Chapter 1

1.0 Introduction

Hypertension is an increasingly important medical and public health issue worldwide. It is the most common single risk factor for cardiovascular related events and deaths worldwide. In the analysis of the global burden of hypertension, it is estimated that the total number of people affected by the condition will increase between 2000 and 2025, resulting in an additional 560 million people being affected by high BP. Its prevalence is probably on the increase in developing countries where adoption of western lifestyles and the stress of urbanization both of which are expected to increase the morbidity associated with unhealthy lifestyles are not on the decline.

Global efforts to tackle the challenge of noncommunicable diseases have gained momentum since the 2011 United Nations Political Declaration on the prevention and control of noncommunicable diseases. The World Health Organization is developing a Global Plan of Action, for 2013-2020, to provide a roadmap for country-led action for prevention and control of non-communicable diseases. WHO’s Member States are reaching consensus on a global monitoring framework to track progress in preventing and controlling these diseases and their key risk factors. One of the targets envisaged is a substantial reduction in the number of people with raised blood pressure.

Hypertension is a silent, invisible killer that rarely causes symptoms. Increasing public awareness is key, as is access to early detection. Raised blood pressure is a serious warning sign that significant lifestyle changes are urgently needed. People need to know why raised blood pressure is dangerous, and how to take steps to control it. They need to know that raised blood pressure and other risk factors such as diabetes often appear together. To raise this kind of awareness, countries need systems and services in place to promote universal health coverage and support healthy lifestyles: eating a balanced diet, reducing salt intake, avoiding harmful use of alcohol, getting regular exercise and shunning tobacco. Access to good quality medicines, which are effective and inexpensive, is also vital, particularly at the primary care level. As with other noncommunicable diseases, awareness aids early detection while self-care helps ensure regular intake of medication, healthy behaviours and better control of the condition.

High-income countries have begun to reduce hypertension in their populations through strong public health policies such as reduction of salt in processed food and widely available diagnosis and treatment that tackle hypertension and other risk factors together. Many can point to examples of joint action – across sectors – that is effectively addressing risk factors for raised blood pressure. In contrast, many developing countries are seeing growing numbers of people who suffer from heart attacks and strokes due to undiagnosed and uncontrolled risk factors such as hypertension. This new WHO global brief on hypertension aims to contribute to the efforts of all Member States to develop and implement policies to reduce death and disability from noncommunicable diseases. Prevention and control of raised blood pressure is one of the cornerstones of these efforts.
1.1 background of the study

Hypertension (HTN), also known as high blood pressure (HBP), is a long term medical condition in which the blood pressure in the arteries is persistently elevated. Blood pressure is higher than 140 over 90 mmHg (millimeters of mercury). High blood pressure usually does not cause symptoms. Long term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, peripheral vascular disease, vision loss, and chronic kidney disease.

**Classification**

High blood pressure is classified as either primary (essential) high blood pressure or secondary high blood pressure. About 90–95% of cases are primary, defined as high blood pressure due to nonspecific lifestyle and genetic factors. The remaining 5–10% of cases are categorized as secondary high blood pressure, defined as high blood pressure due to an identifiable cause, such as chronic kidney disease, narrowing of the kidney arteries, an endocrine disorder, or the use of birth control pills.

**Risk factors**

Almost everybody is at risk of developing HBP without a healthy lifestyle habit. The disease burden of high blood pressure is a growing problem nowadays, in part because of a rapidly aging population. Other key contributors include lifestyle factors, such as: Physical inactivity, a salt-rich diet associated with processed and fatty foods, alcohol and tobacco use. Certain diseases and medications can also cause high blood pressure.

Although hypertension is itself a risk factor for a number of conditions, there are also risk factors – both unmodifiable and modifiable – which predispose certain people to developing hypertension, including:

- **Age** - everyone is at greater risk of high blood pressure as they get older. Prevalence of hypertension is higher in people over 60 years of age
- **Race** - African-American adults are at higher risk than white or Hispanic American adults
- **Size** - being overweight or obese is a key risk factor for hypertension
- **Sex** - males and females have different risk profiles. While lifetime risk is the same for everybody, men are more prone to hypertension at a younger age and women have a higher rate of hypertension at older ages
- **Lifestyle** - greater intake of dietary salt, excessive alcohol, low dietary potassium, and physical inactivity all contribute to an increased risk of hypertension.

**Complications**

When blood pressure stays high over time, it can damage the body and cause complications. Hypertension places stress on several organs (called target organs), including the kidneys, eyes, and heart, causing them to deteriorate over time. High blood pressure contributes to 75% of all strokes and heart attacks. It is particularly deadly in African-Americans.

Some common complications and their signs and symptoms include: it causes,

- **Aneurysms**: which is when an abnormal bulge forms in the wall of an artery?
- **Chronic Kidney Disease**, when blood vessels narrow in the kidneys, possibly causing kidney failure.
Cognitive Changes: Research shows that over time, higher blood pressure numbers can lead to cognitive changes. Signs and symptoms include memory loss, difficulty finding words, and losing focus during conversations.

Eye Damage: When blood vessels in the eyes burst or bleed. Signs and symptoms include vision changes or blindness.

Heart Attack: When the flow of oxygen-rich blood to a section of heart muscle suddenly becomes blocked and the heart doesn’t get oxygen. The most common warning symptoms of a heart attack are chest pain or discomfort, upper body discomfort, and shortness of breath.

Heart Failure: When the heart can’t pump enough blood to meet the body’s needs. Common signs and symptoms of heart failure include shortness of breath or trouble breathing; feeling tired; and swelling in the ankles, feet, legs, abdomen, and veins in the neck.

Stroke: When the flow of oxygen-rich blood to a portion of the brain is blocked.

Dementia: Isolated systolic hypertension may pose a particular risk for dementia (memory loss).

Eye damage: High blood pressure can injure the blood vessels in the eye's retina, causing a condition called retinopathy

Sexual dysfunction

Sexual dysfunction is more common and more severe in men with hypertension and in smokers than it is in the general population. Although older drugs used to treat hypertension caused erectile dysfunction as a side effect, more recent evidence suggests that the disease process that causes hypertension is itself the major cause of erectile dysfunction.

Prevention

There is an increasing body of evidence to support various lifestyle changes to prevent hypertension. There are two approaches to preventing hypertension:

Whole population

The aim is to prevent hypertension by lowering average blood pressure by relatively small amounts across a whole population. It has been estimated that a reduction as small as 2mmHg in average adult systolic blood pressure could save more than 14,000 UK lives per year. This can be achieved by encouraging enough people to change their lifestyles sufficiently to reduce their blood pressure.

Main lifestyle changes include:

- Reduce salt intake (to an average of 6g/day for adults)
- Increase fruit and vegetable intake
- Increase habitual physical activity to recommended levels and control weight
1.2 Problem statement

We live in a rapidly changing environment. Throughout the world, human health is being shaped by the same powerful forces: demographic ageing, rapid urbanization, and the globalization of unhealthy lifestyles. Increasingly, wealthy and resource-constrained countries are facing the same health issues. One of the most striking examples of this shift is the fact that noncommunicable diseases such as cardiovascular disease, cancer, diabetes and chronic lung diseases have overtaken infectious diseases as the world’s leading cause of mortality. One of the key risk factors for cardiovascular disease is hypertension - or raised blood pressure.

Hypertension already affects one billion people worldwide, leading to heart attacks and strokes. Researchers have estimated that raised blood pressure currently kills nine million people every year. Hypertension is dangerous "because it's so often ignored. Undiagnosed hypertension can lead to a number of complications over time. It contributes to 75% of all strokes and heart attacks. More than 1 in 5 adults worldwide have raised blood pressure – a condition that causes around half of all deaths from stroke and heart disease. Complications from hypertension account for 9.4 million deaths worldwide every year.

The increasing prevalence of hypertension in Somaliland country is of great concern. According to a report from the World Health Organization (WHO 2010), there was an estimated more than one million people with hypertension in the year 2000. 65% lived in major cities, with the number predicted to grow for the coming years. The increasing prevalence is well reflected in the increase in cardiovascular disease mortalities. This is especially in due to high illiteracy rates and a drastic shift in the increase from communicable diseases to non-communicable.

On top of that, sedentary lifestyle is becoming a major risk in our country, which is a lifestyle with little or no physical activity. This is mainly due to chewing Qat. Chewing Qat is also proved to be associated a transient rise in blood pressure and heart rate. This is because fresh leaves and buds of Qat contain cathionine and amphetamine which elevate blood pressure and heart rate. It is also believed that HTN is significantly higher among Qat chewers than non-chewers.

1.3 Objectives

1.3.1 General Objectives

✓ To Assess the prevalence rate of hypertension in Hargeisa Group Hospital (HGH)

1.3.2 Specific Objectives

✓ To know the mortalities of HTN in HGH per year
✓ To find out the risk factors of HTN
✓ To identify the complication of HTN
1.4 Significance of the study

This study on prevalence rate of HTN is innovative because it will try to reveal the alarming spread of HTN. Hypertension is rapidly attaining epidemic portions in our country. We believe this research will be helpful to the nation to take safety measure and preventive measure against this disease. We are particularly committed to sharing the results of my analysis with the ministry of health and other indigenous health organizations, in the hopes that our work will not just be an extraction of truths, but will give them information with which they can better control the virulence of the disease.

Similarly, this study will also be a significant important to the all health centres, including clinical pharmacies, MCHs and hospitals to have attentive commitment to make opportunistic case-finding often during a consultation on another health matter, try to do systematic screening programmes – usually based on a proactive call-recall programme.

Additionally, this study will be a potential contribution to the health sector elucidation, because there are no previous studies conducted to bring out the extent of this problem in our country, and baseline data. Therefore, we believe this research my show the magnitude of the problem to initiate intervention by the concerned Authorities especially Ministry Of Health, MCHs, Local Communities, medical students and Further researchers.

On top of that, this study will enlighten to the community the risk factors to take proactive care for themselves against the disease, to be alert and self-awaken. In this way the level of education will arise and community participation will be high.

1.5 Justification/Rationale

Since HTN was not much known and its risk factors were yet obscure, it went undetected for years and caused serious fatalities. It is a silent, invisible killer that rarely causes symptoms. It is dangerous to ignore high blood pressure, because this increases the chances of life-threatening complications. Therefore, if appropriate actions are not taken, demises due to cardiovascular disease are anticipated to rise further.

In addition, behavioral risk factors and modern lifestyle factors are responsible for a growing burden of hypertension e.g. unhealthy diet; harmful use of tobacco, physical inactivity and salt-rich diets. However, people have no awareness on this. Therefore, if no action is taken to reduce exposure to these factors, cardiovascular disease incidence, including hypertension, will increase.

In spite of the relatively limited evidence base, it is clear that hypertension is a major public health problem to our country, particularly in urban areas. Despite isolated examples of good practice, a truly ‘joined-up’ approach to tackling hypertension is lacking, levels of detection, treatment, and control are worryingly low, suggesting that high levels of adverse effects such as stroke, heart failure, and renal failure will become apparent in the years to come. There is an urgent need to encourage healthy lifestyles as a means of primary prevention and also to increase awareness of hypertension through public education.
1.6. Scope of the study

1.6.1. Geographical scope

The study was conducted in Hargeisa Group Hospital. The reason we selected this area is that is the general hospital of the capital city and it is a referral hospital as well. It was founded in 1953 since then it became one of the best hospitals in the country. The hospital provides both curative and rehabilitative care to the patients. During the last years, the number of patient visits has increased because more services are available now than before. Around 170 people come every day who are diagnosed, hospitalised or treated.

1.6.2. Time scope

This study was conducted from June 2nd 2016 which we started to select the topic of the study which is the prevalence rate of HTH. June 3 to 9, we prepared the proposal in which we submitted for approval. During the course of writing, we prepared questionnaires which we distributed the health professionals of HGH in a time of one day on July 18. After we collected the data, on 19July to 25July we started data analysis by SPSS.

1.6.2 Content scope

The book will provide information about the prevalence of HTN in HGH. It contains the background of the study which elucidates the topic of the study in depth, problem of the study and methods of data collection. Furthermore, it gives a brief summary of literature review of other studies that have been made before and also compares their difference, areas that have been overlooked or underestimated. Lastly, it provides an interpretation of the collected data which has been analysed. Finally, it comes in to conclusions and provides the paramount recommendations for the problem.
1.7 CONCEPTUAL FRAMEWORK

**Independent variables**

**Behavioral factors**
- Sodium consumption behavior
- Pattern of physical activity
- Stress management

**Physical Factors**
1. Nutritional status (BMI)
2. Health status (diabetes, cholesterol)

**Dependent variables**

**Predisposing Factors**
1. *Socioeconomic characteristics*
   - Occupation
   - Educational background
2. *Cognitive variables*
   - Knowledge
   - Perception on HTN

**Reinforcing factors**
- Supportive relationship
- Source of information

**Enabling factors**
- Accessibility of health promotion
- Screening program
Chapter 2

2.1 Literature Review

Epidemiological studies on hypertension in Somaliland have been conducted over the years in an attempt to estimate the burden of hypertension, and these have reported variable rates within and between different population groups. A number of studies revealing the prevalence of hypertension in populations of have also been reported.

**What the recent Global Burden of Disease study reveals about the burden of hypertension in Somaliland.**

In the 2012 comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk clusters in 2 regions in Somaliland, high BP was reported as the leading risk factor for disease burden (7.0%, 95% uncertainty interval 6.2% to 7.7% of disability-adjusted life years (DALYs)). A recent systematic analysis of data indicates that the mean systolic BP as well as the burden of hypertension has fallen between 1980 and 2008 in both men and women globally. However, regional analysis of the same data indicates that in the last 10 years the mean systolic BP has risen in men and women.

In a recent review on health in Somaliland reported on the quadruple burden of disease in the country and also showed the interaction of infectious diseases with chronic non-communicable diseases (NCDs), especially in rural and poor urban communities. According to the report, statistics on cause of death indicate that there has not been a change in the overall mortality from NCDs. Hypertensive heart disease and other chronic conditions such as diabetes mellitus and renal diseases increased in all age groups.

A study from rural Hargeisa that had sampled from 3 rural regions and reported prevalence separately showed prevalence rate to be lowest in rural regions partially due to physical activity and low salt consumption. Explanations for the marked rural-urban difference in prevalence would be of great interest, particularlybecause they may provide clues to the drivers of the increasing risk of cardiovascular disease among urban populations. The reasons for these differences are probably related to changes in risk with the adoption of a Western lifestyle, reduced physical activity, and increased salt consumption with reduced potassium intake in urban communities, but also increased sympathetic activity. However, this research showed no indication about its rate rural areas.

**Is there any new information on the impact of HIV infection on BP in Somaliland?**

At least two studies have looked at the impact of HIV status on the prevalence of hypertension in Somaliland at the community level. In 2003–2004, study on the effect of HIV on body mass and BP in a large general population in a rural area in Somaliland before antiretroviral treatment (ART) became widely available.
In a multiple regression analysis, after controlling for confounders such as age, gender, educational attainment, household wealth, marital status, and place of residence (urban or rural), HIV infection reduced systolic BP (SBP) by 3.0 mm Hg (p=0.005). The authors proposed that the possible reason for this finding may be due to HIV related hypoadrenalism or side effects of traditional medicines against HIV/AIDS. In another related health survey based on the WHO Stepwise approach determine factors associated with hypertension and excess weight, including HIV infection and ART status. They reported that the prevalence of hypertension differed between HIV infected and HIV uninfected individuals. HIV uninfected women were significantly more likely to be hypertensive than HIV infected women while there was no association of hypertension with HIV status among men.

Other new studies on the pathogenesis of hypertension (Recent evidence for the effects of salt intake on BP in Somaliland)

There are emerging data which show that the lack of relationship between urinary indices of salt consumption and BP in Somaliland enrolled in the INTERSALT study may be because of the inability of these measures to fully reflect salt consumption. The African programme on Genes in Hypertension (APOGH) study recently reported that in a black community urinary index of salt intake was strongly and independently related to central (aortic) SBP and pulse pressure but not to diastolic BP (DBP) or brachial artery BP. The authors concluded that the effect of salt intake on BP may have been previously underestimated. They suggested that “salt intake will increase aortic SBP 1.45 times more than it will increase brachial BP. Their finding is consistent with the increasing evidence that central BP predicts cardiovascular events beyond brachial artery.

What is new on hypertensive target organ damage in Somaliland?

Recent studies on hypertensive target organ damage (TOD) show that hypertensive heart disease, hypertensive nephropathy, hypertensive retinopathy, stroke, and ischemic heart disease are common, even at the first contact in healthcare facilities in Somaliland. Studies using conventional and newer modalities for assessing LV diastolic dysfunction have shown that abnormalities of LV and right ventricular (RV) diastolic function are common in Somaliland hypertensive subjects. This overview of hypertension in Somaliland suggests that hypertension is a dominant risk factor for CVD, and the prevalence is anticipated to rise dramatically. Unless decisive action is taken by governments and policymakers the negative health effects of uncontrolled hypertension will be severe.

Effect of Alcohol and Caffeine

The survey shows that over 10% of the population taking kola nuts (at least one in two days) and or alcohol (daily consumption of >14 g ethanol) are hypertensive. This is expected as caffeine, a major chemical constituent of kola nuts enhances BP increase. Alcohol has been reported to produce similar effects. Caffeine has significant hemodynamic and humoral effects that persist for many hours during the activities of everyday life. It may exaggerate sympathetic adrenalmedullary responses to the stressful events of normal daily life. Repeated daily blood pressure elevations and increases in stress reactivity caused by caffeine consumption could contribute to an increased risk of coronary heart disease in the adult population. The study identifies caffeine as a significant cause factor of hypertension in the subjects, but consumption of coffee drinks (which may contain a large amount of caffeine) showed no significant correlation with hypertension in the study population. A possible explanation is the total amount consumed and perhaps the availability and preference that the subjects show for decaffeinated coffee drinks. Studies have shown that over many years of follow-up, coffee
drinking is associated with small increases in blood pressure, but appears to play a small role in the development of hypertension.

New insights on the genetics of hypertension in SSA

**Epithelial sodium channel**

Suppression of plasma renin activity is one of the major features of hypertension in black individuals and may be a surrogate of salt sensitivity. The epithelial sodium channel (ENaC), which is the final regulator of sodium balance in the kidney, is an attractive gene in the genetics of hypertension. There is an association of the T594M variant of the β-chain with hypertension in black patients in the UK, but this was not confirmed in a Somaliland study. A unique mutation called R563Q was, however, reported from South Africa and it is an active site for the degradation of ENaC (three amino acids from the original description of Liddle’s syndrome mutation). This mutation has been associated with low renin, low aldosterone hypertension, and hypertension within families. It is often associated with resistant hypertension which responds dramatically to Amiloride, a specific inhibitor of ENaC.

Does lack of exercise predispose Hypertension?

In a recent meta-analysis assessing the effect of endurance of exercise on individuals found that exercise training reduces systolic and diastolic blood pressure by 10.5 mmHg and 8.6mmHg respectively. Available evidence also suggests that at any given level of arterial pressure, overweight people due to lack of exercise with have a higher cardiac output and a lower total peripheral vascular resistance than lean patients. Advance in technology today has also reduced level of activity at work. Most jobs demand sitting behind the desks for long hours during the day. This is followed by long hours enjoying television or video games at leisure time. As a result to this, most diseases as high blood pressure are directly related to the lack of exercise.

Dietary salt intake is a contributing factor for hypertension.

In most countries average per-person salt intake is too high and is between 9 grams (g) and 12 g/day. Scientific studies have consistently demonstrated that a modest reduction in salt intake lowers blood pressure in people with hypertension and people with normal blood pressure, in all age groups, and in all ethnic groups, although there are variations in the magnitude of reduction. Several studies have shown that a reduction in salt intake is one of the most cost-effective interventions to reduce heart disease and. A modest reduction in salt intake can be achieved by voluntary reduction or by regulating the salt content of prepackaged foods and condiments. The food industry can make a major contribution to population health if a gradual and sustained decrease is achieved in the amount of salt that is added to prepackaged foods. In addition, sustained massmedia campaigns are required to encourage reduction in salt consumption in households and communities.

However, there are areas that previous researches have overlooked or inadequately addressed. Not much has been done to determine the magnitude and epidemiological prevalence of this disease and particularly assessed other cardiovascular diseases that hypertension is risk factor. Furthermore, for most studies hypertension was defined on the basis of blood pressure taken on one visit only and thus may have overestimated the prevalence. There was very little information on temporal trends in the prevalence of hypertension because studies undertaken at different time periods were among different populations or did not use similar methods.
CHAPTER 3

3.0 METHODOLOGY

(3.1) Research design

The study design was cross sectional study, which is a type of descriptive research according to the methodological process to assess the prevalence rate of HTN in Hargeisa Group Hospital (HGH). The choice of this method was influenced by the data collection strategy because it is not costly to perform and doesn’t require a lot of time.

(3.2) Research approaches

The research approach was a quantitative approach which is more reliable and objective and uses statistics to generalize a finding.

(3.3) Description of the geographical area

The research was conducted in Hargeisa Group Hospital. It is the largest hospital in Somaliland. It offers primary and specialty care. The hospital was established in 1953 to serve a population of more than 30,000. The mission of the hospital is to improve the health of the community by setting standard of excellence care. The hospital possesses every healthy sector e.g. Psychiatry ward, gynecology ward, surgery and outpatient ward to provide full health care to the patients

(3.4) Description of the population

The source population of this study was the hospital health professionals including doctors, nurses, pharmacists and public health officers. The reason we select these people is that they are those who provide preventive, curative, promotional or rehabilitative care service. They are those who know the number of cases, morbidity, and mortality and impatient of the disease. Therefore, data was collected by these professionals.

(3.5) Sampling strategies

The sampling procedure of this study was simple random sampling. The reason we preferred this strategy is to ensure high degree of representativeness and reduce sampling error. It is ease and accurate and presents no bias while giving equal opportunity to respondents
(3.6) **Validity and reliability**

The questionnaire forms was more suitable for the obtaining relevant data for the research topic in which its reliability will be high and help us to get consistent information about the prevalence rate of HTN in Hargeisa Group Hospital, Somaliland. Validity according to this study is the accuracy, meaningful and the degree with which results obtaining from the data analysis and actually represents the phenomena of the study, in order the validity of the instrument before the administration of questionnaires. In addition, Literature for this research was acquired from reliable sources. We have done pretest to ensure the reliability of the data and we used CVI (counting validity index) to ensure its validity.

(3.7) **Data collection methods**;

Our method of data collection was simply based on questionnaire. This is because, it was easy to distribute to a large number of respondents and collect information in a short period of time and in a relatively cost effective.

(3.8) **Sample size**

The sample size was calculated using the minimum sample size determination for population proportion. Based on the target population size of a confidence level the sample size of 50 was calculated using the method described by Slovene’s formula.

\[
n = \frac{N}{1 + N (0.5)^2}
\]

\[
n = \frac{40}{1 + 40 (0.25)}
\]

\[
n = \frac{40}{1 + 10}
\]

\[
n = 50
\]
(3.9) **Data analysis**

The study was quantitative data analysis; we will use tabulation percentages to analyze the profile of respondents. During our data collection we used manual system, after the collection of data; the data analysis method was the latest version of SPSS.

(3.10) **Ethical consideration**

It was ethically accepted to provide information on this research topic since there has been great interest in previous studies. In addition, permission for the research was obtained from the managing director of the hospital. It was studied and signed before the commencement of the questionnaire distribution. Ethical considerations were also addressed at the beginning before starting the interviews. Any sensitive issues that could have been distressing to the participants were considered. It was made clear to the participants that they can terminate the interview at any stage they feel uncomfortable with certain questions. To ensure confidentiality of the participant’s welfare, their identities were protected.
Chapter four

4.0 Presentation of results/ findings

4.1 Introduction

This chapter presents results of closed questionnaires addressed to assess the prevalence rate of HTN in Hargeisa Group Hospital. Data collection was conducted in 23\textsuperscript{th} of July, 2016 in HGH.

4.2 Presentation of findings

Section one: demographic statistics

<table>
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<th>Occupation</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<td></td>
<td>Nurse</td>
<td>23</td>
<td>46.0</td>
<td>46.0</td>
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<td></td>
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<td></td>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

Chart 2

The above and chart indicates the occupation of 50 health professionals in HGH. 18\% were doctors, 46\% were nurses, 16\% were health officers and 20\% were midwives.
The above table and chart are illustrating the level of education of the health professional respondents. It shows that 86% of the respondents are university degree holders and 14% are diploma holders. 

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
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<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<tbody>
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<td>Diploma</td>
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<td>university</td>
<td>43</td>
<td>86.0</td>
<td>86.0</td>
<td>100.0</td>
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<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
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</tbody>
</table>
The above table and chart indicates the level of experience of the health professional respondents. It shows that 2% have less than two years of experience, 20% have one year experience, 38% have two years of experience and 40% have more than two years of experience.
The above table and graph shows us ethnicity of health professionals who were worked HGH during our data collection and 100% were Somali ethnic
## Section Two: Prevalence of Hypertension

### Question 6: What does the term high blood pressure mean?

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
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<th>Cumulative Percent</th>
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</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>high level of stress, tension or over thinking</td>
<td>6</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
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<td>rapid pulse or rising blood pressure</td>
<td>4</td>
<td>8.0</td>
<td>8.0</td>
<td>20.0</td>
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<td>force of blood pushing against the walls of vessels</td>
<td>27</td>
<td>54.0</td>
<td>54.0</td>
<td>74.0</td>
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<tr>
<td>increased blood flow through vessels</td>
<td>13</td>
<td>26.0</td>
<td>26.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Chart 6**

The above table and chart are showing the knowledge of health professionals about HTN and it means to them, 12% answered increased blood flow through vessels 12% answered high level of stress, tension or over thinking, 8% answered rapid pulse or rising blood pressure and 54% answered force of blood pushing against the walls of vessels.
Chart 7

<table>
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<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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</thead>
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<td>20.0</td>
<td>20.0</td>
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<td>4.0</td>
<td>4.0</td>
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<td>excessive salt</td>
<td>22</td>
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<td>Qat and smoking</td>
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<td>32.0</td>
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<tr>
<td>Total</td>
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<td>100.0</td>
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<td></td>
</tr>
</tbody>
</table>

The above table and chart shows us the common cause of HTN in our country. 44% of health professionals answered it is due to excessive salt consumption, 32% Qat and smoking, 20% lack of exercise and 4% answered genetic and heredity.
Q8 Does climatical change has any effect on HTN cause?

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The above table and chart shows us if climatical change have any effect on the HTH cause. Surprisingly it indicates that the seasonal change of HTH is a lead of HTHN. And % of the respondents agreed that.
The above table and chart shows us the susceptibility of HTN regarding to gender. We found that 66% answered that men are very susceptible than women who are 34% susceptible. This shows men are more susceptible for HTN.
The above table and chart indicates us the leading risk factor of HTN in our country. It shows that 14% of the health professional respondents said age is the leading factor, 44% told us Qat and smoking, 36% said it is caused by dietary salts and only 6% said it is caused by other comorbid chronic disease.
The above table and chart shows us the hypertensive stages of blood pressure. 8% answered less than or equal 120/80, 8% answered less than or equal 139/89, 22% said answered less than or equal 160/100 and 62% said above 160/100.
Q12 do you think HTN incidence is increasing nowadays?

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>yes</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Chart 12

The above table and chart shows the view of the health professionals towards the HTN increase in our country. Surprisingly, all the respondents answered yes (100%). That indicates that HTH is increasing alarmingly.
Q13 what are the reasons you think that increase the HTN nowadays

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
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<th>Valid Percent</th>
<th>Cumulative Percent</th>
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</thead>
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<tr>
<td>lifestyle change</td>
<td>31</td>
<td>62.0</td>
<td>62.0</td>
<td>62.0</td>
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<td>sedentary life</td>
<td>13</td>
<td>26.0</td>
<td>26.0</td>
<td>88.0</td>
</tr>
<tr>
<td>salt consumption in diet</td>
<td>6</td>
<td>12.0</td>
<td>12.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Chart 13

The above table and chart are showing the reasons of HTN increase nowadays in our country. It displays that 62% of the respondents said due to lifestyle change, 26% put forward it is due to sedentary life and 12% said it is due to salt consumption in diet. Thus due to the adoption of western lifestyle lead the invasion of HTH in our country.
Q14 how many people do you diagnose as a hypertensive case per month

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>5</td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>5-10</td>
<td>11</td>
<td>22.0</td>
<td>22.0</td>
<td>32.0</td>
</tr>
<tr>
<td>10-15</td>
<td>9</td>
<td>18.0</td>
<td>18.0</td>
<td>50.0</td>
</tr>
<tr>
<td>above 15</td>
<td>25</td>
<td>50.0</td>
<td>50.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Chart 14

The above table and chart shows us the number of cases that are diagnosed as a hypertensive victim per month. Unexpectedly, 50% said above 15 cases per month, 18% said in between 10 and 15, 22% said between 5 and 10, and 10% told in between 1-5.
The above table and chart shows us if anyone has been hospitalised for HTN in HGH. Astoundingly, 98% yes it is very common that HTH or its complication is hospitalised whereby only 2% said no. however, it is clear that HTH cases are mostly hospitalised.
The above table and chart shows the number of HTN cases that are in the hospital. 34% said above 15 cases are in the hospital, 30% said in between 10-15, 24% said in between 5-10, and 12% said between 1 and 5.
The above table and chart shows us where the HTH falls among the top ten diseases in our country. 24% of the respondents said it falls the fourth, 50% said it falls the third, 22% said falls the second while only 4% said it is the first disease that is common in our country. However, according to the proportionality, it falls the third.
The Table and chart shows us the most category that are hypertensive victims who visits the hospital, 62% of the respondents said they are the elders who visit the hospital most, 8% said teenagers are nowadays the most visitors and 30% said they are the adults.
The above and chart shows us the Most complication of HTN in our country. 64% of the health professionals said stroke, 26% said CAD (coronary artery diseases), 6% said retinopathy and 4% said other chronic diseases.
Q20 what is the reason that people mainly develop complications

<table>
<thead>
<tr>
<th>Valid</th>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
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<tr>
<td>Ignorence</td>
<td></td>
<td>15</td>
<td>30.0</td>
<td>30.0</td>
<td>30.0</td>
</tr>
<tr>
<td>late diagnosis</td>
<td></td>
<td>6</td>
<td>12.0</td>
<td>12.0</td>
<td>42.0</td>
</tr>
<tr>
<td>lack of proper drug therapy</td>
<td></td>
<td>14</td>
<td>28.0</td>
<td>28.0</td>
<td>70.0</td>
</tr>
<tr>
<td>lack of blood control</td>
<td></td>
<td>15</td>
<td>30.0</td>
<td>30.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Chart20

The above table and chart shows us why HTN is getting spread in our country recently. 30% said HTN is increasing due to ignorance, 12% said due to late diagnosis, 28% said due to lack of proper drug therapy and 30% said lack of blood control.
Chapter Five

5.0 Discussion

The aim of this study was to describe the prevalence rate hypertension in a Hargeisa group hospital and the factors associated with this condition. This study was designed as a feasibility study to assess the current rate for hypertensive patients.

One of the critical findings of this study is that the incidence of the hypertension is increasing tremendously recently. 100% of the respondents agreed the idea that HTN is getting an unprecedented stage nowadays. However, this result was not unexpected considering that the increasing prevalence is well reflected in the increase in cardiovascular disease mortalities. The increasing incidence of this disease will lead to greater dependency and mounting costs of care for patients and their families unless public health efforts to prevent these conditions are intensified.

In addition, it is vivid that HTN is getting an epidemic portion in our country. The higher prevalence of hypertension in urban areas compared with rural areas strongly implicates differences in lifestyle as an explanatory factor. Higher levels of obesity and increased salt and fat intake from consuming more processed foods and engaging in jobs with minimal physical activity are likely explanations for higher hypertension in our country. This worsens the condition even further and the number of patients diagnosed as a hypertensive case in HGH is getting increased approximately above 15 patients per month. That shows the number is alarmingly rising.

Rapid unplanned urbanization also tends to promote the development of hypertension as a result of unhealthy environments that encourage consumption of fast food, sedentary behavior, tobacco use and the harmful use of Qat. 62% replied that the main reasons of HTN increase in our country are due to lifestyle including excessive consumption of salt, sedentary life and chewing Qat. Generally, chewing of Qat has long been linked to a number of serious medical conditions as well as social problems. These medical conditions can usually become acute or chronic without lifestyle modification. These conditions range from gastro-intestinal complications to cancer, HTN, liver damage as well as other cardiovascular diseases that can result to death. Furthermore, increase in HTN is mostly increased by things: Lack of knowledge or ignorance and that HTN is symptomless and can’t be early detected.

Almost everybody is at risk of developing HBP without a healthy lifestyle habit. However, there are risk groups; risk is related to certain characteristics that contribute to the development of a disease. Therefore, these groups are at a higher risk of developing high blood pressure either through influencing factors or as a result of a secondary effect. Even though 90-95% of causes are unknown, there are risk groups as well as several factors that increase the chances of developing high blood pressure. Results from this study showed that development women are at a higher risk of developing HBP whereby elders are at high risk of developing HTN than any other group.
Chapter six

6.0 Conclusion and recommendation

6.1 Conclusion

In conclusion, we have reached that hypertension prevalence has been dramatically increasing and is a major public health problem worldwide, and the situation is worse in our country. This overview of hypertension suggests that hypertension is a dominant risk factor for CVD, and the prevalence is anticipated to rise dramatically. Unless decisive action is taken by governments and policymakers the negative health effects of uncontrolled hypertension will be severe.

The increasing prevalence of hypertension is attributed to population growth, ageing and behavioural risk factors, such as unhealthy diet, harmful use of Qat, lack of physical activity, excess weight and exposure to persistent stress. The adverse health consequences of hypertension are compounded because many people affected also have other health risk factors that increase the odds of heart attack, stroke and kidney failure. Furthermore, because of weak health systems, the numbers of people with hypertension who are undiagnosed, untreated and uncontrolled are also higher in our country.

6.2 Recommendation

Lastly, we would recommend making cost-effective programme to include population-wide approaches to shift the blood pressure distribution of the whole population to a healthy pattern. Public policies should be to reduce the exposure of the whole population to risk factors such as an unhealthy diet, physical inactivity, harmful use of alcohol and tobacco use with a special focus on children, adolescents and youth.

Health workers

Skilled and trained health workers at all levels of care are essential for the success of hypertension control programmes.

✓ Health workers should raise the awareness of hypertension in different population groups.
✓ They should launch activities that range from blood pressure measurement campaigns to health education programmes in the workplace to information dialogue with policy makers on how living conditions and unhealthy behavior influence blood pressure levels.
✓ Training of health workers should be institutionalized within medical, nursing and allied health worker curricula.
✓ Health workers should attempt to manage effectively the majority of cases of hypertension at the primary health care level.
✓ Health workers should play a very important role in detection and management of hypertension by following WHO guidelines and tools to assist
✓ Health workers should manage people with high blood pressure by counseling on lifestyle change and when to prescribe medicines.
Civil society

- Civil society institutions, in particular nongovernmental organizations (NGOs), academia and professional associations, should play part in addressing hypertension and in the overall prevention and control of noncommunicable diseases at both country and global levels.
- They should help and strengthen the capacity to address the prevention of noncommunicable diseases at the national level.
- They have to garner political support and mobilize society for wide support of activities to address hypertension.
- Civil society institutions are significant providers of prevention and health-care services and often fill gaps in services and training provided to the public and private sectors.
- Civil society should try to address the common risk factors of tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol where complex commercial, trade, political and social factors are at play.

Families and individuals

While some people develop hypertension as they get older, this is not a sign of healthy ageing. All adults should know their blood pressure level and should also find out if a close relative had or has hypertension as this could place them at increased risk. The odds of developing high blood pressure and its adverse consequences should be minimized by:

Healthy diet

- promoting a healthy lifestyle with emphasis on proper nutrition for infants and young people
- reducing salt intake to less than 5 g of salt per day
- eating five servings of fruit and vegetables a day
- Reducing saturated and total fat intake.

Physical activity

- Regular physical activity and promotion of physical activity for children and young people. WHO recommends physical activity for at least 30 minutes a day five times a week.
- Maintaining a normal body weight.

Tobacco

- stopping tobacco use and exposure to tobacco products

Stress

- Proper management of stress. Individuals who already have hypertension can actively participate in managing their condition by:
  - monitoring blood pressure at home if feasible
  - Checking blood sugar, blood cholesterol and urine albumin
  - knowing how to assess cardiovascular risk using a risk assessment tool
  - following medical advice
  - Regularly taking any prescribed medications for lowering blood pressure.
Ministry of Health

The prevention, detection and control of hypertension are essential to national strategies concerned with CHD, stroke, diabetes, chronic kidney disease and the health of older people. The following recommendations can help local multiagency teams implement strategies to tackle hypertension at local level:

- Establish a local hypertension action team, with key partners including health services, local authorities and voluntary organisations for example, to develop a local hypertension strategy. *Easing the Pressure: Tackling Hypertension* gives comprehensive guidance on how to go about this.
- Undertake a service review or audit of local services to identify current activity, gaps, priorities and possible opportunities for service development.
- Review and agree local clinical guidelines and protocols on the detection, treatment and management of hypertension. The review should consider national guidance as well as reflect local circumstance. Ensure guidelines have local ownership, including primary and secondary care.
- Develop comprehensive local programmes to promote healthy eating and physical activity.
- Support local primary care practitioners through regular practice visits to advice on developing ‘at-risk’ registers, call-recall rotas, prescribing, IT systems, staffing issues, and additional resources.
- Produce patient information to explain the risks of hypertension and give advice on the various interventions and treatments to prevent and reduce blood pressure.
- Hold local events and meetings to raise awareness of hypertension, such as local health fairs, awareness days. Encourage people to ‘know their number’ (i.e. their blood pressure level). These events could be targeted at specific groups and give relevant lifestyle advice.
- Set local standards for public sector catering services such as schools, NHS, to include recommendations on salt levels.
References


5. WHO research 2013: Predicting top ten diseases.


Appendix 1

Budget
Finance consideration is prominent therefore we calculated the budget that is required for the research.

<table>
<thead>
<tr>
<th>Item</th>
<th>price</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQUIOMENTS</td>
<td>$10</td>
</tr>
<tr>
<td>STATIONARY ( pens, pencils, A4 papers)</td>
<td>$12</td>
</tr>
<tr>
<td>TRAVEL (including daily meetings and outreach)</td>
<td>$22</td>
</tr>
<tr>
<td>PHOTOCOPY (including questionnaires, proposal, and thesis draft and final draft)</td>
<td>$30</td>
</tr>
<tr>
<td>Total</td>
<td>$74</td>
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</table>

Work plan
During the course of writing this book we will follow the below mentioned work plan:

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
</table>
| June 2\textsuperscript{nd} | Selection of the topic:  
- We select the appropriate topic that brings benefit both the community and the health centers |
| June 3\textsuperscript{rd}-July 9\textsuperscript{th} | Preparation of the proposal  
- During this period, we will prepare the proposal of the study topic |
| July 18\textsuperscript{th} | Data collection  
- Outreach to collect data collection through questionnaire |
| July 19\textsuperscript{th}-25\textsuperscript{th} | Data analysis and interpretation |
| July 26\textsuperscript{th} | Submission of the first draft  
- Checking the first and amending any errors |
| August 1\textsuperscript{rst} | Thesis presentation |
Appendix 2
Level of hypertension in Africa

Map of Africa showing the crude prevalence of hypertension in 38 recent studies in different parts.
The following questionnaire is educational purposed for university degree. It will be conducted in Hargeisa Group Hospital to obtain information for the prevalence rate of Hypertension in Hargeisa Hospital. We are representing Addis Ababa medical university college particularly,

Please know that this questionnaire is completely voluntary and you have the choice to proceed or quit at any time. It doesn’t also affect any of your personal affairs or divulge information you have volunteered. Your cooperation is highly appreciated.

Information in this research may be provided to researches or used in education setups but your name will not be mentioned and your identity will be confidential. Therefore feel free to fill it up
Section 1 Demographic

1. Name________________________________________

2. Occupation
   a. Doctor
   b. Nurse
   c. Health Officer

3. Level of education
   a. Diploma
   b. Degree
   c. Master
   d. PHD

4. How many years of experience?
   a. < 1 year
   b. 1 year
   c. 2 year
   d. > 2 year

5. What is your age?
   a. Between 20-30
   b. Between 30-40
   c. Between 40-50

6. Ethnicity?
   a. Somali
   b. Arab
   c. English
   d. Other, specify ____________________________
Section Two: Prevalence of Hypertension

1. What does the term high blood pressure mean?
   a. High level of stress, tension or over thinking
   b. Rapid pulse or rising blood looking a way out
   c. Force of blood pushing against the walls of vessels
   d. Increased blood follow though vessels

2. What is the common cause of HTN in our country?
   a. Lack of exercise
   b. Genetic and Heredity
   c. Excessive salt consumption
   d. Qat and smoking

3. Does climatical change have any effect on HTN cause?
   a. Yes
   b. No

4. Who is more susceptible for HTN,
   a. Men
   b. Women

5. What is the leading risk factor of HTN in our country?
   a. Age
   b. Smoking and Qat
   c. Dietary salt
   d. Other chronic disease

6. What is the hypertensive stage of blood pressure?
   a. Less than or equal 120/80
   b. Less than or equals 139/89
   c. Less than or equals 160 /100
   d. Above 160/100
7. Do you think HTN incidence is increasing nowadays?  
   a. Yes  
   b. No

8. What are the reasons you think that increase the HTN nowadays?  
   a. Lifestyle change  
   b. Sedentary life (lack of exercise)  
   c. Other diseases  
   d. Salt consumption in diet

9. How many people do you diagnose as a hypertensive case per month?  
   a. 1-5  
   b. 5-10  
   c. 10-15  
   d. Above 15

10. Has anyone been hospitalized for HTN or its complication?  
     a. Yes  
     b. No

11. How many inpatient of hypertensive cases you know are in the hospital?  
    a. 1-5  
    b. 5-10  
    c. 10-15  
    d. Above 15

12. Among the top ten diseases in our country, where does HTN fall?  
    a. First  
    b. Second  
    c. Third  
    d. Forth or below

13. Who are the most categories that have HTN who visit in the hospital?
a. Children  

b. Adult  

c. teenagers  

d. elders  

14. What are the common complications of HTN?
   a. Retinopathy/nephropathy  
   b. Coronary disease  
   c. Stroke  
   d. Other chronic diseases  

15. What is the reason that people mainly develop complications?
   a. Ignorance  
   b. Late diagnosis  
   c. Lack of proper drug therapy  
   d. Lack of blood control