disease. In addition, 21.2% (n=130) are not prompted at all to involve in hypertension prevention activities even if they see people close to them who are ill with hypertension.

In general, respondents' attitude toward what motivate them to apply hypertension prevention activities was computed after items were reverse-scored in the same direction and given score of 0 for those responded "not at all" and "rarely" and 1 for "Sometimes" and "Always". There were five assessment questions under the construct where attitude scores ranging between 0 and 3 were considered as "poor attitude" whereas attitude scores >3 were considered as "positive attitude". The results showed that 30.3% of respondents demonstrated positive attitude to cue to action and 69.7 % had poor attitude of cue to action in the prevention activity of hypertension.

4.2.3.6   Self-efficacy

Respondents' self-efficacy was assessed by the level of their agreement on how confident they are to manage performing hypertension prevention activities easily. Only 38.9% (n=238) agreed that they are confident enough to manage performing hypertension prevention activities easily, 23.5% (n=144) disagreed in the idea and more than half 62.4% (n=382) of the total study respondents were neutral.

4.2.4   Behavioural measurements

4.2.4.1   Cigarette smoking, alcohol consumption and chat chewing

Only seventy-four (12.1%) of the study respondents reported that they have ever smoked cigarette in their lifetime, of which 9% (n=55) were current smokers. Moreover, 25% (n=14) of the current smokers were found to be daily smokers.

Nearly one fifth of respondents 23.0% (n=141) responded that they ever drink alcohol in their lifetime and 19.1% (n=171) of the respondents reported drinking alcoholic drinks currently, of these total current drinkers 32.5% (n=38) reported that they drink alcohol 3-4 days per week. Among those who reported drinking alcohol 56.4% (n=66) drinks 1-3 glass of alcoholic drink per a drinking occasion. With regard to chewing chat, 14.1% (n=86) of the total respondents reported that they have ever chewed chat in their lifetime and 10.1% (n=62) are currently chewing chat, of which those chewing daily and 3-4 days per week accounts for 61.3% (n=38) of the total current chewers (Table 4.10).

4.2.4.2   Dietary habit of respondents

Out of the total respondents 70.1% (n=429) reported that they eat fruit, of which 42.7% (n=183) eat 1-2 days in a week and 85.6% (n=526) of respondents reported eating vegetable, of which 31.7% (n=166) eat vegetable 1-2 days in a week. Moreover, 30.7 % (n=188) of the respondents explained that they eat animal fat. With regard to salt consumption, few respondents 13.2% (n=81) reported that they ever use salt adding to

their plate after food has been prepared. In addition, most of the respondents 91.7% (n=561) reported that they drink coffee of which 74.8% (n=458) drink daily and 32.26% (n=181) of the total coffee drinkers drink 1-2 cups of a day (Table 4.10).

Table 4.10: Cigarettes smoking, alcohol consumption, chat chewing and dietary habit (N=612).

Variable	Category	Frequency	Percent (%)
Ever smoke cigarettes			
	Yes	74	12.1%
	No	538	87.9%
Current smoking status			
	Yes	55	9%
	No	557	91.%
Cigarette smoking frequency in a week(n=55)			
	Daily	14	25.9
	5-6 days per week	10	18.5
	3-4 days per week	15	27.3
	1-2 days per week	16	29.1
Ever consumed an alcoholic drink			
	Yes	141	23.0
	No	471	77.0
Drink alcoholic drink currently			
	Yes	117	19.1
	No	495	80.9
Alcohol consumption frequency in a week(n=117)			
	Daily	18	15.4
	5-6 days per week	28	23.9

	3-4 days per week	38	32.5
	1-2 days per week	33	28.2
Ever chewed chat			
	Yes	86	14.1
	No	526	85.9
Chewing chat currently			
	Yes	62	10.1
	No	550	89.9
Chat chewing frequency in a week(n=62)			
	Daily	19	30.6
	5-6 days per week	11	17.7
	3-4 days per week	19	30.6
	1-2 days per week	13	21.0
Eat fruit			
	Yes	429	70.1
	No	183	29.9
Fruit eating habit in a week (n=429)			
	Daily	69	16.1
	5-6 days per week	54	12.6
	3-4 days per week	123	28.7
	1-2 days per week	183	42.7
Eat vegetable			
	Yes	524	85.6
	No	88	14.4
vegetable eating habit in a week (n=524)			
	Daily	79	15.1
	5-6 days per week	99	18.9

78

	3-4 days per week	180	34.4
	1-2 days per week	166	31.7
Animal fat eating			
	Yes	188	30.7
	No	424	69.3
Animal fat eating habit in a week(n=188)			
	Daily	10	5.3
	5-6 days per week	35	18.6
	3-4 days per week	69	36.7
	1-2 days per week	74	39.4
Use of top added Salt			
	Yes	81	13.2
	No	531	86.8
Coffee			
	Yes	561	91.7
	No	51	8.3
Coffee drinking frequency in a week(n=561)			
	Daily	458	74.8
	5-6 days per week	62	10.1
	3-4 days per week	27	4.4
	1-2 days per week	14	2.3
Number of cups of coffee			
	1-2 cup a day	181	32.26
	3-4 cups a day	232	41.35
	Five and more cups a day	148	26.38

4.2.4.3   Physical Activity

About 71.4% (n=437) of respondents reported that their work involves vigorous-intensity physical activity. Four hundred seventy-one (471) of the respondents responded that they walk for at least ten minutes continuously to go from place to place. Nearly 49% (n=300) of the participant walks on foot to transport from place to place on routine bases.

4.2.5   History of raised Blood Pressure and Co-morbidities

Four hundred forty-one (441) (72.1%) of the elderly respondents reported that they have ever been measured their BP and 12.3% (n=75) reported that they have been told that they have hypertension and all are currently receiving medication treatments and/or advice for hypertension. About 13.7% (n=84) of the subjects had family history of high blood pressure. Only 8.3% (n=51) of the respondents reported that they had ever been told to have diabetes (Table 4.11).

Table 4.11: Physical activity, history of raised blood pressure and co morbidity (N=612)

Variable	Category	Frequency	Percent (%)
Work involve vigorous-intensity activity			
	Yes	437	71.4
	No	175	28.6
Days in a week with work involving vigorous-intensity activity(n=437)			
	Daily	286	65.4
	5-6 days per week	15	3.4
	3-4 days per week	65	14.9
	1-2 days per week	71	16.2

Walking at least 10 continual minutes			
	Yes	471	77.0
	No	141	23.0
Number of days for walking at least 10 continual minutes in a week(n=471)			
	Daily	277	58.81
	5-6 days per week	49	10.40
	3-4 days per week	82	17.41
	1-2 days per week	63	13.38
Mode of transport			
	On foot	300	49.0
	Bicycle	13	2.1
	Engine using vehicle	299	48.9
Vigorous-intensity sports activity			
	Yes	210	34.3
	No	402	65.7
Ever measured blood pressure			
	Yes	441	72.1
	No	171	27.9
Ever told by a doctor have hypertension			
	Yes	75	12.3
	No	537	87.7
Current on Hypertension medication or advices			
	yes	75	12.3
	No	537	87.7

Family history of high blood pressure			
	Yes	84	13.7
	No	528	86.3
Ever told have DM			
	Yes	51	8.3
	No	561	91.7

4.2.6   Physical measurements

The mean BMI of the participant was 24.42(SD ±2.90) minimum 15.6 and maximum 34.2, more than half 59.6 %(n=365) of the participant had a normal BMI, followed by 38.9 % (n=238) adults who were overweight and few 1.5% (n=9) participants were underweight. The mean systolic blood pressure reading was 115.27 (SD±17.09) minimum 80 and maximum 150 and mean diastolic blood pressure 75.73 (SD±11.024) minimum 50 and maximum 100.

4.2.7   Prevalence of hypertension

The overall prevalence of hypertension was 21.2%, higher in the urban setting (24.5%) than the peri-urban (14.7%) (x^2=7.81 and p-value 0.003). Fifty-five of the hypertensive participants were newly screened.
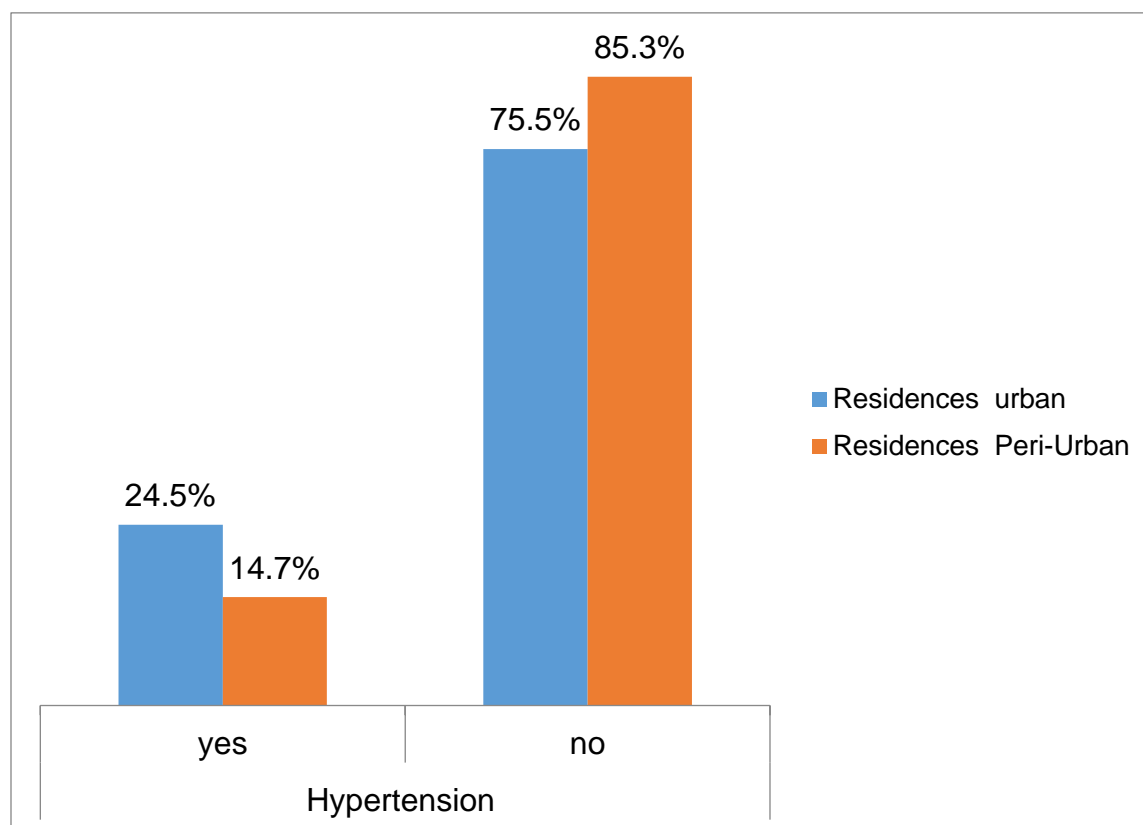
Figure 4.2: Prevalence of hypertension among adults by residence.

4.2.8 Factors associated with hypertension in the urban setting

Associations of selected variables of socio-demographic characteristics of respondents, cigarette smoking, alcohol consumption, dietary habit, physical activity, BMI, family history of hypertension and co-morbidity of respondents in relation to hypertension were analysed using logistic regression. Age, wealth, ever smoked cigarette , current cigarette smoking status, ever consumed alcoholic drink, drinking alcohol currently, ever chewed chat, coffee drinking, eating animal fat, fruit and vegetable eating habit, use of top added salt on plate, walking at least ten continual minutes, number of days walking at least ten minutes in a day, mode of transport, family history of hypertension, ever told have diabetes and overweight have shown association with hypertension in the binary logistic regression.

In the adjusted analysis undertaken to control confounder age, wealth, use of top added salt on plate, mode of transport, family history of hypertension, ever-told have DM and BMI were significantly association with hypertension.

Respondents who were aged 61 and above were 6.08 times more likely [AOR=6.08, 95% CI (1.91-19.33)] to be hypertensive as compared to respondents in the age group 31-40 years.

In the wealth index, least poor participants were found to be 8.34 times more likely [AOR=8.34, 95% CI (1.63-42.69)] to be hypertensive as compared to poorest. Adults who reported to have habit of using additional salt added to their food on the table were about 4.07 times [AOR=4.07, 95% CI (1.37-12.07)] more likely to be hypertensive than their counter part.

Those respondents who were not walking for at least 10 minutes continuously in a week were 7.82 times more likely to be hypertensive than those walking for at least ten minutes continuously in 4-7 days of a week [AOR=7.82, 95% CI (2.37-25.82)].

Respondents with family history of hypertension were four times more likely to be at increased risk of hypertension than those who had no family history of hypertension [AOR= 4.00, 95% CI (1.43-11.18)].

Study subjects who were ever told have DM were ten times more likely to be hypertensive as compared to peoples, which do not have DM. Those respondents who were overweight were 3.20 times more likely to be hypertensive as compared to respondents who had normal BMI [AOR=3.2, 95% CI (1.43-7.16)]

Table 4.12: Bivariate and multivariate analysis of factors associated with hypertension in the urban setting (N=612)

Variable	Hypertension		COR(95%CI)	AOR(95%CI)
	Yes (%)	No (%)		
Age				
31-40 Years	18(12.5%)	126 (87.5%)	1	1
41-50 Years	27 (24.5%)	83(75.5%)	2.26(1.18-4.39)	1.41(0.47-4.26)
51-60 Years	18(26.5%)	50(73.5%)	2.52(1.21- 5.23)	7.46(2.40-23.20)
≥ 61	37(43%)	49(57%)	5.29(2.75-10.15)	6.08(1.91-19.33)
Wealth index				
Poorest	11(14.9%)	63(85.1%)	1	1
Very poor	15(28.3%)	38(71.7%)	2.26(0.92-5.42)	6.64(1.25-35.12)
Poor	23(26.1%)	65(73.9%)	2.02(0.91-4.50)	3.60(.073-17.61)
Less poor	32(23.0%)	107(77.0%)	1.71(0.80-3.63)	4.8(1.06-21.76)
Least poor	19(35.2%)	35(64.8%)	3.10(1.32-7.27)	8.34(1.63-42.69)
Ever smoked cigarette				
Yes	24(44.4%)	30(55.6%)	2.92(1.61-5.29)	
No	76(21.5%)	278(78.5%)	1	
Current cigarette smoking status				
Smoking	17 (43.6%)	22 (56.4%)	2.66 (1.35-5.24)	
Not Smoking	83 (22.5%)	286 (77.5%)	1	
Ever consumed alcoholic drink				
No	58(19.5%)	239(80.5%)	1	
Yes	42(37.8%)	69(62.2%)	2.50(1.55-4.04)	

Drink alcohol currently				
No	66 (21.1%)	247 (78.9%)	1	
Yes	34(35.8%)	61(64.2%)	2.08(1.26-3.43)	
Ever chewed chat				
No	81(22.9%)	273(77.1%)	1	
Yes	19(35.2%)	35(64.8%)	1.83(0.99-3.37)	
Drink coffee				
No	14(40.0%)	21(60.0%)	2.22(1.08-4.56)	
Yes	86(23.1%)	287(76.9%)	1	
Eating animal fat				
No	49(17.9%)	225(82.1%)	1	
Yes	51(38.1%)	83(61.9%)	2.82(1.77-4.49)	
vegetable eating habit				
No	18(40.0%)	27(60.0%)	2.28(1.19-4.35)	
Yes	82(22.6%)	281(77.4%)	1	
Salt use (top added)				
Yes	25(47.2%)	28(52.8%)	3.33(1.83-6.05)	4.07(1.37-12.07)
No	75(21.1%)	280(78.9%)	1	1
Walking at least 10 continual minutes				
Yes	46(14.75%)	267(85.3%)	1	
No	54(56.8%)	41(43.2%)	7.64(4.57-12.76)	
Number of days walking at least 10 min in a day				
1-2 day	8(19.5%)	33(80.5%)	2.00(0.80-4.96)	
3-4 day	10(17.5%)	47(82.5%)	1.75(0.76-4.04)	

5-6 day	9(23.1%)	30(76.9%)	2.47(1.02-6.00)	
Daily	19(10.8%)	157(89.2%)	1	
Mode of transport				
Engine using Vehicle	67(29.6%)	159(70.4%)	1.82(1.13-2.93)	2.78(1.18-6.56)
Bicycle	6(100%)	0	0.00	0.00
on foot	33(18.8%)	143(81.3%)	1	1
Family history of hypertension				
Yes	35(54.7%)	29(45.3%)	5.18(2.95-9.08)	4.00(1.4-11.18)
No	65(18.9%)	279(81.1%)	1	1
Ever told have DM				
Yes	26(68.4%)	12(31.6%)	8.66(4.17-17.98)	10.55(3.46-32.12)
No	74(20.0%)	296(80.0%)	1	1
BMI				
18.5-24.99(Normal Weight)	37(15.2%)	207(84.8%)	1	1
<18.5(Under Weight)	1(16.7%)	5(83.3%)	1.19(0.12-9.85)	0.00
≥25(overweight)	62(39.2%)	96(60.8%)	3.61(2.25-5.80)	3.20(1.43-7.16)

4.2.9 Factors associated with hypertension in the peri-urban setting

Associations of selected variables of socio-demographic characteristics of respondents, cigarette smoking and alcohol consumption habit, dietary habit, physical activity, BMI, family history of hypertension and co-morbidity of respondents in relation to hypertension were analysed using logistic regression.

Sex, age, current cigarette smoking status, ever consuming alcoholic drink, drinking alcohol currently, vegetable eating habit, number of days walking at least ten minutes continual in a week, performing physical fitness activities, family history of hypertension, ever told have DM and overweight has shown association with hypertension in the binary logistic regression.

In the adjusted analysis, age, sex, vegetable eating habit, performing physical fitness activities and family history of hypertension were significantly association with hypertension. Males were 3.58 times more likely to be hypertensive than females [AOR=3.58, 95% CI (1.29-9.95)]. Respondents who were age 61 and above were 13.00 times more likely [AOR=13.00, 95% CI (3.73-45.25)] to be hypertensive as compared to respondents in the age group 31-40 years.

Adults who reported having no habit of eating vegetables were 2.95 times more likely to be hypertensive than those eating vegetables [AOR=2.95, 95% CI (1.04-8.40)]. Those respondents who do not have physical fitness activities were 3.08 times more likely to be hypertensive than those with physical fitness activities [AOR=3.08, 95% CI (1.06-9.00)]. In addition, respondents with family history of hypertension were 9.70 times more likely to be at increased risk of hypertension than those who had no family history of hypertension [AOR= 9.70, 95% CI (3.03-31.03)].

Table 4.13: Bivariate and multivariate analysis of factors associated with hypertension, peri-urban setting (N =612).

Variable	Hypertension		COR(95%CI)	AOR(95%CI)
	Yes (%)	No (%)		
Sex				
Male	22 (20.6%)	85 (79.4%)	2.87 (1.21-6.81)	3.58(1.29-9.95)
Female	8 (8.2%)	89 (91.8%)	1	
Age				
31-40 Years	8(6.9%)	108(93.1%)	1	1
41-50 Years	9(21.4%)	33(78.6%)	3.68(1.31-10.30)	3.05(0.97-9.6)
51-60 Years	3(12.5%)	21(87.5%)	1.92(0.47-7.87)	1.4410.28-7.23)
≥ 61	10(45.5%)	12(54.5%)	11.25(3.72-33.95)	13.00(3.73-45.25)

Current cigarette smoking				
Smoker	5 (31.3%)	11 (68.8%)	2.96 (0.95-9.24)	
Not Smoker	25 (13.3%)	163(86.7%)	1	
Ever consumed alcoholic drink				
Yes	9 (30.0%)	21 (70.0%)	3.12(1.26-7.71)	
No	21(12.1%)	153(87.9%)	1	
Drink alcohol currently				
Yes	9(40.9%)	13(59.1%)	5.39(2.02-13.91)	
No	21(11.5%)	161(88.5%)	1	
Vegetable eating habit				
Yes	20(12.4%)	141(87.6%)	1	1
No	10(23.3%)	33(76.7%)	2.13(0.91-4.99)	2.95(1.04-8.40)
Walk for at least 10 min				
Yes	17(10.8%)	141(89.2%)	1	
No	13(28.3%)	33(71.7%)	3.26(1.44-7.38)	
Perform sports/ physical fitness activities				
Yes	6(8.2%)	67(91.8%)	1	1
No	24(18.3%)	107(81.7%)	2.50(0.97-6.44)	3.08(1.06-9.00)
Family history of hypertension				
Yes	10(50%)	10(50%)	8.2(3.04-22.10)	9.70(3.03-31.03)
No	20(10.9%)	164(89.1%)	1	1
Ever told have DM				
Yes	6(46.2%)	7(53.8%)	5.96(1.84-19.24)	
No	24(12.6%)	167(87.4%)	1	

BMI			
18.5-24.99(Normal Weight)	12(9.9%)	109(90.1%)	1
<18.5(Under Weight)	1(33.3%)	2(66.7%)	4.54(0.38-53.87)
≥25(overweight/obese)	17(21.3%)	63(78.8%)	2.451(1.10-5.46)

4.3   FINDINGS OF THE QUALITATIVE PHASE

Three FGDs with 6 to 8 participants in each group were conducted. Participants were health care providers working in 'Adara' and Millennium Health Centre and Health Extension Workers (HEW) of selected sub-cities of the study in the first phase. The total number of participants were 21 which were grouped in a manner which maintained the homogeneity of the group.

4.3.1   Qualitative data analysis

The data analysis started simultaneously with data collection and continued after transcribing and translating the discussion in to English from Amharic. The translated document was meticulously read and data analysis was guided by Tesch's eight steps of data analysis for qualitative research (see 3.6.3.6 for the detail).

4.3.2   Biographical profile of the participants

Six HEW, eight nurses and seven health officers participated in the FGDs. Out of the total 21 FGD participants, 76.2% (n=16) were female. Ten (47.6%) participants of the discussion were in the age group of 26-30, 23.8% (n=5) in the age group of 20-25 and 6% (n=28.6) in the age group 31-35. Eleven (52.4%) of the FGD participants' level of education was diploma and the remaining ten were degree and above. The work experiences of the participants in their respective profession ranges from 1-25 years of which 12 (57.1%) were in the range of 1-5 years. Only two participants had ever trained training on non-communicable disease (NCD), especially on Hypertension (Table 4.14).

Table 4.14 Biography of the FGD participant (N=21)

Parameter		Frequency	Percent
Sex	Male	5	23.8
	Female	16	76.2
Age	20-25	5	23.8
	26-30	10	47.6
	31-35	6	28.6
Profession	HEW	6	28.6
	Nurse	8	38.1
	Health officer	7	33.3
Educational status	Diploma	11	52.4
	Degree and above	10	47.6
Work experience in this profession (in years)	1-5	12	57.1
	6-10	8	38.1
	>10	1	4.8
Trained any training on NCD especially on Hypertension	Yes	2	9.5
	No	19	90.5

Four themes and twelve sub-themes were found from the study, which was meant to obtain answer with respect to the objective of the study:

- To explore health care providers' perspectives regarding efforts exerted for the prevention of hypertension.

Table 4.15: Themes identified during the qualitative data analysis

Theme 1 Concerns of hypertension prevention	
	Sub-themes 1.1 Current situation and perception of hypertension prevention
	Sub-themes 1.2 Current response and efforts made for the prevention of hypertension
	Sub-themes 1.3 knowledge and awareness of hypertension prevention
Theme 2 View of health care providers about hypertension prevention activity	
	Sub-themes 2.1 Mechanism to follow-up
	Sub-themes 2.2 Attitude of health care providers regarding hypertension prevention activity
Theme 3 Health systems factors and policy	
	Sub-themes 3.1 Capacity building
	Sub-themes 3.2 Integration to health extension program
	Sub-themes 3.3 Lack and scarcity of resources
	Sub-themes 3.4 Availability of guideline on hypertension prevention
Theme 4 Concerns of partnership	
	Sub-themes 4.1 Inter-sectoral collaboration (Working in relation with other sectors)
	Sub-themes 4.2 Media
	Sub-themes 4.3 Donors and Non-Government Organization(NGO)

Theme 1   Concerns of hypertension prevention

Sub-themes 1.1 Current situation and perception of hypertension prevention

All participants (health care providers working in health centres and health extension workers working in the community) agreed on situation of hypertension that it is alarmingly increasing. They stated that in the past time disease was considered as disease of urban and rich people; but nowadays it is increasing in the whole group of population.

> *Formerly, hypertension was taken for the disease of the rich. Now the reality has changed.* (HEW, R3*)*
>
> *Now, ever poor class of the society is victim of this disease.* (HEW, R5)
>
> *Hypertension was not a common disease in our country… This time, the rate is highly increasing.* (MHC, R7)
>
> *Formerly blood pressure was not common in Ethiopia.* (AHC, R4)
>
> *People used to say blood pressure is the disease of the rich class. It is not question of economic standard. It is the disease of the whole society.* (AHC, R6)

Sub-themes 1.2 Current response and efforts made for the prevention of hypertension

Though all participants believed hypertension is public health concern, the majority placed that the response for the prevention activity of the disease was not satisfactory. The participants expressed their mixed opinions that some exert their own efforts like giving health education for the prevention activity and minimising risks of developing hypertension among the community. However, they also pointed out that there was no standard procedure of management. This management consequently ended up with difference in the prevention activity from health centre to health centre and even among health workers within a health centre. While some providers educate all clients and some only treat the acute case, the client is coming with even if he/she have the risk of hypertension like obesity, smoking and the like.

In my opinion, I don't think that what is being done is satisfactory be it the media or else has not given enough awareness to the people. (AHC, R2)

Now, since the majority of the population is victim of this disease, the government is also taking new steps. But it is not yet enough. (HEW, R5)

Formerly, because there was no awareness, we use to give treatment only when blood pressure symptoms such as severe headache occur. But now, due to the new and improved performance, whenever a patient comes we can right away measure the blood pressure and give treatment (MHC, R4*)*

... if you see for example diabetes have its own association but hypertension don't have any association till now the diabetes association is functioning well but nothing is being done on Hypertension. (AHC, R4)

I too advise only hypertensive ones; but have never taught about risk factors in advance. (AHC, R5)

I don't remember any day when I had given education on hypertension at the OPD. We give treatment to the patient only on the problem for which he had come. After giving him treatment on typhoid, I don't teach him about hypertension. (AHC, R6)

Work is being done to modify risk factor; but I don't think it is enough because most people do not like to walk (even short distance). It is advisable to walk at least 30 minutes per day. On holidays, fatty foods are taken for one week or 15 days. This causes increases in weight. (HEW, R2)

Both on the part of health professionals and the government enough attention is not paid to hypertension; it should be taken as a big issue. (MHC, R1)

The government is not paying attention to hypertension as it is doing to communicable diseases. The killing rate of hypertension is much higher than other diseases. The government must come up with serious measures. (AHC, R7)

Health workers at community level, HEWs, also reported that the response was not satisfactory. They said majority of attention went to other health extension programme packages than the attention given to hypertension and other non-communicable disease.

Hypertension prevention is not enough at national level in comparison to TB, Malaria and immunization. Much priority is given to communicable diseases. If controlled at the level of other diseases, hypertension could be reduced by 50%. (AHC, R5)

Even though the health care providers believe that it is good habit to teach every patient about hypertension, when a patient come for a particular disease, health education is not given to clients identified to be with normal blood pressure value during the measurement and was only conducted on hypertensive ones.

When patients come to me for a particular disease, I take their blood pressure. If it is not normal. I give them education. But I don't teach every patient about non-communicable disease. If practiced, I think it is good habit. (AHC, R7)

I don't remember any day when I had given education on hypertension at the OPD. We give treatment to the patient only on the problem for which he had come. After giving him treatment on typhoid, I don't teach him about hypertension. (AHC, R6)

When a patient comes to me, I give him counselling only regarding the problem for which he had come; not on NCD. (AHC, R2)

I too advise only, hypertensive ones. (AHC, R5)

Sub-themes 1.3 knowledge and awareness of hypertension prevention

The majority of the participants said that there are still many people in the community who know nothing about hypertension. The community is hard pressed with low awareness of hypertension and its early prevention through the use of healthy foods, where families that eat vegetables are perceived as poor.

We give education to those who know nothing on it. What they should feed and on proper physical exercise… (MHC, R2*)*

Still there are many who know nothing about hypertension and talk about vegetables and other non-fatty food as a diet of those with poor economic status (HEW, R5)

It was also mentioned that there is a misconception among some people in the community regarding going to a heath facility for check-up of hypertension. They believe that for a healthy person to go for a checkup is tantamount to attracting bad luck by inadvertently calling the disease on oneself.

During my visit to village 'X' of our kebele majority of the villagers especially the elderly believe that going to heath facility for check-up while a person is healthy is calling the disease on oneself which I never had thought of this kind of perception would be there in this era. (HEW, R4)

They also mentioned that quality of life in the community is measured with what a person is using to travel form place to place and what type of job a person has. With respect to this, it was noted that people using motorcycles or engine using vehicles and folks with white collar jobs were considers to have quality lifestyle, which implies physical inactivity in this category of the population.

Traditionally, in our country, being fatty is seen as a comfortable and healthy life. Such perception must be changed. (HEW, R5)
Our community have a firm stand that if a person is using car or motorcycles to move from place to place and is working at office be it private job or employed he/she is considered leading a quality life. (HEW, R4)

Theme 2: View of health care providers about hypertension prevention activity

Sub-themes *2.1* Mechanism to follow-up

The majority of respondents agreed that there were challenges to ar range follow-up even to those peoples diagnosed to be hypertensive. It was reported that follow-up was done

only if hypertensive individuals are coming to them. Some noted that due to limited awareness about the disease, most clients do not come back on appointment date or only few may do that.

> *... if person diagnosed hypertensive come to me for check-up and need follow-up I will do that. Otherwise, I don't remember follow-ups I arranged and conducted.* (MHC, R3)
>
> *On follow-up, what I would like to talk is most clients don't come for follow-up regularly. If a patient with hypertension comes to me, I do follow-up for him.* (AHC, R2)

The respondent also mentioned that the follow-ups of individual identified to have risky behaviour to contract hypertension was not done intact and the screening activity of individual to have risky behaviour to contract hypertension, be it in health facilities or during home to home visit of HEW, is almost not in place.

> *It is good idea that peoples with risky behaviour for hypertension like chat chewing, drinking alcohol, smoking, physical inactivity must be in follow-up and support to get rid of this things before it ends up with being hypertensive, but in our setting we are not practicing this follow-up activity. (*HEW, R6)
>
> *We expect the follow-up of people with hypertension risky behavior to be done by the HEW as they are very close to the community than we do. But, in our case, we are not doing so. (*AHC, R4*)*

Sub-themes 2.2: Attitude of health care providers regarding hypertension prevention activity

All participants agreed that non-pharmacological management of hypertension or the preventive activity like avoiding improper diet, quitting smoking, stopping excessive alcohol consumption, weight reduction through physical activates, avoiding other risk factors of hypertension and lifestyle modification are highly encouraged. However, the

health workers mentioned as a general fact that behavioral change does not take place all at once.

> *Non-pharmacological managements like reduction of risk behaviour minimise hypertension.* (MHC, R3)
>
> *We teach them about behavioural change. Behavioural change does not take place all at once; it is slow process. The main idea behind it is stopping drinking, smoking, weight reduction through physical activities, correcting improper feeding and other addictions. We tell them that root cause of hypertension is such addictions.* (MHC, R7)
>
> *Previously people had no awareness on NCD like blood pressure; but now due to the improvement through health education we do not always advice patients to use drugs. Instead, we advise them to take proper diet and consult health workers every 3 or 5 days.* (MHC, R6)
>
> *Both on the part of health professionals and the government enough attention is not paid to hypertension.* (MHC, R1)

Theme 3: Health systems factors and policy

Sub-themes 3.1: Capacity building

Capacity building of health workers at all level through training on hypertension prevention and its management is one of the entry points for the prevention activity of hypertension. The participants mentioned that there is a gap on building the capacity of the health working force through providing training or at time of supportive supervision as training and follow-ups are the best tools to build capacity of health care providers and at the same time to motivate them to perform activities. This idea of the participants is also supported by their own biographic information collected during this study, that out of the total 21 FGD participants, only two participants have had training on hypertension. In addition to this, all the participants mentioned that they never have heard that anyone have been trained on hypertension in their respective facilities.

Up to now, we have been working only with the help of what we studied in school. Training and capacity building through training and follow-up must be given due attention (AHC, R3)

We are not having any training on hypertension since we are deployed to date. (HEW, R2)

Sub-themes 3.2 Integration to health extension programme

Even though hypertension is one components of NCD prioritised in health extension programme packages, the majority of respondents did not believe it was functional. Some respondents appreciated the referral system while some opposed the referral system was not satisfactory.

I appreciate referral working system. (AHC, R3)

I don't think referral working system is effective enough. (AHC, R4)

I believe the government is paying much attention to health extension programme. Since the workers have direct contact with the community, the referral which comes through them is usual; but it needs to be improved on the area of non-communicable disease (NCD) prevention. (AHC, R7)

Health extension workers also believed that there was gap on the integration activite of hypertension, mentioning that less attention is given to hypertension as compared to other diseases. They said they were giving health education but some HEW even lack blood pressure apparatus to screen and refer.

Attention must be given to hypertension as is done for HIV counselling and testing, tents must be pitched along large streets to measure BP. (HEW, R6)

Sub-themes 3.3: Lack and scarcity of resources

The participants mentioned that there is high limitation with organisational capacity for the screening and early diagnosis of hypertension so that the prevention activities could run

smoothly as far as problems in the shortage of apparatus are not solved in its totality. They mentioned that material supply is imperative. However, they are told to work without materials, or if available, one apparatus may circulate all over the services delivery points in the facility.

> *They tell us to work without material. We got only one digital apparatuses after a lot of complaint. This problem must be solved.* (MHC, R1)
>
> *There is only one office with material; each office must have material.* (MHC, R3)

It was also pointed out that the work must be equipped with enough supply of modern apparatuses so that it makes the job less time consuming for both the provider and clients. Even if health workers want to check BP, lack of enough apparatus will not give the chance to see all clients coming to them at least once or may remain totally, which have a paramount influence on the provision of full package of heath care in general and the hypertension prevention and control in particular.

> *Enough supply of apparatuses reduces wastage of time.* (HEW, R4)

The participants also mentioned that there is no any separate room arranged for the prevention activates of NCD to be done in health facilities, which must be considered during the construction of health centres or allocating room for the activities among rooms which are available in the facility. At the community level, the HEW showed that they are facing shortage of BP apparatus.

> *... sometimes we face shortage of supplies, there is only one BP apparatus per kebele there...* (AHC, R6)
>
> *We do not have enough BP apparatus. We have only one apparatus for six. Therefore, in 15 days, the change of seeing one patient is only one!* (HEW, R1)
>
> *... NCD must have their own offices with OPD. Thus, much work can be done to be successful in reducing BP disease ...* (MHC, R3)

Sub-themes 3.4: Availability of guidelines on hypertension prevention

Regarding the availability of guidelines to manage hypertension, the majority of respondents reported that there was no guideline while few answered there was and few respondents were not sure of its presence. Those who reported guideline was not available were worried of the situation stating that they were only doing based on what they had learnt in school, which was further challenged by unavailability of training to update their knowledge and skills.

> *Except professionals' counselling, there is no any government policy or guideline regarding hypertension.* (AHC R1)
>
> *... there is no guideline regarding hypertension ...* (AHC, R2)
>
> *... hypertension has no its own policy or guideline...* (AHC, R3)
>
> *... we are teaching patients what we studied in school there is no guideline regarding hypertension...*(AHC, R4)
>
> *Government may have its own policy and guidelines; but I don't know anything except what I have learnt at school.* (AHC, R6)

Theme 4: Concerns of partnership

Sub-themes 4.1: Inter-sectoral collaboration

The respondents believe that hypertension problem can be reduced by performing the prevention activity by creating relation and integration among sectors and agencies like the education sector, youth and sport sectors with the health sector. However, they stated that there is no condition whereby they work in relation with other sectors.

> *If we create relation among sectors, I believe hypertension problem can be reduced.* (AHC, R1)
>
> *In collaboration with other sectors, it is possible to work. With hypertension no such thing.* (AHC, R4)
>
> *Regarding hypertension? No such special case like working with other sectors.* (AHC, R3)
>
> *There is no condition where they work in relation with other sectors.* (AHC, R1)

Sub-themes 4.2: Media

The participants reported that there is media coverage on disease prevention and health promotion activities; but it was explained that it is not enough as compared with the potential that media have to educate great number of people at once. The problem with utilising the media to teach about hypertension prevention is highly manifested to the extent that one has never had heard anything mentioned about hypertension prevention through media. Moreover, media seem like lacking regulation to uncontrolled alcohol advertisement where the media's are highly utilized to advertise different kind of alcoholic drinks, which are in contradiction to works to be done on NCD.

> *Education through media is not enough.* (MHC, R4)
>
> *Utility of media depends on how properly it is applied. If properly applied, it can be fruitful because of a lot of listeners. It can educate great number of people at once.* (MHC, R8)
>
> *Media is not properly utilised to teach about hypertension. If we compare HIV media education with that of hypertension, one can say almost nothing has been done regarding hypertension through media. Hypertension is dangerous than HIV; HIV patient can live longer through treatment while hypertension patient may die unaware at any time as the disease is a silent killer.* (MHC, R5)
>
> *Media work must be done on hypertension like HIV. The government must avoid things, which cause hypertension from the media.* (MHC, R4)
>
> *Instead of advertising beer, the media must work on NCD.* (AHC, R4)
>
> *There must be regular media programmes for education on hypertension so that the public can get awareness.* (AHC, R7)
>
> *Mostly we hear through media about protecting oneself against reneral diseases; similar habits must be developed regarding hypertension.* (AHC, R6)
>
> *Health care at home" programme is somehow working even if it can't reach the rural area well. But south media is not doing any work on hypertension. No any education on lifestyle modification!* (AHC, R3)
>
> *Media work on hypertension is not enough; still there are many who know nothing on hypertension.* (HEW, R1)

Media is not working on hypertension and other NCD as much as it is working on HIV and malaria. (HEW, R2)

I have never heard anything mentioned about hypertension through media. (HEW, R4)

Media coverage is so low that it is not possible to express in percentage. At national level, we can say it does not exist. (HEW, R5)

Sub-themes 4.3: Donors and NGO

The health care providers mentioned that as things are given due attention from the upper level it will also get much emphasis at the lower level. According to the observation reflected by participants, much attention is given for other disease like HIV, malaria and maternal and child health services. Therefore, these activities have many donors and many NGOs supporting the activities. However, they were not able to mention any partners who support hypertension prevention activity in particular and NCD prevention in general. The majority of participants audaciously mentioned that donor funding and NGOs support for hypertension prevention activities is much less or nil as compared to the investments on communicable disease.

> *Many programmes have their own budget. For example, HIV/AIDS prevention and control, TB, malaria and so on which is allocated both by government and other partners. But I don't know why NCD did not get this attention. Special attention must be given to hypertension.* (AHC, R5)
>
> *I suggest that NGOs invest with a sort of fund to diseases like hypertension than accumulating their budget at diseases which all NGOs and funders are doing on. (MHC, R4)*

4.4   CONCLUSION

In this chapter, the quantitative and qualitative data analysis and results of the study were presented. The next chapter presents discussion on the research findings presented in this chapter.

CHAPTER FIVE
DISCUSSION OF RESEARCH FINDINGS

5.1   INTRODUCTION

The previous chapter presented the quantitative and qualitative data analysis and results of the study. This chapter discusses the results of the study. The discussion is made in two sections, section A discusses phase one of the study, which is the quantitative part and section B discusses phase two of the study, which is the qualitative part.

SECTION A

5.2   SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The mean age of the study participate is 47.56 years (SD ±13.40) where male respondents are slightly higher than females. The majority of the study respondents (81.7%) are married. One hundred eighty-three (183) (29%) of the study respondents' level of education is diploma. More than half 55.1% (n=337) of the total respondent of the study are followers of protestant religion, which is the predominant religion of the area. Out of the total number of respondents 36.3% (n=222) reported that they belong to Sidama ethnic group. According to Central Statistics Agency (CSA) (2014) reports, these findings are in agreement with the trend in the general population of the region.

The mean family size in the households of the respondents was 4.79 with a standard deviation of 1.91 persons with a median of five and minimum one person in a house to the maximum 12. This is consistent with national average estimated family size in Ethiopia (4.7) (CSA 2014).

5.3 KNOWLEDGE OF RESPONDENTS ON HYPERTENSION RISKY BEHAVIOUR AND PREVENTION

Knowledge on the disease and its risk factors is one of the prominent and key issue to be considered while thinking about the prevention activity of hypertension (Baig, Gazzaz, Gari, et al. 2015:819; Almas, Godil, Lalani, Samani & Hameed 2017:585). In this regard, different general and specific hypertension knowledge assessment questions were posed and scored by giving one (1) to correct answer and zero (0) to the wrong answer.

Information on hypertension was one of the questions asked and in response to this, 83 % (n=508) of the respondents had heard about hypertension. This finding is in line with a study from Mongolia, where 17.4% of respondents never had heard the term hypertension before (Demaio, Otgontuya, Maximilian de Courten, et al. 2013:3). The sources of information about hypertension for 66% of the respondents were health workers. This finding is similar with a study from United Arab Emirates (UAE) conducted among entry level university students, which reported six among ten students gain information about hypertension from health professionals (Akter, Assadi, Singh, et al. 2014:20).

The value of normal BP of adults was asked as one of a general question and 42% (n=257) of respondents gave correct answer. In comparison to a study from India, which reported that 24% of the respondents know the normal BP level of adults the current study report is higher. However, this finding is lower than reports of other studies results like a study from Pakistan and Sir Lanka where, 77.9% and 72.6% of the respondents respectively know the normal value of blood pressure. These differences might be owing to the difference in the study population or what is done on hypertension prevention activity involving the community in India may be minimal as compared to the finding of the current study report. The former study showed less than half of the respondents' responses to be incorrect and again which is also lower than findings from other countries like Pakistan and Sir Lanka (Parmar, Rathod, Rathod, et al. 2014: 682; Saleem, Azmil, Akmal, et al. 2012:50; Pirasath, Kumanan & Guruparan 2017:3).

Eight from ten respondents mentioned that cigarette smoking is risk behaviour for developing hypertension, which is consistent with a finding from India where 81% of respondents responded that smoking is the major cause of hypertension. As compared to the same study from India, excessive salt consumption in the current study was not well recognised as risk behaviour for developing hypertension where only half of the current study respondents mentioned excessive salt consumption as one of the factors while 82% of Indians mentioned salt to be a contributing factor for developing hypertension (Parmar et al. 2014: 683).

Most literature reports the fact that hypertension is non-contagious disease (Ruano, Melo, Mogrovejo, et al. 2015:005). However, in the current study, only 33.7% (n=206) of the total respondents agreed that hypertension is not a contagious disease which can be said that respondent have low level of knowledge to the non-contagiousness of the diseases. The prevention activity of hypertension can run from the primary level of disease prevention to the tertiary level of disease prevention. However, focusing on the primary level of disease prevention for hypertension prevention is of paramount benefit and it should be mostly base at this level (Ofili & Ncama 2014:44). Getting this into consideration, for a question posed to the study respondents whether hypertension is preventable or not, 66.2% agreed that hypertension is preventable disease, which shows that one third of the respondents do not know if the disease is preventable or not. Nearly half of the respondents (43.1%) do not know that hypertension is a chronic disease and vast majority 95.9% (n=587) of the subjects agreed hypertension may cause sudden death (Lewanczuk 2008: 483).

As detailed in Chapter 3, a single variable of knowledge with three ordinal response options was computed from 14 knowledge items to show the overall knowledge level of the respondents on hypertension risky behaviour and prevention. Among the total respondents, 46.1% (n=282) of the respondents were found in the "low level" category of knowledge about hypertension risky behaviour and prevention, 37.6% (n=230) with "medium level" knowledge and 16.3% (n=100) had "high level" knowledge of hypertension risky behaviour and prevention.

These findings are comparably equal to study findings done among workers working at university in the same area where this study is conducted (Esaiyas, Teshome & Kassa 2018:3). A finding from Pakistan and Sri Lanka, which assessed knowledge and categorised it into three categories as poor knowledge, average knowledge and adequate knowledge, reported that 37.9% of respondents in Pakistan and 30.1% in Sri Lanka had poor knowledge about hypertension. In comparison to this, respondents of the current study found to be in the category of low level of knowledge (46.1%) are higher (Saleem, et al. 2012:50; Pirasath, Kumanan & Guruparan 2017:3).

Respondents in the second category or which have medium level of knowledge of hypertension from Pakistan (61.3%) are much higher than the current study (37.6%). In the third category finding of the current study (16.3%) is much lower than that of Sri Lanka (69.9%) and higher than Pakistan (0.8%) (Saleem, et al. 2012:50; Pirasath, et al. 2017:3). These differences might be owing to the difference in the study participant, which are from the general population versus hypertensive patients and few differences in the question asked to the different groups of the studies.

5.4 ATTITUDES OF PARTICIPANT ON HYPERTENSION RISKY BEHAVIOUR AND PREVENTION IN TERMS OF THE HEALTH BELIEF MODEL (HBM)

5.4.1 Perceived susceptibility

Erroneous understanding of people towards the perceived susceptibility of a disease leads to decreased attention to the prevention activities (Middleton 2009:15). Perceived susceptibility in this study implies respondents' attitude toward behavioural risk factors of developing hypertension, their risk of developing hypertension and the level of the problem in Ethiopia. In view of this, out of 612 respondents assessed, 69% (n=420) responded that they agreed everybody is at risk of hypertension and 67% (n=412) reflected there susceptible by agreeing that they might contract the disease. Furthermore, 76% (n=467) of the respondents agreed that hypertension is health problem in Ethiopia.

A single variable of attitude of perceived susceptibility of respondents toward behavioural risk factors of developing hypertension, their risk of developing hypertension and the level of the problem in Ethiopia was computed from the eight assessment questions under the construct after items were reverse-scored in the same direction. Attitude scores ranging between 0 and 4 were considered as poor attitude whereas attitude scores >4 were considered as positive attitude. The result showed that 33.8% (n=207) of respondents demonstrated positive attitude toward perceived susceptibility, 61.8% (n=378) were neutral and the remaining 4.4% (n=27) had poor attitude. As can be seen from this result, more than half of the respondents are in the category of feeling nothing towards behavioural risk factors of developing hypertension and their susceptibility. This finding is in line with a study conducted among black population living in London (Newell, Modeste, Marshak & Wilson 2009:39).

5.4.2   Perceived severity of hypertension

Attitude towards perceived severity of the disease rather than the true severity of disease is a determinant of activities to be carried out for the prevention of a disease (Dijkstra, Okken, Niemeijer & Cleophase 2008:182). Keeping this in mind, it will be meaningful to look for factors determining attitude to the perceived severity of disease before embarking to the prevention activity.

In the face of the fact that there is no cure for hypertension (Onoruoiza, et al 2015:13) and in the attempt made to observe the perceived severity of hypertension putting that the disease is no curable, only 43% (n=261) of the current study respondents agreed hypertension is chronic disease. In addition, 90 % (n=551) and 70% (n=429) of the respondents respectively agreed that hypertension cause sudden death and the complications is dangerous for life. In the effort made to explore respondents' perception of the severity of hypertension with regard to modifiable and non-modifiable risky behaviours, 50% (n=303) agreed that hypertension is a more severe disease in elderly people among the non-modifiable factor.

108

A single variable of attitude towards the perceived severity of hypertension with regard to modifiable and non-modifiable risky behaviours was computed by running frequency after items were reverse-scored in the same direction. One hundred eighty eight (188) of the respondents demonstrated positive attitude toward perceived severity of hypertension and 9.2% (n=19) had poor attitude toward perceived severity of hypertension. This is in line with a study conducted in London where only few number of study participants did not perceive that developing hypertension had severe consequences (Newell et al. 2009:39).

5.4.3   Perceived benefits of applying hypertension prevention activities

The results showed that 77.9% (n=209) of respondents demonstrated positive attitude toward their perceived benefit of applying hypertension prevention activity and 22.1% (n=59) had poor attitude. In line with a study conducted in London where most respondents perceive that activities to reduce the risk of hypertension was beneficial, in the current study, the large proportion of respondents believe in the benefit of applying hypertension prevention activities, which show that there is good attitude towards perceived benefit of applying hypertension prevention activity (Newell et al. 2009:39).

5.4.4   Perceived barriers of hypertension prevention activities

Different perceived barriers could hinder hypertension prevention activities of people. In his study conducted to show the perceived barriers to hypertension management, Rimando (2015:332) pointed out that lack of motivation and money were some of the barriers for the control of hypertension among hypertensive people. This also works out for the prevention activity of hypertension. In the same breath, 41% of the current study respondents agreed that they are not encouraged by family or friends to perform hypertension prevention activity and believe that hypertension prevention activities need time, money and space.

In this study, 54% of the study respondents agreed that they have lack of enough knowledge on the prevention activities. This finding is in agreement with a meta-analysis

report where many studies included in the meta-analysis reported that there is lack of knowledge for hypertension prevention among the participants in spite of the fact that respondents in most of the studies are hypertensive (Khatib, Schwalm, Yusuf, et al. 2014:6). The same meta-analysis has pointed out that accessibility to health facilities was the big barrier for most of the participants. The same to this finding, half of the total respondents in the current study agreed that the inaccessibility of health facility to get measured for BP is one of the barriers for the adoption of hypertension prevention activities.

A single variable of attitude of perceived barriers toward applying hypertension prevention activity was computed from seven assessment questions under the construct after items were reverse-scored in the same direction. Attitude scores ranging between 0 and 4 were considered as poor attitude whereas attitude scores >4 were considered as positive attitude. The results showed that 47.8% (n=148) of respondents demonstrated positive attitude to perceived barriers and 52.2% (n=161) had poor attitude. This finding can easily show us more than half of the adults will be problematic to avert the barriers and engage in the prevention activities with this poor attitude, which further led to low acquiescence to recommended activities of hypertension prevention (Middleton 2009:14).

5.4.5   Cue to action

In a study aimed at determining the predictive power of HBM constructs in self-care behaviours of patients with hypertension, health workers and family were identified to be efficient cues to action (Kasmaei, et al. 2015:10). Conversely, in the current study, only 20% of the respondents responded that they are always initiated to apply hypertension prevention action after they got sufficient information about hypertension from the mass media, got advice from family or friends and heard from HEW. This difference might be participant of the current study may lack sufficent information before they are initiated to get in to hypertension prevention activity, which gave such lower percent of participants to be initiated.

Despite the fact that hypertension is chronic disease, 28.3% of the respondents responded that they are not nodded to apply hypertension prevention activities at all owing to the fearing that the disease is chronic disease (Onoruoiza et al. 2015:13). In addition, 21.2% (n=130) have not initiated any involvement in hypertension prevention activities even if they see people close to them who are ill with hypertension.

In general, respondents' attitude toward what prompted them to apply hypertension prevention activities was computed after items were reverse-scored in the same direction and given score of 0 for those responded "not at all" and "rarely" and 1 for "Sometimes" and "always". There were five assessment questions under the construct where attitude scores ranging between 0 and 3 were considered as "poor attitude" whereas attitude scores >3 were considered as "positive attitude". The results showed that 30.3 % of respondents demonstrated positive attitude to cue to action and 69.7 % had poor attitude of cue to action in the prevention activity of hypertension which makes the prevention activity problematic (Kasmaei et al. 2015:10).

5.5   BEHAVIOURAL MEASUREMENTS

5.5.1   Cigarette smoking, alcohol consumption and chat chewing

Twelve per cent (12%) (n=74) of the respondents reportedly said that they have smoked cigarette in their lifetime, of which 9% (n=55) were current smokers. Among the current smokers, 25% (n=14) smoke cigarette daily. This finding is comparably higher than a study conducted among university students in Gonder, Ethiopia, which reported 2.6% of the student smokes cigarette of which 40% smokes daily (Tadesse & Alemu 2014:3). This difference might be owing to the age difference among the two study groups, where some evidences showed median age at the start of smoking was 24 years (Jima, Tefera & Ahmed 2015: 651).

Nearly one fifth of respondents 23.0% (n=141) responded that they ever drink alcohol in their lifetime and 19.1% (n=171) of the respondents reported drinking alcohol currently. Of these, the total current drinkers 32.5% (n=38) reported that they drink alcohol 3-4 days

per week. Among those who reported drinking alcohol, 56.4% (n=66) drinks 1-3 glass of alcohol per drinking occasion. This finding is higher than the study conducted among university students in Gonder, Ethiopia. However, it is lower than community-based study among adults of Jimma Town (Tadesse & Alemu 2014:3; Jima, et al. 2015: 651). This difference might happen owing to the cultural difference among the two communities and the age difference in the two study groups.

With regard to chewing chat, 14.1% (n=86) of the total respondents reported that they have ever chewed chat in their lifetime and 10.1% (n=62) are currently chewing chat, of which those chewing daily and 3-4 days per week accounts for 61.3% (n=38) of the total current chewers. The finding of current chat chewing is similar with that of the study among university students in Gonder, Ethiopia (Tadesse & Alemu 2014:3).

5.5.2   Dietary habit of respondents

Concerning dietary habit of respondents, 70.1% (n=429) reported that they eat fruit, of which 42.7% (n=183) eat 1-2 days in a week. This finding is lower than the finding from a study conducted in Ghana, which reported that 52.2% of the respondents eat fruits once in a week (Solomon, Adjuik, Takramah, et al. 2017:4). With regard to salt consumption, few respondents 13.2% (n=81) reported that they ever use extra salt adding to their plate after food has been prepared in line with this finding and the majority of respondents from a study conducted at Ghana did not add extra salt when food was ready for consumption (Solomon et al. 2017:4).

5.5.3   History of raised blood pressure and co-morbidities

Four hundred forty one (441) (72.1%) of the adults reported that their BP had been measured and 12.3% (n=75) reported that they have been told to have hypertension and all are currently receiving medication treatments and/or advice for hypertension, which is lower than a study finding done among bankers and teachers in Addis Ababa (14.9%). This difference might be the difference in the type of the study population (Fikadu & Lemma 2016:3).

About 13.7% (n=84) of the subjects had family history of high BP, which is lower than many studies (Oliveira et al. 2014:3; Solomon et al. 2017:4). This difference might be owing to the reason that most adults are not aware of the BP status and the hidden nature of the disease in the country (Tesfaye, et al. 2009:6).

Only 8.3% (n=51) of the respondents reported that they had ever been told to have diabetes which is higher than in the findings of a study conducted among bankers and teachers in Addis Ababa (4.8%). This difference might be the difference in the type of the study population (Fikadu & Lemma 2016:3).

5.5.4   Physical Measurements

Weight and height measurements were conducted to compute the BMI of respondents where the mean BMI of the participant was found to be 24.42 (SD ±2.90). From the total respondents, 59.6% (n=365) had a normal BMI. This is similar to a study finding conducted among university students in Gonder, Ethiopia (Tadesse & Alemu 2014:3) followed by 38.9 %(n=238) adults who were overweight. This is higher than the finding of the study among university students. This difference might be owing to the lifestyle, the age and the dietary habit difference among the two population groups. However, this finding is close to the finding of a study conducted among bankers and teachers in Addis Ababa, where 55.3% of the participants had a normal BMI, while 26.3% were overweight (Fikadu & Lemma 2016:3).

The mean systolic (115.27 (SD ± 17.09)) and diastolic (75.73 (SD ± 11.024)) blood pressure reading was nearly similar to the measurements taken in Jimma and Gondar towns during community-based studies conducted among adults (Awoke et al. 2012:4; Bissa, Mossie & Gobena, 2014:4).

5.6   PREVALENCE OF HYPERTENSION

As defined and pointed out in Chapter 1, hypertension is one of the cardiovascular disease that is also a risk factor for life threatening problems increasing alarmingly in the world and particularly in sub-Saharan African countries (Mittal & Singh 2010: 594). In this study, hypertension is defined as systolic and/or diastolic blood pressure measure ≥ 140 /90 mmHg and/or participants on antihypertensive medication and/or advices.

In line with this definition of hypertension, one in five adults in the community remarkably had hypertension with overall prevalence of 21.2%. This finding is consistent with a community-based cross-sectional study conducted among adults residing in Jimma Town with the prevalence of hypertension found to be 21.3% (Bissa, et al. 2014:4). However, the result is slightly higher than community-based cross-sectional studies conducted in 2011 at the same region where this study is conducted, with a prevalence of 18.8%. This shows that the increment in trend of the disease in the region with difference in the time period (Giday & Tadesse 2011: 142).

Many studies and WHO reports established the fact that hypertension is more prevalent in urban settings of developing countries of Africa and others (Sarki et al. 2015:5; Dastan, Erem & Cetinkaya 2017: 41; Ratovoson, Rasetarinera, Andrianantenaina, et al. 2015:4). In line with this fact, the prevalence of hypertension in this study is higher in the urban settings (24.5%) than the peri-urban settings (14.7%) with a statically significant value of (x^2=7.81 and p-value 0.003). This finding is also supported by a finding of country-wide study from Burkina Faso where the difference exists in the prevalence of hypertension between urban (24.81%) and rural areas (18%), which show higher prevalence in the urban setting with statistically significant result (Soubeiga, Millogo, Bicaba, et al. 2017:4). The prevalence of hypertension (24.5%) in the urban setting of this study is nearly close to the prevalence of hypertension in Angola (23%) (Daniel et al. 2013:13) and Kenya (23.7%) found from a cross-sectional household surveys conducted in four rural and urban communities (Hendriks et al. 2012:5).

114

The prevalence of hypertension in the peri-urban settings (14.7%) is found to be consistent with a community-based cross-sectional study conducted in two rural areas in Delhi. The findings indicates overall prevalence of 14.1% and in Nigeria 14.4% (Jugal, Neeru, Charu & Neeta 2016:2; Ekpenyong, Udokang, Akpan & Samson 2012:256). The finding is alos consistant with a finding of a community-based screening campaign for hypertension at rural Ugandan community with a prevalence of 14.6% (Kotwani, Kwarisiima, Clark, et al. 2013:4).

According to WHO (2017), it is estimated that out of the people with hypertension, only 57% know their condition at the global level. This awareness level is equivalent with the result of the current study where 55 of the hypertensive individuals from 130 countries do not know that they have hypertension and were newly screened, which accounts for 57% out of the hypertensive.

5.7   FACTORS ASSOCIATED WITH HYPERTENSION

A number of studies have indicated that hypertension is positively associated with higher age (Mahmood et al 2011:46; Abebe, Berhane, Worku & Getachew 2015:5; Neema, Michael, Adinan, et al. 2017:3; Soubeiga et al. 2017:4; Kotwani et al. 2013; Mengistu 2014:4). Furthermore, a meta-analysis conducted in Brazil to establish the burden of hypertension among elderly individuals of 60 years of age and above showed prevalence of hypertension to be as high as 68.0% (Rafael, Flavio, Leila & Sandra 2013: 544). Another meta-analysis in low and middle-income countries also showed older age (>65 years) is strongly associated with hypertension (Sarki et al. 2015:6). A study from China revealed one among two (56.5%) elderly people aged 65 years is hypertensive, which shows the strong association of hypertension with increasing in age (Gao et al. 2013). In the current study, results of the multivariate logistic regression model indicated, in the urban resident participant, odds of being hypertensive was six times higher in age group 61 and above as compared to respondents in the age group 31-40 years. The association between hypertension and increasing age was much stronger in peri-urban dwellers of the study with adjusted odds ratio of 13 times more in the age group 61 and above as compared to the lower age group of the study (31-40 years).

With regards to the disparity of the burden of hypertension among male and female authors like Asresahegn, Tadesse and Beyene (2017:3), Asfaw, Ayanto and Gurmamo (2018:4); Kotwani et al. (2013:4), Demisse, Greffie, Abebe, et al. (2017:4), Bayray and Berhe (2012: 4209) and Mengistu (2014:4) mention that hypertension is more prevalent in males as compared to females. In the current study, males residing in the peri-urban setting were 3.58 times more likely to be hypertensive than females peri-urban residents [AOR=3.58, 95% CI (1.29-9.95)]. This finding, which is also supported by the aforementioned authors, may be owing to a culture where men have much of the burden to take care of his family as a head of the family, type of job they are engaged and physical inactivity.

Physical inactivity is one of the determinant factor that increase the risk of developing non-communicable disease like hypertension (Owen, Healy, Howard & Dunstan 2012:4; Linda, Hayley, Lauren & Blair 2015:6). A study in the northern part of Ethiopia showed that participants who did not walk at least for ten minutes continuously on daily basis were about three times more likely to be hypertensive compared to those walking at least ten minutes daily (Awoke et al. 2012:4). Similarly, the current study also identified that those respondents who were not walking for at least ten minutes continuously in a week were 7.82 times more likely to be hypertensive than those walking for at least ten minutes continuously in 4-7 days of a week [AOR=7.82, 95% CI (2.37-25.82)]. Another case control study in the northern part of the country also support this finding which reported the association between work involving vigorous intensity activity that cause large increases in breathing or heart rate was protected from hypertension (Bayray & Berhe 2012: 4209).

In the peri-urban setting, those respondents who do not have physical fitness activities were 3.08 times more likely to be hypertensive than those performing sports/physical fitness activities [AOR=3.08, 95%CI (1.06-9.00)]. This finding resonates with Saeed's (2015:5) findings, which sowed inverse relation of physical activity (AOR = 0.69, 95% CI: 0.47 – 0.99) and hypertension.

Previous studies conducted in Ethiopia and globally highlighted the existence of strong association between hypertension and having a family history of hypertension (Giday & Tadesse 2011:142; Gudina, et al. 2013:114; Kalssa, Ayele, Tamiso & Girum 2016:381; Addo, Agyemang, Smeeth, et al. 2012:5; Soubeiga et al. 2017:4; Kotwani et al. 2013:4; Margaret, Wisdom, Phillis, et al. 2017:60). In the current study, urban setting respondents with family history of hypertension were four times more likely to be at increased risk of hypertension than those who had no family history of hypertension [AOR= 4.00, 95% CI (1.43-11.18)]. This finding is also supported by a systematic review where three studies identified family history of hypertension as a risk factor for hypertension (Molla 2015:517). In addition, family lifestyle like the dietary habit, same lifestyle choice, behaviour and cultural aspects, which would be adopted and shared from family and respondents with family history of hypertension having the same genetic component could be factors that can potentially explain the association between hypertension and family history of hypertension (Soubeiga et al. 2017:4).

The risk of hypertension among respondents in the peri-urban settings with family history of hypertension were 9.70 times more than those who had no family history of hypertension [AOR= 9.70, 95%CI (3.03-31.03)]. As compared to the urban settings, the association is stronger among respondents of the peri-urban setting.

Respondents in the higher economic status, according to the Wealth Index (WI), were found to be 8.34 times more likely [AOR=8.34, 95% CI (1.63-42.69)] to be hypertensive as compared to poorest. This finding resonates with a study from Jigjiga City of eastern Ethiopia that reported association between having high level of income and being hypertensive [AOR 3.1; 95% CI (1.5, 6.3)] (Asresahegn et al. 2017:3). On the contrary, a study conducted Angola found higher prevalence of hypertension in the lowest socio-economic classes (Daniel et al. 2013:13). These differences might be owing to the sedentary living style and unhealthy dietary habit of the respondents in the higher economic status (least poor).

Increasing BMI is highly associated with being hypertensive (Addo et al. 2012:5; Kotwani et al. 2013:4; Demisse et al. 2017:4; Pessinaba et al. 2013:182; Mengistu 2014:4 &

Awoke et al. 2012:3). In the urban settings of the current study, those respondents who were overweight were 3.20 times more likely to be hypertensive as compared to respondents who had normal BMI [AOR=3.2, 95% CI (1.43-7.16)]. Many other studies conducted so far also strongly concur that high BMI (over-weight and obese) was found to be significantly associated with hypertension (Wang, Zhang, Luxia, Wang, Liu & Wang 2014:1359; Mahmood et al. 2011: 46; Maher et al. 2011:1066; Angaw et al. 2015:4; Mayega et al. 2012:10; Karl & Nancy 2013:68).

Study subjects who reside in the urban settings and who were ever told have diabetes were ten times more likely to be hypertensive as compared to people, who do not have diabetes. This resonates with findings of studies conducted in different African countries (Kotwani et al. 2013:4; Gudina, et al. 2013:114; Angaw et al. 2015:4; Tesfaye 2017:282 & Pessinaba et al. 2013:182), which support that hypertension was found to be high in diabetic individuals than in non-diabetic individuals.

Despite consuming more vegetables and maintaining healthy dietary habit which are the predominate predictors to prevent hypertension, adults in the prei-urban setting who reported having no habit of eating vegetables were 2.95 times more likely to be hypertensive than those eating vegetables (Saeed 2015:5).

Based on findings of different studies conducted in different countries, excessive salt intake is one of the determinant factors of hypertension (Solomon et al. 2017:4; Addo et al. 2012:5; Helelo, et al. 2014:5; Ghosh, Sarkar, Mukherji & Pal 2013:73). In the current study, urban adults who reported to have habit of using additional salt added to their food on the table were about 4.07 times [AOR=4.07, 95% CI (1.37-12.07)] more likely to be hypertensive than their counter parts.

Generally, increased age, high economic status, use of extra top added salt on plate, not walking on foot, positive history of hypertension in the family, ever told have diabetes and higher BMI were factors which showed positive and strong association with hypertension on the urban settings. Other factors include increased age, male, vegetable eating habit, performing physical fitness activities/sports/, positive history of hypertension in the family were factors which showed association with hypertension on the peri-urban settings.

118

SECTION B

This section discusses results of the qualitative finding presented. The discussion in this section is presented in a manner that addresses the objective of the study that is, exploring health care providers' perspectives regarding efforts exerted for the prevention of hypertension.

THEME 1 CONCERNS OF HYPERTENSION

Sub-theme 1.1 Current situation of hypertension

All FGD participants in the current study agreed on the situation that hypertension is alarmingly increasing. In the same vein, Michael (2016:753) reports that worldwide prevalence of hypertension exceeds 1.3 billion and Kearney et al (2015:220) predicted that globally hypertension would increase by 60% (1.56 billion) in the year 2025 from 26.4% in the year 2000. Trends in blood pressure among adults with hypertension using data from the National Health and Nutrition Examination Survey (NHNES) 2003 to 2012 also support the finding that hypertension is mounting by pointing out that percentage of hypertensive adults increased from 13% to 19% and from 27% to 33% with optimal BP and pre-hypertension respectively (Yoon et al. 2014).

The study participants also mentioned that hypertension was formerly considered as disease of urban and wealthy people. However, nowadays it is growing in the whole group of population. Different authors across the world also support that the disease is steadily increasing in the lower and middle-income countries against the trendy opinion that hypertension is the disease of only wealthy, high-income countries and urban settings but it is now becoming the disease of the whole population regardless of one's socio-economic status (Sarki et al. 2015:6).

Unlike many reports across the world, in Eritrea, the trendy opinion of considering hypertension as a disease of wealthy people has persisted. This has been seen from a report of a study conducted to assess patients' perspectives to barriers and facilitators of

hypertension management. Eventually, participants explained that perceptions of some community members that they still believe hypertension as a disease of wealthy people (Gebrezgi, Trepka & Kidane 2017:4).

Sub-theme 1.2: Response and efforts made for the prevention of hypertension

Despite the facts that hypertension is simple to diagnose and is highly preventable through lifestyle interventions, research findings show that it does not receive the level of attention it ought to have as a public health problem and its consequences (Qiao, Ye, Dou, et al. 2013:788; IOM 2010:175). In agreement with this, the current study showed that though all participants believed hypertension is public health concern, the majority retorted that responses or efforts made for the prevention were not satisfactory. A study conducted in Madagascar also confirms this finding by showing that hypertension is a neglected disease in the region, which lacked the attention it deserves to get as a public health concern (Ratovoson et al. 2015:4). In the same vein, a study report from Ghana also support that hypertension is neglected while showing that NCD have been neglected and not considered as priority diseases of prevention until recent time (Bosu 2012:69).

In the current study, mixed opinion has be forwarded by the participants about hypertension prevention activities. These activities differ from health centre to health centre and even among health workers within a health centre. This is because the operations are of subjective type where some only treat the acute case the client is coming with even if he/she have the risk of hypertension like obesity, smoking and the like and others giving health education according to their own feeling. In line with this, a comprehensive review of the policy and programmatic response to chronic non-communicable disease in Ghana also showed that it was common treatment of clients for the acute case that they are coming with. This was done without any counselling or care of their non-communicable disease risk factors even though this is assumed the pivotal point in achieving risk factor reduction. Performing activity without standard procedure and absence of structured screening programmes were also report as a major challenge of the system in the prevention activity in Ghana (Bosu 2012:74).

Furthermore even though the health workers working in health facilities that participated in the current study believes it is good habit to educate every client about hypertension whenever clients visit health facilities, during blood pressure measurement and whether the client is found to be hypertensive or not, , health education is not given to clients identified to be with normal value this view of the participates strengthen the aforementioned idea that the prevention activity through health education is not intact which is even not given after blood pressure measurement activity is done which can be considered as a reminder to give health education.

In an experimental study carried out in Isunjaba to observe effects of a community health nurse led intervention for the prevention and control of hypertension, it was concluded that there was noticeable change in attitude, knowledge and lifestyle relating to hypertension control after community health nursing intervention was done through health education (Osuala 2017:7). Despite this and the fact that community health workers have a pivotal role in disease prevention activity, in the current study (HEW) reported that the response for the prevention activity of hypertension to be done by was not satisfactory. They further augmented the idea by pointing out that hypertension and other non-communicable ailments have been largely neglected. As a result, the majority of attention went to other health extension programme package like the communicable disease, maternal and child health activates in their catchment.

Sub-theme 1.3: Health care providers view of knowledge and awareness of the community to hypertension prevention

The majority of the discussion participants forwarded their assessment of knowledge and awareness of hypertension prevention in their community pointing out that many peoples lack knowledge of hypertension prevention. This resulted in the community being hard-pressed with low awareness of the disease hypertension and its early prevention, through physical activity, consumption of healthy diet and regular check-ups. This low awareness of community on the prevention activity of the disease is the same with Gahan, which is reported as major challenge of the system in the prevention activity (Bosu 2012:69).

121

Study reports of sub-Saharan Africa and findings of the current study discussed in section A gives further evidence on the level of awareness of hypertension where the percentage of level of awareness of hypertension among peoples living with the disease is low because of late diagnosis and no check-ups for hypertension owing to lack of knowledge. In reference to this evidence of the level of awareness of hypertension among hypertensive people, it can give an insight that the level of awareness is fullest among the non-hypertensive in most sub-Saharan Africa (Ataklte, Erqou, Kaptoge, et al. 2015: 294; Getachew, Dirar & Solomon 2018:4).

Study participants also mentioned that measuring quality of life in the community is with what a person is using to travel form place to place and what type of job a person has. In this regard, it was noted that people using motorcycles or engine using vehicles and folks with white collar jobs were considered to have quality life style, which implicates physical inactivity in this category of the population is highly encouraged knowingly or unknowingly. In line with this perception of the community, a study conducted to assess type of work and quality of life reported that a manual worker has lower quality of life than white collar workers who did not consider the physical inactivity part while assessing health factors of quality of life in the study and did not point out anything about this issue (Bartlomiej, Lukasz, Malgorzata, et al. 2017:464).

THEME 2: VIEW OF HEALTH CARE PROVIDERS ABOUT HYPERTENSION PREVENTION ACTIVITY

Sub-theme 2.1: Attitude of health care providers regarding hypertension prevention activity

All participants of the study reflected their opinions that non-pharmacological management of hypertension or the preventive activity like avoiding unhealthy feeding style, quitting smoking, stop excessive alcohol consumption, weight reduction through physical activates, avoiding other risk factors of hypertension and life style modification are highly encouraged. In line with this idea, many Randomized Control Trial (RCT) studies at different time and place have evidenced that reduction in alcohol consumption

led to reduction in BP (Michael, Janusz, Sheldon, Gerrit, Omer & Jurgen 2017:112). Regulating salt in-take led to lower BP, how maintaining normal body weight which usually comes concurred with diet and physical activates help in reduction of blood pressure (Linda et al. 2015:7) compared to pharmacological intervention for the management of BP.

Addo et al. (2012:5) also point out that engaging in regular aerobic physical activity, maintaining a normal body mass index, reduction of dietary salt intake, moderation in alcohol intake and consumption of a diet rich in fruits and vegetables and in low-fat dairy products with a reduced content of fat were identified to be beneficial in the prevention of hypertension, which brings the primary prevention activity at the forefront of all the level of disease prevention.

Sub-theme 2.2: Mechanism to follow-up

The majority of the current study respondents reflected their opinions by asserting that there were challenges on follow-up among individuals who are even diagnosed to be hypertensive. Some respondents allege that owing to limited awareness of clients about the disease, because of poor communication between client and provider, most clients do not come back on appointment date or only few may come for follow up. Many studies support that defective communication between patient and care providers have momentous role on the modality of how the follow-up will go on (Peppa & Vlahakos 2011:46).

As mentioned by a study from Ghana, if there is no screening and counselling of client for their risky behaviour to contract hypertension apart from treating their acute cases they are coming with to health facility, there will be no room to arrange follow-up to manage their risky behaviour (Bosu 2012:74). Ineluctable with this, few respondents of the current study mentioned that even if individuals are screened and identified to have risky behaviour to contract hypertension, follow-ups are not arranged. If in case it is arranged, it will not be in place owing to the level of awareness about the importance of the follow-up, priority given to other disease for prevention and poor health system, which

is one of the prominent factors contributing to poor follow-up (Peppa & Vlahakos 2011:44).

THEME 3 HEALTH SYSTEMS FACTORS AND POLICY

According to WHO (2007), a framework constituting of the six building blocks describes the health system: services delivery, health working force, health information system, medical products vaccines and technology, leadership and health financing. Accordingly, the sub-theme that emerged in the current study follows this framework of the building blocks of the health system. The capacity building will be under the health working force, integration to health extension programme will be under the leadership, lack, scarcity of resources will be under the medical products vaccines, and technology, availability of guideline on hypertension prevention will be under the health information system.

Sub-theme 3.1: Capacity building

In resources limited areas like LMIC, shortage of specialty health working force is a major obstacle in the prevention activity of NCDs (Musinguzi, Bastiaens, Wanyenze, et al. 2015:7). Many studies report show successful improvement of performance in other programmes like maternal and child health (MCH) via the precedence given for the capacity building of health workers and reorganising according to their trainings (Peck, Mghamba, Vanobberghen, et al. 2014:289). Furthermore, a study from Bangladesh showed that by giving a short training to health care providers, NCD risk factor survey could be conducted within a satisfactory level (Zaman, Ullah, Bhuiyan, et al. 2016:4). As can be evidenced from the aforementioned issues, deploying health workforce after building their capacity with special training at all level on hypertension prevention and its management can be lessons learnt from improvement of performance of MCH and as entry points for the prevention activity of hypertension.

Participants in the current study mentioned that there is a gap on building the capacity of the health working force through providing special trainings or at time of supportive supervision, as trainings. Moreover, follow-ups are the best tools to build capacity of health work force and at the same time motivating to perform activities energetically.

Supplementing these facts and more study done among community health workers in the Bolama Region, Guinea-Bissau reported that after training the health workers, there was a significant improvement in their performance (Lopes, Cabral & Sousa 2014:5).

The idea of participants of the current study is also evidenced by their own biographic information collected during this study that of the total 21 FGD participant only two participants had had training on hypertension. Unlike a study from Cape Town where health workers who do not have any NCD-related training but are orientated by supervisors and fellow Community Health Workers (CHW), in the current study, all the participants of the discussion mentioned that they never had heard any colleague of them trained on hypertension prevention in their respective health facilities (Tsolekile, Schneider & Puoane 2018:4).

Sub-theme 3.2: Integration to health extension programme

Even though hypertension prevention is one component of NCD prevention prioritized in health extension programme packages, the majority of respondents did not believe it was functional. Some respondents appreciated the referral system while some who opposed the referral system were also not satisfied.

Health extension workers also believed that there was gap, mentioning less attention is given to hypertension as compared to other diseases. They said they were giving health education but some lack BP measuring apparatus to screen and refer.

Sub-theme 3.3: Lack and scarcity of resources

The participants mentioned that there is high limitation with organisational capacity for the screening and early diagnosis of hypertension so that the prevention activities could run smoothly as far as problems in the shortage of apparatus are not solved in their totality. They mentioned that material supply is imperative. However, they are told to work without materials or if available one apparatus may circulate all over the services delivery points in the facility.

Even if health workers want to check BP for their clients, lack of enough apparatus will not give the chance to see all clients coming to them at least once or may remain totally. This has a paramount influence on the provision of full package of heath care in general and the hypertension prevention and control in particular. With the same concern at the community level, the HEW also showed that they are facing shortage of BP measuring apparatus. These inadequacies of diagnostic equipment at Primary Health Care (PHC) units, as can be evidenced from Tanzania, is very common in most African and developing countries like Ethiopia and could be understood from the aforementioned ideas of study participants of the current study (Peck et al., 2014: 289).

It was also pointed out that the work must be equipped with enough supply of modern apparatuses so that it makes the job less time consuming both for the provider and clients. In line with this, a study conducted to assess the capacity of health facilities to manage hypertension in two districts in Uganda showed most health facilities lacked functioning BP apparatus. More importantly, facilities with BP apparatus had mainly aneroid and mercury sphygmomanometers, a few digital aneroid and mercury sphygmomanometers, and a few digital devices were mostly found in private facility (Musinguzi et al. 2015:7).

In the assessment of the capacity of PHC for NCD prevention in Bangladesh, it was reported that newly established NCD corner was not able to function adequately, which in the other way round tells us that at least there are separate rooms dedicated for the prevention of NCD (Zaman et al. 2016:6). In a quite protracted manner from Bangladesh, in the current study participants mentioned that there are no rooms arranged separately for the prevention activates of NCD to be done in health facilities, which must be considered during the construction of health centres or if rooms are available allocating room for the activities. In agreement with this idea of the current study participants, a study from Eritrea showed that participants' recommendation for opening more hypertension follow up centres in places where there are no hypertension follow-up centres (Gebrezgi et al. 2017:5).

Sub-theme 3.4: Availability of guideline on hypertension prevention

Regarding the availability of hypertension prevention guidelines, the majority of respondents reported that there were no guidelines while few answered there is and few respondents were not sure of its presence.

Those who reported that guidelines are not available were worried of the situation stating that they were only doing what they had learnt in school, which was further challenged by the unavailability of up-to-date training.

In line with this finding, studies form different countries of Africa show that even if there are guidelines for hypertension, most health facilities do not have hypertension guidelines or they are inadequate like in Uganda (Musinguzi et al. 2015:7) and Tanzania (Peck et al 2014:289). Therefore, existing guidelines for NCD prevention have several implementation shortfalls and poor operationalization like in Nigeria (Okpetu, Abimbola, Koot, & Kane 2018:6).

THEME 4: CONCERNS OF PARTNERSHIP

Sub-theme 4.1: Inter-sectoral collaboration

Study participants believe that hypertension problem can be reduced by performing the prevention activity by creating relation and integration among sectors and agencies like the education sector, agriculture sector, youth and sport sectors with the health sector. However, they stated that there is no condition whereby they work in relation with other sectors.

Many developing countries like Bangladesh have reported that inter-sectoral collaboration is highly needed to come up with good result in these resources limited regions. The education sector has much to do with the health education and awareness creation activity, the agriculture sector at working on the production of enough amount of vegetable and fruits as of the demand of the community and the youth and sport sectors

at facilitating the physical activity part in the prevention rim of hypertension (Islam & Biswas 2014:3).

Sub-theme 4.2: Media

The participants reported that there is media coverage on disease prevention and health promotion activities. However, it was explained that it is not enough as compared with the potential that media have to educate great number of people at once. The problem with utilising the media to promote about hypertension prevention is highly manifested to the extent that one has never heard anything mentioned about hypertension prevention through media. This problem is in line with what is reported from Eritrea where participants of a study expressed their concern about prevention activates of hypertension were not enough where there was little coverage on the television and the radio programmes (Gebrezgi et al. 2017:5). Media seem like lacking regulation to uncontrolled alcohol advertisement where the media are highly utilised to advertise different kind of alcoholic drinks instead of advertising messages on NCD.

Sub-theme 4.3: Donors and Non-Governmental Organization (NGO)

The health care workers mentioned that as things are given emphasis from the upper level, due attention will also be given at the lower level. However, the participants of the study were not able to mention even one NGO that supports hypertension prevention activity in particular and NCD prevention in general. In line with this, in Bangladesh, studies also indicated among a number of programmes on NCD very few or no NGO were involved at supporting the hypertension prevention programmes. However, in other programs that are strongly held by the health system of the country involvements of NGO were very high (Islam & Biswas 2014:3).

The majority of the participants audaciously mentioned the funding by donors and NGOs for hypertension prevention activities in terms of availing supplies, capacitating the health system by human resources for health is much less compared to that for communicable disease investments. This finding is in accordance with finding from other developing country like Bangladesh that even if there are few number of NGOs involved in creating

128

health human resources, what is being done is still not satisfactory (Islam & Biswas 2014:3).

5.8   CONCLUSION

The chapter discussed the findings of the current study. It focused on the findings from the quantitative part in section A and qualitative in section B. The next chapter presents evidence based guideline on hypertension prevention among adults in Ethiopia developed based on the present study findings, literature review and using Delphi technique.

CHAPTER SIX
GUIDELINES FOR HYPERTENSION PREVENTION AMONG ADULTS IN ETHIOPIA

6.1   INTRODUCTION

This chapter presents evidence-based guidelines on hypertension prevention among adults in Ethiopia. Hypertension prevention is a multifaceted activity that needs the prompt activity of every individual and involvement of all stakeholders in their respective responsibility. The guidelines are developed following the results of Phase 1 and Phase 2 of the current study, relevant aspects of reviewed literatures, the researcher's insights and expertise opinion using a Delphi technique.

6.2   BACKGROUND AND PRINCIPLES OF GUIDELINE DEVELOPMENT

According to WHO (2014), a guideline is any document developed by the WHO containing recommendations for clinical practice or public health policy. The document tells the intended end-user of the guideline how he or she can or should do in specific situations to achieve the best health outcomes possible, individually or collectively.

The following principles were charted to the process of guideline development as indicated in WHO handbook for the guideline development (WHO 2012b):

- Guidelines address an area of uncertainty and an unmet need for guidance.
- Guidelines reflect the core WHO value of the "right to health".
- The process of developing recommendations is explicit and transparent
- The processes and methods used in each step of guideline development aim to minimize the risk of bias in the recommendations.
- Recommendations can be implemented in and adapted to local settings and contexts.
- Guidelines should be tailored to a specific audience.

Likewise, these guidelines target all the beneficiaries (adult population groups), policy makers and health managers at each level by abiding to the aforementioned process of guideline development.

6.3 PURPOSE AND OBJECTIVES OF DEVELOPING THE GUIDELINES

6.3.1 Purpose

The purpose of developing hypertension prevention guideline is to reduce the burden of hypertension and its late effects among adults in a tailored manner through provision of concrete information, raising awareness and indicating measures to be taken at each level of the health system.

6.3.2 Objectives

- To provide information on pertinent determinant factors of hypertension to the target beneficiaries.
- To increase community awareness for hypertension prevention.
- To improve the implementation of hypertension prevention by health care providers.
- To support policy makers, health managers and other concerned stakeholders to intervene in removing barriers related to hypertension prevention implementation strategies.

6.4   SCOPEING OF THE GUIDELINE

Scopeing of guideline is about what the guideline will include and will not. The scope is established based on area of practice the guideline applies, the priority topics that the recommendations are intended to affect and both benefits and harms that may result (WHO 2014).

The scoping in this guideline development started with listing of potential topics based on the finding of the two phases of the study in a manner that addresses concerns in the prevention of hypertension. As this is a theses-based guideline, the researcher was responsible for listing of potential topics. Using the topic list, key questions were formulated to be answered in the guideline. According to the principle to be considered in the guideline development, the right to health, including human rights were considered in the scoping.

6.5   THE PROCESS OF DEVELOPING THE GUIDELINES

Before deciding to develop the guidelines, certain key questions like "Who wants the guideline?" "Does guideline on the topic already exist?" "Were they developed according to the recommendation of WHO (WHO 2014)?" were asked. In respons to these questions, Dickoff survey list was used development of the guideline continued (Dickoff, James & Wiedenbach 1968).

6.5.1   The Delphi technique

The Delphi technique is a group communication process used to gain consensus of opinion associated with a specific topic among a panel of experts. This is normally achieved through a series of rounds where information is fed back to panel members (Keeney, Hasson & McKenna 2001:196).

In the current study process of the guideline development, 12 experts selected based on their profession, qualification area and experiences on guideline development

participated in the group. The panellists were researchers and medical and/or public health specialist as detail in their biography or credentials attached in Annex Q.

The first draft guideline was sent to the panellist after the objective of developing the guideline was briefed through phone call to an expert selected to participate in the panel and were asked if they are volunteer to participate in the process or not. All experts reached on phone call agreed to participate in the process. Thereafter, the first draft guideline was shared to the panellist through their email and confirmed by phone call if it has reached them in a good manner. All participants confirmed that they had the draft document.

After reviewing and incorporating relevant and frequently raised comments and suggestions given by the panellist, like to give a briefing on the guideline development process, to strengthen recommendation with relevant literature toughly so that the scientific plausibly can be strengthened well, to avoid recommendations that seems like redundant and use simple sentences which can be easily understood by readers and the likes the second draft was sent back to the panellist to reach a consensus if their concerns where addressed or not. All confirmed that their concerns were addressed and the guidelines were finalised as presented in this thesis.

6.6   APPLYING THE 'SURVEY LISTS' TO THE GUIDELINE DEVELOPMENT

Purpose or terminus

'Purpose' or 'terminus' is the reason for which anything is done, created or exists; outcome that is the objective of an action or effort (Collins English Dictionary 2014). The purpose of this guideline is reducing the burden of hypertension among adults by introducing appropriate and effective preventive activities.

Procedure

According to the American Heritage Dictionary of English (2016), 'procedure' is a manner of proceeding; a way of performing or effecting something in an orderly way. Procedure is a protocol that guides activities on a valid and recognised method, well-established

facts and with a right or capable person. The procedures ultimately entail the target audience or guide her/him to carry out what should be done, how and in what context (Dickoff, James & Wiedenbach 1968). Against this background, this study's procedures were the activities presented in guiding the agent or the target audience about what should be done to prevent hypertension.

Agent or target audience

The 'agent' is a person or thing that acts or has power to act (Collins English Dictionary 2014). According to WHO (2012), agent or target audience is someone who has the knowledge, power and ability to perform identified activities. The hypertension prevention activity is a process requiring a continuum of command and activities to be executed starting from higher-level executive authority to individuals level. In this study, the agent refers to health care providers, health managers and policymakers.

Dynamics

The 'Dynamics' is social, intellectual or moral forces that produce activity (The American Heritage Dictionary of English 2016). Dynamics is also mentioned as energy sources of the activities inside an individual or the internal motivating factors for success (Dickoff et al. 1968). Therefore, the dynamic in the current guideline is defined as those determinants facilitating the hypertension prevention. This includes the benefit of applying hypertension prevention activities in adults, provision of human and physical resources and use of appropriate technologies.

Recipient

The 'recipient' is an individual or community who are the beneficiary of a particular recommendation and carry out activities recommended by the agent (Dickoff et al. 1968; WHO 2014). In this study, the beneficiary of hypertension prevention activities are adults, their families and the community.

Framework or Context

The 'framework' is a context or circumstance in which an event occurs or environment in which something exists (The American Heritage Dictionary of English 2016). In this study,

the 'framework' or 'context' of the guideline development is the overall health system of the country.

6.7 GUIDELINE DEVELOPED FOR THE PREVENTION OF HYPERTENSION AMONG ADULTS IN ETHIOPIA

1. Guideline on determinant factors of hypertension

1.1 Guideline on age

This guideline is aimed at focusing on increased age as one of the non-modifiable factors in the prevention of hypertension. Numerous studies across the world including the current study findings have shown that hypertension and increase in age are highly associated (Mahmood et al. 2011:46; Abebe, Berhane, Worku & Getachew 2015:5; Neema, et al. 2017:3; Soubeiga et al 2017:4; Kotwani et al. 2013; Mengistu 2014:4). In the current study, increase in age is associated with hypertension irrespective of the residence of the study participants. This fact is discussed in detail in section 5.7 following the finding of the first phase of the study.

Rationale of the guideline: To recommend actions to be undertaken on identified problems or factors, which can potentially increase the risk of hypertension with increasing age.

Recommendations

- Raise support for elderly people to adopt and practice healthy lifestyle behaviours.
- Enjoying non-stressful life at home and in the community and work place.
- Avoid or quit predisposing factors like smoking, drinking alcohol, sedentary activities.
- Arrange regular programmes to recreate with family.

- Perform activities that enable spiritual relief like worshiping and praying to creator.

1.2   Guideline on Gender

This guideline looks at acting on what is contributing to the increased burden of hypertension based on difference in sex. Gender is one of the non-modifiable factors identified to be associated with hypertension. The current study revealed that hypertension in male population group is more prevalent than female population making the proportion 53.4% (n=327) and 46.3% (n=285) respectively. In some other studies, it is also reported that hypertension is more dominant on male than female (Asresahegn, Tadesse & Beyene 2017:3; Asfaw, Ayanto & Gurmamo 2018:4; Demisse et al. 2017:4, Bayray & Berhe 2012: 4209; Mengistu 2014:4). There are a number of factors manifested in connection to gender, which can decrease the burden when acted up on it.

The rationale of the guideline is to act on avoidable factors contributing to the disease burden on male.

Recommendations
- Both male and female should share equal responsibility in life.
- Changing attitude towards the occurrence of bad circumstance in life to reduce the negative influence of the event.
- Avoiding conflict and creating smooth relationship among spouses.
- Act in a way to reduce emotions leading to stress.

1.3   Guideline on residences

Guideline on residence focuses on circumstances in terms of minimising predominate risky behaviours for acquiring hypertension in terms of place of residences. As detailed in section 5.6 of this thesis, the burden of hypertension in terms of residence is 24.5% and 14.7% in urban and per urban settings respectively. The higher prevalence in the

urban settings could be attributed to most determinants that were significantly associated with hypertension, which were dominant in the urban settings.

Rationale of the guideline: Recommendations on context specific prevention activities are lucrative that gives utmost chance in the prevention of hypertension.

Recommendations

- Avoid apprehension of life in the urban area.
- Regular screening and check-up of hypertension.
- Provision of health education on modifying life style of urban dwellers to prevent or reduce occurrence of hypertension.
- Creating the habit/ culture of measuring blood pressure.
- Encouraging private health facilities to measure blood pressure for free.
- Mayors of city administrations in the country should construct roads in the city, which are safe from accident for non-engine using mode of transportation like bicycle and walking.

1.4   Guideline on the mode of transport

The mode of transport is one determinant factor included in the current study and pointed out its proportion as 49% on foot, 48.9% engine using vehicle and 2.1% using bicycle. Nearly half (48.9 % (n=299)) of the participants use engine using vehicle to transport from place to place on routine bases which indicae the need for developing a guideline on the mode of transport .

Rationale of the guideline: To promote the safest mode of transport to minimise the risks of acquiring hypertension as it is increased with increased use of engine using vehicles.

Recommendations

- Walk on foot to attend social events.
- Use bicycle to travel from place to place in the city.
- Limit using engine based vehicles like motor bicycle, bajaj, car to move to near distance.
- Altering the community perception about modes of transportation in connection to the quality of life and healthy life style.

1.5   Guideline on family history of hypertension

Participants in the current study with family history of hypertension were four times more likely to be at increased risk of hypertension than those who had no family history of hypertension. Hence, the guideline on family history of hypertension is highly important as it indicates family members with hypertension to be informed what to do and not to do to avoid being hypertensive. Accordingly, lists of major recommendations are outlined here with rationale of the guideline.

Rationale of the guideline: The guideline focuses on the major themes that family members will take part, it aims to reduce the risks that the family members inherited.

Recommendations

- Having regular check-up and baseline investigation for the development of hypertension.
- Avoiding being over consumed by thoughts of becoming hypertensive.
- Adopting healthy lifestyle apart from their custom in the family trend and inheritance.
- Disseminate targeted messages for adults having a family history of hypertension to visit health facilities regularly to medical check-up.

1.6   Guideline on co-morbidity

Developing a guideline in the endeavours aiming patients with comorbidities to give due attention to their medication, follow-up and minimise the potential risks that would aggravate the complications or the comorbidities is pivotal in the fight against hypertension.

Global facts like a case in the USA show that 75% of diabetic adults have concomitant hypertension (Long & Dagogo-Jack 2011:248). Many studies from different African countries including the current one reported Diabetes Mellitus (DM) as one of the prominent comorbidity with hypertension (Kotwani et al. 2013:4; Gudina, et al. 2013:114; Angaw et al. 2015:4; Tesfaye 2017:282; Pessinaba et al. 2013:182). As detailed in section 5.7, diabetic patients were ten times more likely to be hypertensive as compared to peoples who do not have diabetes, which is a very strong association.
Rationale of the guideline: Oftentimes hypertension happens to come following or with other comorbidities among which DM is the one that happens pertinently.

Recommendations
- Early screening for hypertension in diabetic patients.
- Maintaining normal blood glucose level in diabetic patients through adequate adherences to the treatment.
- Adjusting or avoiding nephrotoxic drugs in diabetic patients.
- Base-line screening and investigation for end organ damage in diabetic patients.

1.7   Guideline on BMI or maintaining normal body weight

As BMI is a reflection of lifestyle, knowing its range would be important for adults to make timely decisions. An elevated BMI is usually associated with prehypertension and it may suggest that such individuals are at increased risk of progressing to frank hypertension. Therefore, knowing, giving meaning and monitoring what once weight versus height

should be is highly important for adults to stay healthy (Dua, Bhuker, Sharma, et al. 2014:92).

Rationale of the guideline: It aims to help adults having higher BMI practice weight management intervention to prevent the risk of being hypertnsive.

Recommendations

- Check for height and weight measurement regularly.
- Be familiar with how to calculate and interpret the meaning of BMI results.
- Altering adults' perception on overweight and obesity.
- Remove barriers of maintaining normal body weight in adults.
- Develop the awareness of adults about the impacts of overweight and obesity on health.

1.8   Guideline on dietary habit

Exercising a healthy dietary habit is a trustful modality in the prevention of hypertension. It is a firmly established fact that consuming more vegetables and fruits , diet which are low in sodium content but fortified with iodine and diet with unsaturated fats, are predominant predictors to prevent hypertension (Saeed 2015:5; Solomon et al. 2017:4; Addo et al. 2012:5; Helelo, et al. 2014:5; Ghosh et al. 2013:73). The current study also has the same report that supports the aforementioned fact (see section 5.7 for detail).

Rationale of the guideline: Dietary habit is one of the conspicuous determinants of hypertension prevention, which takes the lion's share. Therefore, it needs to get due consideration while thinking about hypertension prevention.

Recommendations

- Ensuring the availability of healthy and diversified food products at home by limiting poor diet options.

- Ensuring consumption of five servings of fruit and/or vegetables per day (A serving of fruit or vegetables is equivalent to 80 grams).
- Feed on diets that are low in sodium content and fortified with iodine.
- Encourage consumption of diet with unsaturated fats.

1.9   Guideline on physical activities

Physical inactivity is one of the determinant factors that increase the risk of developing NCD like hypertension and it is considered as a natural, inexpensive, feasible and effective means of prevention of hypertension and is a primary lifestyle measure required to lower blood pressure in hypertensive patients (Owen, Healy, Howard & Dunstan 2012:4; Linda, Hayley, Lauren & Blair 2015:6).

The current study has reported that those participants who are not physically active were three times more likely to be hypertensive than those who are physically active. Therefore, the findings of this study and other different studies suggest the importance of physical activity in preventing hypertension. Hence, the guideline stipulates lists of recommendations that promote regular physical activities.

Rationale of the guideline: Physical activity and hypertension are inversely related and if one abstains from doing physical activity, he/she is more prone to contract hypertension than those actively engage in the physical activities.

Recommendations
- Perform 75 minutes of vigorous-intensity physical activity per week.
- Perform 150 minutes of moderate-intensity physical activity per week (Minutes of physical activity can be accumulated over the course of a week but must be of a duration of at least ten minutes).
- Being with modest physical exercise and increase progressively.
- Decrease sedentary activities
  - By limiting using elevators after seating long time in office or work place.

o   By limiting time spent watching television and social media.

2.   Guideline to create public awareness and community action for hypertension prevention

2.1   Guideline for hypertension susceptibility of adults

The finding of the current study shows 61.8% (n=378) of participants had neutral attitude towards behavioural risk factors of developing hypertension and their susceptibility. Therefore, it can be concluded that the community's attitude to their susceptibility to contract hypertension need attention.

The rationale on the guideline to perceived susceptibility for hypertension: The guideline informs adult population groups on the perceived susceptibility index for hypertension.

Recommendations

- Develop awareness of the population in general and adult population in particular about hypertension that it is problem of the whole.
- Increase awareness of adult population groups to know the very early symptoms of hypertension so that they tend to visit health facility as soon as possible.
- Behaviour modification can lower blood pressure and prevent development of hypertension.
- Conduct community mobilisation to create awareness on hypertension and its complications.

2.2   Guideline for severity of hypertension on adults

Hypertension is a common medical condition that increases the risk of many other medical conditions, including heart attack, heart failure, kidney disease, vascular disease, and stroke(Kotcher 2012). Therefore, perceived severity of hypertension by the community is pivotal to take care.

The rationale of the guideline: Guideline on perceived severity of hypertension would enhance the community members to give due attention to early health seeking behaviour and to lead normal and healthy life.

Recommendations

- Enable the community to understand different stages of hypertension.
- Develop awareness on the importance of early screening and prompt treatment.
- Understand hypertension is associated with many other medical conditions like stroke, hypertensive emergencies and cardiovascular diseases are difficult conditions to treat.

2.3 Guideline on provision of hypertension prevention related information

The purpose of this guideline is to promote the provision of hypertension prevention related information. To succeed in the prevention of a disease, people should have adequate information about the disease and know how to use it beforehand. It is more preferable if the information is provided by HCP to the community regularly and consistently because this will be first-hand information that can easily be accepted by the recipients. In the current study, 17% of the participants did not hear any information about hypertension. Moreover, among the remaining participants who have information about hypertension, 66% got information from health workers. This finding is discussed in detail in section 5.3.

The rationale of the guideline: To concentrate on actions how and by whom hypertension prevention information could be given to end up with a good yield of the activity.

Recommendations

- Health care providers should be one means of hypertension prevention-related information provision.
- Health care providers should always give information on hypertension prevention to all clients visiting health facilities.

- Health education schedules at health facilities and during outreaches should include hypertension prevention educations.
- Information about hypertension prevention should be given using all available media.

2.4 Guideline for knowing self-blood pressure measure

This guideline is thought to help removing barriers and make adults know their blood pressure measure. As detailed in section 4.2.4 of the study finding, 42% of the hypertensive adults were newly screened, which implies that they were living with hypertension without knowing their status.

Rationale of the guideline: Knowing status of one's self-blood pressure helps in the measures to be taken and decisions to be made on the occurrence of hypertension.

Recommendations
- Community should be informed about BP measurement services availability.
- Developing habits of seeking a health facility to know self-blood pressure status.
- Barriers like distance travelled and time taken for BP measurement should be reasonable.
- Continuous and regular assessment of BP should be made by health care provider's at all appropriate visit.
- Encourage private health facilities to take BP measurement for every client visiting the health facility.

2.5 Guideline on wrong perception of hypertension

In this guideline, activities stipulated to be against wrong perception on hypertension and its prevention are presented. In sub-theme 1.3 of the qualitative finding of the current study, misconceptions like visiting health facilities for check-up of hypertension while a person is healthy is calling the disease on oneself and measuring quality of life with what

a person is using to travel from place to place and what type of job a person has which are in the category of physical inactivity were found and discussed.

The rationale of the guideline: Wrong perception on hypertension has a paramount influence on activities to be done on its prevention.

Recommendations

- The community should be aware of that hypertension is a disease of the whole community.
- Wrong perceptions on hypertension that there is nothing to be done to prevent it should be avoided.
- Visiting health facilities for check-ups while being healthy should be the culture in the community.
- Perspective of measure of quality of life in the community that favours sedentary life must be discouraged.
- Develop awareness on the early signs of hypertension, like headache and not to treat them with anti-pains for it may delay the diagnosis and pose complication
- Build awareness to adhere to advices and/or not to stop the medications ordered by physicians feeling that the hypertensive patient is improving from his illness.

2.6   Guideline on hypertension prevention means

This guideline will help in averting hypertension through having knowledge on the means and acting up on it. It is believed that hypertension prevention activities are all there starting from the primary level to the tertiary level. However, focus should be on the means of prevention at the primary level to have a supreme benefit on outcomes of health (Ofili & Ncama 2014:44). As detailed in section 5.3 and 5.4, the knowledge and awareness of the community on the means of hypertension prevention is not satisfactory. Furthermore, the findings of the current study have demonstrated that most of the study participants are not practising hypertension prevention activities even if they see people close to them

who are ill with hypertension fearing that the disease is a chronic disease and other cue to actions therefore listing out the means of hypertension prevention and getting the community accustomed to it will make productive.

The rationale of the guideline: means of hypertension prevention should be at hand of the implementer.

Recommendations
- The community should clearly know means of hypertension prevention.
- Awareness of the community on means of hypertension prevention should be promoted.
- Ways of hypertension prevention should be listed out for those who may use it
  o maintain normal body weight through physical exercise
  o adapt a healthy dietary habit through the consumption of fruit and vegetable and reducing fat and salt consumption
  o avoid excessive alcohol consumption
  o have healthy thoughts and avoiding stressful life style
- The community should promptly act up on the knowledge they acquired about the prevention means.

3. **Guideline to improve hypertension prevention activities by Health Care Providers (HCPs)**

3.1 **Guideline on capacity building of HCPs**

This guideline is premeditated to build the capacity of HCPs in hypertension prevention activates through training and supportive supervisions. Trainings and follow-ups are best tools to provide the essential knowledge and skills that build capacity of health workforce and at the same time motivating to perform activities energetically. By training health care providers, studies have revealed risk factor survey has been conducted with satisfactory level (Zaman, Ullah, Bhuiyan, Karim, Moniruzzaman & Rahman 2016:4). In the current

study, participants have mentioned that there is a gap on building the capacity of the health care providers through providing special trainings or at time of supportive supervision especially among those expected to execute many of the preventive activities.

The rationale of the guideline: To build capacity of HCP in a structured manner so that they can follow a uniform and standard working procedure of hypertension prevention.

Recommendations
- Prepare training manual.
- Conduct training and sensitisation workshops for HCP on prevention and risk reduction of hypertension.
- Arrange on the job trainings for HCP.
- Make sure that supportive supervision is given to HCP regularly using a standard checklist.
- Ensure strong feedback mechanism of supervision activities.
- Arrange advocacy for health care managers on hypertension.
- Organise catchment area meeting so that the necessary skill transfer among staffs will be realised.

3.2   Guideline on arranging follow-ups

This guideline seeks to enhance adherence of clients to follow-up visits for advices and activities in hypertension prevention. Defective communication between patient and care providers have a momentous role on the modality of how the follow-up will go on by decreasing trusting relationship (Peppa & Vlahakos 2011:46). If there is no screening and counselling of client for their risky behaviour to contract hypertension apart from treating them for their acute cases they are coming with to health facility, there will be no room to arrange follow-up to manage their risky behaviour (Bosu 2012:74). In the current study, participants reflected that because of poor communication between client and provider, which limits the awareness creation, there is a challenge on arranging and adhering

clients follow-ups. Furthermore, even if individuals are screened and identified to have risky behaviour to contract hypertension, follow-ups are not arranged.

The rationale of the guideline: Enabling to arrange good follow ups through building trusting relationship among clients and HCP.

Recommendations

- Long waiting time and limited client HCP interaction must be avoided by taking enough time to counsel clients on their condition and improving the client provider relationship.
- Difficulty of clients to attend health facility for follow-up should be solved by getting the services close to the community.
- Arrange HEWs visit to home and encourage clients routinely to visit health facility.
- Provide appointment card and arrange mechanisms of contacting clients in telephone (call, SMS) so that they easily remember appointment.
- Clients detected for hypertension on outreach activates must be linked to health facility for follow-up.
- Registers or follow-up logbook that keep the patient record must be prepared to ease tracking back whenever needed.
- The awareness on the health care seeking behaviour of the community must be developed.
- Ensure to skill up the providers to provide client-centred service.
- Arrange referral network of primary health care facilities so that case handling will be managed in a coordinated way.

3.3 Guideline on providing hypertension prevention guideline

This guideline is envisioned to prepare and avail hypertension prevention information. Accomplishment of diseases prevention activities without guidelines ends up with a low standard of operations. In addition to this, even if available guidelines may have

implementation shortfalls by users if it is not customised to the setup of the operation, which will add up the problem equally or more with the unavailability of guidelines(Nieun, Jae Ho, Jin-Hee, et al 2016; Unden, Calcagnile, Unden, Reinstrup & Bazarian 2015:8). In the current study, the majority of respondents reported that there was no guideline while few gave their idea that there is and few respondents were not sure of its presence.

The rationale of the guideline: Operation of activities related to hypertension will end up with subjective and non-uniform outcomes when done without guideline therefor, preparing and avilling guideline will be beneficial.

Recommendations

- Avail hypertension prevention guideline to HCP.
- Orient HCP on how to use the guideline.
- Make sure that the guideline is accessible to all HCP.
- Make sure that HCPs are using the guideline prepared regularly and consistently according to their set up.
- Evaluate the use of the guideline and consider revision whenever necessary.

4. Guideline to support policy makers, health managers and other stakeholders

4.1 Guideline on hypertension prevention service provision

This guideline explains how services provision must look like in terms of ensuring service availability. The current study showed that service provision is harnessed by different factors like logistic shortage, low motivation of the HCP owing to lack of modern apparatuses and the unavailability and/or inability of NCD corners to function adequately.

The rationale of the guideline: Hypertension prevention services provision is ensured by availing the services close to the community with all the necessary logistic facility fulfilled.

Recommendations

- NCD corners should be availed at every health centres and maintained to function adequately.
- Avail adequate and modern BP measurement device at each service delivery points
  - especially at OPD(Outpatient department)
  - equal with the number of the HEW.
- Avail weight and height scales at each services delivery outlets in the facility.
- Assess the capacity of primary care facilities to avail hypertension prevention services on a routine bases.
- Availing BP measurement services on holydays, occasions for especial events and weekends in public places where many people gather.

4.2   Guideline on inter-sectoral collaboration and partners involvement in hypertension prevention

The aim of this guideline is to bring collective efforts and resource in a manner that strengthens hypertension prevention activity and ensure efficient utilisation of recourses. In the current study, the HCP mentioned if the health sector is working on hypertension prevention with sectors and agencies like the youth and sport, education sector, trade and industry minister and agriculture sector, it will be more productive than exhausting effort alone. However, HCP stated that there is no such condition whereby they work in relation and in collaboration with other sectors.

There are many activities to be incorporated to a sector to be partaker of hypertension prevention. The education sector has much to do with the health education and awareness creation activity. In addition, the agriculture sector that works on the production of enough quantity of vegetable and fruits as of the demand of the community and the youth and sport sectors at facilitating the physical activity part in the prevention rim of hypertension (Islam & Biswas 2014:3).

As stipulated by the study participants, partners' support is very crucial in many of the activities in health. However, hypertension prevention is highly lacking this attention.

The rationale of the guideline: Collective efforts of sectors and involvement of partners can give better result on hypertension prevention than exhausting effort alone.

Recommendations

- Conduct advocacies on hypertension for higher-level authority at national level.
- Sector organisations must include hypertension prevention activities in their plan and align it with the health sector plan.
- Sector organizations need to have detailed activity to be conducted in their rim of activity based on their involvement like:
  o Education sector on awareness creation activity.
  o Agriculture sector at working on the production of enough amounts of vegetable and fruits as per the demand of the community.
  o Youth and sport sectors at facilitating the physical activity
  o Trade and industry minister on regulating the market for the supply of healthy food.
- A binding rule should be set to ensure the functionality of sectors and partners in the activity.
- Quarterly based review meeting and performance evaluation should be conducted among sector organisations.
- Due emphasis needs to be given at all level in lifting up donor/partners involvement and their resource allocation on hypertension prevention.
- Partner organisations should submit their plans and report to the government authority in charge.
- Partners' activities must ensure transparency at all levels.
- Facilitating involvement of NGO's on hypertension prevention capacity building activities for HCP.

4.3   Guideline on hypertension prevention-related activities coordination among organisations

This guideline informs ways of coordination and whom to coordinate to come up with a good result in hypertension prevention activities. In the current study, focus group discussants asserted that the coordination activity on hypertension is non-existent comparing it with how DM control and prevention activity is coordinated by mentioning the establishment of the DM association, which need to be aped to hypertension, which is more severe than DM.

Rationale of the guideline: Well-coordinated activities have a satisfactory result. Therefore, coordinating hypertension prevention activities will have a pivotal role in attaining the intended goal of hypertension prevention.

Recommendations
- Social supports for adults with hypertension must be coordinated.
- Associations must be inaugurated for the prevention of hypertension.
- Allocate enough resources needed for the coordination activities.
- Establish joint steering committee that oversees activities.
- Prepare joint annual plan and implementing activities towards achievement of established goals.

4.4   Guideline for media on hypertension prevention

This guideline gears the attention on using the media on the positive stances by reducing the negative impact they have on the community. The current study revealed that the media are not utilised to the fullest potential on disease prevention. On top of the poor utilisation of media for the prevention, it was also reported that advertisement of different kind of alcoholic drinks has high media coverage.

The rationale of the guideline: Media ought to be a right hand for the advocacy of hypertension prevention and discourage a tempting advertisements which encumbrance hypertension prevention.

Recommendations

- Hypertension prevention education must get adequate time on the media.
- Free service provision for hypertension prevetion should have media coverage as motivating factor.
- Select sensitive media having massive coverage in time when most people be engaged (lunchtime, evening as appropriate) to pass messages.
- Hypertension prevention education sections must be prepared in a manner that the community understands and suits the media.
- Media need to have regulation on alcohol advertisement.
- Health risk of drinking alcohol must be announced with the advertisement of the drinks.

4.5   Guideline on integration of hypertension prevention with Health Extension Programme (HEP)

This guideline is aiming at integration of hypertension prevention with HEP through the list of recommendations given. In the current study, focus group discussants believe that hypertension prevention is one component of NCD prevention prioritised in health extension programme packages. However, they do not believe it was functional, which lacks attention as compared to communicable disease and due to different barriers like lack of sensitisation of HEW, lack of strategy that goes with the programme and logistic problems.

The rationale of the guideline: The health extension programme is a highly acknowledged community-centred approach of disease prevention. Therefore, inculcating hypertension prevention in this program will be a right-hand for the activity.

Recommendations

- A well-developed strategy of hypertension prevention must be designed and inculcated as a module in the HEP.

- Skill up Health Extension Workers (HEW) to enhance their focus to hypertension prevention.

- Integrate every community-based disease prevention activities with screening for hypertension.

- Equip health posts with necessary instruments like BP apparatus, weight scale and calibrate them to ensure their reliability.

- Develop and distribute different job aids and protocol manuals that will help screening for hypertension.

- Develop and distribute protocols for referral linkages and feedback mechanisms.

- Develop and distribute appropriate recording and reporting tools for clients being screened.

6.8   CONCLUSION

In this chapter, a guideline for the prevention of hypertension among adults in Ethiopia was formulated. The guideline is developed based on the research findings, review of relevant literatures and expertise opinion using a Delphi technique.

The next chapter deals with the conclusion, recommendations and limitations of the study.

CHAPTER SEVEN
CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

7.1   INTRODUCTION

This chapter presents the conclusions of the study and limitations in terms of methods followed in the study. Conclusions of each objective of the study are presented with their respective research questions. Recommendations are also given to the responsible body in its section.

7.2   CONCLUSION OF THE STUDY

7.2.1   What is the burden of hypertension in the urban and peri-urban area?

In the effort made to establish the burden of hypertension, the study revealed that the prevalence of hypertension was high where one person in five adults (21.2%) was found to be hypertensive and according to evidence reviewed and result of FGD of the study it can be confirmed that hypertension is increasing alarmingly. In the comparison made between urban and peri-urban area based on residence, the prevalence is higher among urban dwellers. This report of relatively high prevalence of hypertension substantiates the emerging concern about hypertension as a public health concern. Furthermore, the number of newly screened hypertensive during the study is high, which shows that screening activity of hypertension in routine bases is not accomplished adequately.

7.2.2   What are the determinant factors of the disease?

The binary logistic model fitted based on residences came out with both the modifiable and non-modifiable factors exposing to hypertension at urban and peri-urban and/or other happing in one of the two places with a statistically significant association with hypertension.

Factors like increased age, high economic status, ever told have diabetes, positive history of hypertension in the family among the non-modifiable factors and use of extra top added salt on plate, not walking on foot and higher BMI among modifiable factors have showed strong association with hypertension in the urban settings.

In the peri-urban settings, increased age, more prevalence of the disease on male, positive history of hypertension in the family among the non-modifiable factors and vegetable eating habit, performing physical fitness activities among the modifiable factors showed association with hypertension on the peri-urban setting.

In general, factors that showed association with hypertension both in the urban and peri-urban setting were age and having family history of hypertension.

7.2.3   How is the knowledge and attitudes of adult age groups regarding hypertension risky behaviour and prevention?

7.2.3.1 Knowledge of adults regarding hypertension risky behaviour and prevention

Based on the knowledge assessment done using different general and specific hypertension questions:

- Seventeen per cent (17%) of the respondents did not hear any information about hypertension and among the remaining respondents who have information about hypertension, 66% got information from health workers.
- Adults who know the normal range of BP value are only 42% (n=257).
- Nearly half of the respondents (43.1%) do not know that hypertension is a chronic disease.
- Only half of the respondents mentioned excessive salt consumption as one of the factor. Therefore, it can be concluded that excessive salt consumption was not well recognised as risk behaviour for developing hypertension.

- One third of the participant do not know if the disease is preventable or not.

In general, after computing the knowledge assessment questions in to a single variable and categorising in to three as "low level of knowledge", "medium level of knowledge" and "high level of knowledge" nearly half 46.1% (n=282) of the adults in the study are under the category of "low level of knowledge".

In conclusion, the level of knowledge of the community towards hypertension risky behaviour and prevention is very low. This is further displayed in the FGD from the participants' assessment of knowledge and awareness on hypertension prevention of the community where many peoples are lacking knowledge.

7.2.3.2 Attitudes of adults regarding hypertension risky behaviour and prevention

Attitude was assessed in terms of the HBM constructs.

Perceived susceptibility

Based on the findings, 61.8% (n=378) of respondents had neutral attitude towards behavioural risk factors of developing hypertension and their susceptibility to contract the disease. We can conclude that the community's attitude to their susceptibility to developing hypertension need attention.

Perceived severity

Regarding the perceived severity, respondents of the study demonstrated good attitude where 90.8% (n=188) of respondents have positive attitude toward perceived severity of hypertension and very few 9.2% (n=19) had poor attitude.

Perceived benefits of applying hypertension prevention activities

A large proportion of respondents 77.9% (n=209) believe in the benefit of applying hypertension prevention activity, which show that there is good attitude towards perceived benefit of applying hypertension prevention activity.

Perceived barriers of hypertension prevention activities

More than half 52.2% (n=161) of the adults have perceived barriers and poor attitude to avert the barriers and engage into the prevention activity. With this poor attitude, it will be problematic to do hypertension prevention, which further led to low acquiescence to recommended activates.

Cue to action

Attitude of cue to action in the prevention activity of hypertension is expressed by 69.7% of respondents having poor attitude, which will not give the chance of the prevention activity to be done easily.

In conclusion, the HBM demonstrated that attitudes of adults towards hypertension risky behaviour and prevention in the community is minimal.

7.2.4 What are health care providers' perspectives regarding efforts exerted for the prevention of hypertension as non-communicable disease (NCD)?

What efforts are exerted for the prevention of hypertension as NCD according to health care providers' perspectives was assessed using qualitative parameters in the study. Health care providers indicate that the effort exerted for the prevention of hypertension is not satisfactory and it is minimal as compared to the consideration the disease deserves as a public health problem.

According to the HCP, the current situation of hypertension is increasing alarmingly in the whole group of population. Despite these facts, the majority of the study respondents retorted that response or efforts made for the prevention was not satisfactory.

> *Both on the part of health professionals and the government enough attention is not paid to hypertension; it should be taken as a big issue.* (MHC, R1)

Health workers highly believe that non-pharmacological managements of hypertension or the preventive activity like avoiding unhealthy feeding style, quitting smoking, stop

158

excessive alcohol consumption, weight reduction through physical activates, avoiding other risk factors of hypertension and life style modification are highly encouraged. However, activities done both from the HCP side and/or by other body to bring this into being is not acknowledged.

The inability of arranging follow-up, unbuilt capacity of HCP through training and supervision, lack and scarcity of resources like the BP apparatuses and NCD corners, the unavailability of hypertension prevention guideline are challenges that further exhibited the efforts are less towards the prevention activity.

> *We are not having any training on hypertension since we are deployed to date.* (HEW, R2)
> *We do not have enough BP apparatus. We have only one apparatus for six patients. Therefore, in 15 days, the change of seeing one patient is only one!* (HEW, R1)
> *... there is no guideline regarding hypertension prevention ...* (AHC, R2)

With regard to what have been done in partnership, which is believed to gear the prevention activity of hypertension as a NCD, donor and NGO involvement is negligible, lack of inter-sectoral collaboration was weighty and works on the media are insignificant. In conclusion, little is being done to prevent hypertension.

7.3   LIMITATIONS OF THE STUDY

Even if this is a mixed methods study, it shares limitations of study in method used in the respective phases of the study.

Phase 1
Limitations in this phase of the study is attributed to the comparative cross-sectional nature of the study that cannot be used to establish temporal relationship between the exposures and outcome variables (hypertension and associated factors). The study was limited only to behavioural and physical measurements of WHO Step Wise Approach for

NCD and did not use biochemical measurements and all the three blood pressure measurement use done on same day.

Phase 2

In this phase, the study followed the qualitative approach. Therefore, it shares the limitation of qualitative study that it cannot be generalised and HCP participated in the FGD were only form public health facility. This cannot show perspectives of the private health facilities'.

7.4   RECOMMENDATIONS

In this section, recommendations are provided based on results of the study at different levels which are believed to be relevant to use and implement the recommendations. Therefore, recommendations are given for further studies by researchers, what to be done by health care providers, policymaker and health manager.

Recommendations for health care providers

- Comprehensive effort must be exerted by HCP to increase community awareness on hypertension and its risk factors and means of preventions.
- HCP should take enough time to counsel and screen each client's visit for hypertension and their risky behaviour and arrange follow-ups if the client is hypertensive or have risky behaviour.
- HCP must develop the habit of using guidelines to perform activities.
- HCP, especially, the HEW should strongly work on wrong perception of the community on hypertension.
- HCP should introduce and encourage the use of available services for hypertension prevention in the health facilities and in the community.
- Strongly advice patients with comorbidity to adherences to advices and treatments.

Recommendations for policymaker and health manager

- HCP capacity has to be built by developing training modules and giving trainings on hypertension prevention and through supportive supervision.
- Health facilities need to be strengthened with supply of enough modern apparatuses for BP measurement to ease the prevention activities of hypertension.
- NCD corners should be established at each health facilities at least starting from HC level.
- The FMoH must direct and actively coordinate activities that involve inter-sectorial collaboration.
- City administrations should avail enough places for sporting and physical activity.
- The FMoH must mobilise more resources and highly encourage the involvement of donors and NGOs to hypertension prevention activity.
- Media should be used adequately to disseminate information about hypertension to the community.
- The government should put regulations (set up a law) on the uncontrolled advertisement of alcohol on different means of advertisements.
- Hypertension prevention guideline like the current guideline must be available according to each context and works must be done to accustom HCP with the guideline.

Recommendations for further studies

Hypertension is a contemporary public health agenda that is putting the developing countries in a double burden of disease. Therefore, it needs sufficient evidence to establish the extent of the problem and give possible recommendations for its prevention.

The following agendas can be used by future research studies to seek further information on the issue.

- Clients' perceptions of the efforts exerted for the prevention of hypertension as NCD and facilities readiness for services provision.
- Assessment of hypertension prevention services provision at private health facility.

7.5   CONCLUDING REMARKS

The study was aimed at establishing the difference in the burden of hypertension in urban and peri-urban area and factors associated with hypertension. The findings revealed that hypertension is more prevalent in the urban area and the overall prevalence is high and is increasing highly.

High economic status, having diabetes, use of extra top added salt on plate, not walking on foot and higher BMI were associated with hypertension on the urban setting and being male, vegetable eating habit, performing physical fitness activities were factors associated with hypertension on the peri-urban setting. Increased age and positive history of hypertension in the family has shown association with hypertension in both settings. Knowledge and attitude of the community on hypertension and its risky behaviour and prevention were also assessed and both were found to be poor.

The knowledge and attitude of the community toward hypertension and its prevention is not satisfactory. Furthermore, the study found out that the effort exerted for the prevention of hypertension is not satisfactory and it is very minimal as compared to the concerns of the public health problem and the disease deserves.

REFERENCES

Abdissa, SG, Feleke, Y & Awol, M. 2015. Prevalence of hypertension and pre-hypertension in Addis Ababa, Ethiopia: A survey done in recognition of World Hypertension Day. *Ethiopian Journal of Health Development* 29(1):22-30.

Abebe, SM, Berhane, Y, Worku, A & Getachew A. 2015. Prevalence and associated factors of hypertension: A cross sectional community based study in Northwest Ethiopia. *Public Library of Sciences One* 10(4):1-11.

Addo, J, Agyemang, C, Smeeth, L, Aikins, AG, Edusei, AK & Oge-Degbe, O. 2012. A review of population based studies on hypertension in Ghana. *Ghana Medical Journal* 46(2):1-11.

Adedoyin, RA, Mbada, CE, Balogun, MO, Martins, T, Adebayo, RA, Akintomide, A & Akinwusi, PO. 2008. Prevalence and pattern of hypertension in a semi urban community in Nigeria. *Europian Journal of Cardiovascular Prevention and Rehabilitaion* 15(6):683–687.

Agyemang, C, Bruijnzeels, MA & Owusu-Dabo, E. 2006. Factors associated with hypertension awareness, treatment, and control in Ghana, West Africa. *Journal of Human Hypertension* 20(1):67–71.

Akter, R, Assadi, R, Singh, H, Abaszadhezouri, MG, Lamichhane, S, Ahadi, H, Mathew, E, Muttappallymyalil, J & Gopakumar, A. 2014. Sources of information and level of knowledge on Hypertension among entry level university students in Ajman, UAE. *American Journal of Research Communication* 2(5): 16-27.

Alemseged, F, Haileamlak, A, Tegegn, A, Tessema, F, Woldemichael, K, Asefa, M, Mamo Y, Tamiru, S & Abebe G. 2012. Risk factors for chronic non-communicable diseases at Gilgel Gibe field research centre, Southwest Ethiopia: Population based study. *Ethiopian Journal of Health Sciences.* 22(Spec Iss):19–28.

Ali, MS & Tonekaboni, RN. 2009. Diabetes self-care determinants model of diabetic patients referred to Yazd Diabetes Research Centre. *Daneshvar Medicine* 16(81):29-36.

Almas, A, Godil, SS, Lalani, S, Samani, ZA & Hameed, A. 2017. Good knowledge about hypertension is linked to better control of hypertension; a multicenter cross

sectional study in Karachi, Pakistan. *BioMed Central Research Notes* 24(5): 579-586.

Angaw, k, Dadi, AF & Alene KA. 2015. Prevalence of hypertension among federal ministry civil servants in Addis Ababa, Ethiopia: a call for a workplace-screening program. *BioMed Central Cardiovascular Disorders* 15(76):1-6.

Aounallah-Skhiri, H, EI Ati, J, Traissac, P, Romdhane, HB, Eymard-Duvernay, S, Delpeuch, F, Achour, N & Marie, B. 2012. Blood pressure and associated factors in a North African adolescent population. a national cross-sectional study in Tunisia. *BioMed Central Public Health* 12(98): 1-10.

Asfaw, LS, Ayanto, SY & Gurmamo, FL. 2018. Hypertension and its associated factors in Hosanna town, Southern Ethiopia: community based cross-sectional study. *Bio Med Central Research Notes* 11(306):1-6.

Asresahegn, H, Tadesse, F & Beyene, E. 2017. Prevalence and associated factors of hypertension among adults in Ethiopia. *BioMed Central* 10(629):1-8.

Ataklte, F, Erqou, S, Kaptoge, S, Taye, B, Echouffo-Tcheugui, JB & Kengne, AP. 2015. Burden of undiagnosed hypertension in Sub-Saharan Africa a systematic review and Meta-Analysis. *Hypertension* 65:291-298.

Aubert, L, Bovet, P, Gervasoni, JP, Rwebogora, A, Waeber, B & Paccaud, F. 1998. Knowledge, Attitudes and Practices on hypertension in a country in epidemiological transition: *Hypertension*. 31:1136-1145.

Awoke, A, Awoke, T, Alemu, S & Megabiaw, B. 2012, Prevalence and associated factors of hypertension among adults in Gondar, Northwest Ethiopia: a community based cross-sectional study. *BioMed Central Cardiovascular Disorders* 12 (113):1-6.

Baig, M, Gazzaz, ZJ, Gari, MA, Al-Attallah, HG, Al-Jedaani, KS, Mesawa, ATA & Al-Hazmi, AA. 2015. Prevalence of obesity and hypertension among university students' and their knowledge and attitude towards risk factors of Cardiovascular Disease (CVD) in Jeddah, Saudi Arabia. *Pak J Med Sci* 31(4):816-820.

Bartlomiej, KS, Lukasz, K, Malgorzata, P, Agnieszka, A, Janusz, S & Tomasz, K. 2017. An evaluation of the work and life conditions and the quality of life in 60 to 65-

year-old white-collar employees, manual workers and unemployed controls. *Journal of Occupational and Environmental Medicine* 59(5):461-466.

Bayray, A & Berhe, H. 2012. Nutrition status and major risk factors of hypertension among adults in Tigray, North Ethiopia; A case control study. *International Journal of Pharmacutical Sciences and Research* 3(11): 4206-4212.

Bazzano, LA, Green, T, Harrison, TN & Reynolds, K. 2013. Dietary approaches to prevent hypertension. *Curr Hypertens Rep* 15(6): 694–702.

Bissa, S, Mossie, A & Gobena, T. 2014. Prevalence of hypertension and its association with substance use among adults living in Jimma Town, South West Ethiopia. *World Journal of Medicine and Medical Science* 2(1):1-11.

Bloom, DE, Cafiero, E, Jané-Llopis, E, Abrahams-Gessel, S, Bloom, LR & Fathima S. 2012. The global economic burden of non-communicable diseases. *Program on the Global Demography of Aging* 87.

Bodhare, TN, Venkatesh, K, Bele, S, Kashiram, G, Devi, S & Vivekanand A. 2013. Behavioural risk factors for non-communicable disease among rural adults in Andra Pradesh. *National Journal of Community Medicine* 4(3): 439-442.

Bosu, WK. 2012. A comprehensive review of the policy and programmatic response to Chronic Non- Communicable Disease in Ghana. *Ghana Medical Journal* 46(2):69-78.

Boswell, C & Cannon, S. 2011. *Introduction to nursing research: Incorporating evidence-based practice.* (2nd edition). London: Jones and Bartlett.

Burak, LJ & Meyer, M. 1997. Using the Health Belief Model to examine and predict college women's cervical cancer screening beliefs and behaviour. *Health Care Women Int.* 18(3):251-262.

Burns, N & Grove, SK. 2005. *Understanding nursing research: building an evidence-based practice.* (4th edition.). St Louis: Elsevier Saunders.

Capingana, DP, Magalhães, P, Silva, ABT, Gonçalves, MAA, Baldo, MP, Rodrigues, SL, Simões, CCF, Ferreira, AVL & Mill, GJ. 2013. Prevalence of cardiovascular risk factors and socioeconomic level among public-sector workers in Angola. *BioMed Central Public Health* 13(732): 1-9.

Central Statistical Agency (of Ethiopia). 2014. *Summary and Statistical Report of the 2007 Population and Housing Census Results.* Addis Ababa, Ethiopia: Population and Housing Census Commission 57–60.

Champion, VL & Skinner, CS. 2008. Health Belief Model components and linkages, in Health behavior and health education: theory, research and practice. 4th edition. Jossey-Bass, San Francisco. 45-65.

Creswell, JW & Clark, VL. 2011. *Designing and conducting mixed methods research.* (2nd edition).   Thousand oaks, California. Sage publications.

Creswell, JW. 2014. *Research design: qualitative, quantitative and mixed methods approaches.* (4th edition). London: SAGE.

Collins English Dictionary. 2014. Sv "agent", "perspective", "Purpose". 3rd edition. Glasgow: Harper Collins.

CSA – see Central Statistical Agency (of Ethiopia).

Dastan, I, Erem, A & Cetinkaya, V. 2017. Urban and rural differences in hypertension risk factors in Turkey *Anatolian Journal of Cardiology* 18(1): 39-47.

Day, S, Dort, PV & Tay-Teo, KS. 2010. Improving participation in cancer screening programme: a review of social cognitive models, factors affecting participation and strategies to improve participation. Melbourne: University of Melbourne Centre for Health Policy, Programmes and Economics.

Deferrari, G, Ravera, M, Deferrari, L, Vettoretti, S, Ratto, E & Parodi, D. 2002. Renal and cardiovascular protection in type 2 Diabetes Mellitus: Angiotensin II Receptor Blockers. *Journal of the American Society of Nephrology* 13(3):224-229.

Demaio, A, Otgontuya, D, Maximilian de Courten, Ib C Bygbjerg, Enkhtuya, P, Meyrowitsch, DW & Oyunbileg, J. 2013. Hypertension and hypertension-related disease in Mongolia; findings of a national knowledge, attitudes and practices study. *BioMed Central Public Health* 13(194):1-10.

Demisse, AG, Greffie, ES, Abebe, SM, Bulti, AB, Alemu, S, Abebe, B & Mesfin, N. 2017. High burden of hypertension across the age groups among residents of Gondar city in Ethiopia: a population based cross sectional study. *BioMed Central Public Health* 17 (647):1-9.

Dewhurst, MJ, Dewhurst, F, Gray, WK, Chaote, P, Orega, GP & Walker, RW. 2013. The high prevalence of hypertension in rural-dwelling Tanzanian older adults and

the disparity between detection, treatment and control: a rule of sixths? *Journal of Human Hypertension* 27(6): 374–380.

Dickoff, J, James, P & Wiedenbach, E. 1968. Theory in practice discipline art 1. Practice oriented research. *Nursing Research* 17(5):215-335.

Dijkstra, A, Okken, V, Niemeijer, M & Cleophase, T. 2008. Determinants of perceived severity of hypertension and drug-compliance in hypertensive patients. *Cardiovascular & Hematological Disorders-Drug Targets* 8(3):179-184.

Dzudie, A, Kengne, AP, Muna, WFT, Ba, H, Menanga, A, kouam, CK, Abah, J, Monkam, Y, Biholong, C, Mintom, P, Kamdem, F, Djomou, A, Ndjebet, J, Wambo, C, Luma, H, Ngu, KB & Kingue, S. 2012. Prevalence, awareness, treatment and control of hypertension in a self-selected sub-Saharan African urban population: a cross-sectional study. *British Medical Journal open* 2(4):1-10.

Dua, S, Bhuker, M, Sharma, P, Dhall, M & Kapoor, S. 2014. Body Mass Index relates to blood pressure among adults. *North American Journal of Medical Sciences* 6(2):89-95.

Ekpenyong, CE, Udokang, NE, Akpan, EE & Samson, TK. 2012.Double burden, Non Communicable Diseases and risk factors evaluation in Sub-Saharan Africa: The Nigerian experience. *European Journal of Sustainable Development* 1(2): 249-270.

Ersin, F & Bahar, Z. 2013. Barriers and facilitating factors perceived in Turkish women's behaviours towards early cervical cancer detection: A qualitative approach. *Asian pacific journal of cancer prevention* 14(9):4977-4982.

Esaiyas A, Teshome, T & Kassa D. 2018. Prevalence of hypertension and associate risk factors among workers at Hawassa University, Ethiopia: An institution based Cross Sectional Study. *Journal of Vascular Medicine & Surgery* 6(1): 1-9.

Exercise is medicine Australia factsheet. 2014. [Online]: Available at: www.exerciseismedicine.org.au (accessed: 30 December 2016).

Feilzer, MY. 2010. Doing Mixed Methods research pragmatically: implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research* 20(10): 1–11.

Feridoun, N, Nizal, S, Alireza, K & Elham, A. 2012. The first Iranian recommendations on prevention, evaluation and management of high blood pressure. *ARYA Atherosclerosis Journal* 8(3): 97-118.

Field, A. 2009. *Discovering statistics using SPSS.* Thousand Oaks, California: Sage.

Fikadu, G & Lemma, S. 2016. Socioeconomic status and hypertension among teachers and bankers in Addis Ababa, Ethiopia. *International Journal of Hypertension.* Volume 2016 Article ID 4143962:1-7.

Fletcher, RH, Fletcher, SW & Fletcher, GS. 2014. *Clinical epidemiology: The essentials.* (5th edition). Baltimore, MD: Lippincott Williams & Wilkins.

Federal Ministry of Health 2014. *Health and Health Related Indicators*. Addis Ababa: Federal Ministry of Health, Ethiopia.

FMOH see-Federal Ministry of Health.

Gao, Y, Chen, G, Tian, H, Lin, L, Lu, J, Weng, J, Jia, W, Ji, L, Xiao, J, Zhou, Z, Ran, X, Ren, Y, Chen, T & Yang, W. 2013 Prevalence of hypertension in China: A cross-sectional study. *Public Library of Sciences One* 8(6):1-8.

Gebrezgi, MT, Trepka, MJ & Kidane, EA. 2017. Barriers to and facilitators of hypertension management in Asmara, Eritrea: patients' perspectives. *Public Library of Science One* 39(11):1-7.

Getachew, F, Dirar, A & Solomon, D. 2018. Prevalence of undiagnosed hypertension and associated factors among residents in Gulele Sub-City, Addis Ababa, Ethiopia. *Journal of Community Med Health Educ* 8(1): 1-5.

Getahun, W & Tesfaye, F. 2010. Reeseagrcuh alraticrle Khat (Catha edulis) chewing is associated with elevated diastolic blood pressure among adults in Butajira, Ethiopia: A comparative study. *BioMed Central Public Health* 10:390.

Ghosh, A, Sarkar, D, Mukherji, B & Pal, R. 2013. Prevalence and risk correlates of hypertension among adult rural population in Bihar. *Ann Trop Med Public Health* 6(1):71-75.

Giday, A & Tadesse, B. 2011. Prevalence and determinants of hypertension in rural and urban areas of southern Ethiopia. *Ethiopian Medical Journal* 49(2):139-147.

Given, LM & Saumure, K. 2008. Trustworthiness, in *The SAGE encyclopedia of qualitative research methods*. Thousand Oaks, London, New Delhi: SAGE.

Glanz, K, Rimer, BK & Lewis, FM. 2008. *Health behaviour and health education, theory research and practice.* (4th edition). San Fransisco: Jossey-Bass.

Glogowska, M. 2011. Paradigms, pragmatism and possibilities: Mixed-methods research in speech and language therapy. *International Journal of Language & Communication Disorders* 46(3): 251-260.

Greaney, AM, Sheehy, A, Heffernan, C, Murphy, J, Mhaolrunaigh, SN, Heffernan, E, Brown, G. 2012. Research ethics application: a guide for the novice researcher. *British Journal of Nursing* 21(1):38-40.

Grove, SK, Burns, N & Gray, JR. 2013. The practice of nursing research appraisal, synthesis and generation of evidence. (7th edition). China: Elsevier Saunders.

Gudina, EK, Bonsa, F & Hajito, KW. 2014. Prevalence of hypertension and associated factors in Bedele town, Southwest Ethiopia. *Ethiopian Journal of Health Sciences* 24(1):21-26.

Gudina, EK, Michael, Y & Assegid, S. 2013. Prevalence of hypertension and its risk factors in southwest Ethiopia: a hospital-based cross-sectional survey. *Integrated Blood Pressure Control* 6:111–117.

Guest, G & Namey, E (eds.). 2015. *Public health research methods.* United Kingdom: Sage.

Halcomb, E & Hickman, L. 2015. Mixed methods research. *Nursing Standard: Promoting Excellence in Nursing Care* 29 (32): 1-17.

Hashmi, SK, Afridi, MB, Abbas, K, Sajwani, RA, Saleheen, D, Mail, PMF, Ambreen, A & Ahmad, U. 2014. Factors associated with adherence to anti- hypertensive treatment in Pakistan. *Care Diabetics Journal* 3(5):1-8.

Hegde, SM & Solomon, SD. 2015. Influence of physical activity on hypertension and cardiac structure and function. *Curr Hypertens Rep* 17(10): 77-90.

Helelo, TP, Gelaw, YA & Adane AA. 2014. Prevalence and associated factors of hypertension among adults in Durame Town, Southern Ethiopia. *Public Library of Sciences ONE* 9(11):1-9.

Hendriks, ME, Wit, FWNM, Roos, MTL, Brewster, LM, Akande, TM, Beer, IH, Mfinanga, SG, Kahwa, AM, Gatongi, P, Van Rooy, Janssens, W, Lammers, J, Kramer, B, Bonfrer, I Gaeb, E, Van der Gaag,J, Wit, TFR, Lange, JMA,Schultsz, C.

2012.Hypertension in Sub-Saharan Africa: Cross-Sectional Surveys in Four Rural and Urban Communities. *Public Library of Sciences One* 7(3): 1-10.

Hochbaum, G, Rosenstock, I & Kegels. 1952. Health Belief Model. United States Public Health Service.

Hollenberg, M & Tager, IB. 2000. Oxygen uptake efficiency slope: An index of exercise performance and cardiopulmonary reserve requiring only submaximal exercise. *Journal of the American College of Cardiology* 36(1):194-201.

Institute of Medicine. 2010. *A population-based policy and systems change approach to prevent and control hypertension*. Washington, DC: The National Academies Press.

IOM- see Institute of Medicine

Islam, A & Biswas, T. 2014. Chronic Non-Communicable Diseases and the health care system in Bangladesh: Current status and way forward. *Chronic Dis Int* 1(2): 1-6.

James, PA, Oparil, S, Carter BL, Cushman, WC, Dennison-Himmelfarb, C, Handler, J, Lackland, DT, Le Fevre, ML, MacKenzie, TD, Ogedegbe, O, Smith, SC, Svetkey, LP, Taler, SJ, Townsend, RR, Wright, JT, Narva, AS & Ortiz, E. 2014. 2014 Evidence-based guideline for the management of high blood pressure in adults' report from the panel members appointed to the eighth Joint National Committee (JNC 8). *Journal of American Medical Association.* 311(5):507-520.

Jana, K, Ewelina, W, Anna, P & Piotr, R. 2013. Health related behaviours and hypertension prevention in Poland. An environmental study. *Arch Med Sciences* 9*(*2): 218-229.

Janz, NK & Becker, MH. 1984. The Health Belief Model: A decade later. *Health education and behavior.* 11 (1):1-47.

Jima, SB, Tefera, TB & Ahmed, MB. 2015. Prevalence of Tobacco consumption, alcohol, khat (Catha Edulis) use and high blood pressure among adults in Jimma Town, South West Ethiopia. *Science Journal of Public Health* 3(5): 650-654.

Joshi, MD, Ayah, R, Njan, KE, Wanjiru, R, kayima, KJ, Njeru, KE & Mutai, KK. 2014. Prevalence of hypertension and associated cardiovascular risk factors in an urban slum in Nairobi, Kenya: A population-based survey. *BioMed Central Public Health* 14(1177):1-10.

Jousilahti, P, Laatikainen, T, Peltonen, M, Borodulin, K, Mannisto, S, Jula, A, Salomaa, V, Harald, K, Puska, P & Vartiainen, E. 2016. Primary prevention and risk factor reduction in coronary heart disease mortality among working aged men and women in eastern Finland over 40 years: population based observational study. *Bio Medical Journal* 2016(352):1-7.

Jugal, K, Neeru, G, Charu, K, & Neeta, K. 2016. Prevalence of hypertension and determination of its risk factors in rural Delhi. *International Journal of Hypertension.* http://dx.doi.org/10.1155/2016/7962595.

Kaba, Z, Khamisa, N & Tshuma, N. 2017. Age-group differences in risk perceptions of non-communicable diseases among adults in Diepsloot Township, Johannesburg, South Africa: A cross-sectional study based on the Health Belief Model. *South Africa Medical Journal* 107(9):797-804.

Kabir, M, Iliyasum, Z, Abubakar, IS & Jibril, M. 2004. Compliance to medication among hypertensive patients in Murtala Mohammed specialists hospital, Kano. Nigeria. *Journal of community Medicine and Primary Health care* 16(1):16-20.

Kalssa, A, Ayele, G, Tamiso, A & Girum, T. 2016. Prevalence and associated factors of Hypertension among civil servants working in Arba Minch Town, South Ethiopia. *International Journal of Public Health Science* 5(4): 375-383.

Karl, P & Nancy, PM. 2013. Hypertension and associated factors in older adults in South Africa. *Cardiovascular Journal of Africa* 24(3):66-71.

Kasmaei, P, Yousefi, P, Farmanbar, R, Omidi, S & Hassankiadeh, RF. 2015. A study on the predictive power of the Health Belief Model constructs in self-care behaviors of patients with hypertension. *Health Education and Health Promotion* 3(3):5-13.

Kayima,J, Wanyenze, RK, Katamba, A, Leontsini, E & Nuwaha, F. 2013. Hypertension awareness, treatment and control in Africa: a systematic review. *BMC Cardiovascular Disorders* 13(54):1-11.

Kearney, PM, Whelton, M, Reynolds, K, Muntner, P & Whelton, PK. 2005. Global burden of hypertension: analysis of worldwide data. *The Lancet* 365(9455):217-223.

Keeney, S, Hasson, F & McKenna, HP. 2001. A critical review of the Delphi technique as a research methodology for nursing. *International Journal of Nursing studies.* 32(8):195-200.

Keith, MD & Daichi, S. 2013. Physical activity and the prevention of hypertension. *PMC* 15(6):659–668.

Khatib, R, Schwalm, J-D, Yusuf, S, Haynes, RB, McKee, M, Khan, M & Nieuwlaat, R. 2014. Patient and healthcare provider barriers to hypertension awareness, treatment and follow up: A systematic review and meta-analysis of qualitative and quantitative studies. *Public Library of Sciences One* 9(1):1-12.

Kibret, KT & Mesfin, YM. 2015. Prevalence of hypertension in Ethiopia: A systematic meta-analysis. *Public Health Reviews* 36(14):1-12.

Kotcher, T. 2012. Harrison's principles of internal medicine. In Hypertensive vascular disease. Volume 1 18th edition. Edited by Athonys, F, Eugene, B & Dennis, K. USA: McGraw-Hill Companies: 1549–1562.

Kotwani, P, Kwarisiima, D, Clark, TD, Kabami, J, Geng, EH, Jain, V, Chamie, G, Petersen, ML, Thirumurthy, H, Kamya, MR, Charlebois, EW & Havlir, DV. 2013. Epidemiology and awareness of hypertension in a rural Ugandan community: a cross-sectional study. *BioMed Central Public Health* 13 (1151):1-10.

Lewanczuk, R. 2008. Hypertension as a chronic disease: What can be done at a regional level? *Can J Cardiol* 24(6): 483–484.

Liamputtong, P. 2011. *Qualitative research methods*. (3rd edition). Melbourne: Oxford University Press.

Long, AN & Dagogo-Jack, S. 2011. The comorbidities of Diabetes and Hypertension: Mechanisms and approach to target organ protection. *Journal of Clinical Hypertension* (Greenwhich) 13(4):244-251.

Lopes, SC, Cabral, AJ & Sousa, B. 2014. Community health workers: to train or to restrain? A longitudinal survey to assess the impact of training community health workers in the Bolama Region, Guinea-Bissau. *Human Resources for Health* 12(8):1-9

Lydia, AB, Torrance, G, Teresa, NH & Kristi, R. 2013. Dietary Approaches to Prevent Hypertension. *Curr Hypertens Rep* 15(6): 694–702.

Maher, D, Waswa, L, Baisley, K, Karabarinde, A & Unwin, N. 2011. Epidemiology of hypertension in low-income countries: a cross-sectional population-based survey in rural Uganda. *Journal of Hypertension* 29(6):1061-1068.

Mahmood, SE, Srivastava, A, Shrotriya, VP, Iram, S & Payal, M, 2011. Prevalence and epidemiological correlates of hypertension among labour population. *National Journal of Community Medicine* 2(1):43-48.

Maginga, J, Guerrero, M, Koh, E, Holm Hansen, C, Shedafa ,R, Kalokola, F, Smart,LR & Peck, RN. 2016. Hypertension control and its correlates among adults attending a hypertension clinic in Tanzania. *J Clin Hypertens* 18(3):207-216.

Manimunda, SP, Sugunan, AP, Benegal, V, Balakrishna, N, Vishnuvardhana Rao, M & Pesala, KS. 2011. Association of hypertension with risk factors & hypertension related behaviour among the aboriginal Nicobarese tribe living in Car Nicobar Island, India. *Indian J Med Res* 133(3):287-293.

Margaret, K, Wisdom, T, Phillis, P, Wisdom, A, Mohammed, T, Martin, A & Elvis, T. 2017. Prevalence and control of hypertension among rural adults in the Likpe Sub-municipality of the Hohoe municipality of Ghana. *International Journal of Medical Research and Pharmaceutical Sciences.* 4(5): 49-64.

Martiniuk, AL, Lee, CM, Lawes, CM, Ueshim, H, Suh, I, Lam, TH, Gu, D, Feigin, V, Jamrozik, K, Ohukubo, T & Woodward, M. 2007. Hypertension: its prevalence and population-attributable fraction for mortality from cardiovascular disease in the Asia-Pacific region. *Journal of Hypertension* 25(1): 73-79

Mathison, S. 2005. Trustworthiness, in *Encyclopedia of evaluation.* Thousand Oaks, CA: SAGE.

Mayega, RW, Makumbi, F, Rutebemberwa, E, Peterson, S, Ostenson, CG, Tomson, G & Guwatudde, D. 2012. Modifiable Socio-Behavioural factors associated with overweight and hypertension among persons aged 35 to 60 years in Eastern Uganda. *Public Library of Sciences One* 7(10):1-9.

Mengistu, MD. 2014. Pattern of blood pressure distribution and prevalence of hypertension and prehypertension among adults in Northern Ethiopia: disclosing the hidden burden. *BMC Cardiovasc Disord* 14(33):1-8.

Michael, JB. 2016. Worldwide prevalence of hypertension exceeds 1.3 billion. *Journal of the American Society of Hypertension* 10(10):753–754.

Michael, R, Janusz, K, Sheldon, WT, Gerrit, G, Omer, SMH & Jurgen, R. 2017. The effect of a reduction in alcohol consumption on blood pressure: a systematic review and meta-analysis. *Lancet Public Health* 2017(2): 108–120.

Middleton, JL. 2009. A proposed new model of hypertensive treatment behavior in African Americans. *Journal of the National Medical Association* 101(1): 12–17.

Mittal, BV & Singh, AK. 2010. Hypertension in the developing world: challenges and opportunities. *Am J Kidney Dis.* 55(3):590-598.

Molla, M. 2015. Systematic reviews of prevalence and associated factors of hypertension in Ethiopia: finding the evidence. *Science Journal of Public Health* 3(4):514-519.

Mori, H, Ukai, H, Yamamoto, H, Saitou, S, Hirao, K, Yamauchi, M & Umemura, S. 2006. Current status of antihypertensive prescription and associated blood pressure control in Japan. *Hypertension research official journal of the Japanese Society of Hypertension* 29(3):143-151.

Musinguzi, G, Bastiaens, H, Wanyenze, RK, Mukose, A, Van geertruyden J-P & Nuwaha, F. 2015. Capacity of health facilities to manage hypertension in Mukono and Buikwe districts in Uganda: challenges and recommendations. *Public Library of Sciences One* 10(11):1-16.

Narayan, B, Case, DO & Edwards, SL. 2011. The role of information avoidance in everyday-life information behaviors. *American Society for Information Science & Technology.* New Orleans 4(1):1-9.

Neema, RM, Michael, M, Adinan, J, Innocent, M, Rob, P, Mark, U, Denna, M & Jim T. 2017. Prevalence, awareness and factors associated with hypertension in North West Tanzania. *Global Health Action* 10(1): 1-9.

Newell, M, Modeste, N, Marshak, HH & Wilson, C. 2009. Health beliefs and the prevention of hypertension in a black population living in London. *Ethnicity & Disease* 19(1): 35-41.

Nieun, S, Jae Ho, B, Jin-Hee, K, Hyoung-Jung, K, Seung-Soo, L, Ki-Byung, S, Song-Chelo, K, Duck-Jong, H, Seung-Mo, H & Moon-Gyu, L. 2016. Validation of the 2012 international consensus guidelines using Computed Tomography and Magnetic Resonance Imaging. *Annals of Surgery 263*(3):557-564.

Ofili, MI & Ncama, BP. 2014. Strategies for prevention and control of hypertension in Nigeria rural communities. *Biomedical & Pharmacology Journal* 7(1):39-45.

Ogah, OS, Okpechi, I, Chukwuonye, II, Akinyemi, JO, Onwubere, BJC, Falase, AO, Stewart, S, Sliwa, K. 2012. Blood pressure, prevalence of hypertension and

hypertension related complications in Nigerian Africans: A review *World J Cardiol* 4(12): 327-340.

Oghagbon, EK, *Okesina*, AB & Biliaminu, SA. 2008. Prevalence of hypertension and associated variables in paid workers in Ilorin, Nigeria. *Nigerian Journnal of Clinical Practice* 11(4):342-346.

Okpechi, IG, Chukwuonye, II, Tiffin, N, Madukwe, OO, Onyeonoro, UU Umeizudike, TI & Ogah, OS. 2013. Blood Pressure gradients and cardiovascular risk factors in urban and rural populations in Abia State South Eastern Nigeria using the WHO STEP wise Approach. *Public Library of Science ONE* 8(9):1-8.

Okpetu, EI, Abimbola, S, Koot, JAR & Kane, S. 2018. Implementing prevention interventions for Non-Communicable Diseases within the primary health care system in the Federal Capital Territory, Nigeria. *Journal of Community Medicine and Primary Health Care* 30 (1):1-18.

Oliveira, GF, Oliveira, TRR, Ikejiri, AT, Andraus, MP, Galvao, TF, Silva, MT & Pereira, MG. 2014. Prevalence of Hypertension and associated factors in an indigenous community of Central Brazil: A population-Based Study. *Public Library of Science One* 9(1):1-6.

Omoleke, SA. 2013. Chronic Non-Communicable Disease as a new epidemic in Africa: focus on the Gambia. *Pan African Medical Journal* 14 (87):1-9.

Onoruoiza, SI, Musa, A, Umar, BD & Kunle, YS. 2015. Using Health Beliefs Model as an Intervention to Non-Compliance with Hypertension Information among Hypertensive Patient. *Int Organ Sci Res J Human Soc Sci* 20(9):11-16.

Osuala, E. 2017. Hypertension prevention and control: effects of a community health nurse led intervention. *J Health Educ Res Dev* 5(1):1-8.

Owen, N, Healy, GN, Howard, B & Dunstan, DW. 2012. Too much sitting: Health risks of sedentary behaviour and opportunities for change. *Research Digest. President's Council on Fitness, Sports and Nutrition* 13(3):1-11.

Oxford Advanced Learner's Dictionary. 2010. Sv "adult", "burden". Oxford: Oxford University Press.

Parmar, P, Rathod, GB, Rathod, S, Goyal, R, Aggarwal, S & Parikh, A. 2014. Study of knowledge, attitude and practice of general population of Gandhinagar towards hypertension. *Int.J. Curr.Microbiol. App.Sci* 3(8): 680-685.

Peck, R, Mghamba, J, Vanobberghen, F, Kavishe, B, Rugarabamu, V, Smeeth, L, Hayes, R, Grosskurth, H & Kapiga, S. 2014. Preparedness of Tanzanian health facilities for outpatient primary care of hypertension and diabetes: A cross-sectional survey. *Lancet Glob Health* 2:285-292.

Peppa, M & Vlahakos, D. 2011. Are we satisfied with the follow-up of hypertensive and chronic kidney disease patients in outpatient clinics? *HIPPOKRATIA* 15(1):44-49.

Pessinaba, S, Mbaye, A, Yabeta, GA, Kane, A, Ndao, CT & Ndiaye, MB. 2013. Prevalence and determinants of hypertension and associated cardiovascular risk factors: data from a population-based, cross-sectional survey in Saint Louis, Senegal. *Cardiovascular Journal of Africa* 24(5):180-183.

Pirasath, S, Kumanan, T & Guruparan, M. 2017. A study on knowledge, awareness, and medication adherence in patients with hypertension from a tertiary care centre from northern Sri Lanka. *International Journal of Hypertension.* Article ID 9656450:1-6.

Prevett, M. 2012. Chronic non-communicable diseases in Ethiopia– a hidden burden. *Ethiopian Journal Health Science* 22:1-2.

Poggenpoel, M. 1998. Data analysis in qualitative research. In De Vos, A. S. (Ed.) Research at grass roots: A primer for the caring professions. Pretoria: J. L. van Schaik Publishers.

Polit, DF & Beck, CT. 2008. *Nursing research: generating and assessing evidence for nursing practice.* (8th edition). Philadelphia: Lippincott Williams & Wilkins.

Polit, DF & Beck, CT. 2012. *Nursing research: generating and assessing evidence for nursing practice.* (9th edition). Philadelphia: Lippincott, Williams & Wilkins.

Polit, D & Beck, CT. 2014. *Essentials of nursing research: appraising evidence of nursing practice.* 8th edition. Philadelphia: Lippincott Williams &Wilkins.

Qiao, S, Ye, Q, Dou, Y, Li, M, Kou, Y, Qian, D, Li, M & Wang, G. 2013. Analysis for hypertension and related risk factors of physical examination population. *Int J Clin Exp Med* 6(9):785-793.

Rafael, VP, Flavio, DF, Leila, BM & Sandra, CF. 2013. Prevalence of hypertension among elderly persons in urban Brazil: A Systematic Review with Meta-Analysis. *American Journal of Hypertension* 26(4):541-548.

Rampala, L, Rampal, S, Azhar, MZ & Rahman, AR. 2008. Prevalence, awareness, treatment and control of hypertension in Malaysia: A national study of 16,440 subjects.*Public Health* 122(1):11-18.

Raosoft. 2004. An online sample size calculator 2004. [Online] Available at: http://www.raosoft.com/samplesize.html. Accessed on December 8, 2016.

Ratovoson, R, Rasetarinera, OR, Andrianantenaina, I, Rogier, C, Piola, P & Pacaud, P. 2015. Hypertension, a neglected disease in rural and urban areas in Moramanga, Madagascar. *Public Library of Sciences One* 10(9):1-14.

Rimando, M. 2015. Perceived barriers to and facilitators of hypertension management among underserved African American older adults. *Ethnicity & Disease* 25(3):329-336.

Rolfe, G. 2006. Validity, trustworthiness and rigor: Quality and the idea of qualitative research. *Journal of Advanced Nursing* 53(3): 304–310.

Romdhane, HB, Ali, SB, Skhiri, H, Traissac, P, Bougatef, S, Maire, B, Delpeuch, f & Achour, N. 2011. Hypertension among Tunisian adults: results of the Tahina project. *Hypertension Research* 35:341–347.

Ruano, N, Melo, P, Mogrovejo, F, De Paula, M, & Espinoza, R. 2015. Hypertension and cardiovascular risk factors in young university students from Quito, Ecuador. *Arch Clin Hypertens* 1(1): 005-009.

Saeed, KMI. 2015. Prevalence of hypertension and associated factors in Jalalabad City, Nangarhar Province, Afghanistan. *Central Asian Journal of Global Health* 4(1):1-16.

Saleem, F, Azmil, HM, Akmal, SA, Atif, M, Noman ul, H & Aljadhey H. 2012. Disease related knowledge and quality of life: a descriptive study focusing on hypertensive population in Pakistan. *Southern Med Review*. 5(1):47-52.

Sarki, AM, Nduka, CU, Stranges, S, Kandala, NB & Uthman, OA. 2015. Prevalence of hypertension in Low- and Middle-Income Countries. A systematic review and meta-analysis. *Medicine* 94(50):1-16.

Schmidt, NA & Brown, JM. 2012. *Evidence-based practice for nurses: appraisal and application of research.* (2nd edition). London: Jones & Bartlett Learning.

Seravalle, G, Koylan, N, Nalbantgil, I, Caglar, N, Quarti, TF, Makel, W, Grassi, G & Fici, F. 2015. HYT-hypertension in Turkey: a cross-sectional survey on blood pressure control with calcium channel blockers alone or combined with other antihypertensive drugs. High blood pressure & cardiovascular prevention. *High Blood Press Cardiovasc Prev* 22(2):165-172.

Shrivastava, SR, Shrivastava, PS & Ramasamy, J. 2014. The determinants and scope of public health interventions to tackle the global problem of hypertension. *Int J Prev Med* 5(7): 807-812.

Solomon, I, Adjuik, M, Takramah, W, Axame, WK, Owusu, R, Parbey, PA, Takase, M, Tarkang, E & Kweku, M. 2017. The frequency of Hypertension and Pre-Hypertension among adults in the Hohoe Municipality of Ghana. *J Prev Med Healthc* 1(3): 1-9.

Soubeiga, JK, Millogo, T, Bicaba, BW, Doulougou, B & Kouand, S. 2017. Prevalence and factors associated with hypertension in Burkina Faso: a country wide cross-sectional study. *BioMed Central Public Health* 17(64):1-8.

Steven, VD, Hilda, A, Samuel, O, Ademola, O, Charles, A, Isabella, A & Catherine K. 2013. Status report on hypertension in Africa - Consultative review for the 6th session of the African Union Conference of Ministers of Health on NCD's. *Pan Afr Med J.* 16(38):1-17.

Tadesse, T & Alemu, H. 2014. Hypertension and associated factors among university students in Gondar, Ethiopia: A cross-sectional study. *BioMed Central Public Health* 14 (937):1-5.

Tesch, R. 1992. *Qualitative research: Analysis types and software tools*. Falmer, New York.

Tesfaye, F, Byass, P & Wall, S. 2009. Population based prevalence of high blood pressure among adults in Addis Ababa: uncovering a silent epidemic. *Bio Med Central* 9(39):1-9.

Tesfaye, T. 2017. Assessment of the prevalence of hypertension and associated factors among Ethiopian Federal Police Officers Addis Ababa, Ethiopia: A Community Based Cross-Sectional Study. *EC Cardiology* 2(6): 278-286.

Theron, P.M. 2015. Coding and data analysis during qualitative empirical research in practical theology. *Indie Skriflig* 49(3):1-9.

The American Heritage Dictionary of the English language. 2016. Sv "Procedure", "Dynamics". 5th edition. Houghton Mifflin Harcourt Publishing Company.

Tsolekile, LP, Schneider, H & Puoane, T. 2018. The roles, training and knowledge of community health workers about diabetes and hypertension in Khayelitsha, Cape Town. *Curationis* 41(1):1-8.

Twagirumukiza, M, De Bacquer, D, Kips, JG, de Backer, G, Stichele, RV, Van, B & Luc, M. 2011. Current and projected prevalence of arterial hypertension in sub-Saharan Africa by sex, age and habitat: an estimate from population studies. *Journal of Hypertension* 7(29):1243-1252.

Unden, L, Calcagnile, O, Unden, J, Reinstrup, P & Bazarian, J. 2015. Validation of the Scandinavian guidelines for initial management of minimal, mild and moderate traumatic brain injury in adults. *Bio Med central* 13(292):1-9.

Vamvakis, A, Gkaliagkousi, E, Triantafyllou, A, Gavriilaki, E, & Douma, S. 2017. Beneficial effects of nonpharmacological interventions in the management of essential hypertension. *Journal of the Royal Society of Medicine Cardiovascular Disease* 0(0):1-6.

Wang, J, Zhang, L, Wang, F, Liu, L & Wang, H. 2014. Prevalence, awareness, treatment, and control of hypertension in China: Results from a National Survey. *American Journal of Hypertension.* 27(11):1355-1361.

Watkins, D & Cousins, J. 2010. Public health and community nursing: frameworks for practice. (3rd edition). Edinburgh; New York: Elsevier Bailliere Tindal.

WHO- see World Health Organization

Wu, F, Guo, Y, Chatterji, S, Zheng, Y, Naidoo, N, Jiang, Y, Biritwum, R, Yawson, A, Minicuci, N, Salinas-Rodriguez, A, Manrique-Espinoza, B, Maximova, T, Peltzer,K, Phaswanamafuya, N, Snodgrass, JJ, Thiele, E, Ng, N & Kowal, P.2015. Common risk factors for chronic non-communicable diseases among older adults in China, Ghana, Mexico, India, Russia and South Africa: the study on global Ageing and adult health. *BioMed Central Public Health* 15 (88):1-13.

World Health Organization. 2011. Global atlas on cardiovascular disease prevention and control. World Health Organization in collaboration with the World Heart Federation and the World Stroke Organization :3–18.

World Health Organization. 2012 a. *Health education: Theoretical concepts, effective strategies and core competencies*. Geneva: World Health Organization

World Health Organization. 2012 b. *Handbook for guideline development*. (2nd edition). Geneva: World Health Organization.

World Health organization. 2013. A global brief on hypertension. Geneva: World Health Organization.

World Health Organization. 2014. NCD country (NCD) profiles. Geneva: World Health Organization.

World Health Organization. 2017. World Hypertension Day 2017: Know your numbers. Geneva: World Health Organization.

World Health organization. 2018. EPHO5: Disease prevention, including early detection of illness.Geneva: World Health Organization.

Yin, KR. 2011. *Qualitative research from start to finish*. New York: Guilford Press.

Yoon, SS, Gu, Q, Nwankwo, T, Wright, JD, Hong, Y & Burt, V. 2015. Trends in blood pressure among adults with hypertension United States, 2003 to 2012. *Hypertension.* 2015(65):1-13.

You, Y, Teng, W, Wang, J, Ma, G, Ma, A, Wang, J & Liu, P. 2018. Hypertension and physical activity in middle-aged and older adults in China. *Scientific reports.* (2018)8:1-8.

Zaman, MM, Ullah, AKMJ, Bhuiyan, MR, Karim, MN, Moniruzzaman & Rahman SMA. 2016. Non-communicable disease prevention and control situation in a primary health care setting of Bangladesh: design and baseline findings of an intervention. *Chronic Dis Int*. 3(1): 1-9.

Annexure A: Ethical clearance certificate from UNISA

UNISA | university of south africa

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

REC-012714-039

HSHDC/505/2016

Date: 3 February 2016   Student No: 5765-397-6

Project Title: Guidelines for the prevention of the burden of hypertension among adults in Hawassa City administration of Ethiopia.

Researcher: Tsegab Paulose Helelo

Degree: D Litt et Phil   Code: DPCHS04

Supervisor: Prof ZZ Nkosi
Qualification: PhD
Joint Supervisor: -

DECISION OF COMMITTEE

Approved [√]   Conditionally Approved [ ]

Prof L Roets
for CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE
Prof L M Mabesa

Prof MM Moleki
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

181

Annexure B: Support letter from UNISA Regional Learning Centre to conduct the study

UNISA | university of south africa

13 MARCH, 2016

UNISA-ET/KA/ST/29/14-03-16

SOUTHERN NATIONS NATIONALITIES AND PEOPLES REGIONAL

HEALTH BUREAU

HAWASSA

Dear Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to confirm that Mr. Tsegab Paulose Helelo (student number 57653976) is a PhD student in the department of Health Studies at the University of South Africa (UNISA). Currently, he is at the stage of data collection on his research entitled *"Guidelines for the prevention of the burden of hypertension among adults in Hawassa city administration of Ethiopia."* This is therefore to kindly ask you to please assist the student in any way you can. Attached, please find the copy of the Ethical Clearance that he secured from the Department of Health Studies, UNISA.

Sincerely,

Tsige GebreMeskel Aberra

Deputy Director – Academic and ICT Support
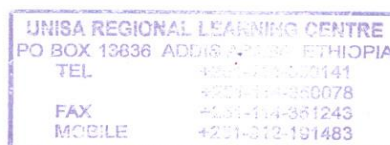
UNISA REGIONAL LEARNING CENTRE
PO BOX 13836 ADDIS ABABA ETHIOPIA
TEL
FAX
MOBILE

Annexure C: Letter to regional health bureau requesting permission to conduct research at Hawassa City administration

Permission seeking letter to conduct research

To: Southern Nation's Nationalities and Peoples regional health bureau

Hawassa, Ethiopia

Subject: Request for permission to conduct research at Hawassa City Administration in accordance to the requirements for obtaining a doctoral degree in health studies

I the under mentioned applicant is PhD student at the University of South Africa in the Department of Health studies. I work as a Public Health Specialist in the Regional Health Bureau.

I wish to conduct research entitled **Guideline for the prevention of the burden of hypertension among adults in Hawassa City administration**, which is in accordance with the requirement for obtaining doctoral degree in Health Studies.

The finding of the study will have immense contribute to the body of knowledge in chronic non- communicable disease prevention and the guideline will be of valuable tool supporting the regional health bureau in the prevention of hypertension.

I kindly request the health bureau to give me permission letter to conduct the study at Hawassa city administration. The findings of the research will be presented to the health bureau and the city administration.

Tsegab Paulose Helelo (Student number: 57653976)

57653976@mylife.unisa.ac.za

Prof ZZ Nkosi (Supervisor)

nkosizz@unisa.ac.za

Annexure D: Letter from regional health bureau granting to conduct the study

የደቡብ ብሄሮች ብሔረሰቦችና ሕዝቦች ክልላዊ
መንግሥት ጤና ቢሮ
South Nations Nationalities and People's Regional
State Health Bureau

ቁጥር _ፅፋ1-6/16279_
Ref. No

ቀን _26/07/08_
Date

ለሀዋሳ ከተማ አስ/ር ጤና መምሪያ

ሀዋሳ

ጉዳዩ፦ <u>ለጥናት የሚደረግ ትብብርን ይመለከታል</u>

ከላይ አንደተገለጸው በደቡብ አፍሪካ ዩኒቨርሲቲ (UNISA) ተማሪ የሆኑት በጋብ ጸውሱስ
"Guidelines for the prevention of the burden of hypertension among adults in Hawassa city
administration of Ethiopia" በሚል ርዕስ ጥናት ለማካሄድ አቅዷል። የጥናት ይዞት (Proposal)
በሚመኘከብት ዩኒቨርሲቲ የጥናት ስነ-ምግባርና ግምገማ ኮሚቴ ታይቶ የያደኛ ሙሉ ፈቃድ ያገኘ
ስለሆነ ለጥናቱ ስኬት በእናንተ በኩል አስፈላገውን ትብብር ሁሉ እንድታደርጉላቸው
እንጠይቃለን፡፡

አንደም እናት በወሊድ ምክንያት ሞምት የለባትም!!

ጋብጮ

✓ ለጤና ምርምርና ቴክኖሎጂ ሽ/ደ/ሥራ ሂደት - ቤ.ፌ./Bet Mekonnen Fara

የጤና ምርምርና ቴክኖሎጂ ሽግር
ደጋፊ የሥራ ሂደት ባለቤት
Health research and technology
transfer support process owner

184

Annexure E: English version of letter from regional health bureau granting to conduct the study

To Hawassa city administration health department

<u>Hawassa</u>

Subject: - Request for support to conduct research

As noted in the subject Tsegab Paulose a student at the Unisa has planned to conduct a study in titled Guideline for the prevention of the burden of hypertension among adults in Hawassa City administration. The proposal of the study is fully approved and has granted ethical clearances from the university he is learning at thus we kindly ask you to give all support need for the successful accomplishment of the study.

<div align="right">

No mother should die while giving birth

Emebet Mekonnen Fara

Health research and technology
transfer support process owner

</div>

CC

Health research and technology transfer support process

Annexure F: Letter from Hawassa City administration permitting to conduct the study

በደቡብ ብ/ብ/ሕ/ክ/መንግሥት
የሀዋሳ ከተማ አስተዳደር ጤና መምሪያ
S/N/N/P/R/S
Hawassa City Administration
Health Department

ቁጥር Ꭶ/ᎷᎻ/5ᎨᎻ/.70
Ref.No. _____
ቀን ___02/12/ᎣᎣ___
Date

ለቱላ ክ/ከተማ አስ/ጽ/ቤት

ቱላ

ለአዲስ ክ/ከተማ አስ/ጽ/ቤት

ለሀይቅ ዳር ክ/ከተማ አስ/ጽ/ቤት

ሀዋሳ

ጉዳዩ፦ **ትብብር እንዲደረግላቸው ስለመጠየቅ ይሆናል፡፡**

ከላይ በርዕሱ ለመግለፅ እንደተመከረው አቶ ፀጋብ ጸውሉስ በከተማ አስተዳደራችን ለሚያደርጉት ትምህርታዊ ጥናት ድጋፍ እንዲደረግላቸው የክልሉ ጤና ቢሮ በደብዳቤ ጠይቆናል፡፡

በመሆኑም ባለሙያው የሚያደርጉት ጥናት ወቅቱ ከሚፈልገው ስራ ጋር የተጣጣመና አስፈላጊ ስለሆነ አስፈላጊውን ትብብር እንዲደረግላቸው እየጠየቅን፤ አዳራ ሚሲኒየም ጤና አጠ/ጣቢያዎችም ለጥቱ አስፈላጊ የሆኑ መረጃዎችን በመስጠት ትብብር እንዲደረግላቸው እንገልፃለን፡፡

አንድም እናት በወሊድ ምክንያት መሞት የለባትም!!

ግልባጭ

☞ ለመምሪያችን ኃላፊ

☞ ለአዳራ ጤና አጠ/ጣቢ.ያ

☞ ለሚሲኒየም ጤና አጠ/ጣቢ.ያ

ሀዋሳ

☞ ለቱላ ክ/ከተማ ጤና ጥ/ጽ/ቤት

ቱላ

☞ ለአቶ ፀጋብ ጸውሉስ

ባሉበት

አየለ አረጋዊ
የሀዋሳ/ሰ/ኢኮ/አስ/ደ/ስራ ሂደት አስተባባሪ

☎ 0462214761/ 0462209375/0462214123/ 0462203401/ 🖨 0462214761 ✉ 2 ሀዋሳ ኢትዮጵያ

186

Annexure G: English version of letter from Hawassa City administration permitting to conduct the study

To Tula sub city administration office

    <u>Tula</u>

To Adiss Ketema sub city administration office

To Hayik Dar sub city administration office

    <u>Hawassa</u>

Subject: - Requesting to give support

As tried to mention on the subject the regional health bureau has notified us with a letter to support Mr. Tsegab Paulose for the academic research he is going to conduct in the city administration.

The study to be conducted is a contemporary agenda and is very important and in accordance with the demand of the era therefore requesting to give all the support needed I notify Adara and Millennium health centres to be cooperative at give all information need to the study.

No mother should die while giving birth

Ayele Aregawe

Health development and administration process owner

CC

To Head of the department

To Adara health centre

To Millennium health centre

    <u>Hawassa</u>

To Tula sub city health office

    <u>Tula</u>

To Tsegab Paulose

Annexure H: Consent letter for participants English version

INFORMED CONSENT FOR RESEARCH PARTICIPANTS/INFORMANTS

TITLE: Guideline for the prevention of the burden of hypertension among adults in Hawassa city administration of Ethiopia

I agree to take part in the research project.

The research project has been explained to me.

I understand that agreeing to take part means that I am willing to:

i.   Be interviewed by the researcher as student from the University of South Africa
ii. Allow the interview to be recorded
iii. Make myself available for further interview should that be required, allow the researcher to have access to my records
iv. Be informed about the research results
v.   The purpose of the research is to fulfill the requirement for the doctoral degree in Health Studies.
vi. I understand that the information provided by me shall remain confidential,
   • My participation is voluntary
   • I can choose not to participate in part or all of the project
   • I can withdraw at any stage without being penalized or disadvantage in any way.

Name of participant …………………………………………….

Signature   …………………………………………..

Date   …………………………………………….

Name of the researcher …………………………………………….

Student number   ……………………………………………….

Signature ………………….   Date ………………………

FOCUS GROUP CONSENT AND CONFIDENTIALITY AGREEMENT

I_____ grant consent that the information I share during the group discussions may be used by the researcher, Tsegab Paulose Helelo, for research purposes. I am aware that the group discussions will be audio recorded and grant consent for these recordings, provided that my privacy will be protected. I undertake not to divulge any information that is shared in the group discussions to any person outside the group in order to maintain confidentiality.

Name of participant …………………………………………

Signature   ………………………………………..

Date   ………………………………………….

Name of the researcher ……………………………………….

Student number   …………………………………………

Signature   ………………………………………….

Date   …………………………………………

Annexure I: Consent letter for participants Amharic version

የምርምር ጥናት ተሳታፊዎች ስምምነት መግለጫ

ርዕስ፡ በሀዋሳ ከተማ አስተዳደር ኢትዮጲያ የሀዋሳ ከተማ አዋቂወች ላይ ያለን የደም ግፊት በሽታ ጫና የመከላከያ መመሪያ፡፡

በጥናቱ ለመሳተፍ ፈቃደኛ ነኝ፡፡

የጥናቱም ዓላማ በሚገባ ተብራርቶልኛል ፡፡

በጥናቱ መስማማት ማለት የሚከተሉትን እንደሚጠቀልል ተረድቻለሁ፡

ሀ. በደቡብ አፍሪካ ዩኒቨርስቲ ተማሪ መጠይቅ መሳተፍ

ለ. መጠይቁም እንዲቀዳ መስማማት

ሐ. ለተጫማሪ መጠይቅ መገኘት እናም የተቀዳውን ድምጽ አጥኚው/ጠያቂው እንዲጠቀም መፍቀድ

መ. የጥናቱንም ውጤት ማወቅ

ሰ. የጥናቱም አላማ በጤና ሳይንስ የዶክትሬት ዲግሪ ለማሟሟላት መሆኑን ማወቅ

ረ. የምሰጠውም መረጃ ሚስጥራዊነቱ የተጠበቀ ይሆናል

- ተሳትፎዬም በፈቃደኝነት ነው
- በመጠይቁ በከፊልም ሆነ በሙሉ አለመሳተፍ
- በማንኛውም ሰዓት ማቋረጥ

የተሳታፊው/ዋ ስም፡ --

ፊርማ፡ ---------------

ቀን፡ -----------------

የአጥኚው ስም፡ --

የተማሪ ቁጥሩ፡ --

ፊርማ፡ ----------------

ቀን፡ -------------------

የብድን ውይይት ተሳታፊዎች ሚስጥራዊነት እና ስምምነት መግለጫ

እኔ------------------------------------በውይይቱ ወቅት የምስጠው መረጃ ለተማሪ ፀጋአብ ጻውሉስ ሐሴሎ ለጥናቴ ሙሉ በሙሉም ሆነ በከፊል እንዲጠቀም አፈቅዳለሁ። ውይይቱም በድምጽ እንደሚቀዳ የማውቅ መሆኑና ምስጢራዊነቴም የተጠበቀ እንደሚሆን አውቃለሁ። በውይይቱም ወቅት የሚነሱ መረጃዎችን ከሌሎች ተመሳሳይ ቡድኖች ጋር ባለመወያየት የጥናቱን ምስጢራዊነት እጠብቃለሁ።

የተሳታፊው ስም፡ ---

ፊርማ፡ ---

ቀን፡ --

የአጥኚው ስም፡ --

የተማሪ ቁጥር ፡ ---

ፊርማ ፡ --

ቀን፡ --

Annexure J: Language editing certificate

EDITING AND PROOFREADING CERTIFICATE

7542 Galangal Street

Lotus Gardens

Pretoria

0008

16 January 2019

TO WHOM IT MAY CONCERN

This certificate serves to confirm that I have edited and proofread TP Helelo's thesis entitled, **"GUIDELINES FOR THE PREVENTION OF THE BURDEN OF HYPERTENSION AMONG ADULTS IN HAWASSA CITY ADMINISTRATION OF ETHIOPIA"**.

I found the work easy and intriguing to read. Much of my editing basically dealt with obstructionist technical aspects of language, which could have otherwise compromised smooth reading as well as the sense of the information being conveyed. I hope that the work will be found to be of an acceptable standard. I am a member of Professional Editors' Guild.

Hereunder are my particulars:

Jack Chokwe (Mr)

Contact numbers: 072 214 5489

jackchokwe@gmail.com

Professional
EDITORS
Guild

CLIENT INFORMATION LEAFLET

TITLE: Guideline for the prevention of the burden of hypertension among adults in Hawassa city administration of Ethiopia

INTRODUCTION

The researcher should be responsible to provide adequate information for the study participants about the research protocol and procedure in comfortable and private setting with understandable language. In this study, the researcher will provide information about the research protocol and procedure for the study participants in the comfortable setting.

You are randomly selected to be voluntary participant of a research to be conducted in Hawassa city administration because you are one of the adult permanent dwellers age greater than 30 years old of the city administration. The information on this leaflet helps you to make informed decision, if you are volunteer to participate. Before you decide to participate, you should clearly understand what is involved in the study during your stay. Most important points are explained in the following paragraphs. If there are any points which are not included or not full explained or not clear for you in this leaflet, do not hesitate to ask the investigator. You may call me, Tsegab Paulose Helelo, at +251961422788 if you have further questions or need additional information. You should not agree to take part unless you are completely happy about all the procedures involved.

PURPOSE OF THE STUDY

The purpose of this study is to develop guideline for the prevention of the burden of hypertension among adults in Hawassa City.

THE RESEARCH QUESTION

What can be done to prevent hypertension as non-communicable disease?

ETHICAL APPROVAL

The protocol of the study was submitted to Unisa Health Studies Department Higher

Degrees Committees in the College of Human Sciences and the committees have granted a written approval letter for the ethical soundness of the study.

EXPECTATION FROM YOU

For phase one participant

If you consent to participate in the study, you will be asked to spend one hour with the data collector during your stay you will be interviewed about your bio data and lifestyle, blood pressures, weight and height measurements will be taken at this time you will be asked to put off heavy clothes and shoes to measure you weight and height.

For phase two participant

If you consent to participate in the study, you will be asked to actively participated and involved in focus group discussion and share your experiences and opinion for other about the efforts in the prevention of hypertension.

YOUR RIGHTS AS A PARTICIPANT IN THIS STUDY

Your participation in the study is on your full voluntariness. Therefore, you do not have to be part of the study if you do not want to. If you decide to participate and change your mind to be part of the study, you will participate. You also have the right to refuse to give information and withdraw from the study anytime without any prejudicial treatment.

DISCOMFORT PRODUCED BY THE STUDY PROCEDURES

The study and procedures involve no foreseeable physical and psychological discomfort. However, if you feel such discomfort you can report to the researchers immediately and we are ready to provide all the necessary support and counselling for you.

RISKS INVOLVED IN THIS STUDY

The study procedures involve no visible and predictable risk on you and your family.

CONFIDENTIALITY

All information obtained during the course of this study is strictly confidential and keep in

highly secured area. Your identity will not be revealed when the study is reported in scientific journals. All the data that has been collected will be stored in a secure place and will not be shared with any other person without your permission. The data will be destroyed after five years of publication of this study.

የተሳታፌ መረጃ ማቅረቢያ ቅፅ

ርዕስ፦ በህዋሳ ከተማ አስተዳደር ኢትዮጵያ የህዋሳ ከተማ አዋቂወች ላይ ያለን የደም ግፊት በሽታ ጫና የመከላከያ መመሪያ፡፡

መግቢያ

አጥኚው አጠቃላይ ስለጥናቱ በቂ መረጃ እና አካሄድ በሚመች ቦታ እና ቋንቋ የማቅረብ ሀላፊነት አለበት፡፡ በመሆኑን በዚህ ጥናት ላይ አጥኚው ጥናቱም በተመለከተ ለተሳታፊዎች የጥናቱን አካሄድና አጠቃላይ ሁኔታ በሚገባ አገላለፅ እና አመቺ በሆነ ሁኔታ ይገልጻል፡፡

እርሶ በህዋሳ ከተማ እድሜያቸው ከ30 በላይ የሆኑና ቋሚ ነዋሪ በመሆንዎ ለዚህ ጥናት ተመርጠዋል፡፡በዚህ ጽሁፍ ላይ የሚገኘው መረጃ የእርሶም ፈቃደኝት ለመጠየቅ የተዘጋጀ ነው፡፡ ከመሳተፍዎ በፊት የጥናቱ ዐላማ እንደገባዎት እርግጠኛ ይሁኑ፡፡ ዋና ዋና ነጥቦች በሚቀጥለው አንቀጾች ላይ የተጠቀሱ ሲሆን ግልጽ እንዲሆን የሚፈልጉት ነገር ካለ ወዲያውኑ ለአጥኚው ጥያቄ ማቅረብ ይችላሉ፡፡ ተማሪ ፀጋብ ጾዉሎን ሔለሎን በ 0961422788 በመደወል ተጨማሪ መረጃ ማግኘት ይችላሉ፡፡ ሙሉ በሙሉ በግልጽ ያልገባዎት ወይም ያልተስማማዎት ነገር ካለ በጥናቱ አለመሳተፍ መብትዎ የተጠበቀ ነው፡፡

የጥናቱ አላማ

የዚህ ጥናት አላማ በህዋሳ ከተማ አስተዳደር ኢትዮጵያ የህዋሳ ከተማ አዋቂወች ላይ ያለን የደም ግፊት በሽታ ጫና የመከላከያ መመሪያ ማዘጋጀት

የጥናቱ ጥያቄዎች

የደም ግፊት በሽታ ጫና ለመከላከያ ምን መሰረት ይችላል

የምርመር ብቁነት ፈቃድ

የጥንቱ ሙሉ ይዘት በሰዉ ሳይንስ ኮሌጃ ለጤና ጥናት ክፍል የከፍተኛ ድግሪ ለኮሚቴ ቀርቦ ሙሉ ፈቃድ አግኝቶል

ከተሳታፊዉ የሚጠበቅ

የምዕራፍ አንድ ተሳታፊ

በጥናቱ ለመሳተፍ ከተስማሙ ከመረጃ ሰብሳቢዉ/ዋ ጋር ለ አንድ ሰዓት ያክል ጊዜ በማሳለፍ መጠይቆችን የሚመልሱ ሲሆን ስለ እርሶም አንዳንድ ስለ ኑሮ፤የግል ጥሬ ሀቆች፤የግሬት መጠንና ክብደት እና ቁመት የመሳሰሉ መረጃዎችን ይሰጣሉ ስለዚህ ከበድ ያሉ ልብሶችን ክብደት እንዳያዛባ እንዲቀንሱ ሊጠየቁም ይችላሉ።

ለቡድን ሁለት ተሳታፊዎች

በጥናቱ ላይ ለመሳተፍ ከተስማሙ በቡድን ውይይቱ ላይ በተጫሉት መጠን ስለ ግሬት በሽታ እና እንዬት መከላከል እንደሚቻል ያሉትን ልምድና ሀሳብዎን ለማካፈል ፈቃደኛ እንዲሆኑ ይጠየቃሉ።

እንደ ተሳታፊ የእርሶ መብት

የእርሶ ተሳትፎ በእርሶ በጎ ፈቃድ ላይ የተመሰረተ በመሆኑ በልተስማሙ ጊዜ ሊያቁ ሙሉ መብት አሎት።

ያልተመቹ ሁኔታዎች

በጥናቱ መሀል ያልተመቹ ሁኔታዎች ቢያጋጥሞት በፍጥነት ያሳዉቁንና ተገቢዉን ድጋፍ ለማድረግ ጥረት ይደረጋል።

ሊያጋጥም የሚችሉ ችግሮች

በጥናቱ በመሳተፎ በእርሶም ሆነ በቤተሰቦ ላይ የሚደርስ ምንም ጉዳት የለም።

ምስጥራዊነቱ

አጠቃላይ የሚሰበሰው መረጃ ምስሚራዊነቱ የተጠበቀ ይሆናል።የእርሶም ማንነት ጥናቱ ሲታተም ለአታሚያች የማይገለጽ መሆኑ ከወዲሁ ሊታወቅ የሚገባው ይሆናል።የተሰበሰውም መረጃ በምስጢር የሚቀመጥ ሲሆን ውጤቱም ለህትመት ከበቃ ከአምስት አመታት በኃላ ይወገዳል።

Annexure M: Focus Group Discussion guide English version

FOCUSED GROUP DISCUSSION INTERVIEW GUIDE FOR THE HEALTH CARE PROVIDERS OF HAWASSA CITY ADMINISTRATION

RESEARCH TOPIC: GUIDELINE FOR THE PREVENTION OF THE BURDEN OF HYPERTENSION AMONG ADULTS IN HAWASSA CITY ADMINISTRATION OF ETHIOPIA

SECTION A: BIOGRAPHIC DATA

Sex	1. Male 2. Female
Age in years	_____
Profession	1. HEW 2. Nurse 3. Health officer 4 other
Highest educational status? /In the completed year/	1. Diploma 2.Degree 3. Masters 4. Doctorate
Which department are you working at?	1 OPD 2 Emergency 3.MCH 4 Administrative unite 5 Other
For how long have you been working in this profession?	_____
Do you have any training on NCD especially on Hypertension?	1. Yes 2. No

SECTION B: Discussion points

What does hypertension prevention mean?

Kindly share with me your perspectives and knowledge towards efforts exerted for the prevention of hypertension in the country

Is there any policy that talks about prevention of hypertension?

Do you council each client coming to you about non-communicable disease prevention especially hypertension each time?

Is there a mechanism of arranging follow up visit for your clients who carries risk for hypertension so that you may keep up your ongoing counseling that empower them to decide minimize or even stops the risks that they have been experiencing?

Can you tell me about the Integration that the health sector have with other sectors/ agencies that take part in the prevention/ minimization of the risks, like youth and sport sectors, schools?

What can you say about the sufficiency of the media, the local IEC/BCC materials that can improve the awareness of the community consistently?

Would you elicit some weak links in health extension program that would have been optimal if it had been incorporated and implemented well in way that plays a pivotal role in minimizing risks for hypertension diseases?

Can you tell me about any strength that the Health extension program brought about a change in prevention of hypertension?

Given an opportunity to prevent hypertension in Ethiopia, what can you outline to the authorities?

What else do you want to share?

Do you have any questions?

Probing, follow-up questions, clarification and summaries will be used to ellicit further information when needed

Annexure N: Focus Group Discussion guide Amharic version

በሀዋሳ ከተማ አስተዳደር የሚገኙ የጤና ባለሙያዎች ጋር ለሚደረገዉ የብድን ዉይይት መመሪያ የጥናቱ ርዕስ፦ በሀዋሳ ከተማ አስተዳደር ኢትዮጲያ የሀዋሳ ከተማ ነዋሪዎች ላይ ያለን የደም ግፊት በሽታ ጫና የመከላከያ መመሪያ

ጾታ	1. ወንድ
	2. ሴት
እድሜ	_____ዓመት
ሙያ ምንዱን ነዉ?	1. የጤና ባለሙያ
	2. ነርስ
	3. ጤና መካንን
	4 ሌላ
የትምህርት ደረጃ /ባለፈዉ አመት ያጠናቀቁት የትምህርት ደረጃ/	1. ዲፕሎማ
	2. ዲግሪ
	3. ማስተርስ
	4. ዳክትሬት
በሙያዎት ያሎት የስራ ልምድ ለምን ያህል ጊዜ ነዉ.	_____
ተላላፊ ባልሆኑ በሽታዎች ላይ በተለይም የደም ግፊት ላይ ስልጠና ወስደዉ ያዉቃሉ	1 አዎ
	2 አላዉቅም

201

የውይይት ጥያቄዎች

1. የደም ግፊት በሽታን መከላከል ማለት ምን ማለት ነዉ?

2. የደም ግፊት በሽታን ተግባር ላይ በሀገራችን እየተደረገ ያለዉን ጥረት ምን እንደሚመስል የሚያቁቸውን ነገሮች እና በጉዳዮቹ ላይ የእርሳን አመለካከት በዝርዝር ያካፍሉን

3. የደም ግፊት በሽታን ስለመከላከል እርሶ የሚያውቁት የጤና ፖሊሲ አለ? ካለ በዝርዝር ያብራሩ

4. የጤና አገልግሎት ለማግኘት ለመጣ ባለጉዳይ ሁሉ ስለተላላፊ በሽታዎች በተለይም ስለ ደም ግፊት በሽታን ሁል ጊዜ ያማክራሉ? በምን መልኩ?

5. ለደም ግፊት በሽታ የሚያጋልጡ ሁኔታዎች ላይ ያሉ ደንበኞችን በዘላቂነት ለማማከር እና ካሉበት ሁኔታ እንዲወጡ ለመርዳት የሚያስችል የክትትል አካሄድና አሰራር አላችሁ

6. የደም ግፊት በሽታን መከላከል ላይ ያተኮሩ ከተለያዩ ሴክተር ተቋማት ጋር የሚደረጉ የቅንጅት ስራዎች ካሉ ቢያብራሩ ለምሳሌ ከወጣቶች /ትምህርት ቤቶችወዘተ

7. የደም ግፊት በሽታን መከላከል ላይ በሚድያ ያለውን ቅስቀሳና ግንዛቤ የማስጨበጥ ስራ እንዴት እንደሚመለከቱት ቢያብራሩ? በቂ ነው ብለውስ ያምናሉ

8. በእርሶ አመለካከት የደም ግፊት በሽታን መከላከል ላይ በጤና ኤክስቴሽን ፕሮግራም መሻሻል ያለበትና እንዲህ ቢሆን ይሻላል የሚሉት ነገር ካለ

9. በእርሶ አመለካከት የደም ግፊት በሽታን መከላከል ላይ በጤና ኤክስቴሽን ፕሮግራም ጠንካራ ነው የሚሉት ነጥብ ካለ

10. የደም ግፊት በሽታን መከላከል ላይ በሀገር ደረጃ ዉሳኔ ሰጪ የሆኑ የመንግስት አካላት ምን ላይ ቢያተኩሩ ይሻላል ብለው አስተያየት ይሰጣሉ?

11. ሌላ ምን አስተያየት መስጠት ይፈልጋሉ

12. መጠየቅ የሚፈልጉት ነገር አለ/ጥያቄ አለዎት

13. ጥያቄዎችን መሰረት ያደረገ ሌሎች ነጥቦች

Annexure O: Questionnaire English version

Greeting

I am _____ currently I'm collecting data for the research that will be conducted by University of South Africa PHD student Tsegab Paulose, among adults (>30 years age) in Hawassa city administration on Hypertension.

As you are permanent dweller of Hawassa city you are randomly selected to be part of the study; for your involvement have significant value to the study.

The study includes asking you few questions on hypertension and taking measurements of your blood pressure, weight and height. It takes us about 60 minutes. The information collected from you will be kept confidential and will not be accessed by anyone except the principal investigator and also your name will not be included in the information.

Your participation in this research study is voluntary. You may choose to participate or not and you may withdraw your consent to participate at any time without losing any of your right. I kindly request you to participate in this study?

I have been briefly informed about the study and I clearly understood the objective and agreed to take part in the study as an Interviewee_____

But do not agreed to take part in the study as an Interviewee_____

Name of kebele _____

Signature of data collector _____

Section I) Demographic and Socio -Economic data

No	Questions	Response	Remark
101	Permanent residence	1. Urban 2. Peri- Urban	
102	Sex	1. Male 2. Female	
103	Age	Age in completed years _____	
104	Marital status	1. Single/not married 2. Married 3. Divorced 4. Widowed	
105	Educational status? /In the completed year/	1. Can't read and write 2. Only read and write 3. Primary (1-8) 4. Secondary (9-12) 5. Diploma and above	
106	What is your religious affiliation?	1. Protestant 2. Orthodox 3. Catholic 4. Muslim 5. Other	
107	Ethnicity	1. Sidama 2. Walayita 3. Kembata 4. Gurage 5. Amahra 6.Oromo 7. Hadiya 8. Other	
108	What is your current occupation?	1. Employee(GO/NGO)	

		2. Daily-laborer	
		3. Merchant	
		4. House wife	
		5. Retired	
		6. others(specify)	
109	What is your family size?	_____	
110	How much is your family average total monthly income?	Approximate_____Eth.birr	
111	Owner ship of house?	1 Rental 2 Personal	
112	Does your household have:		
	Electricity	1.yes 2.no	
	Radio	1.yes 2.no	
	TV Set	1.yes 2.no	
	Refrigerator	1.yes 2.no	
	Cell phone	1.yes 2.no	
	Bicycle	1.yes 2.no	
	Motor bike	1.yes 2.no	
	Car	1.yes 2.no	
	Table	1.yes 2.no	
	Chair	1.yes 2.no	
	Bed with mattress	1.yes 2.no	
	An electric mitad	1.yes 2.no	

| | A kerosene lamp/pressure lamp | 1.yes   2.no | |
| | Bank or microfinance saving account | 1.yes   2.no | |

Section II) Knowledge concerning hypertension prevention

No	Questions	Response	Remark
201	Have you ever had heard about hypertension?	1 yes 2 no	
202	Have you ever got hypertension information from health care providers?	1 yes 2 no	
203	Can hypertension be transmitted from one person to another?	1. yes 2. no	
204	Can hypertension be prevented?	1 yes 2 no	
205	Do you know where to get measured for blood pressure?	1 yes 2 no	
206	If yes to question 205 ask where the respondent can get measured. Circle yes if he/she mentioned one or more of this (more than one answer is possible)	1 Health post 2 Health centres /clinics 3 Hospital 4 Home 5 other	
207	Hypertension is hereditary	1 yes 2 no	
208	Hypertension is a chronic disease	1. yes 2. no	
209	Hypertension may cause sudden death	1 yes 2 no	
210	Do you know the normal blood pressure value for adult?(check if he/she say 120/80)	1 yes 2 no	

211	Do you know the risk behaviour for developing hypertension	1 yes 2 no	
212	If yes to question 211, what are the risk behaviours for developing hypertension? (more than one answer is possible)	1 cigarette smoking 2 physical inactivity 3 excessive alcohol consumption 4 eat animal fat frequently 5 excess salt Consumption 6 Stressful life	

Section III) Health Belief Model Concepts

Perceived susceptibility
Please tell me your level of agreement or disagreement using the following number as I read the statements for you. 1. strongly disagree 2. disagree 3. neutral 4. agree 5. strongly agree

301	Everybody is at risk of hypertension	1	2	3	4	5	
302	Cigarette smokers are more prone to contract hypertension	1	2	3	4	5	
303	Physically inactive peoples are more prone to contract hypertension	1	2	3	4	5	
304	Excessive alcohol consumers are more prone to contract hypertension	1	2	3	4	5	
305	People consuming animal fat frequently are more prone to contract hypertension	1	2	3	4	5	
306	People using excess salt are more prone to contract hypertension	1	2	3	4	5	

307	I might contract hypertension					1	2	3	4	5	
308	Hypertension is health problem of Ethiopia					1	2	3	4	5	

Perceived severity

Please tell me your level of agreement or disagreement using the following number as I read the statements for you.

1. strongly disagree
2. disagree
3. neutral
4. agree
5. strongly agree

309	Hypertension may cause sudden death	1	2	3	4	5
310	Complications of hypertension are dangerous in life	1	2	3	4	5
311	I believe that hypertension is chronic disease	1	2	3	4	5
312	I would rather have any other illness than hypertension	1	2	3	4	5
313	Hypertension is more severe disease in old adults	1	2	3	4	5
314	Hypertension is more severe disease in obese /overweight peoples	1	2	3	4	5
315	Hypertension is more severe disease among cigarette smokers	1	2	3	4	5
316	Hypertension is more severe disease among high alcohol consumers	1	2	3	4	5
317	Hypertension is more severe disease among peoples consuming high salt	1	2	3	4	5

318	Hypertension is more severe disease among peoples consuming high animal fat food	1	2	3	4	5
319	Hypertension is more severe disease among peoples with stressful life	1	2	3	4	5

Perceived benefit

Please tell me your level of agreement or disagreement using the following number as I read the statements for you.

1. strongly disagree
2. disagree
3. neutral
4. agree
5. strongly agree

320	Weight reduction activities to maintain normal body weight helps to prevent developing hypertension	1	2	3	4	5
321	Quitting cigarette smoking helps to prevent developing hypertension	1	2	3	4	5
322	Limiting alcohol consumption helps to prevent developing hypertension	1	2	3	4	5
323	Reduce dietary sodium intake helps to prevent developing hypertension	1	2	3	4	5
324	Consuming a diet that is rich in fruits and vegetables and in low fat helps to prevent developing hypertension	1	2	3	4	5

Perceived barrier

Please tell me your level of agreement or disagreement using the following number as I read the statements for you.

1. strongly disagree

	2. disagree 3. neutral 4. agree 5. strongly agree					
325	There are several diseases of my priorities than hypertension	1	2	3	4	5
326	I have no adequate knowledge to protect myself against hypertension	1	2	3	4	5
327	Health facilities are not access able to get measured for blood pressure	1	2	3	4	5
328	I don't like to think about any disease while I am healthy	1	2	3	4	5
329	I am busy with my daily routine activities I don't think it is worthy thinking about hypertension prevention activities	1	2	3	4	5
330	I am not encouraged by family and/or friends to perform hypertension prevention activities	1	2	3	4	5
331	Hypertension prevention activities needs me to have enough time &space	1	2	3	4	5

Cues to action

No.	Question	Response	Remark
332	After I get adequate information on media I try to apply hypertension preventio	1. not at all 2. rarely 3. sometimes 4. always	
333	HEWs counsel me on hypertension prevention	1. not at all	

		2. rarely	
		3. sometimes	
		4. always	
334	Friends' and family's advice provokes me to involve in activities of hypertension prevention	1. not at all	
		2. rarely	
		3. sometimes	
		4. always	
335	Fear of hypertension being chronic disease motivates me to involve in hypertension prevention	1. not at all	
		2. rarely	
		3. sometimes	
		4. always	
336	Individuals near to me who have hypertension makes me to involve in hypertension prevention	1. not at all	
		2. rarely	
		3. sometimes	
		4. always	
Self-efficacy			
No.	Question	Response	Remark
337	I am confident that I can manage performing hypertension prevention activities easily	1.strongly disagree	
		2. disagree	
		3. neutral	

		4. agree 5.strongly agree	

Section IV) Behavioural Measurements

No.	Question	Response	Remark
Cigarettes use			
401	Have you ever smoked cigarettes?	1 Yes 2 no	
402	Do you smoke currently?	1 Yes 2 no	
403	If yes for Q402 how frequent, do you smoke cigarettes?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
404	On average, how much cigarettes do you smoke in this days?	_____ Number	
405	For how long have you been smoking?	_____ In Years	
Alcohol consumption			
406	Have you ever consumed an alcoholic drink	1yes 2 no	
407	Do you drink alcoholic drink currently?	1 Yes 2 no	
408	If yes for Q407 how frequent do you drink alcoholic drink?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
409	How much glass at one time? (300ml for beer, tea cup for local drink)	_____Number	

410	For how long have you been drinking?	_____ Years	
Chat chewing			
411	Have you ever chewed chat	1 Yes 2 no	
412	Do you chew chat currently?	1 Yes 2 no	
413	If yes for Q412 how frequent do you chew chat?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
414	For how long have you been chewing chat?	_____In Years	
Coffee consumption			
415	Do you drink coffee	1. Yes 2. No	
416	If yes for Q415 how frequent do you drink coffee	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
417	How many cups	_____cup in number	
418	What do you use to give taste when you are drinking coffee	1. Salt 2. sugar 3. No thing	
Diet			
419	In which time of serving do you eat more?	1. Breakfast 2. Launch 3. Dinner 4. Snacks	
420	Do you eat fruit?	1. Yes 2. No	

421	If yes for Q420 how many days do you eat fruit in a week?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
422	Do you eat vegetables?	1. Yes 2. No	
423	If yes for Q422 how many days do you eat vegetables in a week?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
424	Do you eat animal fat (butter, fatty meat)?	1. Yes 2. No	
425	How many days do you eat animal fat in a week?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
Salt consumption			
426	Do you use additional top added salt on plate after food is prepared with sufficient amount of salt?	1 yes 2 no	
Physical activity			
427	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like (carrying or lifting heavy loads, digging or construction work) for at least 10 minutes continuously?	1 yes 2 no	
428	In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	

Travel to and from places			
429	Do you walk for at least 10 minutes a day continuously to get to and from places?	1 yes 2 no	
430	In a typical week, many days do you walk for at least 10 minutes continuously to get to and from places?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	
431	What do you use to go and come from place to place	1.On foot 2. bicycle 3. engine using vehicle	
Recreational activities			
432	Do you do any vigorous-intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate like [running or football] for at least 10 minutes continuously?	1 yes 2 no	
433	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (leisure) activities?	1. daily 2. 5-6 days per week 3. 3-4 days per week 4. 1-2 days per week	

Section V) History of raised Blood Pressure and co-morbidity

No.	Question	Response	Remark
501	Have you ever had your blood pressure measured by a doctor or other health worker?	1 yes 2 no	
502	Have you ever been told by a doctor or other health worker that you have hypertension?	1 yes 2 no	

503	Are you currently receiving any medication, treatments/advice for hypertension prescribed by a doctor or other health worker	1 yes 2 no	
504	Is there anyone from your family (father, mother or siblings) who have history of hypertension	1 yes 2 no	
505	Have you ever been told by a doctor or health worker that you have diabetes?	1 yes 2 no	

Section VI) Physical measurements

Height and Weight			
No.	Question	Response	Remark
601	Height in cm	_____cm	
602	Weight in kg	_____kg	
Blood Pressure with 15 minute interval			
603	Reading 1	____Systolic (mmHg)	
		____Diastolic (mmHg)	
604	Reading 2	___Systolic (mmHg)	
		___Diastolic (mmHg)	
605	Reading 3	___Systolic (mmHg)	
		___Diastolic (mmHg)	

Thank you!

ሰላም

እኔ ……………………………………………………በደቡብ አፍሪካ ዩኒቨርስቲ በሰብዓዊና ጤና ሳይንስ የትምህርት ክፍል የዶክትሬት ዲግሪ ተማሪ ለሆኑት ፀጋአብ ጸውሉስ እድሜያቸው ከ30 አመት በላይ በሆኑ የሀዋሳ ከተማ ነዋሪዎች ላይ በደም ግፊት ዙሪያ ለሚያደርጉት ምርምርና ጥናት እንዲረዳ መረጃ ለማስባሰብ የተመደብኩ ጤና ባለሙያ ነኝ፡፡

እርሶም የከተማው ነዋሪ በመሆንም በዚህ ጥናት ላይ መሳተፍዎ ለጥናቱ ውጤታማነት ከፍተኛ አስተዋጽኦ ያደርጋል፡፡ በጥናቱም መሰረት የደም ግፊትን በተመለከተ ዉስጥ ጥያቄዎች ከመካተታቸውም በተጨማሪ የደም ግፊትዎ ፤ክብደትዎና ቁመትዎ ይለካል፡፡አጠቃላይ እስከ 60 ደቂቃዎችን የምንጠቀም ሲሆን ማንኛውም የሚሰጡት የግሎ መረጃ ሚስጥራዊነቱ የተጠበቀ እና ከአጥኑዉ ውጭ ለማንም የማይሰጥ እና ስሞትም የማይጠቀስ ይሆናል፡፡የእርሶም ተሳታፊነት በበጎ ፈቃድ ላይ ብቻ የተመሰረተ ሲሆን ባልፈለጉም ጊዜ ማቋረጥ ይችላሉ፤ ስለዚህ እንዲሳተፉ በትህትና እንጠይቃለሁ?

ከላይ የተገለፀዉን ማብራሪያ ተረድቻለዉ

በጥናቱ ለመሳተፍ መስማማቴን በፊርማ አረጋግጣለሁ ……………………………………………

ነገር ግን በጥናቱ ለመሳተፍ አልስማማም ………………………………………

የቀበሌዉ ስም………

የመጠይቁ መለያ ቁጥር_____

217

ምዕራፍ አንድ፡ ኢኮኖሚያዊና ማህበራዊ መረጃም			
ቁጥር	ጥያቄዎች	ምላሽ	ምርመራ
101	ቋሚ የመኖሪያ ቦታ	1. ከተማ 2. ከፊል ከተማ	
102	ጾታ	1. ወንድ 2. ሴት	
103	እድሜ	_____ዓመት	
104	የትዳር ሁኔታ	1. ያላገባ/ያላገባች 2. ያገባ/ያገባች 3. ፍች የፈጸመ/የፈጸመች 4. ባል/ሚስት በህይወት የሌለ	
105	የትምህርት ደረጃ /ባለፈዉ አመት ያጠናቀቁት የትምህርት ደረጃ/	1.መጻፍና ማንበብ የማይችል/የማታችል/ 2.መጻፍና ማንበብ ብቻ የሚችል/የምትችል/ 3.አንደኛ ደረጃ (1-8) 4.ሁለተኛ ደረጃ (9-12) 5.ዲፕሎማ እና ከዚያ በላይ	
106	እምነት	1.ፕሮቴስታንት 2.ኦርቶዶክስ 3. የካቶሊክ 4.እስላም 5.ሌላ(ይግለጹ).....................	
107	ብሔር	1. ሲዳማ 2. ወላይታ 3. ከምባታ 4. ጉራጌ	

		5. አማራ	
		6. ኦሮሞ	
		7. ሀድያ	
		8. ሌላ (ይግለጹ)_____	
108	የስራ ሁኔታ	1.ተቀጥሮ የሚሰራ (በመንግስት/በግል)	
		2.የቀን ሰራተኛ	
		3. ነጋዴ	
		4. የቤት እመቤት	
		5. ጡረተኛ	
		6. ሌላ(ይግለጹ)	
109	የቤተሰብ ብዛት በቁጥር	_____	
110	ወርሃዊ የቤተሰብ ገቢ በአማካይ በብር	በአማካይ_____ብር	
111	የሚኖሩበት ቤት ባለቤትነት	1የኪራይ	
		2 የግል	
112	ቀጥሎ ከሚጠቀሱት ውስጥ በቤትዎ የሚገኙት አለ የማይገኙትን የለም በማለት ይመልሱ		
	ኤልክትሪክ/መብራት መስመር	1.አለ 2.የለም	
	ሬዲዮ	1.አለ 2.የለም	
	ቴሌቪዥን	1.አለ 2.የለም	
	ፍሪጅ	1.አለ 2.የለም	
	ስልክ /ሞባይል ወይም መደበኛ/	1.አለ 2.የለም	
	ብስክሌት	1.አለ 2.የለም	
	ሞተር ሳይክል	1.አለ 2.የለም	

መኪና	1.አለ	2.የለም	
ጠረጴዛ	1.አለ	2.የለም	
ወንበር	1.አለ	2.የለም	
አልጋ ከፍራሽ ጋር	1.አለ	2.የለም	
የኤሌክትሪክ ምጣድ	1.አለ	2.የለም	
ቡታ ጋዝ /የኤሌክትሪክ ምግብ ማብሰያ	1.አለ	2.የለም	
ባንክ /ማይክሮ ሲስተምስ አካውንት	1.አለ	2.የለም	

ምዕራፍ ሁለት ፡የተሳታፊዎች በደም ግፊትን በሽታ መከላከል ላይ ያለእዉቀት እና አመለካከት

ቁጥር	ጥያቄ	ምላሽ	ምርመራ
201	ስለ የደም ግፊት በሽታ ሰምተው ያውቃሉ?	1 አዎ 2 አላውቅም	
202	ስለ ደም ግፊት ከጤና ባለሙያ ትምህርት/መረጃ አግኝተው ያውቃሉ	1 አዎ 2 አላውቅም	
203	የደም ግፊት በሽታ ተላላፊ በሽታ ነው ?	1 አዎ 2 አላውቅም	
204	የደም ግፊት በሽታ መከላከል ይቻላል ?	1 አዎ 2 አላውቅም	
205	የደም ግፊት መጠን ልኬት አገልግሎት የት እንደሚሰጥ ያውቃሉ?	1 አዎ 2 አላውቅም	
206	ለጥያቄ ቁጥር 205 መልስ አዎ ከሆነ የት ነው የሚሰጠው? (ከአንድ በላይ ምላሽ መመለስ ይቻላል)	1.ጤና ኬላ 2.ጤና ጣቢያ/ክሊኒክ 3 ሆስፒታል 4.በቤት ውስጥ 5.ሌላ	

207	የደም ግፊት በሽታ በዘር የሚተላለፍ ነዉ።	1 አዎ	
		2 አላውቅም	
208	የደም ግፊት በሽታ የእድሜ ልክ ነሽት ነዉ።	1 አዎ	
		2 አላውቅም	
209	የደም ግፊት በሽታ ድንገት ገዳይ ነዉ።	1 አዎ	
		2 አላውቅም	
210	የተተኳከለ የደም የግፊት መጠን ስንት እንደሆነ ያውቃሉ? (መልሱ 120/80 መሆኑ ይረጋገጥ)	1 አዎ	
		2 አላውቅም	
211	ለደም ግፊት በሽታ እንድንጋለጥ የሚያደርጉ ባህሪያትን ያውቃሉ	1 አዎ	
		2 አላውቅም	
212	ለተራ ቁጥር 208 መልስዎ አዎ ከሆነ ምን ምን ባህሪያት የደም ግፊት በሽታ ያጋልጣሉ(ከአንድ በላይ ምላሽ መመለስ ይቻላል)	1.ሲጋራ ማጨስ	
		2.የአካል ብቃት እንቅስቃሴ ጉድለት	
		3.ከመጠን ያለፈ አልኮል መጠቀም	
		4.ጮማ የበዛበትን ምግብ ብዙ ጊዜ መመገብ	
		5. ጨው አብዝቶ መጠቀም	
		6. የተጨናነቀ ኑሮ	

ምዕራፍ III በጤና ላይ ያለ የግንዛቤ ጥያቄዎች

ተጋላጭነትን መገንዘብ
እባክዎትን ቀጥሎ ያለዉን አረፍተ ነገር ሳነብ ልብ ብለዉ ያድምጡ እና መስማማት አለመስማማቶን በዚህ ቃላት ይግለጹ፡በጣም ዐልሥማማም፤ ዐልሥማማም፤ አስተያየት አልሰጥም፤ እስማማለሁኝ ወይም በጣም እስማማለሁኝ
1.በጣም ዐልሥማማም
2. ዐልሥማማም

3.አስተያየት አልሰጥም							
4.እስማማለሁኝ							
5.በጣም እስማማለሁኝ							
301	ሁሉም ሰው ለደም ግፊት በሽታ የተጋለጠ ነው?	1	2	3	4	5	
302	ሲጋራ ማጨስ ለደም ግፊት በሽታ ያጋልጣል	1	2	3	4	5	
303	የሰውነት እንቅስቃሴ አለማድረግ ለደም ግፊት በሽታ ይዳርጋል/ያጋልጣል	1	2	3	4	5	
304	አልኮል በብዛት መጠቀም ለደም ግፊት በሽታ ይዳርጋል/ያጋልጣል	1	2	3	4	5	
305	ጨማን አብዝቶ መመገብ ለደም ግፊት በሽታ ይዳርጋል በሚለው ይስማማሉ	1	2	3	4	5	
306	ጨው የበዛበት ምግብ አዘዉትሮ መመገብ ለደም ግፊት በሽታ ይዳርጋል/ያጋልጣል	1	2	3	4	5	
307	የደም ግፊት በሽታ ሊይዘኝ ይችላል የሚል ስጋት አለብኝ	1	2	3	4	5	
308	የደም ግፊት በሽታ የኢትዮጵያ የጤና ችግር ነው	1	2	3	4	5	

የችግሩ ጥልቀት መገንዘብ

እባኮትን ቀጥሎ ያለውን አረፍተ ነገር ሳነብ ልብ ብለዉ ያድምጡ እና መስማማት አለመስማማቶን በነዚህ ቃላት ይግለፁ፡በጣም ዐልሥማማም፤ ዐልሥማማም፤ አስተያየት አልሰጥም፤ እስማማለሁኝ ወይም በጣም እስማማለሁኝ

1.በጣም ዐልሥማማም

2. ዐልሥማማም

3.አስተያየት አልሰጥም						
4.እስማማለሁኝ						
5.በጣም እስማማለሁኝ						
309	የደም ግፊት በሽታ ለድንገተኛ ሞት ይዳርጋል	1	2	3	4	5
310	ከደም ግፊት ጋር የተገናኙ ህመሞች ለህይወት አደጋና ከባድ ናቸው	1	2	3	4	5
311	የደም ግፊት በሽታ የማይድን በሽታ ነው	1	2	3	4	5
312	የደም ግፊት በሽታ ከሌላ በሽታ በላይ ከባድ ነው	1	2	3	4	5
313	የደም ግፊት በሽታ እድሜያቸው በገፉ ሰዎች ላይ ይብሳል	1	2	3	4	5
314	የደም ግፊት በሽታ በወፍራም ሰዎች ላይ ይብሳል	1	2	3	4	5
315	የደም ግፊት በሽታ ሲጋራ በሚያጨሱ ሰዎች ላይ ይብሳል	1	2	3	4	5
316	የደም ግፊት በሽታ አልኮል በብዛት የሚወስዱ ሰዎች ላይ ይብሳል	1	2	3	4	5
317	የደም ግፊት በሽታ ጨዉ አብዝተዉ የሚጠቀሙ ሰዎች ላይ ይብሳል	1	2	3	4	5
318	የደም ግፊት በሽታ ብዙ ጭማ አብዝተዉ በሚመገቡ ሰዎች ላይ ይብሳል	1	2	3	4	5
319	የደም ግፊት በሽታ በሚጨናነቁ ሰዎች ላይ ይብሳል	1	2	3	4	5

ግሬትን መከላከያ ዘዴዎች ስለ መተግበር ጥቅም መገንዘብ							
እባኮትን ቀጥሎ ያለውን አረፍተ ነገር ሳነብ ልብ ብለው ያድምጡ እና መስማማት አለመስማማቶን በነዚህ ቃላት ይግለፁ፡በጣም ዐልሥማማም፣ ዐልሥማማም፣ አስተያየት አልሰጥም፣ እስማማለሁኝ ወይም በጣም እስማማለሁኝ							
1.በጣም ዐልሥማማም							
2. ዐልሥማማም							
3.አስተያየት አልሰጥም							
4.እስማማለሁኝ							
5.በጣም እስማማለሁኝ							
320	ክብደት ለመቀነስ የሚደረጉ የአካል ብቃት እንቅስቃሴዎች የደም ግፊት በሽታን ለመከላከል ይረዳሉ	1	2	3	4	5	
321	ሲጋራ ማጨስን ማቆም የደም ግፊት በሽታን እንዳይዘን ለመከላከል ይረዳል	1	2	3	4	5	
322	አልኮል አጠቃቀምን መቀነስ ለደም ግፊት በሽታ እንዳንጋለጥ ሊታደግ ይችላል	1	2	3	4	5	
323	ሶዲየም ያለበት ጨው በምግብ ውስጥ መውሰድን መቀነስ ለደም ግፊት በሽታን እንዳንጋለጥ ይረዳናል	1	2	3	4	5	
324	አትክልትና ፍራፍሬ መመገብ እና ጮማ መቀነስ ለደም ግፊት በሽታ እንዳንጋለጥ ይረዳናል	1	2	3	4	5	
የደም ግፊትን እንዳንከላከል የሚያደርጉ ተግዳሮቶችን መገንዘብ							

እባኮትን ቀጥሎ ያለውን አረፍተ ነገር ሳነብ ልብ ብለዉ ያድምጡ እና መስማማት አለመስማማቶን በነዚህ ቃላት ይግለፁ፦በጣም ዐልሥማማም፤ ዐልሥማማም፤ አስተያየት አልሰጥም፤ እስማማለሁኝ ወይም በጣም እስማማለሁኝ						
1.በጣም ዐልሥማማም						
2.ዐልሥማማም						
3.አስተያየት አልሰጥም						
4.እስማማለሁኝ						
5.በጣም እስማማለሁኝ						
325	ከደም ግሬት በሽታ በላይ የሚያሳስበኝ ሌሎች ብዙ በሽታዎን አሉ	1	2	3	4	5	
326	ስለ ደም ግሬት በሽታ መከላከያ ዘዴዎችን በቂ እውቀት የለኝም	1	2	3	4	5	
327	የጤና ተቋማት ደም ቶሎ ቶሎ ለመስካት አመቺ አልሆኑኝም	1	2	3	4	5	
328	ጤናማ እስከሆንኩ ድረስ ስለ ምንም በሽታ ባላስብ እመርጣለሁ	1	2	3	4	5	
329	ብዙ ስራዎች ስላሉብኝ ስለ በሽታ እያሰብኩ ጊዜ አላባክንም	1	2	3	4	5	
330	ቤተሰብም ሆነ የቅርብ ሰዎቼ የደም ግሬት በሽታ እንድከላከል አያሳስቡኝም	1	2	3	4	5	
331	የደም ግሬት በሽታ ለመከላከል ደህና ገንዘብ፣ እዉቀት፤ጊዜ እና ቦታ ያስፈልጋል	1	2	3	4	5	
ለመተግበር ምልክቶችን መገንዘብ						
ቁጥር	ጥያቄ		ምላሽ				ምርመራ

225

332	ስለ ደም ግፊት በሽታ መከላከያ ከሚዲያ በቂ መረጃ አግኝቻለሁ ለመተግበር እየሞከርኩ ነዉ.	1 በጭራሽ	
		2 ጥቂት ጊዜ	
		3 አንዳንዴ	
		4 ሁልጊዜ	
333	የጤና ኤክስቴሽን ሰራተኞች ስለ ደም ግፊት በሽታ መከላከያ በቂ እውቀት ይሰጡኛል	1 በጭራሽ	
		2 ጥቂት ጊዜ	
		3 አንዳንዴ	
		4 ሁልጊዜ	
334	ከቤተሰብና ከንደኞች የሚሰጡኝ ምክሮች ደም ግፊት በሽታ ለመከላከያ ያበረታታኛል	1 በጭራሽ	
		2 ጥቂት ጊዜ	
		3 አንዳንዴ	
		4 ሁልጊዜ	
335	ግፊት የእድሜ ልክ በሽታ መሆኑን ሳስበው መከላከሉ ላይ እንዳተኩር ያደርገኛል	1 በጭራሽ	
		2 ጥቂት ጊዜ	
		3 አንዳንዴ	
		4 ሁልጊዜ	
336	የማዉቃቸዉና የምቀርባቸዉ ሰዎች በግፊት ሲታመሙ ማየቴ በመከላከሉ እንዳተኩር ያደርገኛል	1 በጭራሽ	
		2 ጥቂት ጊዜ	
		3 አንዳንዴ	
		4 ሁልጊዜ	

የግል እምነት			
ቁጥር	ጥያቄ	ምላሽ	ምርመራ
337	የደም ግሬት በሽታ መከላከያ ተግባራት ማከናወን በቀላሉ ይሳካልኛል	1. በጣም ዐልሥማማም 2. ዐልሥማማም 3. አስተያየት አልሰጥም 4. እስማማለሁኝ 5. በጣም እስማማለሁኝ	

ምዕራፍ አራት የባህሪይ መመዘኛዎች

ሲጋራ አጠቃቀም			
ቁጥር	ጥያቄ	ምላሽ	ምርመራ
401	ሲጋራ አጭሰው ያውቃሉ?	1. አዎ 2. አላውቅም	
402	በአሁኑ ጊዜ ሲጋራ ያጨሳሉ?	1. አዎ 2. አላጨስም	
403	ለጥያቄ 402 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥያጨሳሉ?	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
404	በአማካይ በቀን ምን ያህል ሲጋር	_____በቁጥር	
405	ያጨሳሉ ለምን ያህል ጊዜ አጭሰዋል?	_____ በአመት	
አልኮል አጠቃቀም			
406	አልኮል ነክ መጠጦችን ጠጥተው ያውቃሉ?	1አዎ 2 አላውቅም	
407	በአሁኑ ጊዜ አልኮል ይጠጣሉ?	1አዎ 2 አልጠጣም	

408	ለጥያቄ 407 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥ ነዉ አልኮል መጠጥ የሚወስዱት?	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
409	በአንድ ጊዜ ምን ያህል ጠርሙስ/ብርጭቆ ይጠጣሉ (300ሚሊ ለቢራ እና የሻይ ሲኒ ለባህላዊ መጠጥ)	_____ በቁጥር	
410	ለምን ያህል ጊዜ ነዉ የጠጡት?	_____በአመት	
ጫት መቃም			
411	ጫት ቅመው ያውቃሉ	1አዎ 2 አላውቅም	
412	በአሁኑ ጊዜ ጫት ይቅማሉ	1አዎ 2 አልቅምም	
413	ለጥያቄ 412 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥ ነዉ ጫት የሚቅሙት	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
414	ለምን ያህል ጊዜ ጫት ቀመዋል?	_____በአመታት	
ቡና አጠቃቀም			
415	ቡና ይጠጣሉ	1. እጠጣለዉ 2. አልጠጣም	
416	ለጥያቄ 415 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥ ነዉ የሚጠጡት	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
417	ምን ያህል ሲኒ	_____ሲኒ በቁጥር	
418	ቡና የሚጠጡት ምን ጨምሮ ነው?	1. ጨው 2. ስካር	

228

		3. ባዶ	
አመጋገብ			
419	በየትኛው የምግብ ሰዓት ነው በአንጻሩ በብዛት የሚመገብት?	1. በቁርስ ሰዓት 2. በምሳ ሰዓት 3. በእራት ሰዓት 4. በመክሰስ ሰዓት	
420	ፍራፍሬዎችን ይመገባሉ?	1 አዎ 2 አልመገብም	
421	ለጥያቄ 420 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥ ነዉ ፍራፍሬዎችን የሚመገብት	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
422	አትክልት ይመገባሉ	1 አዎ 2 አልመገብም	
423	ለጥያቄ 422 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥ ነዉ አትክልት የሚመገብት	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
424	ቅቤና ጮማ የበዛበት ምግቦችን ይመገባሉ	1 አዎ 2 አልመገብም	
425	ለጥያቄ 424 ምላሽዎ አዎ ከሆነ በምን ያህል ጊዜ ውስጥ ነዉ አትክልት የሚመገብት	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
የጨው አጠቃቀም			
426	በምግብ ውስጥ ከተጨመረው በላይ ሌላ ጨው ጨምረው ያበላሉ	1 አዎ 2 አልመገብም	
የሰውነት እንቅስቃሴ ሁኔታ			

427	በየዕለቱ የሚሰሩት ስራ ቢያንስ ለ10 ደቂቃ እንቅስቃሴ እና ጉልበት የሚጠይቅ ነው?	1 አዎ 2 አይደለም	
428	በሳምንት ለምን ያህል ጊዜ የጉልበት ስራ ይሰራሉ?	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
ከቦታ ቦታ መንቀሳቀስ			
429	በቀን ቢያንስ ለ10 ደቂቃ ከቦታ ቦታ ይንቀሳቀሳሉ	1 አዎ 2 አልንቀሳቀስም	
430	በአንድ ሳምንት ውስጥ ቢያንስ ለ10 ደቂቃ ያህል ምን ያህል ቀናት ይራመዳሉ?	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	
431	የሚጠቀሙት ትራንስፖርት አይነት	1.በእግር 2.ቢስክሌት 3.ተሽከርካሪ	
የመዝናኛ እንቅስቃሴ			
432	ጉልበት የሚጠይቅ የአካል ብቃት እንቅስቃሴ(ስፖ`ርት)በማድረግ ነው ሚዝናኑት?	1 አዎ 2 አልሰራም	
433	በሳምንት ውስጥ ምን ያህል ጊዜ የአካል ብቃት እንቅስቃሴ ያደርጋሉ ወይስይዝናናሉ(በስፖ`ርት)	1. በየቀኑ 2. በሳምንት ከ5-6 ቀናት 3. በሳምንት ከ3-4 ቀናት 4. በሳምንት ከ1-2ቀናት	

ምዕራፍ አምስት ከደም ግፊት ጋር የተያያዘ ታሪክ እና ተዛማጅ በሽታዎች

ቁጥር	ጥያቄ	ምላሽ	ምርመራ
501	የደም ግፊትዎን በሀኪም ወይም በሌላ የጤና ባለሙያ ተለክተው ያውቃሉ?	1 አዎ 2 አላውቅም	

502	የደም ግፊት መጨመር አለቦት ተብለው ተነግሮዎታል?	1 አዎ 2 አላውቅም	
503	በአሁኑ ጊዜ በሀኪም ወይም በሌላ የጤና ባለሙያ የታዘዘልዎት ለደም ግፊት መጨመር መቆጣጠሪያ የሚወስዱት መድሀኒት ወይም ምክርና ህክምና አለ?	1 አዎ 2 አልጠቀምም	
504	በቤተሰብዎ መካከል የደም ግፊት መጨመር ያለበት ሰው አለ?	1 አዎ 2 አላውቅም	
505	የስኳር በሽታ አለብዎት ተብሉ በሀኪም ወይም በሌላ የጤና ባለሙያ ተነግሮት ያውቃል	1 አዎ 2 አላውቅም	

ምዕራፍ ስድስት የሰውነት ልኬት

ቁመት እና ክብደት			
ቁጥር	ጥያቄ	ምላሽ	ምርመራ
601	ቁመት	_____ሳሜ	
602	ክብደት	_____ኪ.ግ	
የደም ግፊት ልኬት በ15 ደቂቃ ልዩነት			
603	ንባብ 1	_____ሲስቶሊክ _____ዳያስቶሊክ	
604	ንባብ 2	_____ሲስቶሊክ _____ዳያስቶሊክ	
605	ንባብ 3	_____ሲስቶሊክ _____ዳያስቶሊክ	

አመሰግናለዉ!

Annexure Q: Biograph of Delphi technique experts

S.N	Profession	Education	Qualification area	Work place
1	General Practitioner	Medical Doctor	OPD	Hospital
2	Public Health Specialist	MPH(Master of public health)	Policy and Planning Advisor	FMOH
3	Public Health Specialist	MPH	Public Health Advisor	NGO
4	Public Health Specialist	MPH	DPHP Advisor	RHB
5	Public Health Specialist	MPH, PHD candidate	DPHP Advisor	RHB
6	Public Health Specialist	MPH, PHD candidate	Manager	Hospital
7	Assistant Professor	PHD	Researcher	University
8	Assistant Professor	PHD	Researcher	University
9	Associate Professor	PHD	Researcher	University
10	General Practitioner	Medical Doctor	OPD	Hospital
11	Public Health Specialist	MPH	Public Health Advisor	NGO
12	Public Health Specialist	MPH	Public Health Advisor	NGO