PREVALENCE OF HYPERTENSION AMONG MOTHERS ATTENDING ANTENATAL CLINIC AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL BUSHENYI DISTRICT WESTERN UGANDA

ABDINASIR H. YUSUF

(BMS/0013/81/DF)

A RESEARCH DESSERTATION SUBMITTED TO THE SCHOOL OF CLINICAL MEDICINE AND DENTISTRY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY OF KAMPALA INTERNATIONAL UNIVERSITY WESTERN CAMPUS

JUNE,2014

Declaration:

I Abdinasir Hassan Yusuf do here by solemnly declare that this is my original work, it has never been presented before and has not been submitted to any other institution either partially or fully for any academic award, publication or otherwise and where the work of others has been used, appropriate references have been made.

Signed Date

……..……. ……..

Supervisor's approval:

I have supervised and forward this proposal work for consideration

Signed Date

DR. AGWU EZERA ……

Abbreviations:

ANC:	Antenatal Care
MHO:	Ministry of Health
WHO:	World Health Organization
Dr:	Doctor
OPD:	Out-Patient Department
HOD:	Head of Department
DDHS:	District Director of Health Services
KIU-WC:	Kampala International University-Western Campus
HTN:	Hypertension
KIUTH:	Kampala International University Teaching Hospital

Dedication:

This research report is dedicated to our entire family especially my uncle Ibrahim musa and Ali Yusuf Ali for supporting me every single day. Teaching staff of Kampala international university western campus who have guided, encouraged and supported me throughout my studies to this point.

Acknowledgements:

My sincere thanks go to **Allah** with whose guidance I shall be able to accomplish this piece of work successfully.

Secondly completion of this work will be made possible by the guidance of my lecturer and supervisor, **Dr. AGWU EZERA** My gratitude goes to the entire staff school of Clinical Medicine and Dentistry Allied health sciences who have guided me properly till now.

List of figures:

Table of Contents

Abstract

This research set out to assess the prevalence of hypertension among pregnant women attending antenatal care at KIU-TH. Specific objectives included: determining proportion of pregnant women with hypertension, to assess factors related to hypertension and complications due to hypertension. It was noted that all the respondents in the study population had ever been diagnosed with hypertension or have hypertension. This was attributed to the fact that they were pregnant and pregnancy puts women at a high risk to hypertension and other cardiovascular conditions. The major factor noted to predispose the pregnant women to hypertension was adding extra salt to food. This was blamed on the fact that the respondents did not know the health effects of adding extra salt to already prepared food. This can be addressed by adequate health talks during antenatal care period. Other factors noted to predispose one to hypertension was family linkages/genes, taking alcohol and smoking. Most of the respondents agreed that if hypertension is not treated complications can arise. The major complications that can arise due to unmanaged hypertension according to the respondents were cardiovascular diseases. Other complications that closely followed were pre-eclampsia and eclampsia. This knowledge expressed was expected since most individuals believe hypertension is directly related to the cardiovascular system though they don't know the exact mechanism of how the two are related.

CHAPTER ONE

INTRODUCTION

1.1.0 Background information

Hypertension is the presence of a chronic elevation of systemic arterial blood pressure above normal threshold value. WHO defines hypertension as systolic blood pressure of greater than 140mmHg and or diastolic blood pressure greater than 90mm Hg. Hypertension is one of the major risk factors and main cause death in adult populations worldwide, it doubles the risks for cardiovascular diseases like; ischemic heart disease, congestive heart failure, peripheral arterial diseases and stroke (Harrison; 2008). It is also one of the most frequent chronic conditions in medical consultation (Moliere et el., 1998).

Studies from India and Bangaladesh have shown upward trend in the prevalence of hypertension (World Health Organization; 2001). In Uganda a study conducted in the Teso showed a prevalence of hypertension above 30%o among adults aged 21-50 years (Williams; 2002).

More than 95% of patients with elevated blood pressure have essential (idiopathic, primary) hypertension. In the remaining 5 percent of cases, the elevated blood pressure could be due to; kidney disease, Diabetes or another underlying disorder (Brundt ; 2002).

Hypertension is highly prevalent in Egypt; the levels of awareness, treatment and control are relatively low (Ibrahim et. al; 1995). There had been an increased prevalence of hypertension in rural and urban areas of Tanzania, probably because of low levels of detection, treatment and control (Edwards's et. al; 2000). High blood pressure has been found to common among the urban poor from Ibadan in Nigeria (17%) and substantially even more prevalent in well off workers in Harare, Zimbabwe (26%) (Cooper *et. al*; 1997).

In a study set out to determine the prevalence and symptomatology of hypertension in Khartoum area, the prevalence of hypertension was determined to be 7.5%-10% (Ahemd; 2002). Hypertension in pregnancy is multifactorial disorder, despite insufficient knowledge related to the genetic and environmental mechanism's involved in its pathogenesis. Much risk has been implicated; environmental factors, increased body weight and smoking are among risk factors for hypertension in pregnancy. Increasing Body mass index is tightly related to the occurrence of

mild hypertension, though not with severe form of these disorders and on the other hand in contrast to previous knowledge, smoking seems to reduce the risk of preeclampsia through expression of specific antigenic factors. Epidemiological studies correlated hypertension in pregnancy with socioeconomic data as its prevalence is significantly higher in women of lower socioeconomic level (Bodnor *et. al*; 2007).

Women who developed hypertension during pregnancy have a higher risk of chronic kidney disease, their blood pressure, heart and kidney should be monitored after delivery and an estimated 5 percent to 10 percent of pregnancies are affected by hypertensive disorder previous. Pathological findings; fibrin deposits in kidneys, fibrin deposits in liver with necrosis and periportal hemorrhages and placental vascular abnormalities (Caritis, *et al*; 1998).

Normally a woman blood pressure drops during her secondary trimester then it returns normally by the end of the pregnancy. But some women blood pressure goes up very high in the second and third trimester this is sometimes called gestational hypertension. Hypertensive women are advisable for regular exercise and regular monitoring the blood Pressure, reduced in dietary intake and salt intake, mothers are preferable to monitor their Blood pressure daily, and antihypertensive drugs will reduce the risk of the disease (Jeyabalan *et. al*; 2008).

1.1.1 Problem Statement

959, 00 death worldwide were caused by Hypertension accounting for 1.6 percent of all death and approximately 3% of all death caused by non-communicable disease.

Hypertension remains increasingly an important cause of mortality and morbidity in both developed and developing Countries, its estimated that in the next decades, hypertension will be a major cause of death than any other familial disease and non-communicable disease.

Prevalence of hypertensive disorder in pregnancy and associated factors is unknown in Bushenyi District, Uganda.

1.1.2 Objectives of the study

General Objectives:

To assess the prevalence of hypertension among pregnant mothers attending antenatal care in Kampala International University Teaching Hospital.

Specific Objectives:

To determine the distribution of mothers presenting with hypertension in pregnancy among those mothers who attended Antenatal care at Kampala International University Teaching Hospital.

To assess the factors associated with the current prevalence of hypertension in pregnancy among pregnant mothers who attended Antenatal care in Kampala International University Teaching Hospital.

To outline the complications resulting from hypertension in pregnancy and suggest possible additional ideas towards improved methods of management.

1.1.3 Justification of the study

Hypertension is one of the major risk factors for cardiovascular diseases and the main cause of death in adult Populations worldwide.

Hypertension in pregnancy is the major causes of 80% of maternal deaths globally, 6% of maternal deaths in Uganda. Changes in maternal characteristics are a risk factor to increase in HDP. The probability of HDP detection among pregnant women is 0.28 (UDHS, 2011).

The study will help all parties in patient care to plan and make better interventions that will affect the mother's awareness towards preventing and early detection plus management of hypertension.

Finding will be of great importance to future studies for those who may be interested in this area of medical science.

1.1.4 Research Questions

What is the prevalence of hypertension among pregnant mothers who attended Antenatal care at Kampala International University Teaching Hospital?

What are the factors associated with hypertension in pregnant mothers who attended Antenatal care at Kampala International University Teaching Hospital?

Which complications were due to hypertension among pregnant mothers who attended Antenatal care at Kampala International University Teaching Hospital?

Which are the possible ways of preventing and controlling hypertension in pregnancy?

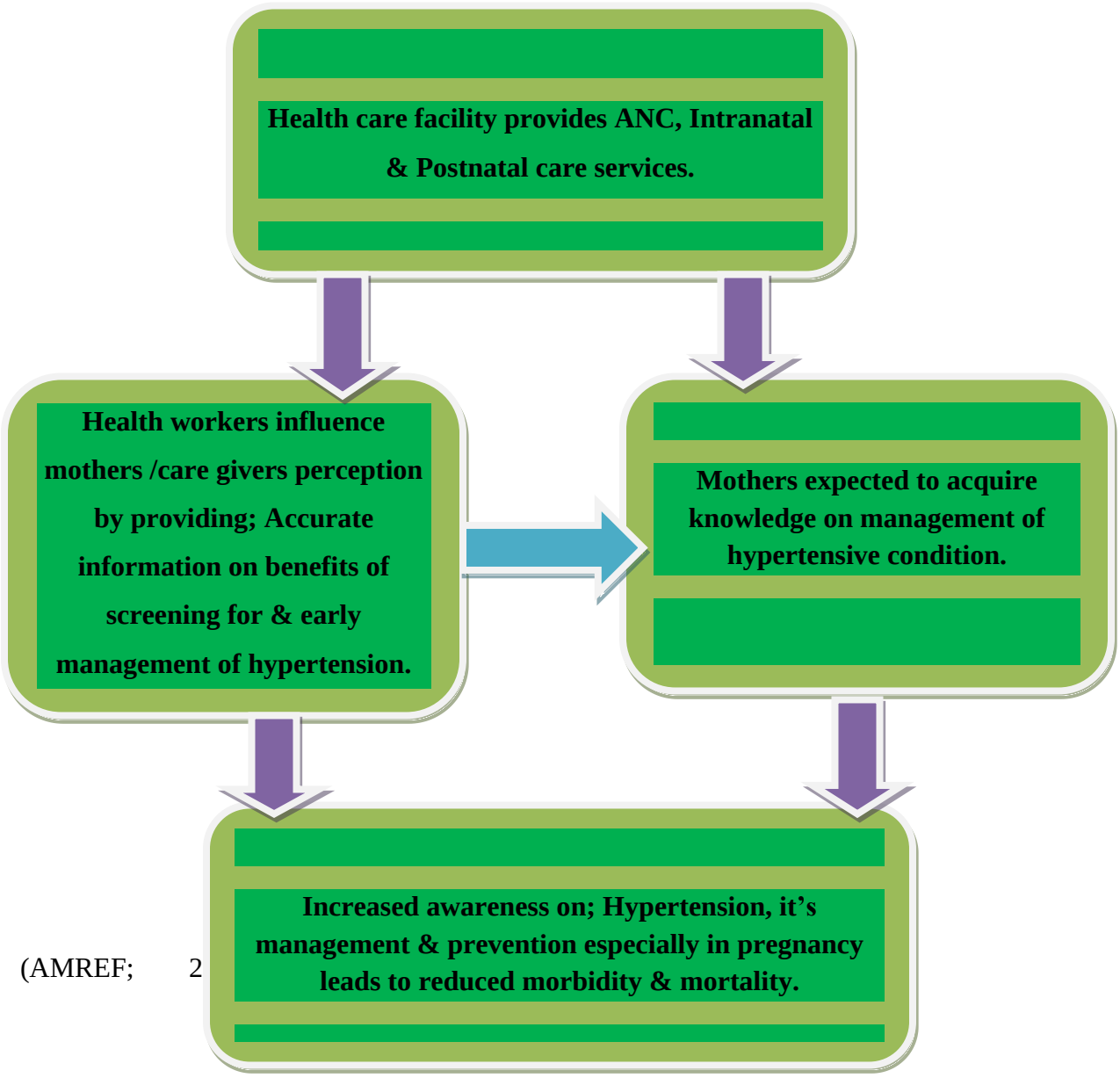
1.1.5 Study scope

Geographical: Kampala International University Teaching Hospital is located in Ishaka town Bushenyi district of western Uganda along Kasese; Bushenyi is about 270km from Kampala. This hospital is one of the referral hospitals for Bushenyi district.

Content: Long distances to the health facility, low level of education, poor health seeking behaviors are among the factors that could lead to increased cases of hypertension in pregnancy in third world country settings.

Time: The study has been conducted from January to June 2014.

1.1.6 Figure 1: Conceptual model for prevention of hypertension in pregnancy



(AMREF; 2

CHAPTER TWO

LITERATURE REVIEW

2.1.0 Pathophysiology and Pathogenesis of hypertension

Hypertensive disorders are the most common medical problems encountered during pregnancy and account for 12 to 20 percent of the total maternal deaths in the world (Judith, *et al*; 2003).

Hypertension, body mass index (BMI), age, and unfavorable levels of total cholesterol, low density lipoprotein cholesterol, and triglycerides are risk factors for the development of these disorders (Chelemen, *et al;* 2010).

The disorders are classified into 4 categories: 1) Chronic hypertension, 2) Preeclampsia eclampsia, 3) Preeclampsia superimposed on chronic hypertension, and 4) Gestational hypertension (transient hypertension of pregnancy or chronic hypertension identified in the latter half of pregnancy (Judith, *et al*.; 2003).

Hypertension is defined as a blood pressure equal to or greater than 140 mm Hg systolic or 90 mm Hg diastolic. Hypertension that is diagnosed for the first time during pregnancy and that does not resolve after pregnancy is also classified as chronic hypertension. Typically, chronic hypertension is defined as hypertension that is present before pregnancy or that is diagnosed before the 20th week of gestation. Preeclampsia will develop in 20-25% of those with chronic hypertension during pregnancy (Judith, *et al.;* 2003).

Preeclampsia is diagnosed when a woman who was normotensive before 20 weeks' gestation presents with a systolic blood pressure (SBP) greater than 140 mm Hg and a diastolic BP (DBP) greater than 90 mm Hg on 2 successive measurements, 4-6 hours apart. Preeclampsia in a patient with preexisting essential hypertension is diagnosed if SBP has increased by 30 mm Hg or if DBP has increased by 15 mm Hg. The blood pressure changes are usually accompanied by proteinuria of 2.0g or more in 24 hours, changes in creatinine, liver enzymes, and symptoms of blurry vision, headache and epigatric pain. Eclampsia is the occurrence of seizures in a woman with preeclampsia. Preeclampsia superimposed on chronic hypertension manifests as a sudden increase in proteinuria and blood pressure before 20 weeks in a woman with previously diagnosed and controlled chronic hypertension (Charles, 2008).

The kidneys control the level of sodium and other ions in our body; if there is too much salt the kidneys pass it into urine. But when our salt intake levels are very high, the kidneys cannot keep up and the salt ends up in our bloodstream. When there is too much salt in the blood, the salt draws more water into the blood; more water increases the volume of blood which raises blood pressure. Processed foods use salt as an additive, almost 80% of the average person's daily salt intake comes from processed foods. If we ate only natural foods and limited the use of table salt, we would be able to eliminate excess salt in our diets (Richards's *et. al*; 2008).

Drinking alcohol can raise blood pressure to unhealthy levels. Having more than three drinks in one sitting temporarily increases your blood pressure, but repeated binge drinking can lead to long-term increases. ho cut back to moderate drinking can lower their systolic blood pressure (the top number in a blood pressure reading) by 2 to 4 millimeters of mercury (mm Hg) and their diastolic blood pressure (the bottom number in a blood pressure reading) by 1 to 2 mm Hg. Alcoholics who want to lower blood pressure should slowly reduce how much they drink over one to two weeks. Heavy drinkers who stop suddenly risk developing severe high blood pressure for several days (Sheldon ; 2013).

2.1.1 Epidemiology of hypertension

Worldwide hypertension is common and regarded as a major public health problem. In one study, the prevalence of hypertension was found to be 28% in Northern America and 44% in Western Europe (Wolf , *et al* 2003). Until recently, hypertension was thought to be rare in rural Africa complications include; stroke, heart failure, and renal failure, has been reported in blacks all over the world (Pobee *et. al*; 1997).

The hypertensive disorders of pregnancy are major contributors to maternal and prenatal morbidity and mortality .complication of hypertensive disorder of pregnancy are consistently listed among the three most common cause of maternal death in virtually all developed countries. The reported incidence depends on the criteria for diagnosis, and there is a district lack of uniformity .In Great Britain, with primarily a white population, some form of hypertension occurs in 25 percent of pregnancies. In the United States, the incidence reported by the task force on Toxemia of the collaborative and 36 percent for black (Charles; 1983).

The prevalence of hypertension in pregnant women in Estern Europe reaches percentage of 15%, where as in U.S.A hypertension appear 5-7% of stated birth (A.U.M.J; 2010).

Hypertension is now a major factor for the high mortality of adults in sub-Saharan Africa (WHO; 2002). In Ghana, hypertensive renal disease is common complication in both Kumasi and Accra (Mate; 1990). Surveys of blood pressure distribution, prevalence, detection, management and control of hypertension in Western Africa from Nigeria, Ghana, Cameroon, the Gambia, Sierra Leone, Liberia, and Senegal have shown a high prevalence of Hypertension generally, and consistently higher prevalence in urban than in rural areas (Plange *et. al*; 1999). These surveys have also shown low rates of detection and corresponding low rates of treatment and control. Clearly there is a pressing need for robust strategies to deal with this serious threat to the health of people of sub-Saharan Africa (Amoah; 2003). Emotional involvement in martial relationships and support provided by these relationships in copying with stress affects widow hood and single living this arrangement correlates to cardiovascular disease risk factor in the elderly (Mwesiga; 2005).

2.1.2 Factors leading to hypertension in pregnancy

a. In other studies lowering dietary sodium is known to lower the blood Pressure in hypertensive patients and in chronic kidney disease. Extra cellar expansion as a result of impaired nutriuresis is thought to play a big role in the pathogenesis of hypertension (Thuraisingham; 2008).

b. Multiple theories have been proposed to explain eclampsia and pre-eclampsia. They occur only in the presence of placenta hypo perfusion and it's resolved by its removal. Eclampsia is the gravest form of pregnancy induced hypertension it's characterized by grandma seizure, coma, hypertension, proteinuria and edemas, there are many factors that lead to complication to eclampsia and that include: cerebral hemorrhage, pulmonary edema, renalfailure,Liver necrosis, abruption placenta, hemolysis and retinal hemorrhage and sometimes with temporary blindness (Mayanle; 2001).

c. Pre-eclampsia is the occurrence of hypertension, edema and proteinuria after 20 weeks of Gestation in a previously normotensive woman, in addition among women with pre-e clamps a who have later convulsions, 20 percent have a diastolic blood pressure below 90mmhg or no proteinuria. Some women with pre-eclampsia have symptoms and signs that are mistakenly thought to indicate the presence of other disorders (Saftlas; 1986).

2.1.3 Complications of hypertension

Lancent in 2008 together with white HD and Dalby AJ of heart disease study in Soweto found out that hypertensive heart disease is the main cause of heart failure. They found out that among the total cohort of new patients, 56% had hypertension (HTN) and of those 90%were obese; hence they concluded that being obese was one of the contributing factors to hypertension.

American guidelines on hypertension state that unless life style modification and measures considered first, then HTN will remain a threat to the whole world. These modifications include weight control, encouragement of exercise, reduction of dietary sodium and fat and where possible cessation of smoking and alcohol. This is an indication that all these may predispose one to hypertension (CDC; 2005).

Smoking causes the heart rate and the blood pressure to go up, increasing the chance to have high blood pressure and clogged arteries. It is indeed a death sentence on its own and can be more dangerous than you thought. There are many toxins hidden in a smoker's body that damage almost every organ in the body including the heart, a reason that can increase blood pressure hence hypertension (Kalungi, 2009).

2.1.4 Diagnosis of hypertension in pregnancy

Predominant age: Young, primigravida women, Women over 35 years of age, Predominant sex: Female only.

Signs & symptoms: Elevated BP (> 140/90 [18.6/12 kPa] or increased 30 [4 kPa] systolic or increased 15 [2 kPa] diastolic) recorded on 2 BP readings 6 hours apart**,** Proteinuria (> 300 mg/24 hours or > 1 gram/L)**,** Edema**,** Rapid excessive weight gain (> 5 lb/week) (2.3 kg/week)**,** Epigastric pain**,** Headache**,** Hyperrefl exia**,** Visual disturbances**,** Retinal arteriolar spasm, Papilledema, Retinal cotton-wool exudate, Amnesia, Oliguria and Anuria.

Laboratory: Proteinuria (> 300 mg/24 hrs or > 1 gram/L)**,** Uric acid increased (mild increase > 5.5 mg/dL [0.32 mmol/L]); (severe increase > 9.5 mg/dL [0.56 mmol/L])**,** Thrombocytopenia,

Creatinine clearance < 90 mL/min/1.73m2 (0.87 mL/s/ m2), Increased BUN (> 16 mg/dL [5.7 mmol/L]), Increased creatinine (> 1.0 mg/dL [88 μmol/L]), Abnormal increased liver function tests, Increased fibrin degradation products, Increased PT, Decreased fibrinogen, Granular casts in urine, Red blood cell casts in urine, Renal tubular cell casts in urine, White blood cell casts in urine, Increased urine specific gravity, Increased T4, Decreased fibrinogen, Disseminated intravascular coagulation and Hyperbilirubinemia (Caritis; 1998).

Incidence of chronic hypertension in pregnant women range from1 percent to 5 percent, the rates are higher in older women obese, and black women (Lenevo; 2005). It's difficult to diagnose chronic hypertension in pregnant women in who blood pressure before Pregnancy wass not known. In such case the diagnosis is usually based on the presence of Hypertension before 20 weeks gestation. In some women, however hypertension before 20 weeks gestation may be the first manifestation of pre-eclampsia, further more because of the normal physiological decrease in blood pressure during the second trimester, many women with chronic hypertension has normal blood pressure before 20 weeks gestation (Rothberg *et. al*; 1991).

2.1.5 Management of hypertension in pregnancy.

Patient education: Excessive weight gain (>25-30 lb [11.4-13.6 kg]) should be avoided during pregnancy, Regular exercise and regular monitoring the blood pressure can control and prevent hypertension. Attending ANC services can also help to prevent hypertension plus decreased alcohol intake. If all the above fail (within 3 months) we initiate medicine therapy; Methyldopa: Use in hypertension with renal failure and in pregnancy and breastfeeding (UCG; 2010).

2.1.6 Prevention/Avoidance; **Weight control**, **Regular physical exercise and Reduce salt intake (UCG; 2010).**

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1.0 Study Design

A prospective study was out at KIUTH; the study looked at the prevalence of hypertension among pregnant mothers who attended ANC between January to May 2014.

3.1.2 Study population

Study population comprised of pregnant mothers from first to third trimester who attended ANC between January to May 2014 at KIUTH.

3.1.3 Study Area

KIUTH is a private hospital located in Bushenyi Ishaka town council. The hospital has male and female wards, maternity, medical, surgical, pediatrics' and psychiatric department and mortuary department plus O.P.D department with special clinics.

The hospital has major and minor operating theatres, the pharmacy and the laboratory, staff quarters. Accident and emergency department (A&E) of this hospital specialize in emergencies, intensive care unit and has two standby ambulances. The hospital has both government and private partnership.

3.1.4 Sample size Determination

The sample size was achieved at a 5% level of precision at 95% confidence level calculated using the formula described by Pfeiffer.

$$n = \frac{Z^2 P (1-P)}{d^2}.$$ Where;

n = sample size

Z = Standard deviate at 95% confidence interval which is equal to 1.96.

P= the prevalence rate of hypertension among mothers attending ANC in Bushenyi district has been estimated as 7.2% (Judith et al., 2003).

d= the acceptable degree of Error (taken as 5%)

From the formula,

$$n = \frac{(1.96)^2 \text{ X } 0.072(1 - 0.072)}{} = 102.67$$

$(0.05)^2$; (Pfeiffer; 2002). Sample size of 100 participants was chosen on the basis of records for hypertensive pregnant mothers (Pfeiffer; 2002).

3.1.5 Sampling technique

100 case files of pregnant mothers were followed and examined from the medical records in KIUTH. The first eight ANC mother consultation charts per working day were chosen to avoid bias.

3.1.6 Inclusion Criteria

All consenting pregnant mothers attending ANC at KIUTH during the specified study period.

3.1.7 Exclusion criteria

Pregnant mothers who did not attend ANC at KIUTH during the period of study.

3.1.8 Data Collection Method

The data was collected from the records department with the help of a predesigned data collection check form. Data collection took two weeks and help from a research assistant was very valuable.

3.1.9 Data Analysis

Data collected was analyzed by use of; a calculator and Microsoft excel 2007.

3.1.10 Data Presentation

Findings have been compiled and presented in form of frequency tables, Pie charts, bar graphs with explanations.

3.1.11 Data Quality Control

Pre-test to ensure quality control prior to data collection was done, one three research assistant helped in data collection and a statistician analyzed and presented the findings.

3.1.13 Study Limitation

Cultural and traditional beliefs affect information given by pregnant mothers.

Pressure from routine class work of final year

Language barrier was broken with use of interpreters

3.1.14 Ethical Consideration

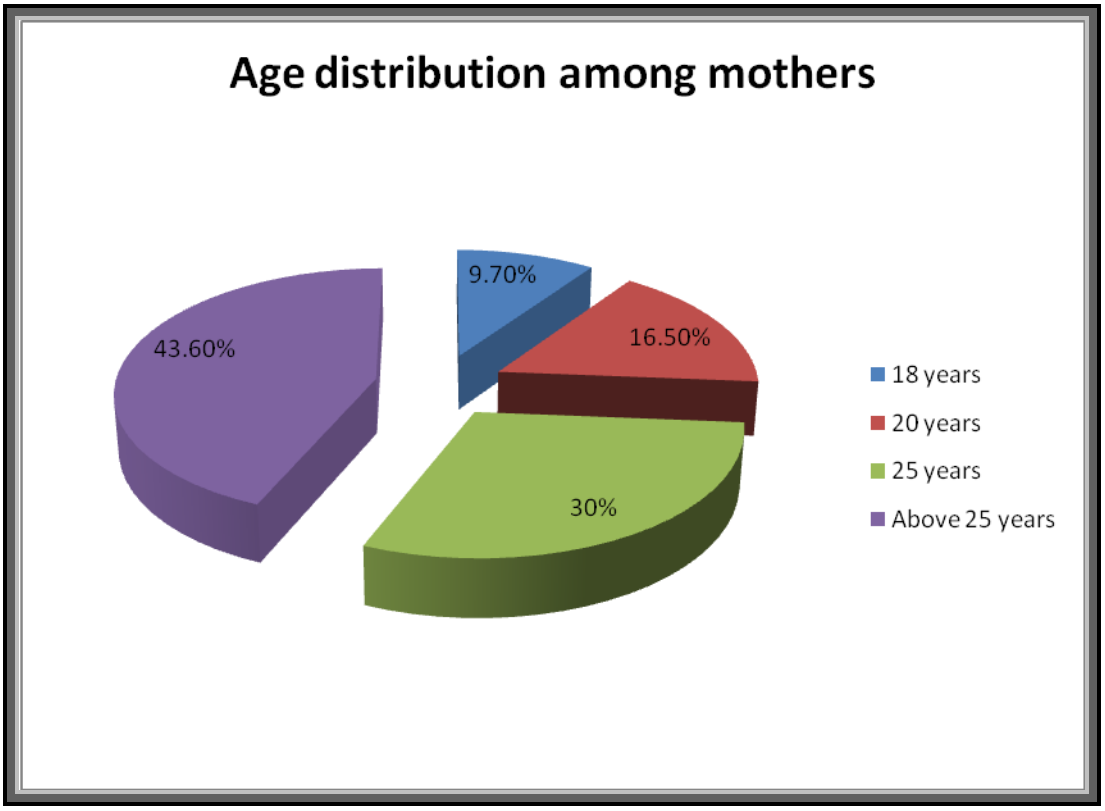
An introductory letter was obtained from Kampala international university western campus school of Medicine and Dentistry and presented to hospital director who ten directed the records department to allow the investigator access patient's records.

CHAPTER FOUR

DATA ANALYSIS AND DATA PRESENTATION

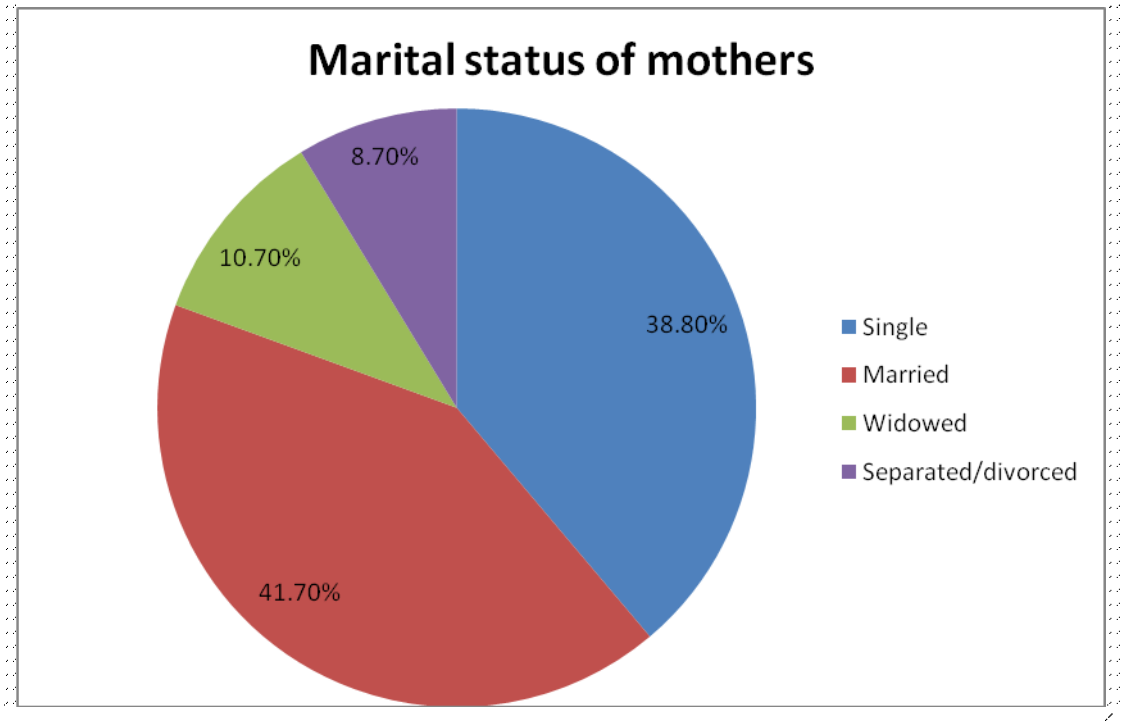
4.1.0 Demographic data

Figure 2: Age of mothers



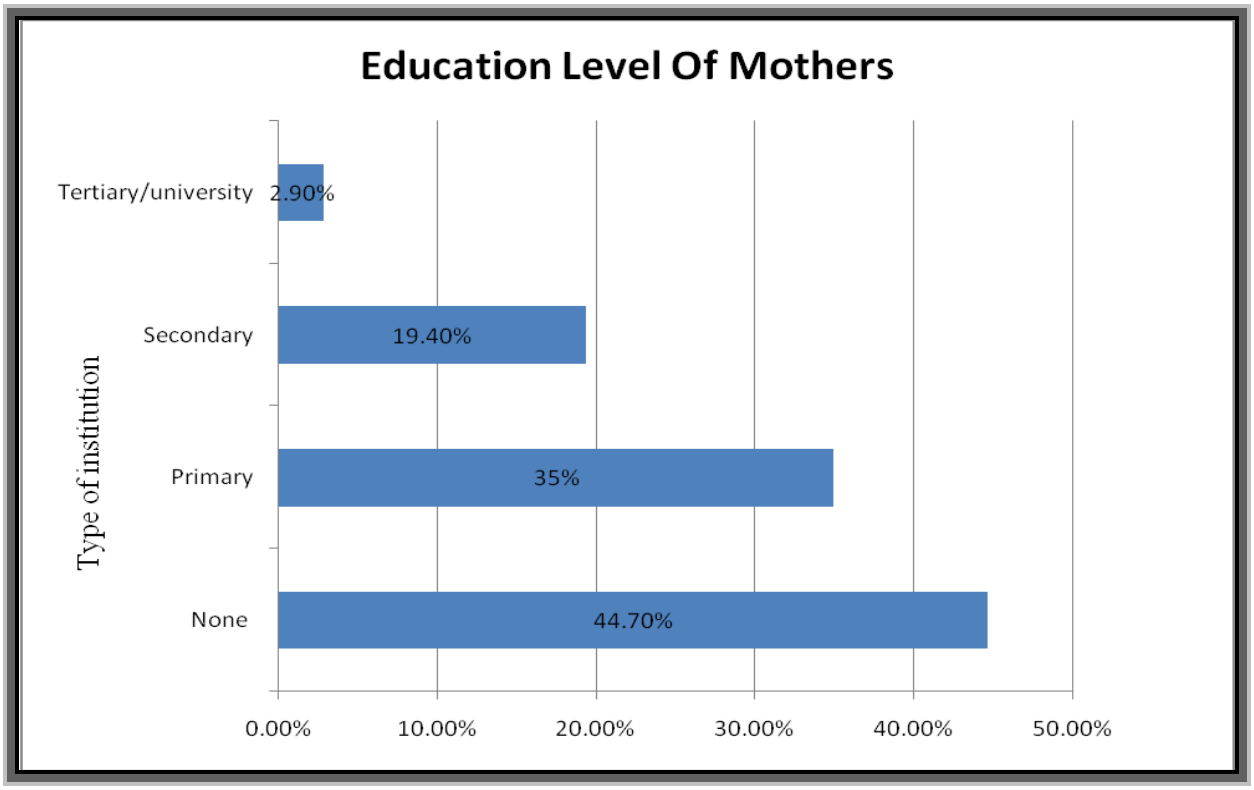
Most of the mothers were above 25 years of age (43.6%), followed by those aged 25 years (30%), 20 years (16.5%) and finally those aged 18 years (9.7%)

Figure 3: Marital status of mother



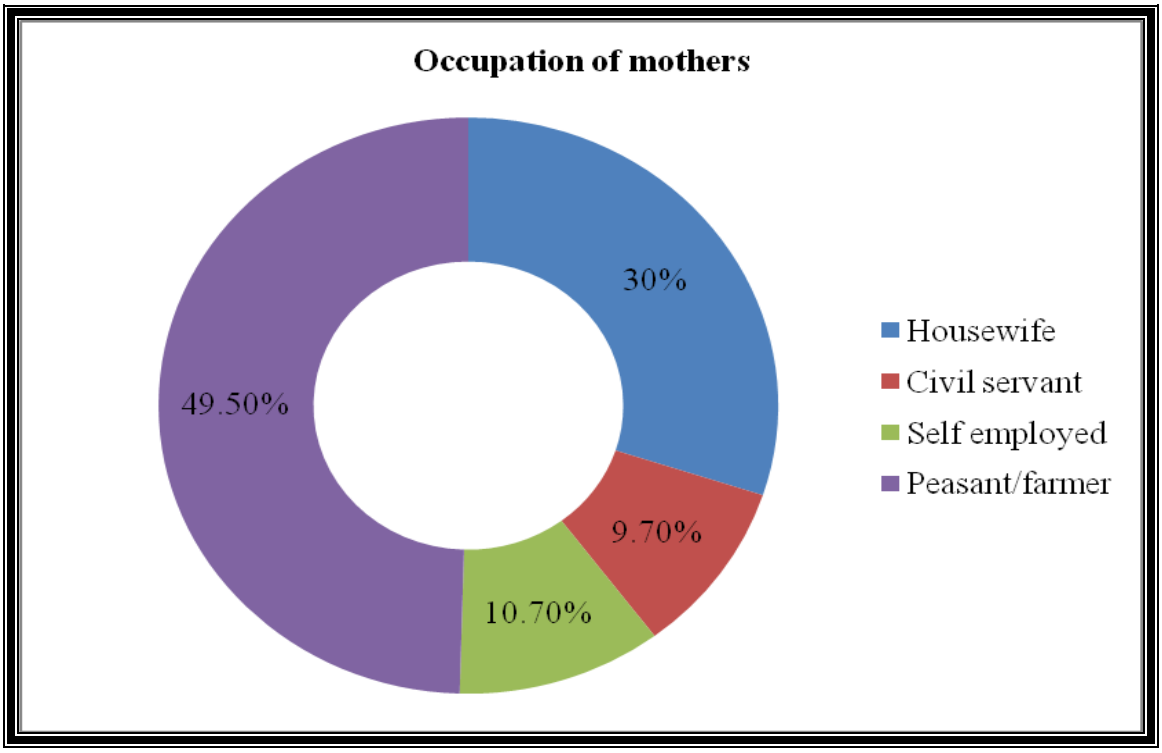
(41.7%) were married, 40 (38.8%) were single, 11 (10.7%) were widowed and 9 (8.7%) were separated or divorced

Figure 4: Education level of mothers



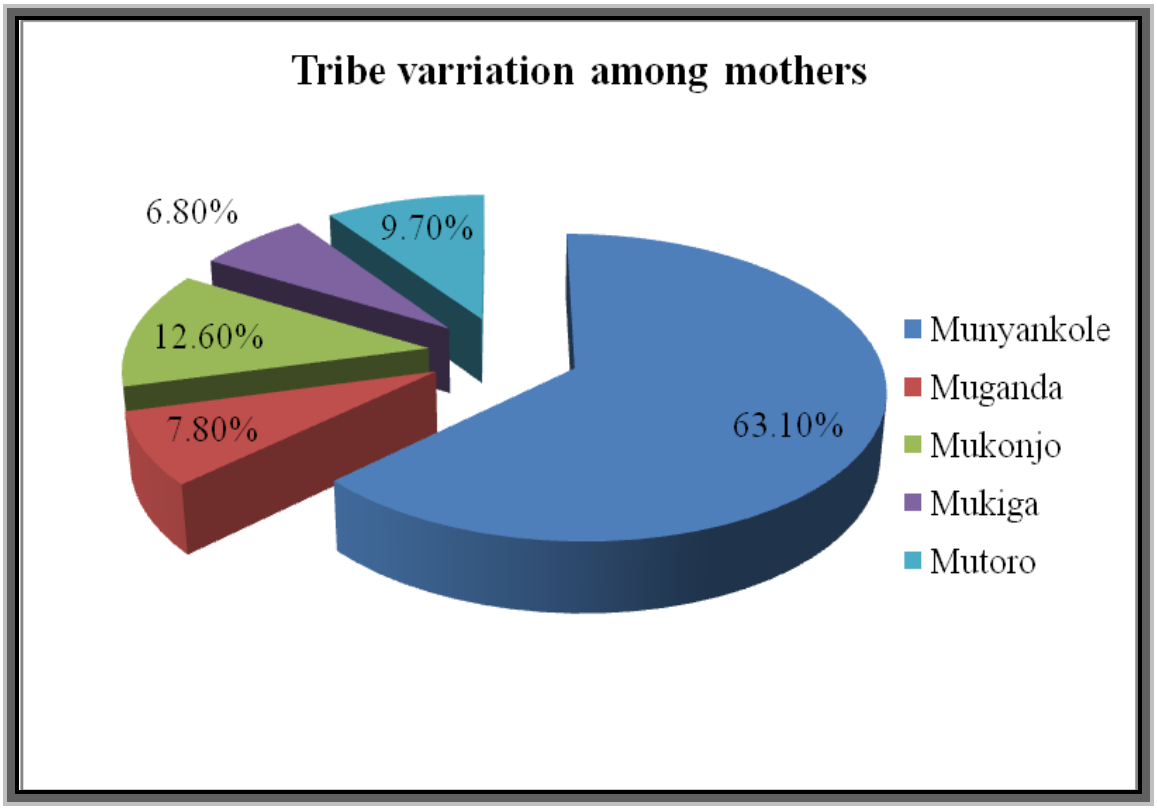
(44.7%) of the mothers were not educated, (35%) reached primary level, (19.4%) reached secondary level while (2.9%) attained tertiary education.

Figure 5: Occupation of mothers



(49.5%) of the mothers were peasants farmers, (30%) were housewives, (10.7%) were self employed and (9.7%) civil servants.

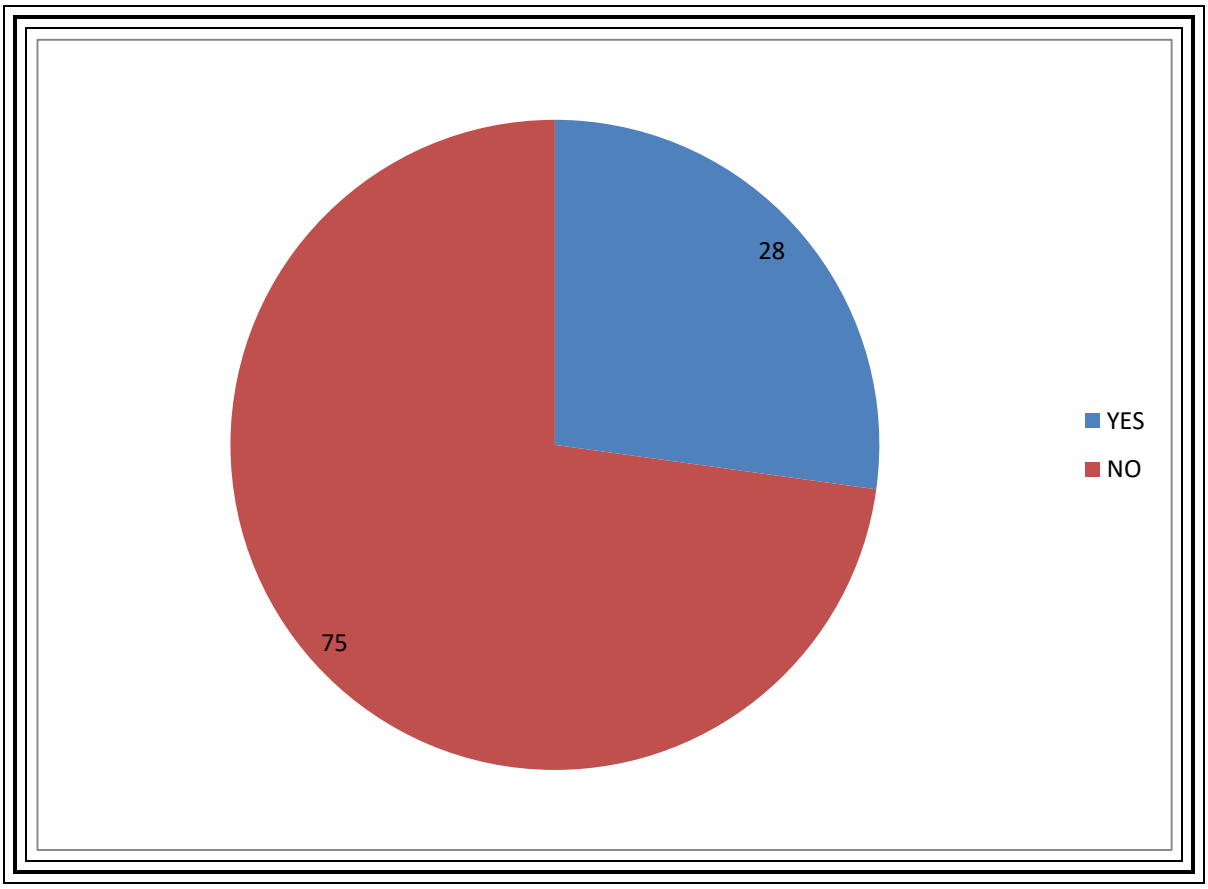
Figure 6: Tribe of Clients



(63.1%) of the respondents were Banyankole, (12.6%) were Bakonjo, (9.7%)) Batoro, (7.8%) were Baganda and (6.8%) were Bakiga.

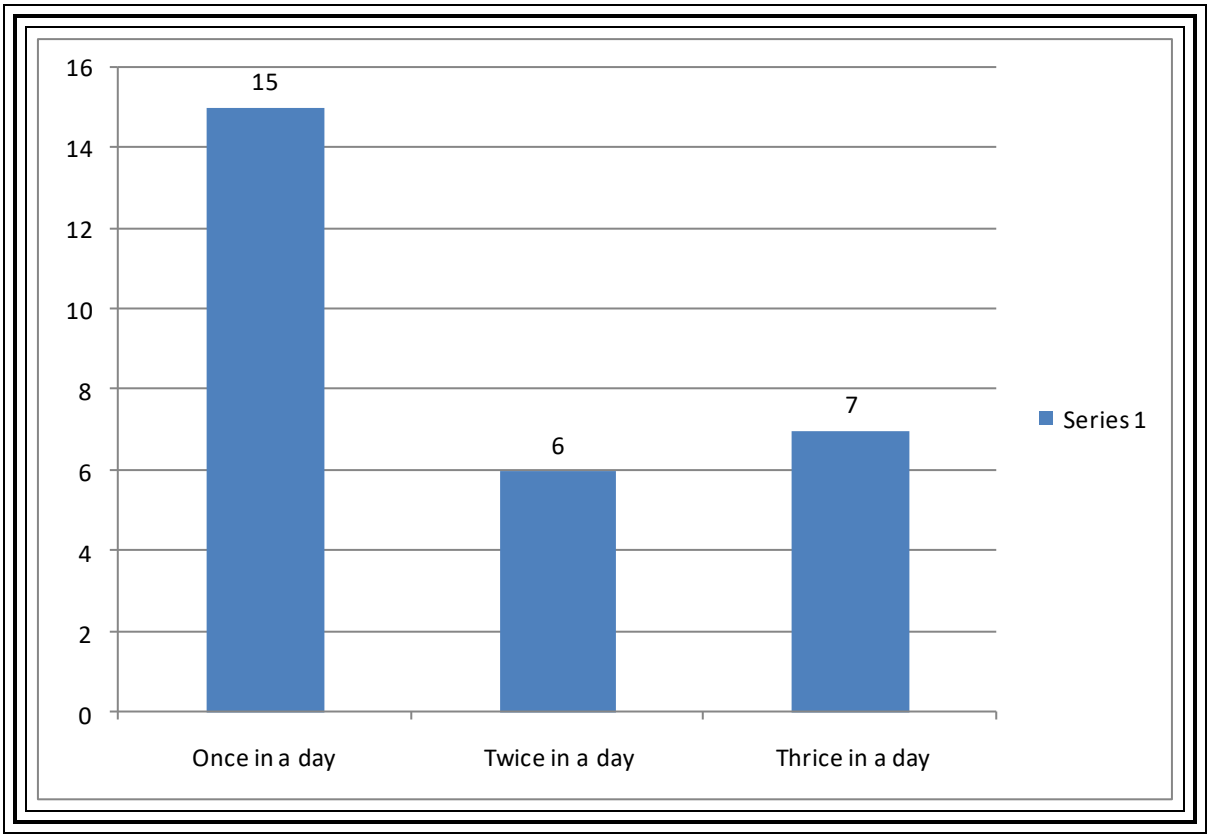
4.1.1 Factors associated with elevated risk of hypertension

Figure 7: Smoking



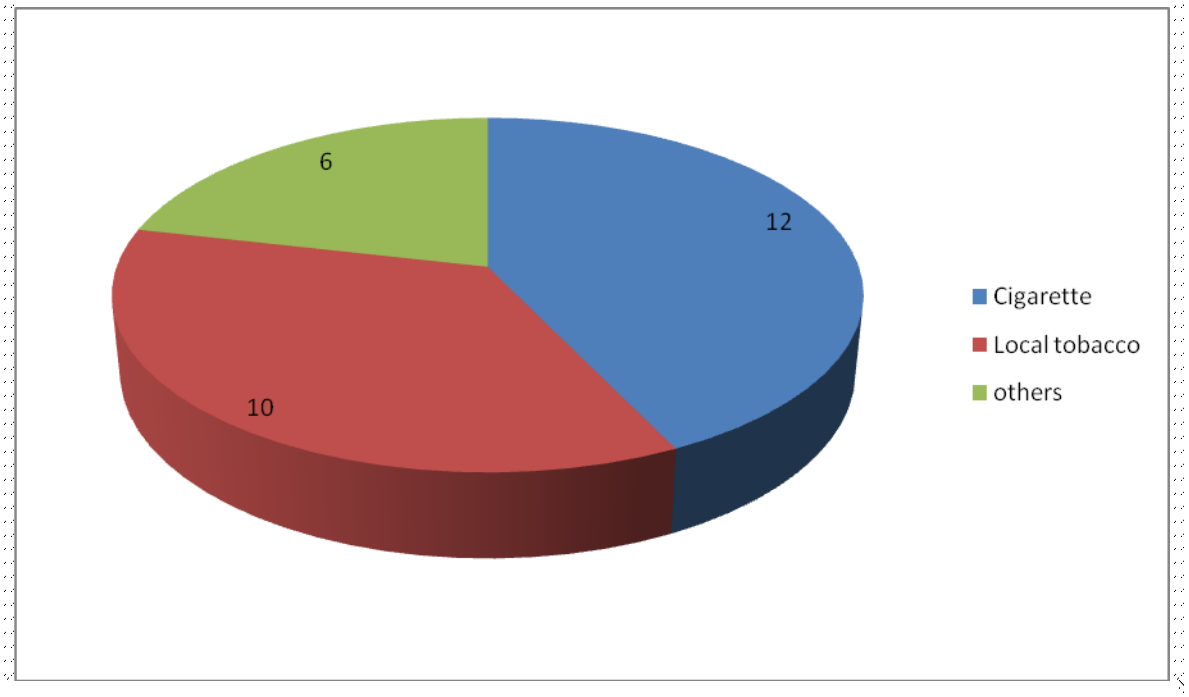
75 (73%) were none smokers, while 28 (27%) did smoke cigarrates.

Figure 8: Frequency of smoking



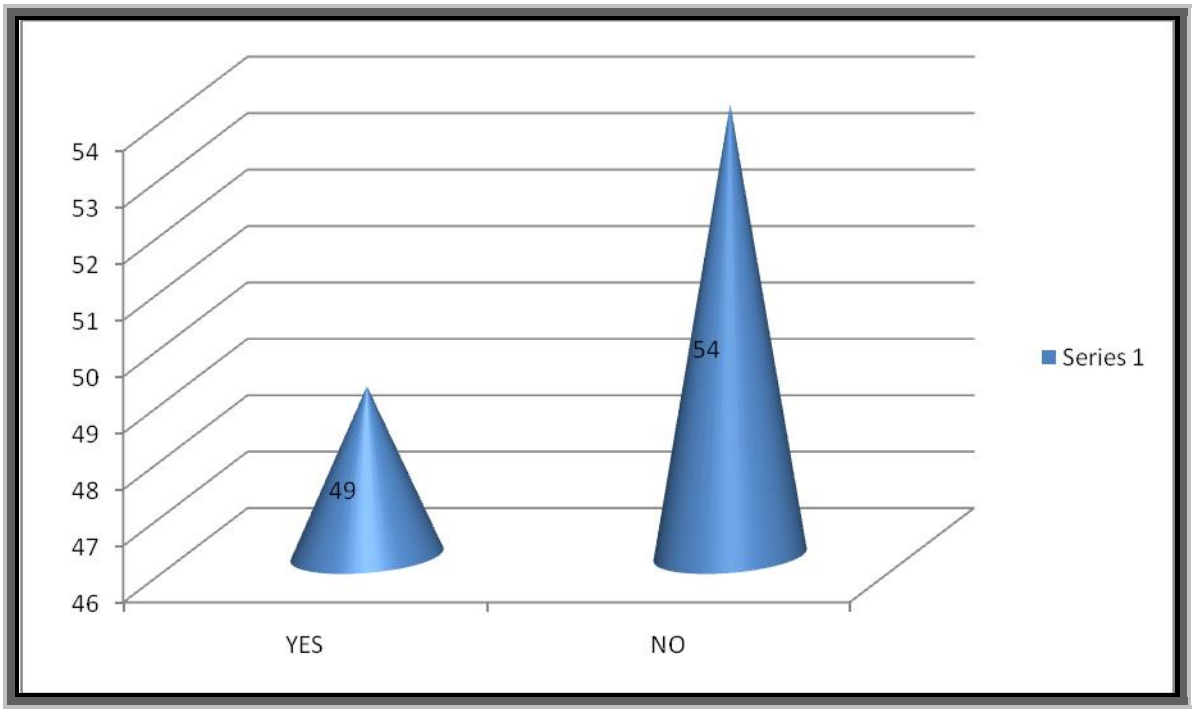
15 (53.6%) of the mothers smoke once in a day, 6 (21.4%) smoke twice a day while 7 (25%) smoke thrice in a day.

Figure 9: What the mothers smoke



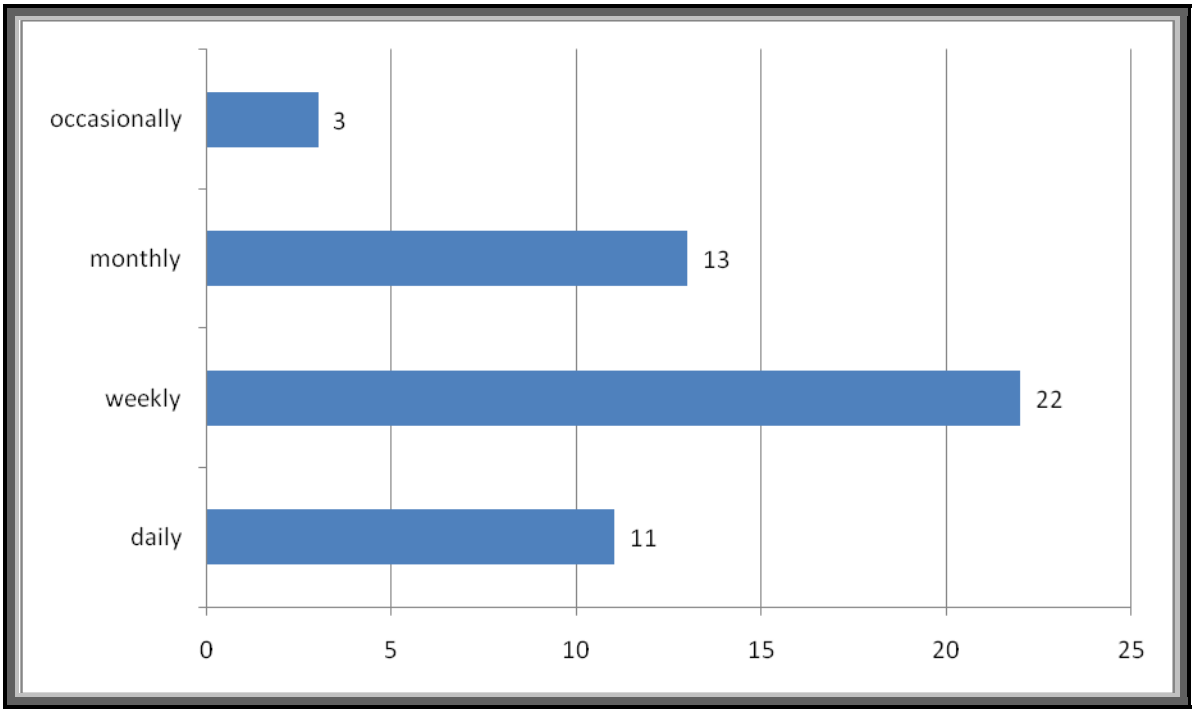
12 (42.9%) smoked cigarettes, 10 (35.7%) smoke local tobacco and 6 (21.4%) smoke other unclear substances example marijuana.

Figure 10: Alcohol consumption.



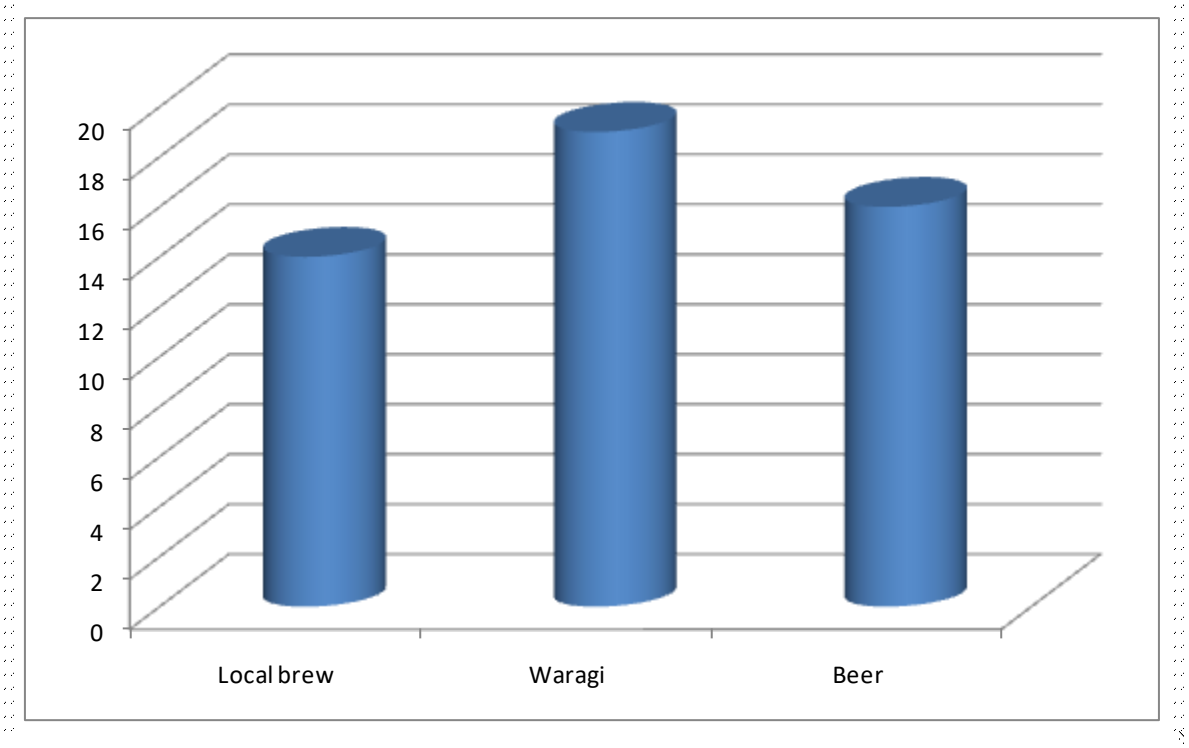
(52.4%) did not take alcohol while (47.6%) were using alcoholic drinks.

Figure 11: Frequency of alcohol intake



(44.9%) took alcohol weekly, (26.5%) do take it monthly, (22.4%) consume alcohol daily and (6.1%) take it occasionally.

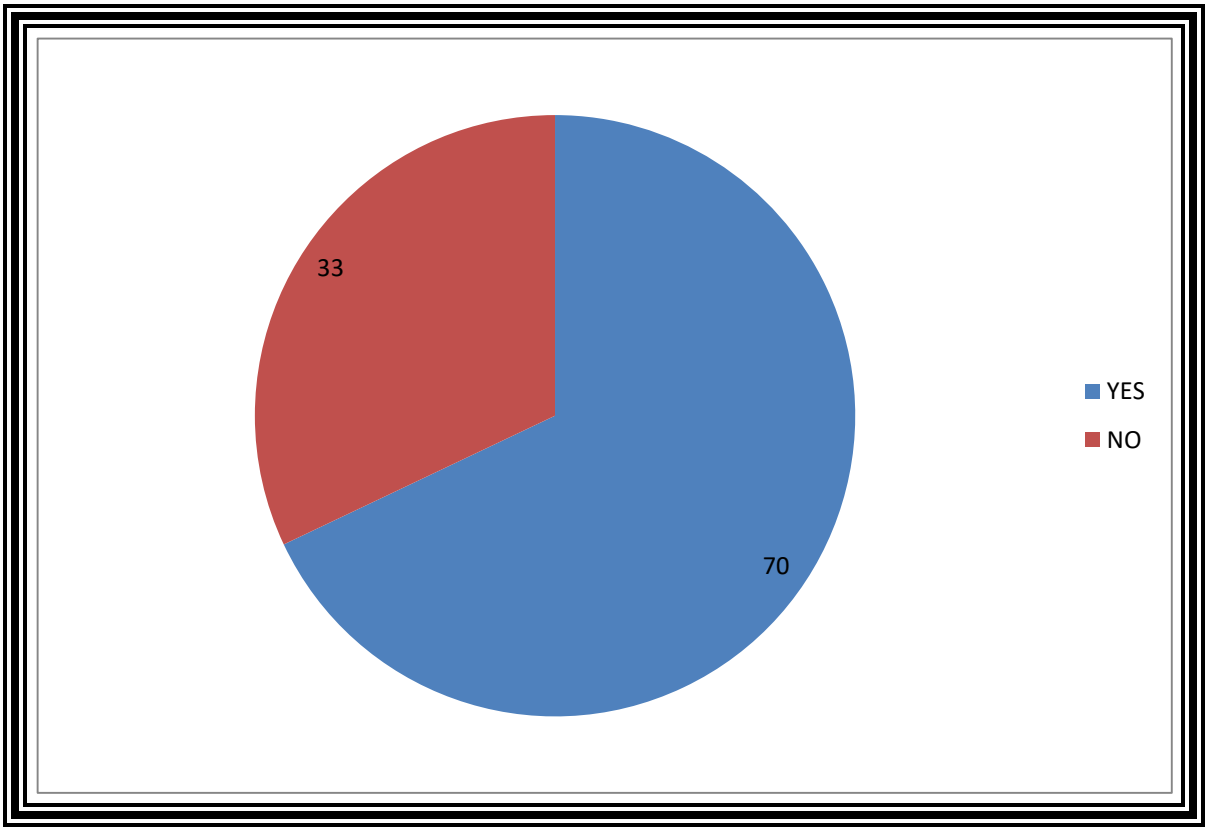
Figure 12: Type of alcohol consumed



(38.8%) take "waragi", (28.6%) take local brew and (22.7%) take commercial beer.

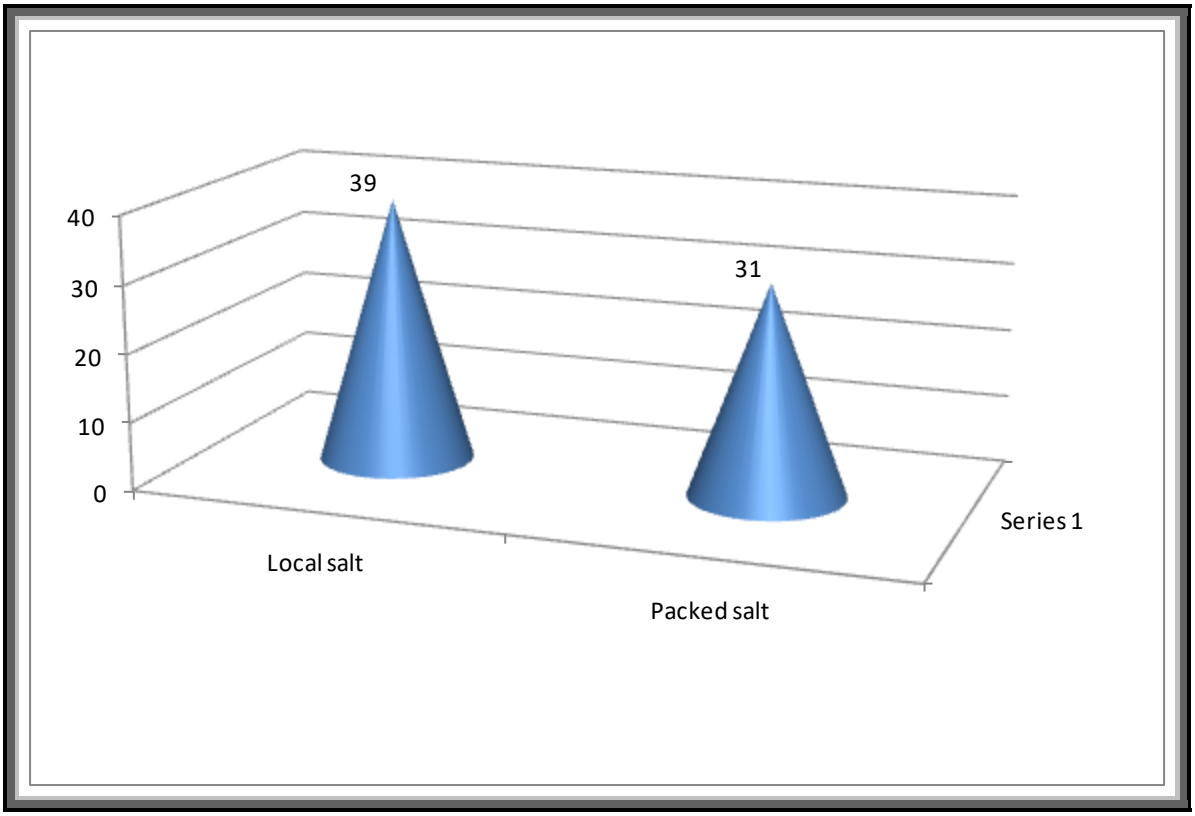
"*Waragi*": Alcohol made from cassava, Local brew (*tonto*): Alcohol from ripe Bananas.

Figure 13: Mothers who add raw salt to already prepared food



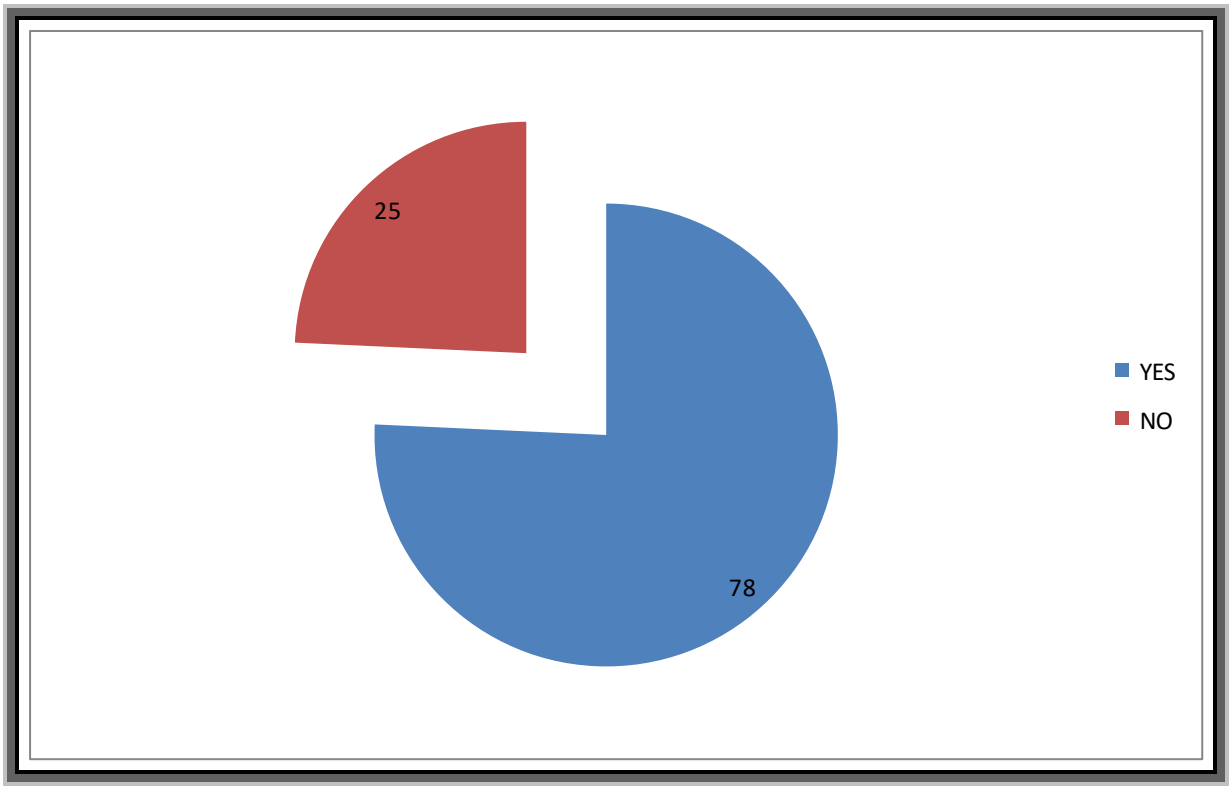
(68%) Of the hypertensive mothers add salt to already prepared food and (32%) do not involve in this practice.

Figure 14: Type of salt added to food



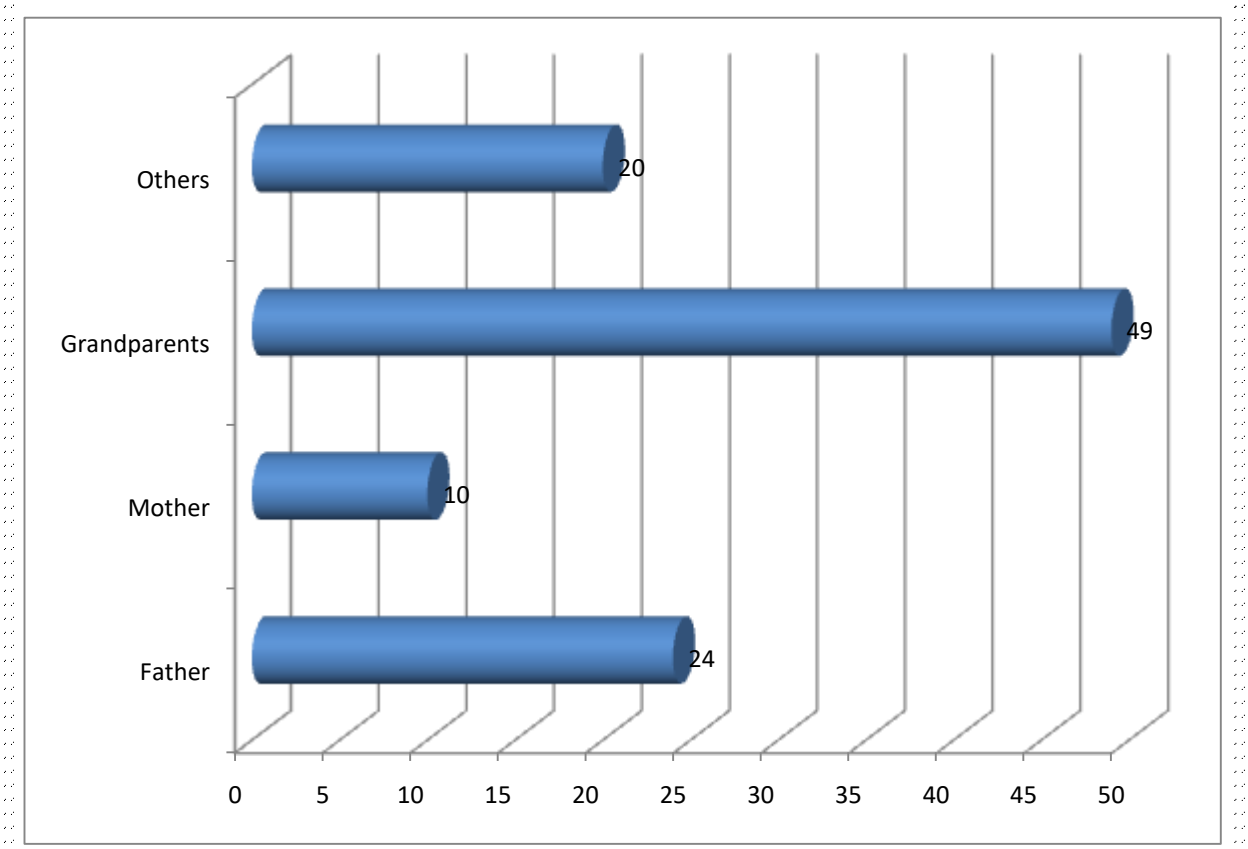
(55.7%) add local salt (*magadi*), while (44.3%) add packed salt.

Figure 15: History of having family members with hypertension



(75.7%) of the mothers knew of their family member/s with hypertension while (24.3%) did not know any of their family members with hypertension.

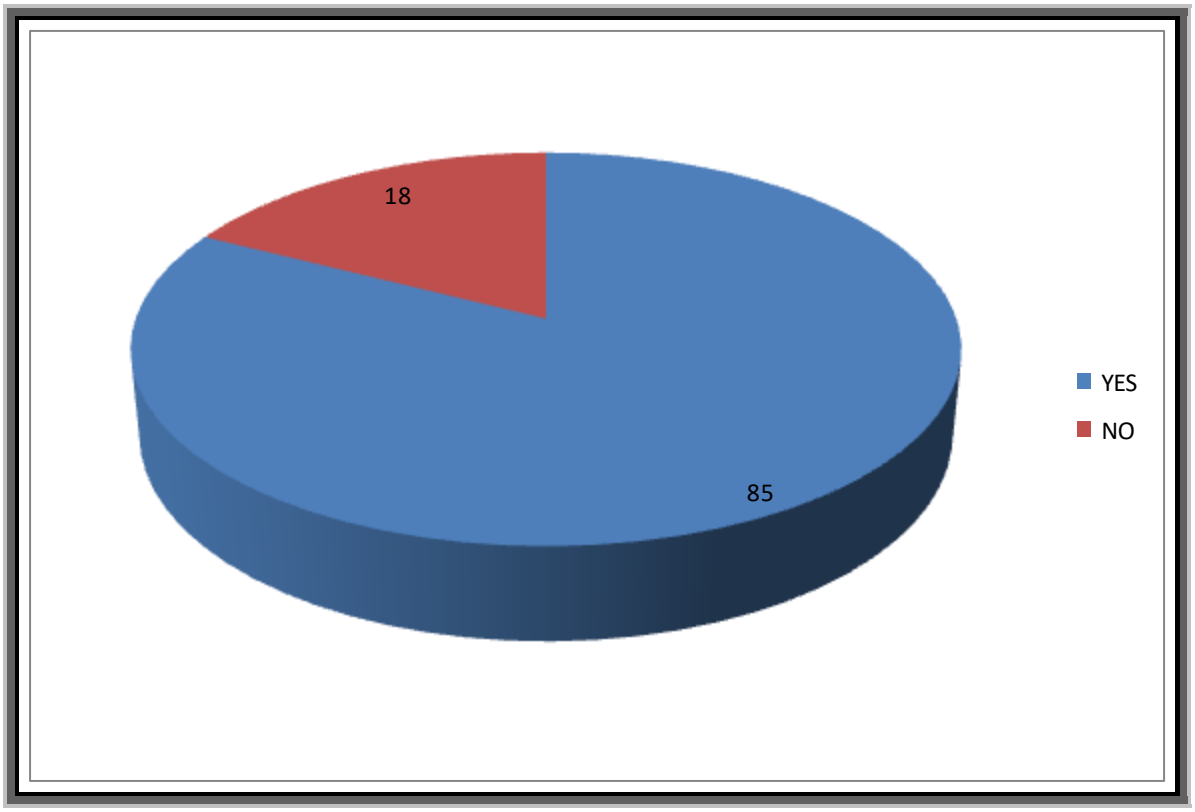
Figure 16: History of first degree family member/s with hypertension



(30.8%) had hypertensive father, (62.8%) had hypertensive grandparents, (25.6%) had other close family members having high blood pressure and (12.8%) had their mothers having hypertension.

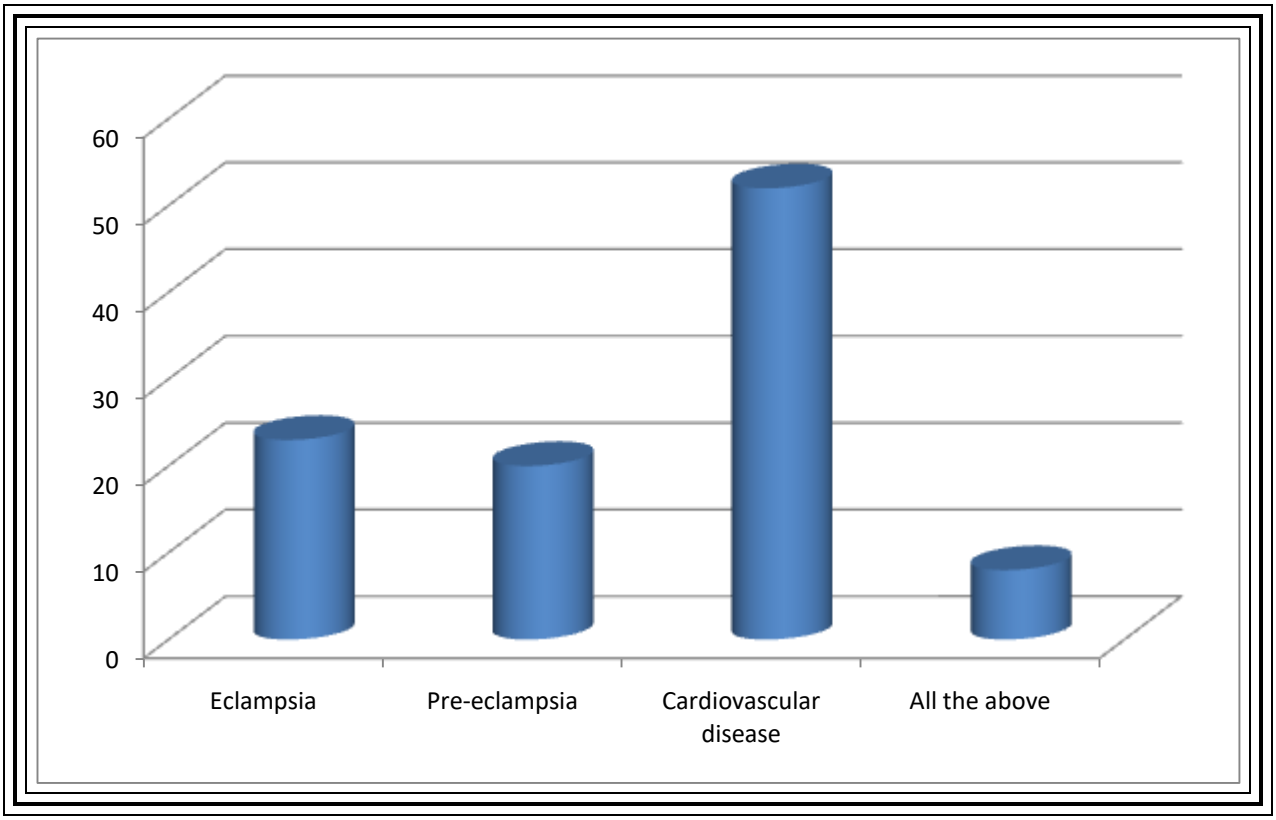
4.1.2 Knowledge on complications related to hypertension

Figure 17: Belief that if hypertension is not treated complications may result



(82.5%) believe that if hypertension is not treated it can lead to complications, (17.5%) mothers thought it cannot lead to complications.

Figure 18: Mentioned complications associated with hypertension



(61.2%) knew hypertension leads to cardiovascular diseases, (27.1%) reported hypertension leads to eclampsia, (23.5%) mentioned pre-eclampsia and (9.4%) reported all the above

CHAPTER FIVE

DISCUSSION OF STUDY FINDINGS

5.1.0 Demographic characteristics

Majority of the mothers were above 25 years of age 45 (43.6%), followed by those aged 25 years 31 (30%). Those at 20 years were 17 (16.5%) and mothers aged 18 years were 10 (9.7%). The study targeted women in the reproductive age bracket.

46 (44.7%) of the mothers were not educated, 34 (35%) reached primary level, 20 (19.4%) reached secondary level while 3 (2.9%) reached tertiary level. Education level has been low among especially rural populations from western Uganda (UDHS report; 2006).

51 (49.5%) of the mothers were peasants, 31 (30%) were housewives, 11 (10.7%) self-employed and 10 (9.7%) had government jobs. The main economic activity of most individuals in western Uganda involves small scale farming (Uganda demographic survey; 2007).

65 (63.1%) of the mothers were Banyankole, 13 (12.6%) Bakonjo, 10 (9.7%)) were Batoros, 8 (7.8%) Baganda and 7 (6.8%) were Bakigas. Buhshenyi district is the home land for Banyankole, other tribes which are found here comprise of few individuals who are either married, doing business or doing some other kind of work.

5.1.1 Factors associated with hypertension

75 (73%) of the mothers did not smoke, 28 (27%) were smokers. 15 (53.6%) of the mothers who do smoke, do it once in a day, 6 (21.4%) smoked twice a day while 7 (25%) smoke thrice in a day. Of the 28 respondents who smoke, 12 (42.9%) smoke cigarette, 10 (35.7%) smoke local tobacco and 6 (21.4%) gave other unclear types of smoking which include marijuana.

Smoking is considered to be a second killer in the world; it' estimated that 13,000 lives are sent to their graves early by smoking. Tobacco smoking, chewing or inhaling is responsible for disease like hypertension, ischemia and heart disease among others (Ballangio; 1995).

54 (52.4%) mothers did not take alcohol, 49 (47.6%) indicated they take alcohol. Out of the 49 mothers whose medical records pointed alcohol consumption, 22 (44.9%) were taking it weekly, 13 (26.5%) took alcohol monthly, 11 (22.4%) reported they take it daily and 3 (6.1%) said they take it occasionally. 19 (38.8%) taking alcohol take crude waragi, 14 (28.6%) reported they take other local brew and 16 (22.7%) mentioned they take bottled beer.

Consuming much alcohol can raise blood pressure to unhealthy levels. Having more than three drinks in one sitting temporarily increases our blood pressure, but repeated binge drinking can lead to long-term increases. Heavy drinkers who cut back to moderate drinking can lower their systolic blood pressure by 2 to 4 millimeters of mercury and their diastolic blood pressure by 1 to 2 mm Hg. Heavy drinkers who want to lower blood pressure should slowly reduce how much

they drink over one to two weeks. Heavy drinkers who stop suddenly risk developing severe high blood pressure for several days (Sheldon B.; 2001).

70 (68%) of the mothers in their medical records indicated they add salt to already prepared food and 33 (32%) said they do not. Of the 70 respondents who add salt to already prepared food, 39 (55.7%) mentioned they add local salt while 31 (44.3%) add packed salt.

Normally the kidneys control the levels of electrolytes including sodium, if there is too much salt, the kidneys pass it into urine. But when our salt intake levels are very high, the kidneys cannot keep up and the sodium level plus other electrolytes rises in plasma. Salt attracts water. When there is too much salt in the blood, the salt draws more water into the blood. More water increases the volume of blood which raises blood pressure. Processed foods use salt as an additive. Almost 80% of the average person's daily salt intake comes from processed foods. If we ate only natural foods and limited the addition of raw salt, we would be able to eliminate excess salt in our diets and keep normal blood pressure readings (Richards et al; 2008).

78 (75.7%) of the mothers knew of their family members who has suffered from hypertension while 25 (24.3%) did not know any close family member with hypertension. Of the mothers who knew of a family member with history of hypertension, 24 (30.8%) mentioned their father, 49 (62.8%) indicated hypertensive grandparents, 20 (25.6%) mentioned other family members and 10 (12.8%) indicated their mother.

5.1.2 Complications related to hypertension

85 (82.5%) of mothers believed untreated hypertension can lead to complications while 18 (17.5%) thought it no complications. Of the 85 mothers who mentioned complications can arise if hypertension is not treated, 52 (61.2%) indicated it can result to cardiovascular diseases, 23 (27.1%) said eclampsia, 23 (23.5%) talked of pre-eclampsia and 8 (9.4%) said it leads to all the above. Hypertension is widely reported in Africa and is currently the most common cause of cardiovascular disease on the continent, a major factor in the high mortality among adults in sub-Saharan Africa. Hypertension was formally unfortunately thought to be rare in rural Africa. On the other hand, hypertension complications include; stroke, heart failure, and renal failure reported all over the world (WHO; 2002).

CHAPTER SIX

CONCLUSSIONS AND RECOMMENDATIONS

6.1.0 Conclusions

In this study on the prevalence of hypertension among pregnant mothers attending ANC at KIU-TH, all the mothers whose treatment records were used in this study have ever been diagnosed with hypertension or have active hypertension.

Pregnancy with hypertension put women at a high risk of cardiovascular complications. Major factor noted to predispose the pregnant women to hypertension was adding extra salt to food. This was probably because the mothers did not know or do not take seriously the negative health effects of adding extra salt to already prepared food. More adequately targeted health education during antenatal care period as well as other periods could help in better prevention of excessive salt induced high blood pressure.

Other factors noted to predispose mothers to hypertension were; history of taking alcohol and smoking. Most mothers agreed that if hypertension is not treated complications can arise; the major complication that can arise due to unmanaged hypertension according to the mothers was major heart disease. Other complications mentioned were pre-eclampsia and eclampsia. Most individuals believe hypertension is directly related to the cardiovascular system though they may not know the exact mechanism of how the two are related (WHO; 2002).

6.1.1 Recommendations

All pregnant women should receive pre natal education on hypertension so that they are aware of the symptoms associated with pre-eclampsia and eclampsia, complications and the need to obtain medical advice.

Hypertensive pregnant mothers should receive special medical care example ultrasound examination at 34 weeks to assess fetal growth and amniotic fluid volume (with umbilical artery Doppler velocimetry).

Both pregnant and non-pregnant women should be educated on the general approaches of preventing hypertension including; maintaining a normal weight, regular exercise, reducing salt intake, copying with stress and avoiding alcohol consumption.

Early identification and management of complications related to hypertension should be apriority in policy making in co-ordination with all health centers and hospitals. Pregnant hypertensive women should be better educated on how to control hypertension so that complications are avoided.

Innovations to increase demand for ANC are crucial.

Quality of diet should be addressed during ANC.

APPENDICES

Appendix 1 Work plan

Activity	January	February	March	April	May
Identification of topic and formulation of objectives					
Preparation of first draft					
Preparation of second draft					
Consulting supervisor					
Writing of final draft Proposal					
Draft Proposal submitted to Dean school allied health					
Collection of data					
Consulting supervisor					
Analysis of data					
Preparing draft dissertation Report					
Consulting supervisor					
Writing of final dissertation Report					
May 2014, copies of research Report will be submitted to the School of Medicine and Dentistry KIU Western Campus.					

(Figure 19)

Appendix 2: Research Budget

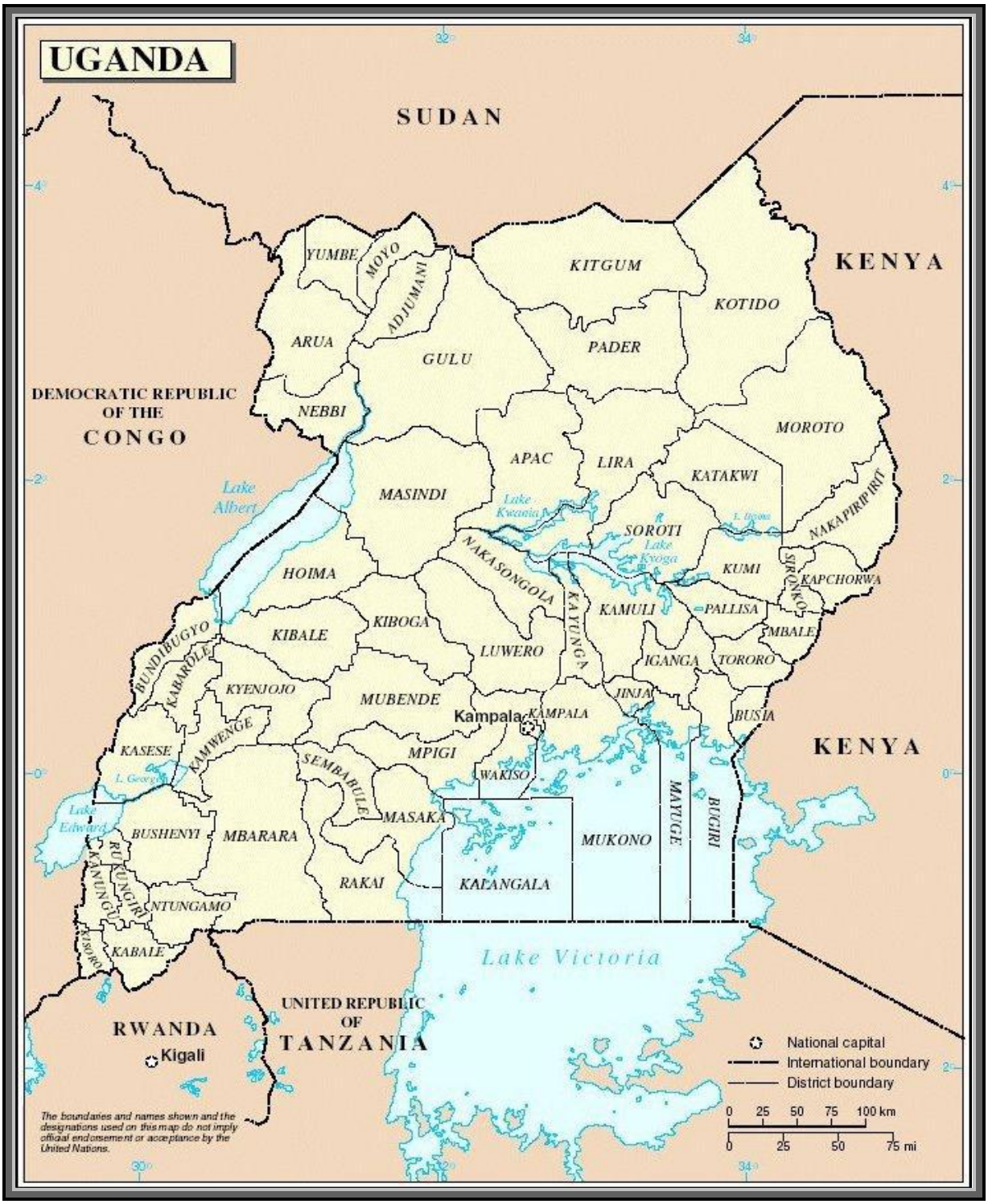
ACTIVITY	QUANTITY	AMOUNT	TOTAL
Reams of plain papers	2	15,000/=	30,000/=
Cost of internet	For 2 months	10,000/= each	20,000/=
Pens and pencils	4	500/=	2,000/=
Typing and printing, photocopying and binding 2 copies of proposal	4	90,000ugx each	360,000
Typing an printing, photocopying of research report (3 copies)	3	100,000ugx each	300,000ugx
Grand total: 973,000/=			

(Figure; 20)

Appendix 3: Map of Bushenyi District

(Figure; 21)

Appendix 4: Map of Uganda



(Figure; 22)

Appendix 5: Data collection sheet

Prevalence of hypertension among pregnant mothers in Bushenyi District, Case study of Ishaka Adventist Hospital

Demographic Data					
Age of mothers (years)	18	20	25		>25
Frequency					
Marital Status of mothers					
Single	Married	Widowed	Divorced		
		Educational level of the mothers			
None	Primary	Secondary	Tertiary		
Frequency					
Occupation of the mother					
	Housewife	Self employed	Farmer	Others	
Frequency					
Tribe of the mothers					
Munyankole	Muganda	Mukonjo	Mukiga	Mutooro	
Frequency					
Religion of the mothers					
Catholic	Protestant		Muslim	Others	
				Frequency	
Factors associated with hypertension					

Smoking			Does not smoke	
Frequency				
Frequency of smoking per day				
Once		Twice		Thrice
Nature of what is smoked				
Cigarette		Local tobacco		Others
Alcohol intake				
	Yes		No	
Frequency				
Drinking Alcohol				
	Daily	Weekly	Monthly	Occasionally
Frequency				
Type of alcohol consumed				
	Local	Waragi	Bottled Beer	
Frequency				
Addition of salt to prepared				
	Add salt		Do not add salt	
Frequency				
Type of salt added				

	Local		Packed	
Frequency				
Family history of hypertension				
	Positive		Negative	
Frequency				
Awareness that hypertension untreated cause complications				
	Aware		Not aware	
Frequency				
Known complications of hypertension to the mothers				
	Eclampsia	Pre-eclampsia	Heart disease	All the above

REFERENCES

Adam T., Lim S.S., Mehta S., Bhutta Z.A., Fogstad H., Mathai M., Zupan J., and Darmstadt G.L. "Cost effectiveness analysis of strategies for maternal and neonatal health in developing countries" *British Medical Journal.* Nov. 12, 331(7525), (2005)

Ainsworth M. and Over M., "AIDS in African Development," *Research Observer* 9(2): 203–240, (1994).

Aristotle University Medical Journal (2010)

Caritis S, Low-dose aspirin to prevent preeclampsia in women at high risk. National Institute of Child Health and Human Development Network of Maternal- Fetal Medicine Units. *N Engl J Med* 1998; 338(11):701-5

Cunningham FG, MacDonald PC, Gant NF, eds: Williams'Obstetrics. 28th ed. Norwalk, CT: Appleton and Lange; 2010

ChelsyLC.Hypertensive Disorders in Pregnancy, 14th Edition, 1971, page 700 (1968)

Davidson R. Gwatkin, "Beyond the Averages," Countdown 2015 Sexual and Reproductive Health & Rights for All. *Discussion Paper, July* (2005).

World Bank: Washington, DC. IM Robert, Preeclampsia and Genetics of Preeclampsia (2001)

Lancent (2008); 371:915-22, White HD and Dolby Aj; Heart diseases study of Soweto- South Africa

Nightingales LUJF, Magnesium Sulfate in Eclampsia and Preeclampsia (2000)

Raj. Thuraisingham (September 2008); Medical Education Resources Africa

Prevention of non-communicable disease, World Health Organization (2005);

WWW.patient.co.UK./showdoc/40000573-American guideline on hypertension

WWW.pub.medcentral.nih.gov/article (2007); copyright@makerere medical school

Make Every Mother and Child Count," World Health Report 2005. Geneva: WHO, 2005

Margaret E. Greene and Thomas Merrick, "Poverty Reduction: Does Reproductive Health Matter?" World Bank HNP Personal communication, Khama Rogo, World Bank.

Presentation by Ana Langer, Countdown 2015 Global Roundtable, London, 31 August–2 September 2004.

The Millennium Development Goals Report (2005). New York: United Nations.

Washington, DC: IPPF, PCI, FCI, (2004).

Charles Agyemang, Ellis Owusu-Dab. “Prehypertension in the Ashanti region of Ghana, West Africa: An opportunity for early prevention of clinical hypertension” *Public Health, Volume 122, Issue 1, January 2008, Pages 19-24*

Judith R. Bale, Barbara J. Stoll, Adetokunbo O. Lucas Improving Birth Outcomes: Meeting the challenges in the developing world. Washington, D.C. *National Academies Press* 2003.

LCY Poon, NA Kametas, T Chelemen, A Leal and KH Nicolaides. Maternal risk factors for hypertensive disorders in pregnancy: a multivariate approach. *Journal of Human Hypertension* (2010) 24, 104-110.

Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. *Am J Obstet Gynecol*. Jul 2000; 183(1):S1-S22).

Caritis S, et al: Low-dose aspirin to prevent preeclampsia in women at high risk. National Institute of Child Health and Human Development Network of Maternal- Fetal Medicine Units. *N Engl J Med* 1998; 338(11):701-5