ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF MEDICINE

DEPARTMENT OF EMERGENCY MEDICINE

EVALUATION OF THE RISK FACTORS OF HYPERTENSION IN PATIENTS VISITING ADULT EMERGENCY OUTPETIENT DEPARTMET OF TIKUR ANBESSA SPECIALIZED HOSPITAL, ETHIOPIA

By

Seid Hussien, BSc

A Thesis Submitted To Department Of Emergency Medicine School Of Health Science Addis Ababa University For Partial Fulfiment Of Degree Of Master's In Emergency Medicine And Critical

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Evaluation of the risk factors of hypertension in patients visiting adult Emergency outpatient Department of Tikur Anbessa Specialized Hospital

By

Seid Hussien

Approved by the Examining Board

_____ _____

Chairman, Dept.Graduate Committee

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Advisor

_____ _____

Examiner

Dedication

This work is dedicated to the prevention and control of avoidable health risks

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LIST OF ACRONYMS & ABRIVATION

SACN-Scientific Advisory Committee on Nutrition

SSA- sub-Saharan Africa

ARIC- Atherosclerosis Risk in Communities

ISH-isolated systolic hypertension

BMI- Body Mass Index

NIH- National Institute of Health

BAC-blood alcohol concentration

CVD-cardiovascular disease

WHO-world health organization

EOPD-emergency outpatient department

ROPD-Regular outpatient department

BP-blood pressure

SBP-systolic blood pressure

DBP-diastolic blood pressure

DM-diabetic millets

BSc-Bachelor Degree of Science

TASH- Tikur Anbessa specialized Hospital

AAU-adiss Ababa University

UKPDS- UK Prospective Diabetes Study

ABSTRACT

Hypertension is a growing public health problem in many developing countries including Ethiopia and if left untreated can cause a major risk factor for heart failure, renal failure, stroke and even death. However, its prevention and control has not yet established payable attention. The aim of this study was to assess the main risk factors of hypertension among patients visiting in Adult emergency department of Black lion Specialized Hospital by using risk assessment form that contains 39 structured close-ended questionnaires.

It is a descriptive cross-sectional study conducted over a period of three months. Participants aged >18 years were recruited using convenience sampling technique and data was collected by face-to-face interview after verbal informed consent. Additionally, weight, height and Blood Pressure (BP) of participants were measure following standard procedures. Hypertension was defined as having BP ≥ 140/90 mmHg or reported use of regular anti-hypertensive medications. Data was collected by investigator assisted with clinical nurses and then entered into a computer using EPI Info version 3.5.1 and exported to SPSS version 21 for analysis. The study data was analyzed by using statistics such as mean, average and percentages.

In this study 254 subjects consisting of 159(62.6%) men and 95(37.4%) women had hypertension. In this study from non modifiable risk factors age, gender, ethnicity, family history, and from modifiable risk factors smoking, alcohol drink, excessive salt intake, Khat chewing, DM,BMI, Physical inactivity, and Psychosocial stressors were observed.

In which smoking 35(13.8%) and alcoholic 108(42.5%) might be considerable risk factors only seen in men. Moreover, psychological stressful condition, excessive salt food intake, physical inactivity and BMI were the mainly seen modifiable risk factors in both gender. By this study we concluded that more number of male was observed in the risk factors of hypertension than female and as the age is coming increasingly the probability of the magnitude of risk factors also increase in both gender and mostly avoidable risk factors was observed in high magnitude.

1. INTRODUCTION

1.1Background

Hypertension is the force of blood pushing up against the walls of blood vessels or it is an elevation of blood pressure >140/90 mm Hg(9). Hypertension has two major classification, which are primary hypertension and secondary hypertension. The primary hypertension accounts for the majority of adulthood hypertension with no particular cause, although there are usually recognizable risk factors, and secondary hypertension accounts for the majority of childhood hypertension(9).

Some of the known risk factors for primary hypertension like age, heredity, and gender are non-modifiable. However, the majority of the other risk factors like smoking, alcohol drink, unhealthy diet, physical inactivity, overweight and obesity can be successfully preventable(9)

Hypertension has major public health and economic implications. Worldwide, raised blood pressure is estimated to cause around 13% deaths(80). A rising proportion of people have prehypertension, but does not meet the threshold for hypertension; in the US, for example, up to 31% of the population were prehypertension. The lifestyle risk of developing hypertension might as high as 90% and over a third of adults with prehypertension progress to hypertension within a 4 years period(36).

The incidence &prevalence of hypertension continue to increase around the world, according to Global burden of hypertension report the estimated total number of adults with hypertension in 2000 was 972 million; 333 million in economically developed countries and 639 million in economically developing countries. The number of adults with hypertension in 2025 was predicted to increase by about 60% to a total of 1.56 billion(38).

Hypertension is the most common cause for cardiovascular disorder which is affecting approximately 1 billion people globally and accounts for approximately 7.1 million deaths annually(9). On the other hand an estimated of 54 percent all strokes,62 percent of cerebrovascular disease,49 percent of all ischemic heart disease, and 60.5 percent of kidney disease events occur globally due to hypertension(51,81)

Hypertension was thought to be rare in Africa, but it is now recognized as one of the most important cerebrovascular diseases contributing for about 40% of these diseases on the continent(43,45,55).Its prevalence in urban areas is almost as high as that in the developed world, ranging from 5% to 20% overall(78).Despite their growing importance in sub-Saharan Africa (SSA), hypertension and other cardiovascular diseases were not given payable attention. An increasing burden of hypertension in this region will thus result in serious consequences, because only very few people get treatment, and control is likely to be low(1,56).

The epidemiology of hypertension in Ethiopia is not well studied. But two studies have shown that the prevalence of hypertension in the country varies from 1.8% in the rural community to 30% in urban areas of Addis Ababa and Gondar(3,22)**.**Being obese or overweight, as well as physical inactivity, were strong predictors of hypertension in urban dwellers in Ethiopia(22)**.**

The aim of the study was to assess the main risk factors of hypertension among patients visiting in Adult Emergency outpatient department of Tikur Anbessa Specialized Hospital(TASH). It might be provided further information regarding to the public awareness of hypertension risk factors& sensitize policy makers as well as planners to give more emphasis on such noncommunicable chronic diseases in Ethiopia.

1.2 Statement of the Problem

Hypertension is a growing public health problem in many developing countries including Ethiopia. However, its prevention, early diagnose and control has not so far received great attention(3), that is why now a day's its prevalence and complication as well as economical burden is coming high.

As one study in Gonder of Ethiopia has been indicated an estimated of 7.5 million(12.8%) of all causes of death per year caused by raised blood pressure(3) .

Hypertension doesn't have its own sign and symptom like others chronic disease, that is why most people cannot treat early, fall down at home and work place, due to sudden exposure to stroke.

If you pay attention most of the people can eat sweet and fatty food , drink alcohol, smoke and others have exposure to stressful conditions, like uncomfortable working condition, unemployment and the like. All of which were the main modifiable risk factors to develop hypertension, even if ,other primary and secondary causes were present. However family history, increased age, ethnicity and gender were non modifiable risk factors.

All of the above listed living style indicates the public awareness was poor regarding risks exposing to hypertension and they were exposed to major complication of health, social and economical burden.

The study were assessed the above mentioned and other hypertension related risk factors among adults age greater than 18 years by using cross-sectional Hospital based observational study in Emergency outpatient department of Tikur Anbessa Specialized Hospital. I were use interview structural questionnaire and measuring relevant parameters like blood pressure, height, weight, etc.

I hope these findings would alert health professionals ,governments and other stake holders on risk factors associated with hypertension ,which age group and gender mostly affected in our country, and that can address how can to plan and schedule in early prevention, diagnose and control of those risk factors as a primary major duty.

1.3 Rationale of the Study

Changing in lifestyle of the people and decrease the public awareness towards chronic disease leads to increase the prevalence of chronic disease like hypertension that urges establishment of many health institution and health professional to reduce mortality and morbidity of people in Ethiopia, However, this establishment only do not decrease this complication burden of the disease.

There is a need to work on the prevention aspect of chronic disease like others infectious disease by increasing the public awareness, identifying the modifiable and nonmodifiable risk factors as well as other related factors and early diagnose to control the complication.

The author strongly beliefs that further research on this issue can be important step forward in providing information concerning stake holders with an input in improving and developing their policies towards important issue.

2. LITERATURE

Hypertension is asymptomatic that is why it is called silent killer and is usually diagnosed incidentally or after major organ like brain, heart or kidney damage has occurred(26,81).

Self-governing risk factors for hypertension are obesity, high dietary salt intake, alcohol consumption, smoking, psychosocial stress, and low levels of physical activity are such modifiable risk factors where as age, gender, ethnicity and family history of hypertension are non modifiable risk factors(11,44,59,78). Risk factor refers to a power or characteristic or exposure of an individual whose presence raises the probability of unfavorable health outcome.

Now a day's non-communicable diseases, such as Diabetes, Asthma, COPD, Hypertension and Heart disease are rapidly replacing infectious diseases. While mortality due to communicable diseases is decreasing, that for non-communicable diseases like chronic disease is rising at a very rapid speed(8).

Chronic diseases are the leading cause of death in both males and females in all WHO regions. Just about 72% of all chronic diseases happen in people aged 30 years and older. Globally cardiovascular disease financial records for approximately 17 million deaths a year, nearly one third of the total (80)of these, complications of hypertension account for 9.4 million deaths worldwide every year (46).Hyper tension is responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke. The causes of the main chronic diseases were risk factors(8).

2.1 Previous Research Findings About Risk factors of Hypertension

2.1.1 Non modifiable risk factors

2.1.1.1 Age: Age increases with time(63) refers to aging as a biological process with a decline in the performance of most organs. Less activity as a result to ageing also causes high blood pressure. Impaired ability of the arteries to expand when blood is pumped can be attributed to hardening of the structural changes in the arteries. Hormonal changes as a result to ageing can as well cause high blood pressure. Changes as decrease in estrogen production, underactive thyroid and overactive thyroid can as well influence the rise in the blood pressure(31). It is known that high blood pressure frequently develops in elderly women after menopause due to hormonal changes(63)

However, the event is not a routine part of aging since there are other factors that influence the occurrence. When ages were higher, the chance of hypertension increased by 4 percent. So, older persons have higher risk of hypertension than younger persons. Similar to the national health survey, it was found that the highest rate was reported at age 60 – 64 years(31,87).

Isolated systolic hypertension(ISH) is more common in older people. The rise in systolic blood pressure with age is practical in all developed societies. Until somewhat recently it was thought to be part of the normal ageing process. However, studies on economically weak societies have demonstrated that blood pressure logically remains unvarying throughout life at around 110/70 mmHg(81).This suggests that the rise in systolic blood pressure with age in countries such as the UK is most likely related to lifestyle(81).

Many people develop hypertension late in life, though much of the relationship between age and blood pressure is due to cumulative effects of dietary and lifestyle habits(65).A study in India Sri Adichunchanagiri Hospital showed more number of patients age 65–74 years were 35(24.47%) (8) and a community based study in Northwest Ethiopia of Gondar city shows about one in–five participants (21.0%) were aged 65 years or older had exposure to hypertension and the association in age ≥55 years (AOR=3.33, 95%CI; 1.88-5.90)(3).

2.1.1.2Gender**:** men and women are equally likely to develop HBP during their lifetimes. However, before age 45, men are more likely to have HBP than women. After age 65, the condition is more expected to affect women than men. Also, men younger than 55 are more likely to have uncontrolled HBP than women. Conversely, after age 65, women are more likely to have uncontrolled HBP(28).Over half of Americans over age 60 have hypertension. Hypertension is also becoming more common in children and teenagers. Among younger people, boys are at higher risk for high blood pressure than girls(8).

The study results suggest that male were more exposed to the risk factors compared to female, of age group 65–74 years(8); among Mexican Americans in the Southwestern United States, 16.8 percent of the males and 14.1 percent of the females; among Cuban Americans in Dade County, Florida 22.8 percent of the males and 15.5 percent of the females; and among Puerto Ricans in the New York City area 15.6 percent of the males and 11.5 percent of the females were hypertensive(20).

Other studies in Africa such as Rukungiri of Uganda, female participants were more likely to be hypertensive compared to men, with an adjusted OR=1.44{1.03,2.06}(92) and one study done in Addis Ababa of Ethiopia reported in 2009 the age-adjusted prevalence of hypertension revealed a gender gap of 32.5% in men, and 27.9% in women (22).

2.1.1.3Ethnicity: There are differences in the prevalence of hypertension in different ethnic groups. Hypertension is more familiar among: Black Caribbean men and women , Black African men and women, Chinese women ,Irish men, Indian men and women as well as Pakistani women But in Bangladesh men and women, Chinese men ,Irish women, and Pakistani men LESS Commonly seen(3).

At least some of the differences in prevalence of hypertension between ethnic groups are consideration to be related to inherited differences in the way the body reacts to salt (salt-sensitivity)(69), and differences in various hormones that control blood pressure (vasoactive-neuropeptides) in the blood. Hypertension is also related to diabetes which is more prevalent in certain ethnic groups such as South Asian, black African and black Caribbean communities(3).

2.1.1.4 Family history: A study on twins suggests that up to 40% of variability in blood pressure may be explained by genetic factors(74).

A cross-sectional of community based study in Gonder of Ethiopia report indicate participants with family history of hypertension were almost three times (AOR= 2.71 &95%CI, 1.37-5.36) at increased risk of hypertension compared to their counterparts(3) and in southwest Ethiopia Hospital based study of Jima University was reported, indicate a family history of hypertension was 3.3% from 19.6% of those with hypertension. It was found to be a strong risk factor of hypertension (odds ratio [OR]: 30.79; 95% confidence interval [CI]: 11.18–84.78)(18).

2.1.2 Modifiable risk factors

2.1.2.1 Alcohol: For many people, moderate drinking is possibly safe. Moderate drinking is one drink a day for women or anyone over 65, and two drinks a day for men under 65. Anything more than moderate drinking can be risky to develop hypertension(4), despite the fact that drinking alcohol itself is not necessarily a problem but drinking too more can cause a range of consequences, and increase your risk for a variety of problems.

A community based cross-sectional study in Rukungiri district of Uganda was reported factors found to be associated with hypertension included: past alcohol use, Odds Ratio (OR)=2.28, [1.42 - 3.64], present alcohol use OR=1.64 [1.12 - 2.43](73).In Nigeria majority of the respondents (72.5%) consume alcohol and about 30.0% of them consume it daily(50). Many studies have found a relationship between alcohol consumption and blood pressure. A recent review of the research reported that away from approximately three drinks per day, blood pressure increases in proportion to the amount of alcohol consumed(41).

Heavy alcohol intake is frequently seen among adults in Addis Ababa, with approximately 10% of men consuming 5 or more standard units of alcohol on 1 or more days during a week. The World Health Survey reported a prevalence of approximately 7.6% among men and less than 1% among women (23,82). The daily alcohol consumption among adults in Addis Ababa is much higher than the nationwide estimate of 2.1% for in school and out-of-school youth (39). Approximately 34% of young people drank alcohol beverages regularly (79).

A number of studies have recognized a close association between alcohol consumption and increased BP, which is a risk factor for CVD. Intake of more than 30 g alcohol (more than 2 drinks) per day is associated with an increased risk for hypertension (25,71). The Atherosclerosis Risk in Communities (ARIC) Study determined that the effect of alcohol consumption in increasing BP is more pronounced among men of African ancestry, such that the consumption of alcohol even in small amounts was a risk factor in black men (24,25,68).

2.1.2.2 Excess dietary salt: Excess dietary salt (the active component of which is sodium) is the most important modifiable risk factor for hypertension. Sodium attracts water and a high-sodium diet draws water into the bloodstream, which increases the volume of blood and over time can increase your blood pressure. In the UK the average adult eats around 9g of salt per day – up to three times the amount our bodies need(29).About 65%-75% of the salt we eat comes from processed food, such as bread ,breakfast cereals, soups and ready meals(61). Over 75% of dietary sodium comes from eating packaged and restaurant foods. More than 40% of the sodium consumed by Americans comes from the 10 types of foods(Breads and rolls, Cold cuts and cured meats , Pizza, Fresh and processed poultry, Soups, Sandwiches ,Cheese ,Mixed pasta dishes, Mixed meat dishes (such as meat loaf with tomato sauce, beef stew, and chili) and Snacks (such as chips, pretzels, popcorn, and crackers)) (85)

Epidemiological studies suggest the optimal level for health might be as low as 3g of salt a day. (22).However, achieving such a level is difficult and, as a population target, the daily salt intake for adults recommended by SACN is 6g (equivalent to 2.4g sodium) per day. The accessible evidence suggests that a high dietary intake of salt may contribute to the rise in blood pressure that occurs with increasing age in Western nations, and can promote the development of hypertension, or exacerbate hypertension already present(86).

A reported study in Nigeria was explained excess salt intake was a risk factor for hypertension, in that study as majority of the respondents (76.0% and 71.0%) like salty food and spreads table salt on food respectively(50).

2.1.2.3 Overweight and obesity : are the most important public health problems, one of which is causative factors to high blood pressure. Even though genes can put one at risk of gaining weight, the balance of energy intake and exercise is an important determinant(31). Body Mass Index (BMI) is calculated from weight and height. As suggested by the National Institute of Health (NIH) and WHO, the normal weight for an adult over 18 years is less than or equal to 18.5-24.9. BMI that is greater than this puts one at risk of obesity related diseases as high blood pressure(31).

There is a strong and direct relationship between excess weight and hypertension(43).Obesity multiplies the risk of developing hypertension about fourfold in men and threefold in women(53).In the UK, about two-thirds of men and over half of women are either overweight (with a Body Mass Index [BMI] of 25-29.9kg/m2) or obese (with a BMI of 30kg/m2or above). In England, the proportions categorized as obese are about one in five men and one in four women(34).England also has a higher percentage of obese adults than other parts of the UK Obesity also tends to be more prevalent in manual/routine socioeconomic groups In Wales, overweight and obesity increased from 53% of men in 1996 to 60% in 2003-04, and slightly decreased in women from 51% in 1996 to 48% in 2003-04(52,53).

In Scotland, in both men and women, the prevalence of obesity in adults aged 16-64 years increased from 16% to 20% in men and from 17% to 25% among women between 1995and1998(4,40,41) .In Northern Ireland, prevalence of obesity increased from 8% to 17% among men and from 16% to 20% among women between 1990 and 1997(3,14)

Patterns of obesity differ between ethnic groups. Levels of obesity are much lower in Pakistani, Indian, Chinese and Bangladeshi men, and higher in black Caribbean and Pakistani women(34). Global InfoBase, the prevalence of overweight in men was 30% in Ghana, 17% in Sudan, and 15% in the United Republic of Tanzania. Similarly, the prevalence of overweight in women was reported to be about 28% in Ghana, 29% in Sudan, 27% in the United Republic of Tanzania, 22% in Kenya, and 22% in Uganda. [71]

In Ethiopia community based cross-sectional study of Gondar on 2012 the mean BMI of respondents was 23.35 (±4.02 SD)kg/m2. One quarter (25.3%) of participants was overweight

while 5.6% were obese(3, in Addis Ababa study about 20% of males and 38% of females were overweight (body-mass-index ≥ 25 kg/m^2), with 10.8 (9.49, 12.11)% of the females being obese (body-mass-index ≥ 30 kg/m^2) (22),and in Jima hospital based cross-sectional study report BMI over 25 kg/m^2 was found to be a strong predictor of hypertension (OR: 8.47; 95% CI: 5.30–13.53)(18)

2.1.2.4 Physical inactivity: According to WHO Guide line and American College of Sports Medicine there are two types of physical exercises, which are moderate physical exercises like brisk walking, tennis, weight lifting (<20kg), dancing**,** etc for at least 30 or up to 60minuts per day to a total of 150–300 min/wk and vigorous physical exercises like gymnastic, volleyball, foot ball, basketball, running, swimming ,weight lifting(>20kg), riding bicycle ,etc for at least 20–30 min/d to a total of 75–150 min/wk (83,77). People who do not take enough exercise are more likely to have or to develop hypertension(33).

Large cross-sectional and longitudinal studies have shown in London a direct positive correlation between habitual physical inactivity and hypertension(33).For example, in a study following up male college alumni over many years, those who were habitually active were up to 30% less likely to have hypertension than their inactive colleagues(59)

There is evidence that general activity levels are currently declining as lifestyles change. For example, between 1975-1976 and 1999-2001 total miles travelled per year on foot or by bicycle fell by 26% and 24%respectively. However, there has been an increase in the proportion of people who choose to be active in their leisure time(14,15)

In India Negara Hospital study physical inactivity risk factor for those who done physical activity were 22(40.74%) and who were sedentary 32(59.26%)(8),other study was reported sedentary people have a 20–50% increased risk of hypertension compared to more active people(7).Regular exercise reduces the risk for many diseases, including hypertension(5), and has been reported to lower blood pressure even in people who have normal blood pressure(42),but people who are over the age of 40 or who have a history of heart disease should consult a healthcare professional before beginning an exercise regime. A study done by European opinion research group a higher rate of women (43.2%) than men (38.1%) reported no

physical activity of moderate and 4.3% of women reported vigorous physical activities of 30 minutes or less, level of intensity in the last 7 days.(64)

A cross-sectional study in Gonder of Ethiopia report not continuously walking for 10 minutes per day (AOR = 2.86, 95%CI;1.15-7.12) were indicated association with hypertension and population based cross-sectional study in Addis Ababa of Ethiopia reported 17% of the males and 31% of the females were classified as having low level of total physical activity have hypertension(22).

2.1.2.5 Diabetes: Hypertension is more common in people with Type 1 and Type 2 diabetes than in the non diabetic population, whether or not they are overweight or not. With the much less common Type 1diabetes, hypertension is mostly a consequence of kidney damage(54).With Type 2 diabetes, the causative factor is thought to be insulin resistance or 'metabolic syndrome', but the mechanism is not fully understood (27).

In England, surveys have found the prevalence of hypertension to be as high as 70% of adults with Type 2 diabetes – with about 50% having blood pressure of 160/95mmHg or higher(10).People who have both hypertension and Type 2 diabetes have double the risk of a cardiovascular event(27).The UKPDS 36 study found that the risk of diabetic complications for patients with Type 2 diabetes was strongly associated with blood pressure(2).Controlling blood pressure in people with diabetes who have co-existing hypertension reduces their risk of developing both end-organ damage (such as chronic kidney disease and visual impairment) and cardiovascular disease (54).

There are expected to be around 1.8 million people with diabetes in the UK, about 85% of whom have Type 2 diabetes. As many as one million of these are undiagnosed. Type 2 diabetes is up to six times more common in people of South Asian origin and up to three times more common among people of black African or black Caribbean origin compared with the general population(34).The development of Type 2 diabetes, as with hypertension, is related to low physical activity levels and to overweight and obesity. Those with a BMI greater than 30 increase their risk of developing Type 2 diabetes by up to 10 times(2).

A study in Nigeria indicate a proportion of the diabetic population (20%) suffered from isolated systolic hypertension(17),other cross-sectional descriptive study in ShuiGuoHu district on 2010 was reported the presence of coexisting DM was associated with increased risk of developing hypertension from pre-hypertension. Participants with DM were about 2.51 times (95% CI, 1.66-3.80) more likely to have hypertension than those without DM(32).

A community based cross-sectional study in Northwest Ethiopia of Gondar was reported increased a risk of hypertension compared to their counterparts. If participants had self-reported diabetes, then they were about four times (AOR=4.15 & 95%CI 1.77-9.72) more likely to be hypertensive(3). In Jima university cross-sectional survey Sixteen (2.2%) participants had been diagnosed with diabetes mellitus. The prevalence rate of hypertension in this group was found to be high (37.5% in diabetic individuals versus 12.7% in nondiabetic individuals) (OR: 4.13; 95% CI: 1.47–11.65)(18).

2.1.2.6 Psychosocial stressors: Stress is a normal part of life. But too much stress can lead to emotional, psychological, and even physical problems; including heart disease, high blood pressure, chest pains, or irregular heartbeats(16).Blood pressure rises with anxiety, anger or mental effort as part of the physiological adrenalin-driven 'fight or flight' response, but decreases again once the anxiety has gone. One example of this is the 'white-coat hypertension' Blood pressure may persistently increase over a longer period in response to a wide range of stressful situations, including stress at work(66).For example, the Whitehall II civil servants longitudinal study found that systolic and diastolic blood pressure were greater in participants reporting low job control compared with those reporting high job control, independent of sex, employment grade, body mass index, age, smoking status and physical activity(67).

A study done in Framingham indicate, a high level of anxiety increased hypertension risk in middle-aged men, but not in women or older men(48), in United States prospective epidemiologic study, after adjusting for various covariates, high levels of habitual anger, compared with low/moderate levels of OR 1.53(95% confidence interval 1.05-2.24), were associated with progression from prehypertension to hypertension and after stratifying on sex, trait anger was predictive for men only (OR 1.71; 95% CI 1.04-2.83)(49),at eight New York City worksites case-control study, analysis of covariance model, job strain was associated with an increase in

systolic BP by 6.8mmHg(p=0.002) and diastolic BP by 2.8mmHg(p=0.03) at work time, after adjusting other independent variables(62), in the Hispanic Health and Nutrition Examination Survey People who suppress feelings of violence appear to have greater increases in blood pressure over time compared with those who do not suppress such feelings(57) and a study done in Africa of Ghana 82% respondent consider high level of stress, tension or over thinking to develop hypertension(31).

2.1.2.7 Khat: One Study done in Germany suggested that cathinone, which is an active ingredient of Khat increases heart rate, arterial blood pressure and respiratory rate briefly. It also improves cerebral blood flow, mental alertness and increases energy (76).

In Ethiopia, Khat is commonly used for social recreation, but occupational groups such as motor vehicle drivers, who chew Khat during long distance driving, to keep awake, also use it under a variety of other conditions. A Significant number of students chew Khat especially during examination periods to be less sleepy and get mental alertness. There is also specific usage of Khat by some members of the community: craftsmen and farmers use Khat to reduce physical fatigue, and traditional drug healers to cure some illness(58) .

Khat has a bitter taste. In order to avoid this, it is usually taken in combination with sugar. Khat chewing is also combined with cigarette smoking to improve the degree of excitement, most often alcoholic beverages are taken after Khat chewing to terminate excitation (19,37).

There were different cross-sectional study report that indicate the prevalence of Khat chewing in Ethiopia countries like in Butajira (50 %) (12), Adamitulu (31.7 %) (13), in Jimma town was 30.60 %(out of these 10.20% were exposed to HPN) Similarly, 15.9% (95% CI, 14.1%–17.6%) of men regularly chewed Khat seen with HPN in Addis Ababa(23), whereas 30.1% in Bedele Town of Southwest Ethiopia(21).

2.1.2.8 Smoking: To identify the behavior of smoker the US Centers for Disease Control and Prevention have developed and updated four mainly used names, which are: never Smokers (adults who have never smoked a cigarette or who smoked fewer than 100 cigarettes in their entire lifetime), former smokers(adults who have smoked at least 100 cigarettes in their lifetime, but do not smoke currently) ,nonsmokers (adults who currently do not smoke cigarettes, including both former smokers and never smokers) and current Smokers(adults who have smoked 100 cigarettes in their lifetime and currently smoke cigarettes every day or some days

(nondaily)(84).On other hand, depending on pack year ,smokers have different names which are: social smoker(only smoke on weekend or parties, bars, or nightclubs),light smoker(smoke < half pack per day),normal smoker(smoke half pack per day),heavy smoker(smoke >one pack per day) and chain smoker(smoke ≥two pack per day)(74).

Cigarette smoking causes acute blood pressure(BP) elevation, although some studies have found similar or lower BPs in smokers compared with nonsmokers(60). A higher prevalence of smoking in men than in women has been reported in low- and middle-income countries, in contrast with the similarity between rates in men and women in high-income countries (70). The gap between the sexes may be narrowing in many developed countries because of an increase in smoking among women and a decline among men (45).

Different reported studies in Ethiopia indicated, 11.8% of young men and 1.1% of women (15–24 years) were reported smoking in Addis Ababa (6), current daily smoking prevalence in Butajira was 7.7% among men aged 25 to 64 years sampled from both rural and urban areas of the district(55). The World Health Survey reported 7% prevalence of current tobacco smoking among men 18 years or older in urban areas of the country (82). Another study reported a prevalence of 4.7% in adults 15 years or older in the town of Jimma (47).The reported prevalence of current cigarette smoking among university instructors in northwestern Ethiopia of Gonder was 13.3% in 2002 (40).

So ,a cross-sectional study on modifiable risk factors of this burden health problem were very important and timely. The information obtained from the study is believed to contribute to the development of an appropriate strategy for the prevention and control of the major risk factors of hypertension among our citizens.

3. OBJECTIVES

3.1 General Objectives:

To evaluate the risk factors of hypertension among adult population of greater than 18 years in Emergency outpatient department of Tikur Anbessa Specialized Hospital.

3.2 Specific Objective:

1.Identify the modifiable risk factors of hypertension in Ethiopian set up.

2. Differentiate non modifiable risk factor of hypertension in Ethiopian set up .

3.Identify which age group are more affected by those risk factors.

4. METHODS'

4.1 Study Design: Hospital based cross-sectional descriptive study.

4.2 Study Period: This descriptive Hospital based survey were conducted in the Emergency outpatient department of Tikur Anbessa specialized Hospital between January 30 and April 30, 2014.

4.3 Description of Study Area: The study were conducted at Tikur Anbessa specialized Hospital of emergency department, Addis Ababa; Ethiopia.

The rationale that I selected this hospitals was, since it is the highest and the only tertiary teaching referral Hospital in Ethiopia more patient flow from any direction than other Hospitals.

TASH is managed by Addis Ababa University School of Medicine (AAU) .It has700 admission beds , 627 staff nurse and 202 staff physician. Among these 30 staff nurses and 18 Emergency medicine residents were assigned in emergency department.

The Emergency department gives 24 hours services with three shift scheduled which were day, evening and night. The patient flow was higher than any other hospitals, per day around 50 to 60 new patient can get services and the area is divided in to triage, resustation, stabilization and procedure area to manage patients according to their priority and severity.

4.4 Source Population: All hypertensive patients who attend the EOPD of Tikur Anbessa specialized Hospital during the study period.

4.5 Study Population: All hypertensive patients whose age were greater than 18 years and found at Emergency outpatient department of Tikur Anbessa specialized Hospital during data collection and fulfilling the criteria were included.

4.6 Sample Size and Sampling Technique: By using convenience sampling technique all individuals age greater than 18 years hypertensive Patient found during the study period at the study area and who fulfill the criteria were included in the study(i.e. 254 hypertension patient participants were seen in the sample).

4.7 Inclusion Criteria:

- Age greater than 18 years old.
- Patients who have started antihypertensive medication that is ordered by health professional.
- Newly diagnosed after two times BP checked at least 30minutes apart in sitting & ling position, not smoking or taking caffeine 30 minutes before measurement and the average measurement of blood pressure ≥140/90 mm Hg were included.

4.8 Exclusion Criteria:

- Comates hypertensive patients.
- Age less than or equal to18 years old.
- All hypertensive pregnant and laboring mothers.
- All Emergency attending clients other than hypertension.
- Non volunteers for the interview.

4.9 Study Variables

4.9.1 Dependent variable

- hypertension.

4.9.2 Independent variables

- All modifiable hypertension risk factors which are alcohol drink, excess dietary salt, overweight ,obesity, physical inactivity, DM, psychosocial stressors, Khat and smoking.
- All non modifiable hypertension risk factors which are age, gender, ethnicity and family history .
- Educational status .

4.10 Data Collection Instruments

Structured interview questionnaires, pens and pencils with eraser, blood pressure apparatus, stethoscope, measuring tab and weighting scale were used for data collection.

4.11 Data Collection Technique

Structured interview questionnaires on the hypertensive risk factors were apply and after interview blood pressure, weight and height measure on patients found on the study area at time of data collection by investigator and two trainee nurses.

4.12 Data Processing and Analysis

The variables were coded and interred in to micro computer system using EPI.INFO version 3.5.1 and exported to SPSS version 21 for analysis. The study data was analyzed by using statistics such as mean, standard deviation, average and percentages.

4.13 Data Quality Assurance

- Careful modification of the data collection tool from different literature review was developed according to Ethiopian situation.
- The data collection instrument format were developed in English and translated to Amharic for possible understanding of communication with the participants in their common language and later on it will be translated back to English by different individuals for its accuracy and description of results.
- Pretest were conducted outside the study area in St. Paulo's Hospital and feasibility of the method were checked, then necessary modification to assure the systematic approach of some inconveniency done.
- After finishing data entry to EPI info it was transferred to SPSS then Coding, labeling and data clearance was made.

4.14 Ethical Consideration

Prior to data collection, official letter were obtained from Addis Ababa University medical facality of Emergency medicine Department and AAU institutional review board (IRB).The purpose and data collection procedure of the study were clearly communicated and get permission from the concerned body of TASH as well as verbal consent were obtained from the patients for their willingness before proceeding to data collection. The name of the patient was not mentioned and the entire information were kept confidentiality.

4.15 Dissemination and Utilization of the Result

The final result will be presented as partial fulfiment of degree of master's in emergency medicine department and the result of the study will be disseminate through provision of hard copies to the concerned bodies including TASH. The dissemination will be through publication, presentation on scientific annual meetings, conference etc.

4.16 Operational Definition

- Prehypertension-is a pressure of Systolic from120 up to 139 mm Hg and diastolic80 up to 89 mmHg.
- Normal blood pressure-is a pressure between 90/60 and 120/80 mm Hg.
- Family history of hypertension-a reported history of hypertension either of the father, or mother.
- Risk factors**-** are conditions that increase the risk of developing hypertension.
- Modifiable risk factors-are factors that can be avoidable.
- Non modifiable risk factors- are factors that cannot be avoidable but we can control by early diagnosing and treating.
- A sedentary lifestyle- is a type of lifestyle with no or irregular physical activity.
- Moderate alcohol consumption **-** a study participant who have up to 1 drink per day or 1-7 standard drink per week for women and up to 2 drinks per day or >7 & ≤ 14 standard drink per week for men.
- *Heavy drinking*- a study participant who *drink more than two standard drink per day or >14 drink per week; but for women more than 1 drink per day or >7 drink per week.*
- *Former alcohol drinker- a person who drink alcohol before knowing the presence of his blood pressure but he discontinuous after he knows*
- Current alcohol drinker- a person who drink previously *before knowing the presence of his blood pressure* but at the moment of the study contact not discontinuous his drink.
- Regular Khat chewers - Individuals who reported Khat use for one or more days per week.
- Occasional Khat chewers- who limit chewing to contexts such as parties, pray, etc
- Former Smoker - A person who have smoked at least 100 cigarettes in his/her lifetime, but do not smoke after knowing the presence of his/her blood pressure.
- Current Smoker – A person who have smoked 100 cigarettes in his/her lifetime and currently smoke cigarettes every day or some days (nondaily).
- Social smoker- A person who limit smoking to contexts such as parties, bars, or nightclubs, specially on weekend.

- Normal smoker-a person who smoke half pack per day.
- Heavy smoker-a person who smoke >one pack per day.
- Chain smoker- a person who smoke ≥ two pack per day.
- Pack year-number of pieces of cigarette smoke per day times number of years he/she smokes divided to the number of pieces of cigarette in one pack.

5. RESULT

5.1 Socio-Demographic Characteristics: A total of 254 adults whose age > 18 years were included in this study. Almost two-thid,159(62.6%) of the participant were men and only one -third were women(Fig 1). The mean age was 55.32 +/-16.2 years and mostly in the age category of older age of ≥ 60 years(Table 2 & Fig 2) .

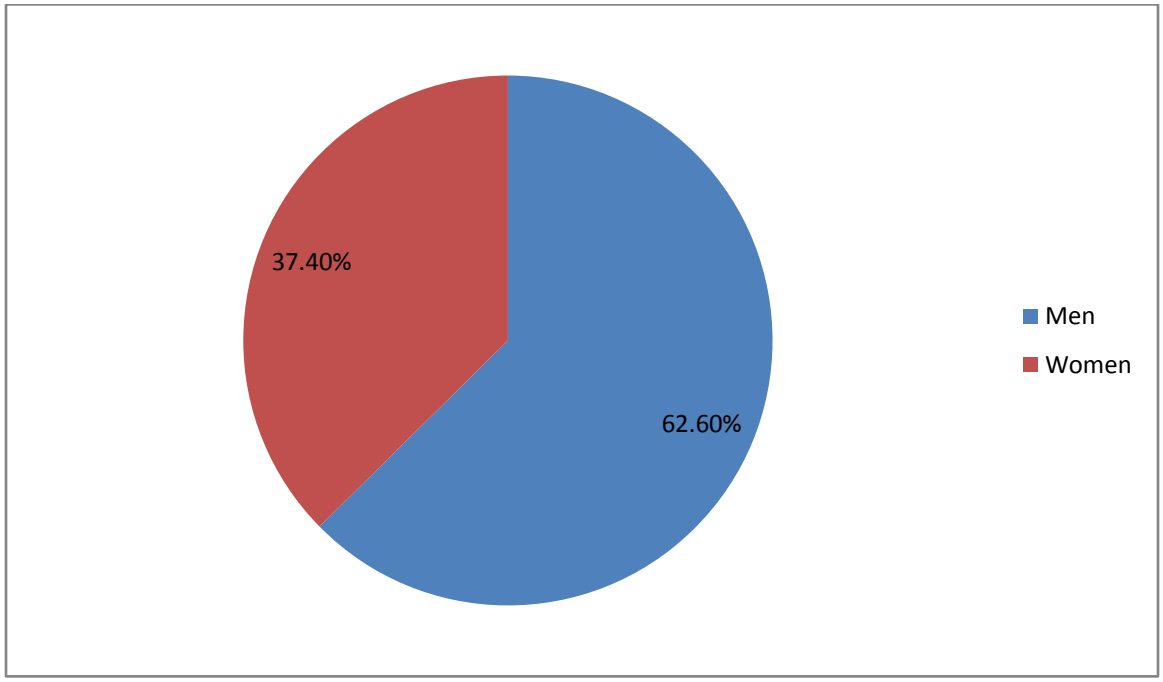

Figure 1:Gender wise distribution of hypertension patients socio-demographic characteristics in age >18 years of adult emergency patient in Tikur Anbessa specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April 2014 (N=254)

Most of the hypertension respondents 221(87%) were Christians and only 33(13%) were Muslims in religion. More than half 131(51.6%) Amhara ,one-fourth 64(25.2%) Oromo and the rest have other types of ethnicity . Nearly three-fourth 185(72.8) were married (Table 1).

Mainly the participants 223(87.8%) were leaved in urban area , above one -fourth 29(27.2%) were learn up to tertiary level,63(24.8%) were illiterate and the rest of the participant were learn up to primary and secondary level of education. About one-third 83(32.7%) were government employed,54(21.3%) private employed, 31(12.2%) retired,45(17.7%) house wife and the rest were do their own works(Table 1).

Table 1: Socio-demographic characteristics of hypertension patients in Adult emergency outpatient department of Tikur Anbessa specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April 2014 (N=254)

Characteristics		Frequency	Percent
Marital status	single	18	7.1
	married	185	72.8
	divorced	23	9.1
	widowed	28	11.0
Residence	rural	31	12.2
	urban	223	87.8
Ethnicity	Amara	131	51.6
	gurage	23	9.1
	Oromo	64	25.2
	Tigre	19	7.5
	others	17	6.7
Religion	Christian	221	87.0
	Muslim	33	13.0
Educational status	Illiterate	63	24.8
	primary school	63	24.8
	secondary school	59	23.2
	tertiary school	69	27.2
Occupation	Government employed	83	32.7
	private employed	54	21.3
	private worker	41	16.1
	retired	31	12.2
	house wife	45	17.7

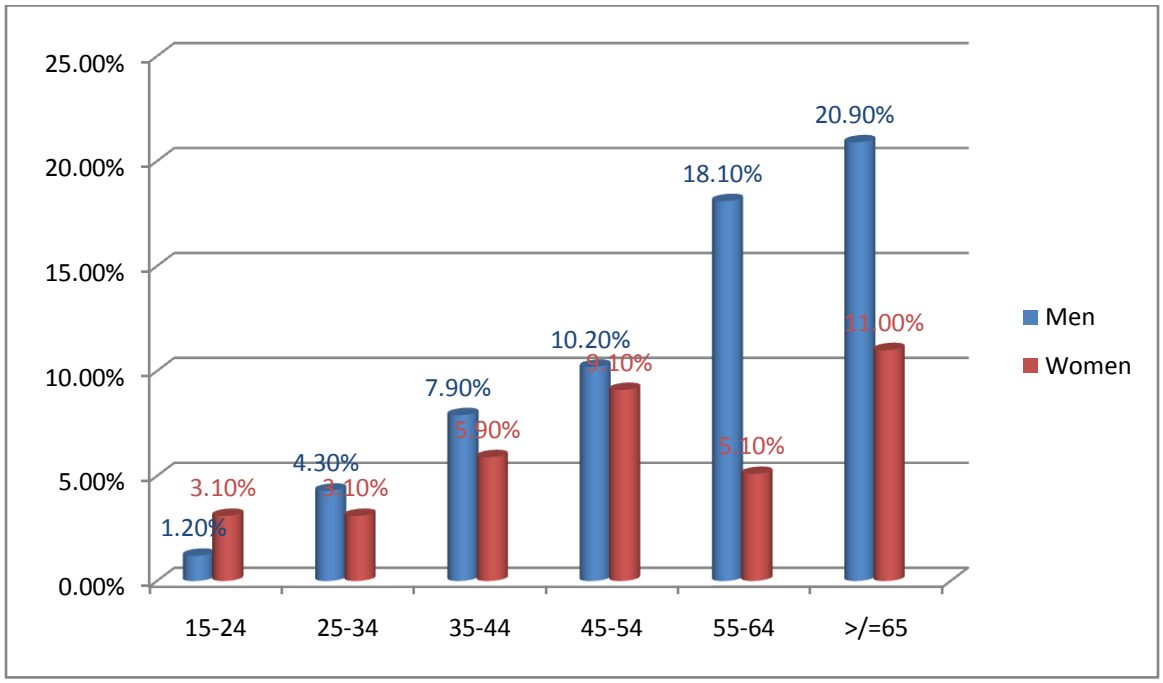

Figure 2:Age wise distribution of hypertension patients socio-demographic characteristics in age >18 years of adult emergency patient in Tikur Anbessa specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April 2014 (N=254)

5.2 Descriptive Characteristics of the Study Participates:

Descriptive characteristics of the study participates are shown in table 2,the mean age was: 55.32(SD+/-16.20)years, height was 170(SD+/-9)cm ,weight was 66.7(SD+/-13.84)kg, systolic blood pressure was 164.72(SD+/-25.01) mmHg, and diastolic blood pressure was 95.85(SD+/-18.83)mmHg. The minimum and maximum age was 19 years and 90 years, height was 132cm and 186cm, weight was 30kg and 115kg, systolic blood pressure was 110mmHg and 270mmHg,and diastolic blood pressure was 60mmHg.

Table2: Descriptive characteristics of the study participates in Adult emergency outpatient department of Black lion specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April, 2014(N=254).

Descriptive measurement	**age of respondent**	**Height of respondent**	**Weight of respondent**	**systolic blood pressure**	**diastolic blood pressure**
Mean	55.32	1.66	66.72	164.57	95.84
Std. Deviation	16.21	0.09	13.84	25.01	18.83
Range	71	0.54	85.00	160	120.00
Minimum	19	1.32	30.00	110	60.00
Maximum	90	1.86	115.00	270	180.00

More than three-fourth of the respondents, 199(78.3%) already know their diagnosis of hypertension at the contact of the study and the other 55(21.7%) of the respondents were newly diagnosed {36(14.2%)men and 19(7.5%) female}. From the previous diagnosed hypertension patients more than three-fourth,154(77.4%) took their medications properly, where as the rest of them,45(22.6) discontinuous. As the respondents explained 55(21.7%) had family history of hypertension,53(20.9%)history is unknown and more than half ,146(57.5%) have no family history of hypertension. On the other hand more than one fourth 66(26.0%) of participants had family history of diabetes mellitus and almost three-fourth 188(74%) have no family history of diabetes mellitus(table 3 & Fig 3) .

More than half of the participants 133(52.4%) like eating salty foods, moreover, foods that are adapted additionally to the normal one was experienced. Above one-third 90(35.4%) took soup,22(8.7%) took sandwich and 7(2.8%) took pizza(table 4 & Fig 3).

Table 3:Familly and food related risk factors of Hypertension patients in Adult Emergency outpatient Department of Tikur Anbessa Specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April, 2014 (N=254)

Variables		**Male**		**Female**		**Total No**	**Percentage**
		No	%	No	%		total
Family history of HPN	Yes	30	11.8	25	9.9	55	21.7
	No	91	35.8	55	21.7	146	57.5
	unknown	38	15	15	5.9	53	20.9
Do you have Hx of HPN	Yes	123	48.4	76	29.5	199	78.3
	No	19	7.5	14	5.5	33	13.0
	unknown	17	6.7	5	2.0	22	8.7
If yes did you interrupt	Yes	30	11.8	15	6.7	47	18.5
	No	93	36.6	61	24.8	156	61.4
Self reported DM	Yes	48	18.9	18	7.1	66	26.0
	No	111	43.7	77	30.3	188	74.0
Salty food	Yes	82	32.3	51	20.1	133	52.4
	No	77	30.3	44	17.3	121	47.6
Additional food to normally adbted	pizza	04	1.6	03	1.2	07	2.8
	sandwich	14	5.5	08	3.2	22	8.7
	soup	59	23.2	31	12.2	90	35.4
	others	82	32.3	53	20.8	135	53.1

From the participants of hypertension patients 28(11%) were former smokers, from those 12(42.9%) were chain smoker,1(3.6%) heavy smokers,5(17.9%) normal smokers and 10(35.7%) light smokers. On the other hand, only 7(2.8%) were current smokers from whom more than two-third (71.4%) were chain smoker, 14.3% heavy smoker and the rest were normal smokers. There were no female smokers seen in this study(Table 4 & Fig 3).

More than one-fourth 66(26%) participants drink alcohol previously,42(16.5%) drink currently and the rest,146(57.5%) never drink at all. From this study there were no female participants who engage in drinking alcohol, but 56(22%) men drink more than fourteen standards dink per week and 33(13%) drink at least one or maximum seven standard dink per week. Main alcohol drinks consumed were 77(30.3%) Beer, 11(4.3%) Tella, 10(3.9%) Areke / Jinee ,8(3.1%) Tej and only 2(0.8%) were Whisky(table 4 & Fig 3).

Table 4: Substance related risk factors of Hypertension patients in Adult Emergency outpatient Department of Tikur Anbessa Specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April, 2014 (N=254)

Variables		**Male**		**Female**		**Total No**	**Percentage**
		No	%	No	%		total
Smoking status	non smoker	125	49.2	94	37	219	86.2
	former smoker	28	11.0	00	00	28	11.0
	current smoker	07	2.8	00	00	07	2.8
Former smoker category	light smoker	10	3.9	00	00	10	3.9
	normal smoker	05	2.0	00	00	05	2.0
	heavy smoker	01	0.4	00	00	01	0.4
	chain smoker	12	4.7	00	00	12	4.7
Current smoker category	normal smoker	01	0.4	00	00	01	0.4
	Heavy smoker	01	0.4	00	00	01	0.4
	chain smoker	05	2.0	00	00	05	2.0
Alcohol use	never	58	22.8	88	34.7	146	57.5
	currently	42	16.5	00	00	42	16.5
	previously	66	26.0	00	00	66	26.0
Number of standard drink	<1	02	0.8	00	00	02	0.8
	≥1 & ≤ 7	33	13.0	00	00	33	13.0
	>7 & ≤14	17	6.7	00	00	17	6.7
	>14	56	22.0	00	00	56	22.0
Types of alcohol drink	Tella	11	4.3	00	00	11	4.3
	Tej	8	3.1	00	00	08	3.1
	beer	77	30.3	00	00	77	30.3
	Areke & jinee	10	3.9	00	00	10	3.9
	whisky	02	0.8	00	00	02	0.8

Most of the participants 83(32.6%) men and 73(28.8%) women do not engage in daily vigorous physical activities like carrying or lifting heavy loads, running ,gymnastics ,Swimming, riding bicycle etc. However 36(14.2%) ≤30 minutes, and the rest of them above 30 minutes were do vigorous physical activities per day. On the other hand only 19(7.5%) do not do any moderate physical exercises and 55(22%) were done ≤30minutes per day (table 5 & Fig 3) .

Table 5: Exercise related risk factors of Hypertension patients in Adult Emergency outpatient Department of Tikur Anbessa Specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April, 2014 (N=254)

Variables		Male		Female		Total	Percentage
		No	%	No	%	No	total
vigorous exercise	not done	83	32.6	73	28.8	156	61.4
	≤30minutes	24	9.4	12	4.8	36	14.2
	31-60minutes	11	4.3	02	0.8	13	5.1
	61-90minutes	18	7.1	00	0.0	18	7.1
	91-120minutes	00	0.0	02	0.8	02	0.8
	>120minutes	23	9.1	06	2.3	29	11.4
moderate exercise	not done	10	3.9	09	3.6	19	7.5
	≤30minutes	33	13.0	23	9.0	56	22.0
	31-60minutes	29	11.4	21	8.3	50	19.7
	61-90minutes	12	4.7	07	3.0	19	7.5
	91-120minutes	12	4.7	08	3.2	20	7.9
	>120minutes	63	24.8	27	10.6	90	35.4

Among all hypertensive participants, there were 40(15.7%) men and 5(2%) female Khat chewers, from them almost all 43(95.6%) were regular chewer and the other 2(4.4%) were occasional chewers(table 6 & Fig 3).

Three-fourth hypertension respondent patients 175(68.9%) have self explained stress and most of them 158(62.2%) do not have normal sleeping time, 17(6.7%) slept more of the day(≥10 hours per day). and 62(24.4%) do not have good relationship with their families (table 6 & Fig 3).

More than one quarter 71 (28.0%) of participants were overweight in the manner of men 45(17.7%) and female 26(10.2%) of the total respondent while 35(13.8%) were obese of which 16(6.3%) were men and 19(7.5%) were female(table 6 & Fig 3) .

Table 6:Khat,stress and BMI risk factors of Hypertension patients in Adult Emergency outpatient Department of Tikur Anbessa Specialized Hospital, Addis Ababa University, Addis Ababa, Ethiopia , January -April, 2014 (N=254)

		Male		Female		Total No	Percentage total
		No	%	No	%		
Habit of Khat chewing	chewers	40	15.7	5	2.0	45	17.7
	non-chewers	119	46.9	90	35.4	209	82.3
Frequency of chewing	Regular chewers	39	15.4	04	1.5	43	16.9
	Occasional che.	01	0.4	01	0.4	02	0.8
Self reported stress	Yes	105	41.3	70	27.6	175	68.9
	No	54	21.3	25	9.8	79	31.1
Sleeping status per 24hr	<7.5hours	97	38.2	61	24.0	158	62.2
	7.5-9hours	48	18.9	31	11.4	79	31.1
	≥10hours	14	5.5	03	1.2	17	6.7
Relationship to family	good	118	46.5	74	69.1	192	75.6
	not good	41	16.1	21	8.3	62	24.4
Body mass index	under weight	13	5.1	11	4.3	24	9.4
	normal	85	33.5	39	15.3	124	48.8
	over weight	45	17.7	26	10.3	71	28.0
	obesity	16	6.3	19	7.5	35	13.8

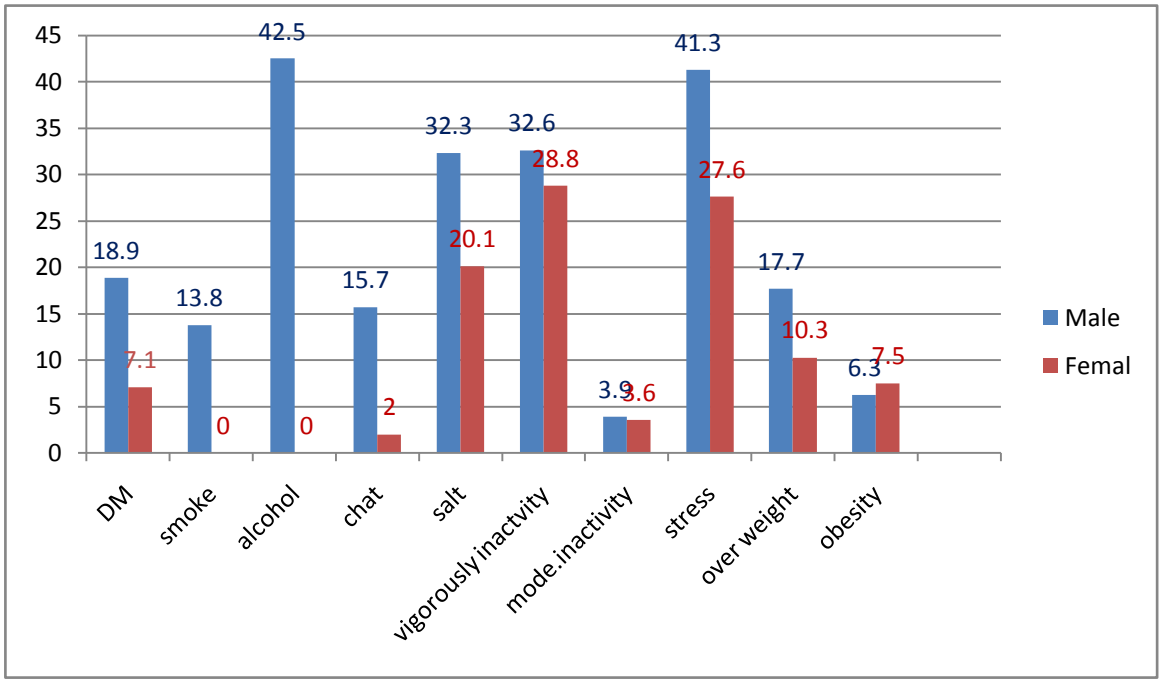

Figure 3:Evaluation of modifiable risk factors to hypertension based on gender distribution in age >18 years of adult emergency patient in Black lion specialized Hospital, 2014

6. DISCUSION

This is a hospital-based cross-sectional descriptive study conducted in Adult Emergency outpatient Department of Tikur Anbessa Specialized Hospital. A large proportion of respondent with high BP did know their hypertensive status and almost all (61.4%) were taking their medication properly while few of them have discontinued their medications.

Consistent increase in hypertension prevalence with age was seen in our study, especially in older age of ≥65 years. this study is in line with the study conducted in Northwest Ethiopia of Gondar one in–five participants (21.0%) were aged 65 years or older were hypertension(3) & in India Sri Adichunchanagiri Hospital more number of patients of age 65–74 years 35(24.47%) were hypertension (8)

With regards to gender differences, this study shows more than half of the study participants were male .This is probably due to economical stress, adaptation of restaurant food like sandwich, pizza and others are experienced by men than women. This study is in line with one study done in Addis Ababa of Ethiopia revealed a gender gap of 32.5% in men, and 27.9% in women (22) and on other countries like, Mexican Americans in the Southwestern United States, 16.8% of the men and 14.1% of the women, Cuban Americans in Dade County, Florida 22.8% of the men and 15.5% of the women, Puerto Ricans in the New York City area 15.6% of the men and 11.5 % of the women were hypertensive(20).

On this study among the modifiable risk factors of hypertension mostly seen were self reported stress, vigorous physical inactivity, excessive dietary salt, alcohol use, body mass index and the like. As we had seen from this study 68.9% have self explained stress exposure. Different stressful conditions like getting abnormal sleeping pattern, behavioral disturbance with family member ,unfavorable working conditions, unemployed etc was experienced by individual respondents and the situation was seen mostly in men than women. All of the above mentioned and others stressful conditions might be the risk factors to develop hypertension. This study is supported by the study done in United States prospective epidemiologic study, high levels of habitual anger, compared with low/moderate levels of OR 1.53(95% CI 1.05-2.24), were associated with progression from prehypertension to hypertension and after stratifying on sex, trait anger was predictive for men only (OR 1.71; 95% CI 1.04-2.83)(49),at eight New York City

worksites case-control study, analysis of covariance model, job strain was associated with an increase in systolic BP by 6.8mmHg(p=0.002) and diastolic BP by 2.8mmHg(p=0.03) at work time, after adjusting other independent variables(62), in the Hispanic Health and Nutrition Examination Survey People who suppress feelings of violence appear to have greater increases in blood pressure over time compared with those who do not suppress such feelings(57) and a study done in Africa of Ghana 82% respondent consider high level of stress, tension or over thinking to develop hypertension(31).

This study shows 61.4% do not do vigorous physical exercise, on the other hand, 7.5% do not do moderate physical exercise at all. This sedentary lifestyle might occur due to public unawareness of physical activities towards their health. This study is supported with the study done in Gonder of Ethiopia, which reported that not continuously walking for 10 minutes per day (AOR = 2.86, 95%CI;1.15-7.12) were indicated association with hypertension, and population based cross-sectional study in Addis Ababa of Ethiopia reported 17% of the males and 31% of the females which were classified as having low level of total physical activity have hypertension(22). Similar study done outside Ethiopia, In India Sri Adichunchanagiri Hospital those who do physical activity were 22(40.74%) and who were sedentary 32(59.26%)(8).

More than half (52.4%) of hypertensive respondents have the exposure to excessive intake of salty food. From those exposure above fifty percent were men. Those participants also took additional food to normally adapted like soup, pizza, sandwich, etc. This study is slightly in line with a reported study in Nigeria excess salt intake was explained as a risk factor for hypertension in that study as majority of the respondents (76.0%) like salty food) (50). About 65%-75% of the salt we eat comes from processed food, such as bread ,breakfast cereals and soups(61).

Majority of the respondents never drink alcohol at all. On the other hand greater than one-fourth of former alcohol drinker and around seventeen percent of current drinkers were seen but no women were seen drinking alcohol. From all respondents who consume alcohol only one-fifth

(22%) of them were consuming heavy alcohol while the rest of them were moderate alcohol consumer and the type of drink were Tella, Tej, Beer, Areke, Jinee and Whisky. This study is

supported by the study done previously in Addis Ababa, approximately 10% of men consuming 5 or more standard units of alcohol on one or more days during a week(23), in Nigeria majority of the respondents (72.5%) were consuming alcohol drink and about 30.0% of them consume it daily(50), in India Sri Adichunchanagiri Hospital among men alcoholics were 13(24.07%) and 41(75.93%) were non-alcoholics(8) and in Rukungiri district of Uganda reported factors found to be associated with hypertension included: former alcohol use, OR 2.28[1.42 - 3.64], current alcohol use OR 1.64 [1.12 - 2.43](73)

Most of the studies done in Africa used Body Mass Index (BMI) not waist circumference to assess obesity (22,73). This study indicated to us around half of the participants are in normal range of BMI but more than one-fourth (28%) were overweight (17.7% men,10.3% women) on which as the age category increase it also increase and 13.8% are obesity(6.3% men,7.5% female) specially in the age group of 45-54 and 55-64.

This result is slightly similar with Gonder study of all hypertensive participants were overweight 25% ,in Tanzania 15% of men were overweight, in Sudan exactly similar 17% of men were overweight(71), but the current result is different from other studies previously done in Addis Ababa overweight in men 20%,in female 38% (23) ; in Ghana men30%,female 28%;in Sudan female 29%;in Tanzania female 27%;in Kenya female 22% and in Uganda female 22%(71). This difference might be due to socioeconomic status and lifestyle of the people.

In obesity the current study is nearly similar to the previous study of Addis Ababa10%(23) but in all hypertensive participants of Gonder in Ethiopia 5.6% obesity(3), in other developed countries of Scotland 16-20% men,17-25% female and in Northern Ireland, prevalence of obesity increased from 8% to 17% among men and from 16% to 20% among women(3,34). This difference also might be due to the difference in lifestyle and economical back ground of the countries.

As we had seen more than quarter(26%) of the participant have self explained Diabetes Miletus. This study is supported by other studies done in Ethiopia of Gonder about four times AOR 4.15 (95% CI 1.77-9.72) more likely to be hypertensive(3),in Jima university 37.5% and in Nigeria

20% (17).The result figure difference might be the public health awareness about DM and differ in cultural believes of the country.

Less than quarter of the participants (17.7%) only have self reported Khat chewing adaptation, among those mostly all 95.6% were regular chewer of Khat. This study is in line with the previous study done in Addis Ababa 15.9% and supported by the study done in areas of Bedele town 30.1%(21) and Adamitulu 31.7% (13). The magnitude different might be due to the public awareness towards the effect of the substance in rural and urban area, the culture influence and the accessibility of Khat to the area of participants etc.

When we see the prevalence of smoking out of all hypertensive respondents only 13.8% men were smoking who were 11% former and 2.8% current smoker. This result is similar to the previous study of Addis Ababa 11.8%(6) in men, but the magnitude is slightly increase from other studies conducted in Jimma 4.7% current smoker(47),in Butajira 7.7 current smoker, and the World Health Survey reported 7% prevalence of current tobacco smoker, this difference might be still due to the awareness of people to substance abuse and the opportunity to get it is different at different places .

6.1 Strength and limitation of the study

6.1.1 Strength of the study

- Pretest was done
- The data was primary
- The study included both quantitative and qualitative parts, which enable to understand feeding style and health awareness towards hypertension risk factors in depth.
- BSc level health professionals were used for data collection
- During the study time, health education was given by investigator for each of the study participant of hypertension

6.1.2 Limitations of the study

- Since the study do not include the control group, did not allow to do association beteeuin dependent and independent variables.
- Since the study is a cross-sectional study, did not allow inferences to be drawn with respect to the causal relationship among variables.
- Because of exposure and outcome were measured simultaneously it was not possible to determine whether the measured exposure presided an outcome or resulted from it.
- unable to determine the level of blood glucose or cholesterol due to low budget allocation and less time bound.
- Waist circumference not done to assess obesity.
- As the study was done in emergency, stressful condition specially accidental cause might be increase the magnitude of newly diagnosed hypertension patients.

7. CONCLUSION AND RECOMMEDATION

7.1 Conclusion

There was an incidence of hypertension among adults in Adult Emergency outpatient Department of Black lion Specialized Hospital, and may show a hidden epidemic in this population. A significant proportion (21.7%) of participants were unaware of having the condition (screened newly for the first time) before they were identified by the current study and from previously diagnosed hypertension patients 18.5% discontinued their medication. The study results suggest that male were more exposed to the risk factors compared to female, as the age coming up increasingly in years specially in older age (≥ 65 years). Among these risk factors gender, age and ethnicity from non modifiable risk factors; self reported stress, sedentary lifestyle ,excessive dietary salt, alcohol drink and overweight from modifiable risk factors were the main risk factors responsible for hypertension.

To reduce the prevalence of hypertension among the population necessitates early diagnose & treat, a reduction of certain modifiable risk factors, notably excessive dietary salt, stressful working condition, overweight & obesity, smoking, alcohol drink, regular Khat chewing and also the promotion of a healthy lifestyle with regular walking as well as avoiding stressful condition and greater efforts are needed to improve the situation in order to reduce the complications associated with hypertension.

7.2 Recommendations

Based on the findings of this study, the following issues should be considered and promoted for improving the prevention of hypertensive condition in community people.

7.2.1.The findings indicate that the incidence of hypertension is still highly detected in the communities, especially in males and older persons. It is necessary that policy maker and healthcare provider should continuously conduct periodically survey for screening and early detection, treatment, and control for hypertensive case in communities. Since people with hypertension may not exhibit any symptoms, their high blood pressure is often undiagnosed until complications occur. Regular blood pressure screening can facilitate early diagnosis and treatment and reduce the risk of further complications associated with hypertension. Health extension workers, health center and Hospital professionals have a positive impact on prevention, management of hypertension through patient education, counseling, perform the initial evaluation and set up a care plan that includes primary and secondary prevention strategies.

7.2. 2. The findings signify that persons, who detected high blood pressure but no awareness to follow-up, might have more likely to develop to hypertension morbidity than those who never

detected these symptoms. These groups are important to emphasize for investigation in hypertensive conditions and other related diseases because hypertension is a very common cardiovascular problem, causing huge economic burden to the community and the government. Therefore, people who detected high blood pressure ≥140/90 mmHg should be assessed and followed closely. Moreover, it would be very interesting to do research in future on the characteristics of people who do and do not get tested of blood pressure. Research on testing would be very useful for public health care programs.

7.2.3. The basic principle is that disease with common risk factors requires common preventive strategies. The preventive strategies should be based on a health education and empowerment programs that promote and advocate healthy lifestyles, by improvement of dietary habits, eradication of alcohol consumption, increased physical activity and alleviation of harmful psychosocial factors related to hypertension. Lifestyle modifications offer the potential for preventing hypertension, have been shown to be effective in lowering blood pressure, and can reduce other cardiovascular risk factors at little cost. To be successful in reducing hypertension in communities, people should understand what high blood pressure is and the effects of untreated high blood pressure on overall health and well-being. It is also important to demonstrate the relationship that high blood pressure has with the development of other diseases. Providing simple explanation through one-on-one or group discussion with examples is important for awareness in disease prevention, and defines the values that constitute hypertension.

7.2.4. Hypertensive prevention programs should also focus on eating habits to sodium use reduction, because the lifestyle of food consumption, people in communities not only take sodium in the households but also consume it outside, specially additional food to normally adapted like sandwich, pizza, soup etc. For the prevention of hypertensive conditions by food consumption, health education and nutritional program of sodium restriction on healthy food should be correctly provided. In general**,**

Recommendation to Government:

- Mobilize all health institution to give health education about HPN risk factors.
- Mobilize different media to create a proper health awareness about hypertension.
- Give refreshment training to health professionals.

Recommendation to Hospitals:

- Use proper guideline.
- Give health education as the whole when they come to Hospital at morning time before starting work specially in EOPD & ROPD.
- Put banner on the wall that is readable place to more patient present.

Recommendation to health professionals:

- Dig out modifiable and unmodifiable risk factors during history taking process in order to advice your patient to avoid at least the modifiable once.
- Properly explain to your patient how he/she control the blood pressure and for how long the medication continue.
- Advice as blood pressure transfer to his children naturally & how can the child control before interring to allot of complication.

Recommendation to the Public :

- Apply physician instruction like how to avoid the risk & aggravating factors, how to control at once create, how to protect your children etc.
- Use drug properly.
- Check your blood pressure nearby health institution at least one or two times within a week.
- Do physical exercise at least for 20-30 minutes per day.
- Reduce more salty food as you can and if you have hypertension avoid it at all.
- Avoid any stressful conditions and any type of substance abuse like Khat, smoking.
- Go back to your doctor if there is any problem related to your health.

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9. ANNEX

9.1 Annex I

Verbal Consent form Before Conducting Interview

Dear participant,

My name is Seid Hussien Shibeshi, I am Masters of emergency medicine and critical care student in Adds Ababa University of Emergency department, Ethiopia.

In doing my Masters degree thesis, I would like to interview you a few questions about risk factors to develop hypertension .Your participation and willingness for the interview is helpful in identifying the risks and prevention related to the subject matter. As well as enhance contribution to reducing mortality and morbidity as a result of high blood pressure which is currently one of the burdens of the developing country health service. Your name will not be write be in this form. all information that you give will be kept strictly confidential and your participation is voluntary and you are not obliged to answer any question you do not wish to answer. It will take between 10-15 minutes to complete. If you are not feeling comfortable with the interview please feel free to stop at any time you want. Do I have your permission to continue?

1. If yes, we can continue to the next page.

2.If no, tell me the reason and skip to the next respondent.

_____
_____
_____

Date of interview_____Time started_____Time finished_____

If you need any further information please feel free to contact by

e-mail:seidhussien30@yahoo.com

Thank You.

9.2 ANNEX II

QUASTONNAIRE

Addis Ababa University Health science College , Department of Emergency Medicine

Questionnaire for data collection to risk factors of hypertension magnitude in Tikur Anbessa specialized Hospital of Emergency department .

Interviewers' full name ----------sign---------- Date----------

I. Socio-demographic characteristics:

1. Sex ?1.male 2.female

2. Age? ----------year

3. Marital status? 1.maried 2.single 3.divorce 4.Widow

4. where are you live now?

5. Ethnicity? 1.Amhara 2.Guragae 3.Oromo 4.Tigre 5.Other,please specify----------

6. Religion, or domination (----------)

1.Orthodox Christian 2.Muslim 3.Catholic

4.Protesntant 5. Other, please specify----------

7. Education background? 1. non 2.read and write only 3.up to --------grade only

4. college----------year 5.universty----------year

8.1 Your work is ---------- 1. Government employed 2. Private employed 3. Merchant

4.Daily laborer 5 .House hold 6.Retired 7.Others

II. History of illness, lifestyle and dietary characteristics

a) **Health and behavioral section**

1. Hypertension

	1.yes	2.no	3.do not know
1.1 Father	------	--------	----------
1.2 Mother	------	--------	----------
1.3 Yourself	------	--------	----------

1.4 If yes after starting your treatment have you ever discontinue? 1) yes 2) No

2. **Diabetes mellitus**

2.1Do you have diabetes mellitus? 1. Yes 2.No

3. Cigarette smoking

3.1 Do you smoke before you ill? 1.yes 2.No

3.2 If you smoke how frequently please? (-------)

1)Daily 2) once /wk 3) 2 -3 days/wk 4) 4-5 days/wks 5) Other, please specify--------

3.3 If your answer is yes for question number 3.1, how much cigarettes do you smoke per day? --------

3.4 For how long have you been smoking? ----------

3.5 Do you smoke currently? 1) yes 2) No

4. Alcoholic drinks consumption

4.1 Do you drinking alcohol? 1.yes 2.No

4.2 How often do you take alcoholic drinks? (---------)

1) Daily 2) once /wk 3) 2 -3 days/wk 4) 4-5 days/wks 5. Other, please specify--------

4.3 For how long have you been drink alcohol?----------

4.4 Do you know how much bottle/glass of alcohol you drink at a time? 1.yes 2.No

4.5 if yes how much? ----------

4.6 Are you currently drinking? 1. Yes 2. No

5. Khat chewing

5.1 Do you have a habit of Khat chewing? 1. Yes 2. No

5.2 If Yes, how often?

1) Daily 2) once /wk 3) 2 -3 days/wk 4) 4-5 days/wks 5. Other, please specify--------

b) **Dietary history**

6. Salty food

6.1 Do you like salty food? 1.yes 2.No

6.2 The food mostly you eat additionally to your normal diet is_____

1.Pizza 2. Sandwiches 3.Soup 4. None

c) **Different physical activities and Stressful habitual as well as working conditions**

7.Activities that you done before illness

No.		Average minutes used for daily activities					
		0	< =30	31-60	61-90	91-120	>120
7.1	**Vigorous activities**						
7.1.1	Gymnastic						
7.1.2	Running						
7.1.3	Volleyball						
7.1.4	Foot ball						
7.1.5	Riding bicycle						
7.1.6	Basketball						
7.1.7	Weight lifting(>20kg)						
7.2	**Moderate activities**						
7.2.1	Walking						
7.2.2	Weight lifting (<20kg0)						
7.2.3	Trade **dance**						
7.2.4	Other						

8. Stressful conditions

8.1 is there anything that makes you stressful? 1. yes 2. No

8.2 How many hours do you sleep within 24 hours (both at night and day) ?----------hours.

8.3 Relationship to your's family---------- 1. Good 2.Fair 3. Not good

d) Anthropometric and blood pressure measurement

9. Over weight and obesity

9.1 Height----------meters

9.2 weight----------kilogram

9.3 BMI----------

10. Blood pressure level:

10.1 First blood pressure----------mmHg

10.2 Blood pressure after 5 or more minutes for newly diagnosed ----------mmHg

10.3 Average blood pressure ----------mmHg

WE THANK YOU FOR THE FULL COOPRERATION!

SUPPERVISORS NAME---------- SIGNATURE----------DATE----------

9.3 Annex III

<u>በአዲስ አበባ ዩኒቨርስቲ የጤና ሳይንስ ኮሌጅ የድንገተኛ ህክምና የትምህርት ክፍል</u>

በጥቁር አንበሳ እስፔሻላይዝድ ሆስፒታል የአዋቂዎች ድንገተኛ ህክምና ክፍል

አገልግሎት ለሚያገኙ የደም ግፊት ታካሚዎች ለደም ግፊት በሽታ መጋለጥ ስጋቶች ሊሆኑ

ስለሚችሉ ነገሮች የቀረበ መጠይቅ 2006 **ዓ.ም**

ጥናትና ምርምሩን የሚያካሂደው ሰው ሙሉስም: ----------

ቀን፡----------

1 እርስዎን በተመለከተ የቀረበ ጥያቄ

1. **ዖታ** 1. **ወንድ** 2. **ሴት**
2. **እድሜ** ----------**አመት**
3. የጋብቻ ሁኔታ 1.ያገባ/ያገባች 2. ያላገባ/ያላገባች 3. የፈታ/የፈታች 4. በሞት የተለየ/የተለየች
4. አሁን የትነውየ ሚኖሩት?----------
5. ብሔርዎ ምንድን ነው?

1. አማራ 2. ኑራጌ 3.አሮሞ 4.ትግሬ 5. ሌላ ካለ እባክዎትን ይጥቀሱ----

6. ሐይማኖት(----------) 1. ኦርቶዶክስ ክርስቲያን 2. መስሊም

3. ካቶሊክ 4. ፕሮቴስታንት 5. ሌላ ካለ እባክዎትን ይጥቀሱ

7. የትምህርት ደረጃ (----------)

1. አልተማርኩም 2. ማንበብና መጻፍ ብቻ 3.እስከ --------ክፍል ብቻ

4. ኮሌጅ------ዓመት 5. ዩኒቨርስቲ -------ዓመት

8.1 የርስዎ ስራ----------1.የመንግስት ተቀጣሪ 2.የግለሰብ ተቀጣሪ 3. ነጋዴ

4. የቀን ሰራተኛ 5. የቤት እመቤት 6.ጡረተኛ 7.ሌላ

2 ካሁን በፊት የ ታወቁ በሽታዎች ፣ የ አመጋገብና የ አኗኗር ባህሪያት

1. የ ደምግፊት

1. አለው 2. የ ለበትም 3.አልታወቀም

1.1 አባትዎ ---------- ---------- ----------

1.2 እናትዎ ---------- ---------- ----------

1.3 እርስዎ ---------- ---------- ----------

1.3.1 ነበረብኝ ካሉ መድሀኒትዎን ከጀመሩ በኋላ አቋርጠውያ ውቃሉ ?

1.አዎ 2.አላቋረጥኩም

2. የ ስኳር በሽታ

2.1 የ ስኳር በሽታ አለብዎት? 1.አዎ 2.የ ለብኝም

3.ሲጋራ ማጨስ

3.1 ከ መታመምዎ በፊት ሲጋራ ያጨሱ ነበር ? 1.አዎ 2.አላጨስ ም

3.2 የ ሚያ ጨሱ ከሆነ በየ ስንት ጊዜውያ ጨሱ ነበር ? (----------)

1. በየ ቀኑ 2. በሳምንት አንድ ጊዜ 3. በሳምንት ከ2-3 ቀን 4.በሳምንት ከ4-5 ቀን 5.ሌላ ካለ እባክዎትን ይጥቀሱ----

3.3 ከነበር በቀን ምን ያክል ሲጋራ ያጨሱ ነበር ? ----------

3.4 ማጨስ ከጀመሩ ምን ያክል ጊዜ ሆነ ዎት? ----------

3.5 በአሁኑ

4.አልኮልመጠጣት

4.1 የ አልኮል መጠጥ ይጠጡነበር ? 1.አዎ 2.አልጠጣም

4.2 የ አልኮል መጠጥ በየ ስንት ጊዜውይጠጣሉ? (----------)

1. በየቀኑ 2. በሳምንት አንድ ጊዜ 3. በሳምንት ከ2-3 ቀን 4.በሳምንት ከ4-5 ቀን 5.ሌላ ካለ እባክዎትን ይጥቀሱ----

4.3 በአንድ ጊዜ ምን ያህል ጠርሙስ ወይም ብርጭቆ የአልኮል መጠጥ እንደሚወስዱ ያውቃሉ?

1. አውቃለሁ 2. አላውቅም

4.4 ካወቁ ምን ያህል ነበር ----------

4.5 በአሁኑ ሰዓት የአልኮል መጠጥ ይጠጣሉ ወይንስ አቋርጠዋል?

1. እጠጣለሁ 2. አቋርጫለሁ

5. <u>ጫት መቃም</u>

5.1 ጫት የመቃም ልምድ አልዎት?

1. አዎ 2. የለኝም

5.2 መልስዎ አዎ ከሆነ በየስንት ጊዜው ይቅማሉ?

1. በየቀኑ 2. በሳምንት አንድጊዜ 3. በሳምንትከ2-3 ቀን 4.በሳምንትከ4-5 ቀን 5.ሌላ ካለ እባክዎትን ይጥቀሱ----

ለ. <u>የአመጋገብ ታሪክ</u>

6. <u>ከምግብ ጋር ስለሚጨመር ጨው</u>

6.1 ጨውየበዛበት ምግብ ይወዳሉ ? 1. አዎ 2. አልወድም

6.2 ከእርሰዎ የተለመዱ ምግቦች በተጨማሪነት በአብዛሀኛዉየሚመገቡት ምግብ----------

1. ፒዛ 2. ሳንድዊች 3. አጥሚት 4.ሌላ ካለ እባክዎትን ይጥቀሱ----------

ሐ. ጤና ማሊያ ደርጉ የሚቸሉ የሰዉነት ዕንቅስቃሴዎች ፤ በተለያዬ ምክንያት ሊያጨንቁ የሚቸሉ ስራዎችና መሰል ክስተቶች

7. ከመታመምዎ በፊት ያደርጓቻውየነበሩት የተለያዩ እንቅስቃሴዎች

		በቀን ውስጥ ለሚያደረጉት እንቅስቃሴ የተጠቀመባቸውደቂቃዎች					
		0	≤30	31-60	61-90	91-120	>120
7.1	**ፈጠንያሉ እንቅስቃሴዎች**						
7.1.1	ስፖርታዊ የአካል እንቅስቃሴ						
7.1.2	መሮጥ						
7.1.3	መረብኳስ ጨዋታ						
7.1.4	የቅርጫትኳስ ጨዋታ						
7.1.5	እግርኳስ ጨዋታ						
7.1.6	ባይስክል ማብረር						
7.1.7	ክብደት ማንሳት(>20ኪ.ግ)						
7.2	**መካከለኛ እንቅስቃሴዎች**						
7.2.1	የግርጉዞ						
7.2.2	የዳስ ጨዋታ						
7.2.3	ክብደት ማንሳት(<25(ኪ.ግ)						
7.2.4	ሌላካለ						

8. በተለያየ ምክንያት ሊያጨንቁ የሚችሉ ሁኔታዎች

8.1 እርስዎን ሊያስጨንቅዎት የሚችል ነገር አለ? 1. አዎ 2. የለም

8.2 በ 24 ሠዓትታ ውስጥ (ቀንና ማታ) ለምን ያክል ጊዜ ይተኛሉ?----------

8.3 ከቤተሰብዎ ጋር ያለዎት መልካም ግንኙነት

1. ቆንጆነው 2. አይከፉም 3.ቆንጆአይደለም

መ. ቁመትና ክብደት እንዲሁም የደምግፊት መጠን

9. ከመጠን በላይ ክብደት መጨመርና ውፍረት

9.1 ቁመት -------ሜትር

9.2 ክብደት ----------ኪ.ግራም

9.3 የሰውነት አቋም መጠን (ኪ.ግ/ሜ^2)----------

10. የደምግፊት

10.1 የመጀመሪያውየደምግፊት ----------

10.2 ከ 5 ደቂቃ በኋላ የደምግፊት ----------

10.3 አማካኝ የደምግፊት ---------

ላደረጉልኝ መሉ ተሳትፎ በጣም አመሰግናለሁ

መጠየቁ በትክክል መሰራቱን የተከታተለውሰው

ስም ----------ፊርማ ----------ቀን ----------

9.4 DECLARATION

I, the undersigned, declare that this is my original work and that all sources of materials used for this thesis are duly acknowledged

Name: Seid Hussien Shibeshi

Signature: _____

Date of submission: June 18,2014

Place: Addis Ababa University, Ethiopia

This thesis has been submitted for examination with my approval as University advisor.

Name of advisor: Dr. Sofia Kebede

Signature_____

Date_____