

UNIVERSITY OF NAIROBI
FACULTY OF ARTS
DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK

**FACTORS INFLUENCING ADHERENCE TO HYPERTENSION
MEDICATION: A CASE STUDY OF HYPERTENSION PATIENTS AT (MAMA
LUCY KIBAKI REFERRAL HOSPITAL EMBAKASI NAIROBI)**

BY
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DECLARATION

Declaration by the Candidate

I declare that this project is my original work and has not been presented for a degree in any other university.

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Declaration by the supervisor

This project has been submitted for examination with my approval as the University supervisor.

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ACRONYMS

A.P.H.R.C	-	African Population and Health Research Center
C.D.C	-	Centre for Disease Control
H.B.M	-	Health Belief Model
H.I.V	-	Human Immune Deficiency Virus
I.S.H.	-	International Society of Hypertension
K.K.L.F	-	Kenya Kidney and Lupus Foundation
M.O.H	-	Ministry of Health
ML.K.R.H	-	Mama Lucy Kibaki Referral Hospital
N.H.A.N.E.S	-	National Health and Nutrition Examination Survey
U.N.D.P	-	United Nations Development Programme
WHO	-	World Health Organization

ABSTRACT

Medication adherence is a complex multidimensional phenomenon involving various personal, social, economic and cultural factors which are not clearly understood. It is important that health care professionals and medical sociologists understand the factors that affect compliance in their own context in order to manage the disease effectively. This study had focused on the factors influencing adherence to hypertension medication. The study relates to hypertension patients at Mama Lucy Kibaki Referral Hospital Embakasi Nairobi. This study focused on the following objectives; to assess patients' knowledge of the hypertension disease, to determine adherence levels among patients with hypertension at Mama Lucy Kibaki Referral Hospital, to assess the patient perception on the importance of adherence to hypertension medication and to identify and assess the social cultural factors that influence adherence to hypertension medication. A case study approach was used where both qualitative and quantitative research methods were employed, Random sampling was employed to identify the patients to be included in the study and purposive sampling in identification of key informants being doctors, nurses, pharmacists and record officers. The study revealed that the cost of medication is the top most factor influencing adherence to medication and that despite patients having relatively fair knowledge of hypertension disease, their lack of understanding of the seriousness of non-adherence to the medication was very low. It concluded that lack of awareness of the value and effect of adherence were major factors contributing to medication adherence. It was also revealed that the socio-cultural factors, notably religious belief and traditional medication, have very insignificant effect on adherence to medication by the patients. The study recommends that measures should be taken to subsidize the cost of medication to improve adherence and there is need for doctors to educate the patients on the severity of non-adherence to medication and mechanisms should be introduced to subsidize the cost of medication.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Hypertension cases have their historical origins as early as 2600B.C when the ancient Chinese could only suspect hypertension by the quality of one's pulse (Roberts S. R., 1936). Despite these early origins it took centuries before hypertension was declared a chronic disease. According to WHO (2013), low adherence to hypertension medications remains a public health challenge.

According to McDonald, et al (2002), medication adherence is a complex multidimensional phenomenon involving various personal and social economic /cultural factors which are not clearly understood. It is therefore important that health care professionals and medical sociologist understand what factors affect compliance in their own context in order to manage the disease effectively.

Opie and Seedat, (2005) state that hypertension or blood pressure is responsible for 1.6 billion deaths worldwide each year with 80% of these deaths occurring in low and middle income countries like Kenya. A report by U.N.D.P (2012) states that the number of people with hypertension in both developed and developing countries is drastically increasing. It shows that in some African countries as much as half of the adult population has high blood pressure. This U.N.D.P (2012) report continues to state that in low and middle income countries, where there many people of low social economic status hypertension cases and deaths are on the increase.

A study by Boutayeb and Boutayeb, (2005) states more people (12.5% in sub-Saharan Africa die from hypertension related conditions compared to HIV aids with 12.3% and malaria at 7.3%. A W.H.O (2003) report showed that in 2000 over one (1) billion of the world population had hypertension and was estimated to raise by 40% in 2025.

In most high income countries there is an increased diagnosis of hypertension and treatment with low cost medication which has resulted in reduced mean blood pressure across the population. This has led to great reduction in deaths related to hypertension complications Banca (2001). In contrast however, in African countries over 40% of the adults are estimated to have high blood pressure and to make it more worse most of them remain undiagnosed even though many of these cases could be treated within low cost medication which could significantly reduce the risk of death (Chobanian, 2003).

Uncontrolled hypertension is caused by non-adherence to the anti-hypertensive drugs, patients understanding of their drug regimes help to improve there adherence, this will help prevent the complications of hypertension which are debilitating and if not prevented can increase the burden of a disease that is already on the increase (Kumar and Halesh, 2010). The world population of people with high blood pressure or uncontrolled hypertension reduced marginally between 1980 and 2008. However because of population growth and ageing the number of people with uncontrolled hypertension rose from 60 million in 1980 to nearly 1 billion in 2008 (W.H.O, 2010).

A WHO (2008) study on the prevalence rates of hypertension among the world's continents shows that Africa has the highest prevalence rates of hypertension at 46% of both men and women. The region with the lowest prevalence rates of hypertension was America with 35% of both sexes. According to this WHO (2008) study in both continents i.e American and Africa men had the highest prevalence rates of hypertension than women with Africa having 40% prevalence rate for men and 36% for women and America 39% prevalence rate for men as compared to women with 32%.

1.1.1 Hypertension in Kenya

According to statistics published by the WHO (2011), hypertension deaths reached 2,845 or 0.90% of the countries annual deaths. These statistics analyzed the twenty (20) main causes of death in Kenya and hypertension was ranked position 11th behind HIV/Aids, strokes, heart diseases, tuberculosis road accidents and violence. The above WHO (2011) Kenya Statistics show the prevalence of hypotension in rural Kenya is 21% compared to 19% in rural Nigeria.

A research conducted by APHRC (2013) in two slum areas in Nairobi (Korogocho and Viwandani) shows that one (1) out of eight (8) adults living in Nairobi slums are battling with high blood pressure and only half of them had been tested or received treatment in the past one year. This APHRC (2013) research on these two slums in Nairobi shows that 80% of those tested and found to have hypertension were previously un-aware of there hypertension conditions before. The APHRC (2013) research shows that Kenya like the rest of the world is facing big crisis in the health sector as more and more Kenyans are being diagnosed with hypertension. Due to the above trends in the rise

of hypotension cases it is now known as a “SILENT KILLER” because it has no symptoms that can compel the sufferer to seek urgent medical attention yet it is a serious life threatening condition (CDC, 1998).

A report released by the Kenya country office of WHO (2013) states that four (4) out of ten (10) Kenyans have high blood pressure. These are very alarming statistics by any standards. This is further complicated by the fact that many of those who have hypertension are not aware because it has no symptoms which can make these patients seek urgent medical attention according to this report. The WHO (2013) report shows that this trend has had the following results on Kenya’s economy. There are an increased number of deaths due to hypertension; it has drained on the countries resources like man power and cash investment to health care. It has become a silent killer since many people are not aware of these hypertension conditions.

1.1.2 Management of hypertension

Hypertension is an important public health challenge the world over due to its high prevalence rate and strong association with heart diseases (Cutler et al, 2008). Approximately 73 million US adults (35 million men and 38 million women had hypotension in 2006 (Lawes, 2008). According to the international society of hypertension (I.S.H, 2003) 67 million American adults (31%) had high blood pressure that is 1 in every 3 American adults had hypertension. Interm of management costs the government of U.S.A spends dollars 49.5 billion annually indirect medical expenses to manage hypertension (WHO, 2003).

The world Health organization (WHO) and the international society for hypertension I.S.H in (1999) issue guidelines for the management of hypertension. Based on these clinical guidelines to manage hypertension the U.S.A government has put in place policy measures to control and manage hypertension. These include the government has made it possible that nearly 90% of the U.S.A adults with uncontrolled hypertension have access to health care insurance. This management step led to good results with 47% of American with hypertension in 2011 having these blood pressure controlled due to insurance cover and health care services being available (Chobanian , 2003).

1.1.3 Management of hypertension in Kenya

According to WHO (2013) report released by the Kenya country office states that four (4) out of ten (10) Kenyans have hypertension. However despite these alarming statistics. The country faces various challenges in terms of hypertension detection, diagnosis and eventually management of the disease. Due to the limited health care facilities and resources it becomes almost impossible to detect or diagnose hypertension especially where the individual resides in rural settings where health facilities are scarcely located and also the personal and the equipment not readily available as and when it is required. The management of hypertension also requires the patient to change their life styles, adherence to hypertension medication and also use of proper diet (Addo, 2007).

The Kenya government is reviewing policies that have hindered access to medical services among the poor and care for chronic diseases like hypertension A.P.H.C.R (2010). According to research done by A.P.H.C.R (2010). 17% of the poor in Kenya suffers from hypertension and cannot get screening services or drugs partly due

government policies that restrict delivery of these services to doctors operating from the district level hospital and above. As such lower health care institutions like divisional health centres and dispensaries are not equipped to screen hypertension and even the medical staff are not trained on how to handle and care for such patients (.aphric.org)

If the government can change these policies and provide essential, medical to all especially those with chronic disease like hypertension it will go along way in the management of this killer disease. This can make us compare with developed countries where as of 2012 47% of hypertension patients had their blood pressure conditions under control Kenya Health policy (2012).

1.2 Statement of the problem

A number of reviews have found that in developed countries, compliance/adherence to long term medical therapies including hypertension medication in the population is around 50% and is assumed to be much lower in low income countries including Kenya WHO (2003). According to a report by the country office of WHO (2013) in Kenya it is estimated that up to 40% of the adult population in Kenya have hypertension. A survey conducted by the Kenya Kidney and Lupus Foundation K.K.L.F (2013) out of 300 people surveyed. 50 new cases of hypertension were diagnosed and none of these people knew about their hypertensive condition before (k.k.l.p.org). The Ministry of Health Kenya estimates of the year 2000 says over 6 million Kenya's out of an estimated population of over 32 million had hypertension representing a percentage 18% of the population.

Adherence to hypertension medication is very crucial in the prevention of strokes in high blood pressure patients. Studies show that two thirds of patients worldwide who die from

stroke had a history of hypertension which was not controlled by strict adhering to medications (Mazzagila, 2009). A WHO (2010) statistics publication shows that with the increased number of un-controlled blood pressure being diagnosed. It has led to the following scenarios high number of deaths due to hypertension; hypertension has drained on the countries resources like manpower and cash investment to health care.

Adherence to hypertension medication is very key to avoiding un-controlled hypertension and the risks of developing complications related to hypertension like heart attacks, strokes and renal failure which are catastrophic and lead to sudden death (Kyngas, 2000). Many factors can contribute to low or no adherence at all to hypertension medication these include, hypertension is known as silent killer and has no symptoms so it's not diagnosed early enough, perceived side effects of hypertension, lack of proper knowledge about the disease, in addition other cultural, economic, religious and social factors can also influence on adherence (Macdonald, et al, 2002)

However, with the advent of various types of medications to control hypertension anything less than near perfect adherence to medication /treatment will result in uncontrolled blood pressure which will lead to serious medical problems. This fact therefore necessitated this study to determine and understand the factors that influence adherence to hypertension medication.

1.3 Research questions

- (i) What knowledge do patients have on hypertension disease?
- (ii) What are the adherence levels of medication of patients with hypertension at Mama Lucy Kibaki Referral Hospital hypertension clinic?
- (iii) What perception do the patients have towards the importance of hypertension medication adherence?
- (iv) What social-cultural factors influence /determine prediction to hypertension medication adherence.

1.4 Purpose of the study

The purpose of the study is to explore and identify the factors that influence adherence to hypertension medication among patients living with hypertension and attending hypertension clinic at Mama Lucy Kibaki Referral Hospital Embakasi Nairobi.

1.5 Objectives of the study

1. To assess patients' knowledge of the hypertension disease.
2. To determine adherence level among patients with hypertension at Mama Lucy Kibaki referral hospital.
3. To assess the patient perception on the importance of adherence to hypertension medication.
4. To identify and assess the social cultural factors that influence adherence to hypertension medication.

1.6 Justification of the study

Hypertension cases are on the increase according to the WHO (2013) Kenya's country office report. It shows four (4) out of ten (10) Kenyans have hypertension and it is estimated to rise by 40% by the year 2025. Many medications are available to control high blood pressure or hypertension. However, for these medications to succeed anything less than near perfect adherence will not control blood pressure among the individual patients, hypertension medication is lifelong endeavor which presents a big challenge (Chobanian, 2003).

The big challenge of adhering to hypotension medication as long as one is a life prompted the researcher to explore deeper into the important topic on adherence.

This study focused on social aspect, social influence, cultural aspects, cultural influence and access to resources and materials which could affect adherence to hypertension medication. It assessed how support from health care providers as well as hypertension related knowledge/perception and level of education relate to reported levels of adherence.

1.7 Scope and limitations of study

The study was limited to hypertension patients attending clinic at (M.L.K.R.H) i.e Mama Lucy Kibaki Referral Hospital. The objective of the study was to access the factors that influence adherence to hypertension medication.

The study investigated factors on the patients knowledge and perceptions of adherence to medication and the social, cultural factors, that influence adherence. The study observed from hospital and clients records and clients recall information. However the study did not investigate clinical factors.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the relevant literature deemed necessary in helping understanding the subject under review. Literature review is an important component of research because it reveals similar studies on a given topic. It guides the choice of a sound conceptual framework suitable for the research in questions while exposing the researcher to the fundamental issues concerning the topic (Burnes and Groove, 2005).

This chapter explores hypertension and aspects related to its management and control. It analyzes literature that is important in investigating the issues of adherence to hypertension medication. The review covers the following areas: global hypertension prevalence rates, the global burden of hypertension, hypertension management the various intervention methods to improve adherence to medication; factors known to influence patients perception on adherence to medication and the consequence of non-adherence to hypertension medication. The section sites relevant literature by presenting the underlying, theoretical, conceptual and methodological rationale for the research.

2.2 Hypertension

(i) Definition

Hypertension is a chronic systemic disease characterized by an abnormally high blood pressure. The blood pressure is measured with the peak and lowest pressure in the cardiovascular system corresponds with the systolic and diastolic blood pressure respectively (Ganong, 2003). The normal blood pressure is less than 120/80 mmHg.

Systolic pressure is the pressure in the arteries i.e (blood vessels carrying oxygenated blood) when the heart contracts it is always higher than the diastolic. On the other hand when the heart contraction is over and the heart is relaxing the pressure in the arteries then is referred to as diastolic as and always lower than the systolic. (Ganong, 2003) using the above example the normal blood pressure is

120 < systolic pressure

80 < diastolic pressure

However the hypertension working group of American society of hypertension argue that above definition of hypertension should be broadened and extended beyond discrete values to include description of the risk factors. The group defines hypertension as a progressive cardiovascular syndrome arising from complex interrelated etiologies. Early markers of the syndrome are often present before blood pressure evaluation is observed. Therefore hypertension cannot be classified solely by discrete blood pressure thresholds. Its progression is strongly associated with functional and structural cardiac and muscular abnormalities that damage the heart, kidneys, brain and other organs and lead to premature morbidity and death (Giles, 2005).

2.3 Types of hypertension

There exist two types of hypertension namely primary hypertension and secondary hypertension. Primary hypertension also referred to as essential hypertension is the most prevalent of the two types and constitutes 95% of the cases. The causes of primary hypertension are not known (Ganong, 2003). Real life style related risk factors are thought to contribute to primary hypertension. These risk factors include the following

weight gain and obesity, effects of dietary salt, aggregate smoking, alcohol consumption, stress and age.

When the cause of hypertension is distinctly known, it is referred to as secondary hypertension. In contrast to primary hypertension, secondary hypertension conditions are sometimes treatable, and they constitute 5% of total cases of hypertension. The following are some of the known causes of secondary hypertension, drugs such as contraceptives, chronic renal disease, steroid therapy and thyroid disease among others (Ganong 2003, 35).

2.4 Magnitude of the problem of hypertension in the world

A study done by Keency, (2005) on global burden of hypertension indicates that more than a quarter of the world's adult total population i.e. nearly one (1) billion had hypertension in 2000 and that this proportion will increase to 29% to 1.56 billion by 2025. Data from the national health and nutrition examination survey N.H.A.N.E.S 2005-2006 showed that one (1) in three (3) adults in the USA had hypertension. This is estimated to be same as 29% of the adult population (Ostachege, 2008).

The global burden of hypertension continues to grow. The estimated global number of adults with hypertension in 1998 was 972 million (Khatib, 2000). About one (1) in eight (8) deaths worldwide is due to hypertension and four (4) million people die annually thus making it the third largest killer in the world (Khatib, 2004). The seriousness of hypertension as a global public health problem is evident by its high prevalence and the associated increase in heart disease complications. In virtually all countries of the world according to (Khatib, 2004). Despite these high prevalence rates and burden of

hypertension globally studies worldwide indicate that despite the availability of effective medical therapy, over half of all hypertensive people on the world do not take any treatment (Chobanian, 2003).

2.4.1 Hypertension in developing countries

In developing countries and especially sub-Saharan Africa hypertension has also emerged as a serious public health problem. An analysis of hypertension studies in the region conducted by Addo, et al (2007) reported that hypertension is more prevalent in urban than rural areas in all countries of the region. The above researches also reported that about 40% of the research participants in various studies were ignorant of this disease state, 30% were on drug treatment and less than 20% had controlled blood pressure. Effects of westernization, urbanization, changes in dietary patterns and sedentary life styles are among the factor fueling the epidemic of hypertension in sub-Saharan Africa (Opie and Seedant, 2005).

2.4.2 Hypertension in Kenya

A report released by the WHO (2013) Kenya office states that four (4) out of ten (10) Kenyans have hypertension. Despite these alarming statistics Kenya faces many challenges in hypertension detection, diagnosis and management of this serious disease. This is mainly due to limited health care facilities, resources like personnel and equipment (aphic.org)

Statistics published by the WHO (2011) analyzing the main causes of death in Kenya placed hypertension at position 11th behind HIV/AIDs, strokes, heart disease, tuberculosis road accidents and violence. WHO (2011) statistics state that in the 1990's hypertension

was not among these main causes of death in Kenya showing a rapid increase in the number of hypertension cases in Kenya in the last 10 years before 2011 (WHO, 2011).

2.5 Management, control and treatment of hypertension

Hypertension diagnosis is made using a standard mercury electronic sphygmomanometer to measure the blood pressure. Quite often patient complain of head ache, giddiness and fainting but these are thought to be psychogenic (Khatib, 2005). Once an individual has been diagnosed as being hypertension its treatment and management involves both lifestyle modification and pharmaceuticals drug intake. These management and control actions are long life issues which will be undertaken as long as one is a life.

2.5.1 Life styles modifications

Life styles modifications implies that lowering blood pressure solely with medications per se may be inadequate to control and prevent complications. Since blood pressure elevation usually co-exist with other actors such as obesity, high cholesterol and diabetes. Life style modifications are non-medical approaches necessary to lower high blood pressures Khatib (2005, 62). Chobaniah (2003) states that lifestyle modifications are fundamentally essential for patients with hypertension and should form an integral part of the management for these with the disease. In addition the WHO strongly recommends life style modifications since such treatment usually has no known adverse side effects do not affect the quality of life and are usually less expensive than medical treatment (WHO, 2003).

2.5.2 Weight reduction

The body mass index is a measure of overweight and obesity. It is obtained by dividing body weight by the height squared. Individuals with a body mass index of 18.5 – 24.9kg/m² are considered to have optimal weight for height, those with a body mass index of 25-29.9kg/m² are overweight and those with a body mass index greater than 30kg/m² are considered obese. Current estimates suggest that about 500 million people worldwide are overweight and another 250m are obese Braly (2008). Overweight and obesity are positively associated with hypertension (WHO, 2003) for effective control of hypertension weight should be optimal weight.

2.5.3 Diet changes, reduced salt intake and reduction in alcohol consumption

Dietary changes alone can effectively reduce the blood pressure of a person. Reduced saturated fat and dietary salt consumptions are important dietary factors in the prevention and control of hypertension (Miller, 2002). The main diet factors that serve to lower range blood pressure are as follows:

Increased potassium and decreased saturated fats consumption.

To manage hypertension there should be an increased consumption of potassium rich foods such as fruits and vegetables and a decrease consumption of fatty foods intake (Karanja, 2006). Various studies show that reduction in dietary salt intake is an essential component of the non-medial treatment of hypertension. These studies show that there is a strong association been salt intake and hypertension (Appel, 2006).

Controlled trials examining the relationship between alcohol consumption and hypertension suggest that limiting the quantity of alcohol consumed daily can lead to

significant reduction in blood pressure. Apart from blood pressure reduction, minimizing alcohol intake also reduces the risk of heart attacks (Greaff, 2006). Research has shown that excess consumption of alcohol is a risk factor in the development of hypertension. The study by Wang (2006) revealed that alcohol consumers are more likely than non consumers to develop hypertension consuming more than 20g of ethanol (men) or 10g of ethanol (women) per day may be sufficient to cause sustained elevation of blood pressure. Hypertension patients are advised to keep their daily alcohol intake lower than this for effective control and management of hypertension (Kaplan, 2005:29).

2.5.4 Physical activities like stress, age, cigarette smoking and drug treatment of hypertension.

Research has shown that regular moderate exercise such as walking briskly or performing of aerobics, and any other regular physical exercise can lead to a reduction in blood pressure among the individuals involved. (Miller, 2002). Research shows that persistent stress leads to the release of certain hormones notably adrenaline and cortisol resulting in a sustained elevation of blood pressure. Patients attending medical clinics are also counseled on techniques and methods of stress management so as to control their stress and therefore control their blood pressure (Mathews 2007, 134).

In his study Wang (2006:404) demonstrated that the incidence of hypertension among respondents over 65 years and older was about 38% higher than among adults aged below 50 years. The study shows hypertension is more prevalent in adults over the age of 50 than younger persons. Older persons with hypertension are recommended to engage themselves with active physical activity to control and manage hypertension. The

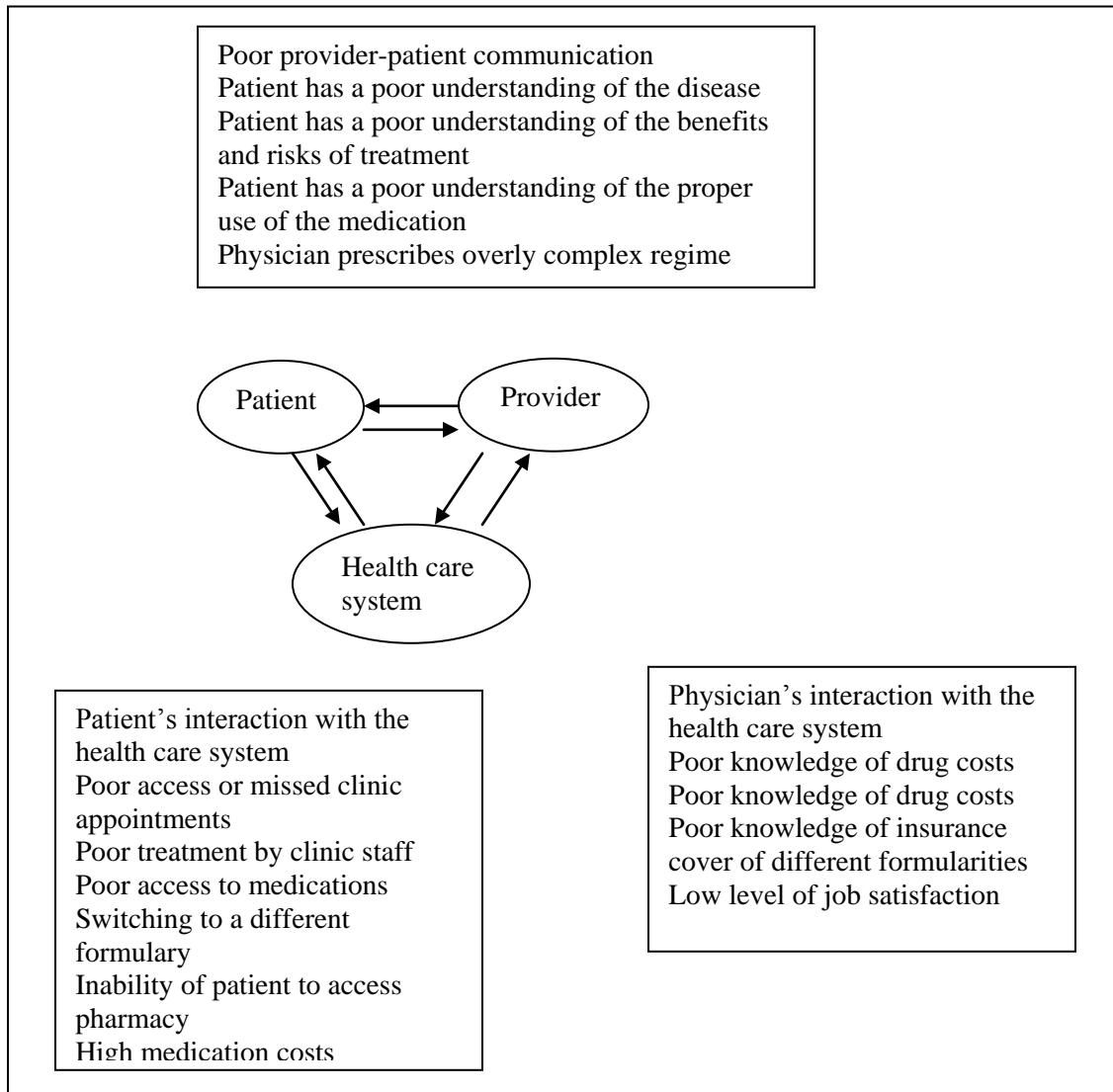
relationship between cigarette smoking and hypertension is thought to be due to the presence of nicotine in cigarettes leading to the release of fibres that stimulate elevated blood pressure. For hypertension control and management patients are advised to keep off cigarette smoking at all times (Kaplan, 2005). Drug treatment of hypertension is effective in controlling the disease and preventing the development of complications. The goal of drug treatment is to maintain the recommend blood pressure levels and most of the available medical anti hypertensive drug available have proved that they control the blood pressure (Gereci and Gereci, 2003).

2.5.5 Compliance /adherence to drugs for hypertension management

The term adherence is often used synonymously with compliance in accessing how patients follow there medial instructions (regimes) from their respective medical practitioners. However, some researchers prefer to use the term “adherence”. The researchers express their concerns that compliance signifies a judgmental point of view. According to Higgins (2006) compliance signifies a stance according to which a patient is merely told what to do with regard to treatment and expected to follow the instructions /recommendations unquestionably whereas adherence assumes a collaboration between the patient and the treatment provider. However, Zhong and Miller (2002) state that they believe the two terms are synonymous and defines compliance as adherence to provider directions by the patient about prescribed medical regime. Hypertension has no cure therefore, patients are expected to take medications for life. Drug treatment of hypertension demands that patients comply with their medication as prescribed strictly. They should honour their appointments. Follow up visits with their doctors and adopt health actions that are recommended to lower their blood pressure (Appel, 2006).

Adherence to drug treatment and adjustment to required life style changes has been found to be very efficient in hypertension management and has the following benefits for the individual, the health care systems and society at large, it improves the quality of life and prevents complications and premature deaths. It is also a cost saving measure since it decreases the incidence of complications (WHO, 2003). Various studies on patients adherence to hypertension medication have found out that various factors affect patient adherence to hypertension medications. A study by Bowet (2002) found that compliance was relatively high in patients with skilled occupation, those who were health conscious and those who regularly honoured their clinic appointment. Patients attitudes also influence their disposition to adherence behaviour. Takala (2002) found that attitudes such as carelessness, hopelessness and denial contributed significantly in hypertension medication adherence.

Figure 2.1: Documented barriers to medication adherence



Source: Okuno (1976)

2.5.6 Hypertension management and interventions methods

Methods that can be used to improve adherence can be grouped into four general categories, patient education, improved dosing schedules, increased hours when the clinic is open and improved communications between patient and physicians. Educational interventions involving parents there family can be effective and improving adherence.

Patients who miss appointments are the ones who need more help to improve their ability to adhere to hypertension medication this can be done by making follow up visit convenient and efficient for the patient. (Stilly & Okuno, 1973)

Figure 2.2 below lists some of the simple strategies used to manage hypertension and the interventions used for optimizing patients ability to follow hypertension medication regime

Figure 2.2: Strategies for improving adherence to a medication regimen

<p>Identify poor adherence</p> <ul style="list-style-type: none">Look for makers of non adherence: missed appointments (“no-shows”) lack of response to medication, missed refills.Ask about barriers to adherence without being confrontation. <p>Emphasize the value of the regimen and the effect of adherence.</p> <p>Elicit patient’s feelings about his or her ability to follow the regimen, and if necessary, design supports to promote adherence</p> <p>Provide simple clear instructions and simplify the regimen as much as possible.</p> <p>Encourage the use of a medication taking system.</p> <p>Listen to the patient, and customize the regimen in accordance with the patient’s wishes.</p> <p>Obtain the help from family members, friends and community services when needed.</p>

Source: Stilly (1973)

Since adherence is enhanced when patients are involved in medical decisions about their care and in monitoring their care Burnier says “The traditional model of the authorization provider should be replaced by the more useful dynamic of shared decision making by the health care provider and the patient” Simplifying instructions to the patient and medication schedules is essential and minimizing the total number of daily doses has been found to be more important in promoting adherence than minimizing the total number of medications. (Burnier, et al, 2002)

2.5.7 Factors known to influence individuals perceptions and adherence/ compliance behaviour to medications

Many factors including socio-demographic, socio-psychological and structural factors are known to influence health behaviour. These factors are discussed below.

1. Demographic factors

(i) Age

A patient’s age could influence the decision to comply with hypertension medications. Elderly patients tend to have poor adherence owing to memory loss, failing eye sight and decreased power in the hands that could affect activities such as bottle opening. Furthermore elderly patients require family support that might not be readily available when required (WHO, 2003). Medication adherence among the young may be poor due to ignorance of true nature of hypertension or denial of the existence of the disease (WHO, 2003: 29).

(ii) Gender

There is contradicting evidence about the impact a person's gender has on adherence to medication. A study by Shea et al (1992) in New York found out that women are more adherent to hypertension medication a compared to men. However, another study in Netherlands by Van Wijk et al (2004) found out men were more adherent to hypertension s mediation than women. These contradicting study results show how complex the behaviour of medication adherence is and why there is more need for studies on hypertension medication adherence for effective implementation of interventions to improve medication adherence.

(iii) Educational Status, occupation and alcohol abuse

A study in Finland by Kyngas (1999) reported that the female gender in combination with a high level of education was associated with high level of medication adherence. Another study by Bovet (2002) found out that the respondents' level of education had no association with the level of medication adherence. The inconsistencies of these findings may be attributed to the complex nature of adherence behaviour. While medication may lead to better understanding of the risks involved due to non-adherence one's level of education does not automatically produce and sustains a healthy behaviour. Another factor such as cultural beliefs may override education and effect adherence level to medical advice Kyngas, (1999).

Various studies show that patients with highly skilled occupations were more compliant than those with lesser skills. Researcher argue that patient with skilled occupations would be of higher social-economic status which in turn has been reported to be associated with

high adherence to medications WHO, 2003:35). According to the world health organization (WHO, 2003:30) alcohol abuse and tobacco smoking have a great influence on medication adherence/compliance levels. A WHO (2003) report shows that heavy alcohol drinkers, were less adherent to hypertension medication as compared to moderate drinkers. This is attributed to forgetfulness in heavy drinkers (WHO, 2003).

2. Psycho social factors

(i) Socio-economic status

Socio-economic status of patients is an important factor influencing adherence behaviour to hypertension medication (WHO, 2003:28). The world Health Organization reports of 2003 states that patients of low socio-economic status are often poor and cannot afford the cost of medication and transportation costs to health centers. In a disease like hypertension where the patient has to take medication as long as he/she is alive. Many of these patients would not consider adherence to hypotension medication as important, because they are more concern about there essential needs of food, shelter rather than to procure mediation (WHO, 2003b:28).

(ii) Health locus of control and self efficacy

Health locust control is a social-psychological variable in the social learning theory that categorizes patients health seeking behaviour into two

- (i) Internalists: these are the people who believe they are responsible for their health or illness and take action to prevent or protect their health. Internalists are more likely to comply with their medications and take advice about their health (Moshki, 2007).

- (ii) Externalists: They believe other people such as doctors, evil power or god are responsible for their health. Therefore such persons are less likely to be compliant with treatment. (Higgins, 2006).

Life style medications have been shown as effective methods of lowering blood pressure. However, for them to be effective they require self-confidence to adhere to them. Behaviour change requires greater effort to execute together with a significant degree of confidence in one's ability to effectively perform the behaviours. (Bandura, 1997).

3. Structural Factors

Patients knowledge of hypertension is important in the management of the disease. Research has shown that a high level of knowledge is important to achieve adequate control of blood pressure and lack of knowledge is a significant predictors of poor blood pressure control, (Knight, 2001).

4. Health care provider factors

Health care providers greatly influence the adherence/compliance behaviours of persons suffering from hypertension. Adherence to hypertension medication is promoted if patients experience their encounters with their doctors positively, receive adequate advice, trust the doctor and experience improvement in blood pressure control. (Benson & Britten, 2002).

2.5.8 Consequences of non-adherence to hypertension medication

Adherence to daily medication taking, smoking cessation, dietary and alcohol restrictions require a change in behaviours which may be extremely difficult. Patients often do not comply with these treatment in spite of professional advice. Ashford (1999). Levine,

(2009) state that non-adherence with hypertension medication has future implications for the individual and the society. The following are the main consequences of non-adherence opt hypertension medication.

2.5.9 Consequences for the individual and society

Non-adherence to hypertension medication at the individual level leads to resistant or uncontrolled hypertension. This results to the development of complications such as heart failure, heart disease and renal failure. These complications can eventually led to pre mature death. (Kim, 2000).

At the society level non-adherence lead to increase in the cost of treatment, inefficient use of health resources and also comprises treatment outcomes. Money spend on drugs given to patients and time spent on consultations are wasteful when patients fail to take the prescribed medication (Kim, 2000:93). This non adherence to hypertension medication lead to treatment failure and disease deterioration resulting in preventable hospital admissions and loss of productivity. (Thrall, 2004)

2.6 Theories and conceptual framework

2.6.1 Health Belief Model (HBM)

The health belief model has its origins in social psychology but also widely used in the fields of medical sociology and anthropology. It was developed and used to understand the uptake of health care services. It is used to predict responses to health problems and health seeking behaviour. It originated in 1952 from the philosophical words of Kert Lewin who wanted to find out why target populations were not adopting desirable health

practices. It was later developed and formulated by Irwin Rosenlock (1966) and his colleagues (Berker, 1974).

This model explains what people will do in case of illnesses and what goes on and why some information is not effective in influencing health seeking behaviour. This theory has four main constitutes or variables which explain illness behaviour.

The key variables or constructs are as follows:

Perceived susceptibility of uncontrolled hypertension:

This is an individual's assessment of the risk of getting a specific health problem e.g. hypertension if one is at risk of getting a certain illness this determines the prevention measure taken.

Perceived severity/threats of hypertension

This is an individual's assessment of the seriousness of the health conditions and potential consequences of having a certain disease e.g hypertension. This compels the individual to take certain preventive measures in view of the seriousness and consequences of the disease.

Perceived barriers of taking hypertension medication

This is an individual's assessments of the factors that facilitate or discourage adoption of desirable behaviour. These factors may include physical, psychological and financial demands.

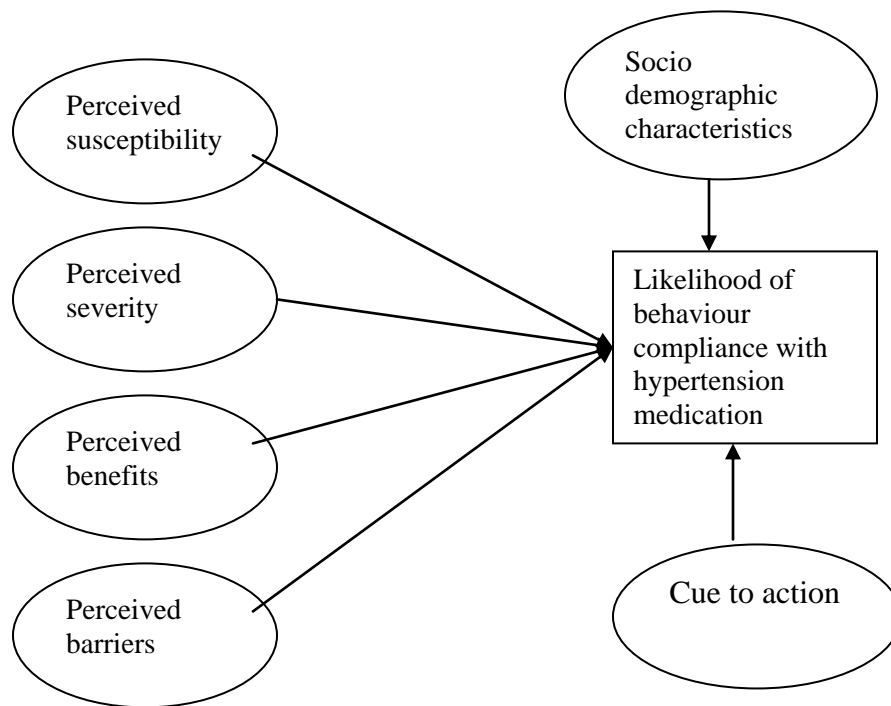
Perceived benefits of hypertension medication

This is an assessment of the positive benefits of taking action e.g benefits of avoiding alcohol and cigarette use etc Apart from the above four main variables or constructs other

factors that can influence the probability of individuals taking action are demographic factors social psychology variables and economic status.

The H.B.M also shows that there are certain cues to action: These are the essential influences promoting the desired behaviour e.g. persuasion, communication, reminders, social sanctions, personal experiences etc.

Figure 2.3: The health belief model



Source: Rosentock (1974).

The model shaped the study towards understanding the factors like barriers to adherence of hypertension medication.

2.6.2 Theory of reasoned action

This theory was developed in the 1970s by Fishbein and Ajzen. The theory is derived from social psychology. Its based on the assumption that human beings are usually rational and make systematic use of that information available to them.

The theory has 3 main components

1. Behaviour intention (B.I)
2. Attitude (A)
3. Subjective norms (SN)

It suggests that a person's behaviour intentions depend on the person's attitude about, their behaviour and subjective norms.

$$(A) + (SN) = (BI)$$

T.R.A has been used to explain and predict a variety of human behaviours. Based on the premise that humans are rational. The theory provides a construct that links beliefs, attitudes, intentions and behaviours. Fishbein, et al, 1994 also as shown by the above equation

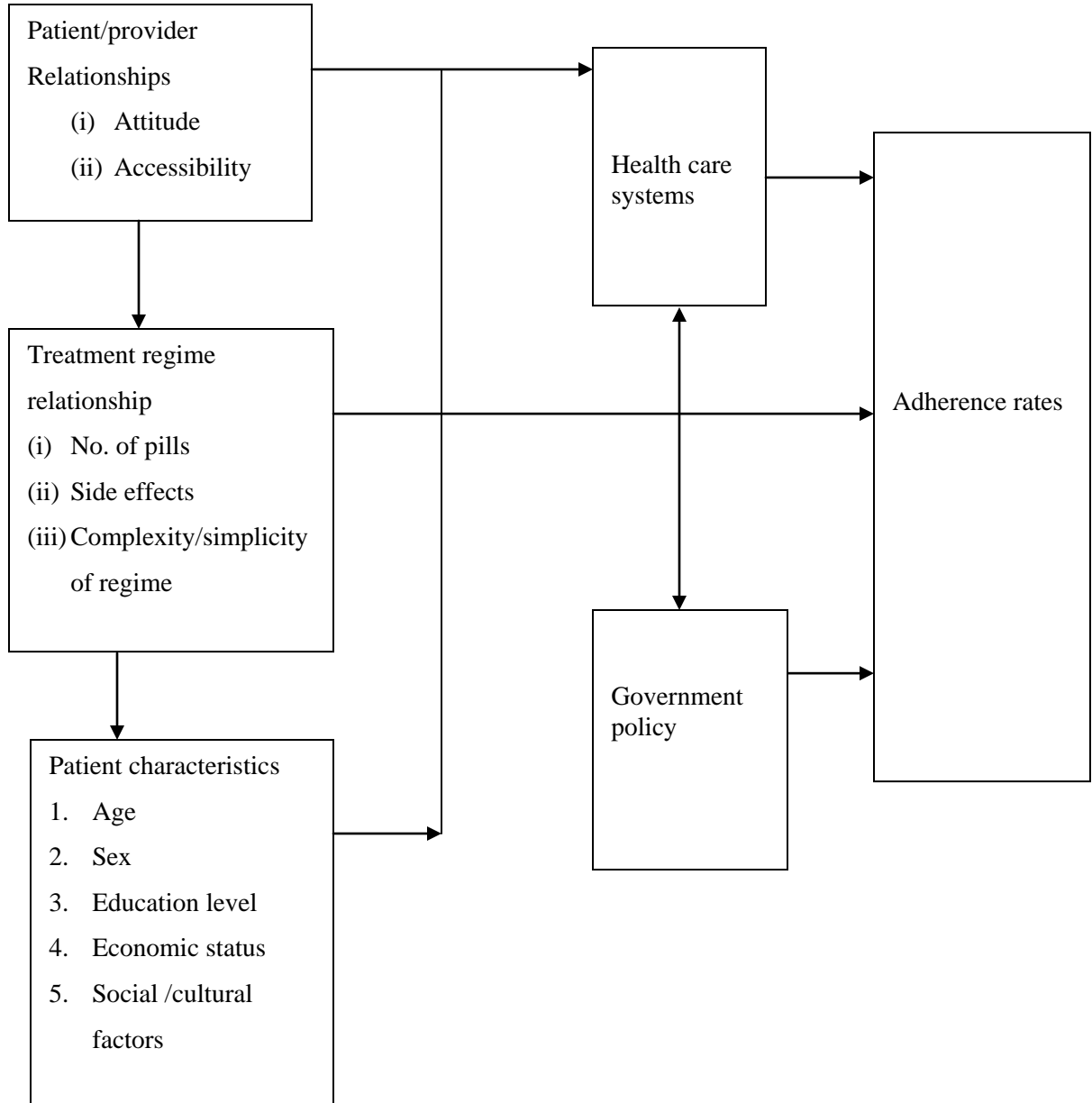
2.6.3 Rational Choice theory

Rational choice theory is a framework used in understanding and often formally modeling social and economic behaviour. Rational choice theory uses a specific and narrow definition of rationality simply to mean that an individual acts as if to balance costs against benefits to arrive at action that maximizes personal advantage.

In sociology the main proponent of rational choice theory has been (James Coleman, 1931-1995). Coleman focuses on rational choice theory as a tool and agent of social change. The rational choice theory supposes that every individual evaluates his/her behaviour by that behaviours worth. The theory states humans are rational actors. This means that what might seem rational to one person would seem completely irrational to another. This theory shaped this study in understanding how hypertension patients as they make their rational choice about medication adherence, what other factors influence their decision to medication adherence

2.7 Conceptual framework

Figure 2.4: Conceptual framework



2.8 Definition of concepts and operationalization of terms

(i) Adherence

This refers to the obedience of the patient to the medical regime on medical advice i.e taking doses of drugs and sticking to the treatment plan. It also describes the degree to which a patient correctly follows medical advice. Very high levels of adherence greater than 90% are required for blood pressure to be effectively controlled, (Zuurmond, 2008). for the purpose of this study compliance or adherence are used interchangeably. The WHO (2003) recommends adherence rates of above 95% per health care institution.

(ii) Non adherence

Non-adherence can be defined as constant under dosing which is regularly neglecting the same particular dose. Usually the middle of the chronic over-dosing which is taking a drug or drugs more often or in large doses prescribed. Also abrupt over dosing, just before visit to the clinic (white coat compliance) drug holidays which is stopping all medications properly for a period of time either days or weeks at random administration which means taking drugs whenever the thought occurs (Max Wolf, 2005).

(iii) Health care systems

Health care systems are a combination of resources and all activities whose sole purpose is to promote restore and maintain health (WHO)

(iv) Government policy

These are the general principles which the Government of Kenya issues to public health institutions to guide them in their health care provisions and the management of public health institutions.

2.9 Summary

The literature review provided an overview of the nature of hypertension, types of hypertension, hypertension management, measurement of hypertension adherence, importance of treatment compliance and intervention measures. The review finally looked at the theoretical framework, using health belief model and theory of reasonable action these were discussed and applied to the current study.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

In this chapter the researcher presents the research methods and procedures that were used in the study. The chapter deals with site selection, description, unit of analysis, sampling procedure, sampling design, methods of data collection, tools of data collection, data analysis and the challenges encountered by the researcher during the research.

3.2 Research Design

A case study approach was used and collection of data was done at Mama Lucy Kibaki referral hospital, Embakasi, Nairobi. Data collection tools used were questionnaires and interviews guides. The study relied heavily on both quantitative research method and qualitative research methods.

3.3 Site selection and Description

The study was conducted at (M.L.K.R.H) i.e Mama Lucy Kibaki Referral Hospital Embakasi Nairobi County. The hospital was launched on Wednesday 17th August 2011. The hospital was given the name of the former first lady in recognition of her efforts to secure funding for the project from the Chinese government. The Chinese government funded the construction of the hospital which lasted 14 months at a cost of 544 million.

The hospital offers both out-patient and in-patient services. It was designed to ease congestion at (K.N.H) i.e Kenyatta National Hospital and it became the third referral hospital in Kenya after (K.N.H) and Moi teaching and referral hospital in Eldoret. The

hypertension clinic was opened in 2011 and patient are attended to every Wednesday of the week.

3.4 Unit of observation

The units of observation in this study were the two hundred and sixty one (261) out-patient hypertension patients attending clinic at Mama Lucy Kibaki referral hospital Embakasi Nairobi

3.5 Unit of Analysis

According to Singleton et al (1988: 69) unit of analysis is what who is to be described or analyzed. Schutz (1995, 539) sees a unit of analysis as the level of social life on which research question focuses. Therefore, a unit of analysis may refer to people social roles, positions and relationships. The unit of analysis in the study were the factors which contribute to state of adherence to hypertension medication treatment among hypertension patient at Mama Lucy Kibaki Referral Hospital.

3.6 Target Population

Hair (2003) defines population as an identifiable total group or aggregation of elements (people) that are of interest to researcher and pertinent to the specified information problem. This includes defining the population from which the sample is drawn. The target population of this study consisted of 261 out-patients attending clinic at Mama Lucy Kibaki Referral Hospital Hypertension clinic in October 2013.

Table 3.1 Target Population

Category of population	Population size
Male hypertension patient at (M.L.K.R.H)	191
Female hypertension patients at (M.L.K.R.H)	70
Total	261

3.7 Sampling procedure

According to Singleton et al (1988:137) sampling design is that part of the research plan that indicates how cases are to be selected for observation. The concept of sampling involves taking a fraction of the population, making observation in this smaller group and then generalizing the findings to the larger population.

The study used probability sampling method to get the sample size of patients to be surveyed. Proportionate random sampling technique was used to get the patients to be interviewed. The desired sample size of informants for the survey by the researcher is 90 out of a population of 261 out- patients. To ensure gender representation in the sample proportionate numbers were selected from male patients and female patients.

In order to get the size of respondents from each stratum the following calculation was used.

$$\text{Study population} = 261$$

Stratum is gender defined

$$\text{Male} = 191$$

$$\text{Female} = 70$$

Desired sample size : 90 patients.

Males patients = $\frac{191 \times 90}{261} = 65.862 = 66$ males

261

Female patients = $\frac{70 \times 90}{261} = 24.137 = 24$ females

261

Total = 95 patients

Systematic random sampling was then used to get the sample interval for each stratum.

On males patient 191 is the population 66 males as the desired sample the sampling interval will be

$$K = \frac{\text{Size of population}}{\text{Desired sample size}} = \frac{191}{66} = 2.893 = 3$$

Male Desired sample size 66

$$K = \frac{\text{Size of population}}{\text{Desired sample size}} = \frac{70}{24} = 2.916 = 3$$

female Desired sample size 24

Simple random sampling was used to pick the first male and first female from each stratum. The researcher then systematically picked every 3rd male and female. Patients to obtain the rest of 65 male patients and the rest of 23 female patients

Purposive sampling was used to identify key informants in purposive sampling according to Mugo (1995) a researcher hand picks subjects to participate in the study.

3.8 Sample size

A sample size is a sub section of population that was chosen in such a way that their characteristics deflect those of a group they were chosen (Henn, Weinstein and Ford 2006).

Table 3.2 Sample size

Category of population	Population size	Sample size
Male patient	191	66
Female patient	70	24
Total	261	90

Purposive sampling was used to get the key informants. These were.

1. Doctor - 1
2. Nurses - 2
3. Records officer at hypertension clinic – 1
4. Pharmacists - 1

3.9 Methods of data collection

Data collection is a term used to describe a process of preparing and collecting data (Faceman & Haddow, 2008) a formal data collection process is necessary as it ensures data gathered is both defined and accurate. The data collection tools that were used in this study included key informant interview guide and questionnaires. Face to face interview was the primary data collection instruments for this study. This is because the study was

both qualitative and quantitative in nature and interviews provided a good means of probing for information.

3.9.1 Data collection procedure

Interviews using the questionnaires were conducted through physical visits to the Mama Lucy Kibaki Referral Hospital, and undertaking personal interviews with the selected respondents. This was to clear some of the concepts to the respondents who needed help.

3.9.2 Key informant interview

This was employed to get data from personnel who were knowledgeable in the area of study. 5 personalities were selected and interviewed using the key informant interview guide.

3.9.3 Structured questionnaire

A structured questionnaire was used to collect quantitative data. The tool consisted of a set of questions categorized into five sections (see appendix).

3.9.4 Desk Review

Secondary data concerning the study subject was gathered through desk review of important documents at the facility as well as reference made to library and internet. Clients medical records and hospital drugs dispensing records were reviewed and the required data obtained. Due to ethical consideration the hospital administration was assured that the research was purely for academic purpose.

3.9.5 Data analysis

The study use both quantitative and qualitative data. Quantitative data was analyzed using descriptive statistics these included percentages, measures of central tendency as well as graphs and pie charts to present the findings. Quantitative data was coded, entered into a database and analyzed using (S.P.S.S) qualitative data was analyzed by textual analysis, conversional analysis and the trend analysis.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The objectives of the study were to determine adherence levels among patients with hypertension at Mama Lucy Kibaki referral hospitals, assess the patients knowledge of the hypertension disease. Assess the patients perception on the importance of the adherence to hypertension medication and to identify and assess the social cultural factors that influence adherence to hypertension medication. Data was coded and analyzed using SPSS, Graphs, pie charts and tables were used to present the data, this chapter thus presents the findings and discussions.

4.2 Background data and demographic information

4.2.1 Age of the respondents

The sample consisted of 43 (46.3%) of age above 54 years, 23 (25.3%) of age between 44-54 years, 16 (17.9%) of age between 33-43 years, 7 (8.4%) of age between 22-32 years while 1 (2.1%) of the hypertension patient respondents were of age between 11-21 years. From the findings it can be depicted that majority of the hypertension patients that were interviewed were above 54 years, implying to be the most vulnerable victim of hypertension. This is shown in table 4.1 below.

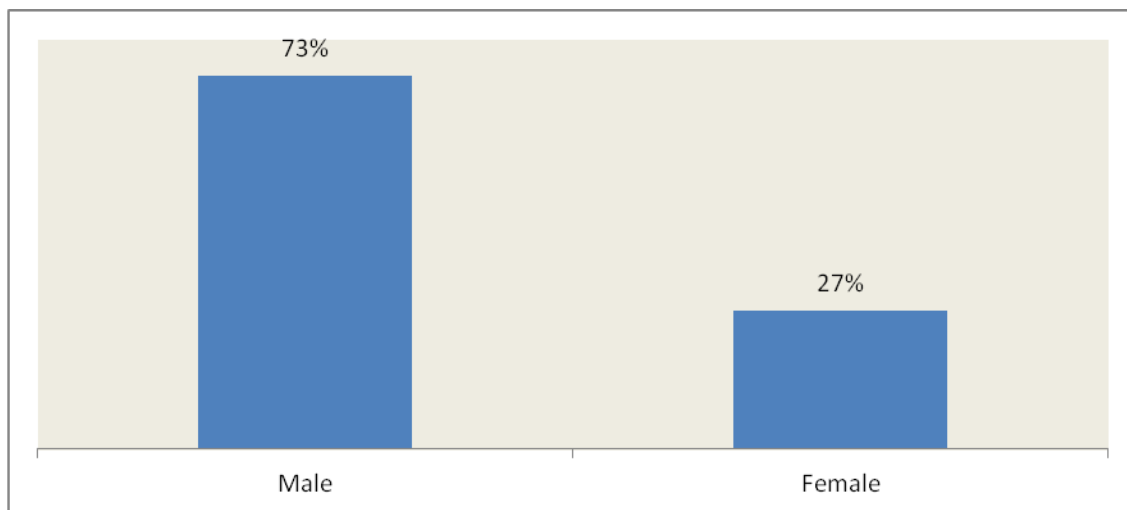
Table 4.1: Age groups of the respondents

Age of the respondents	Frequency	Percentage %
11-21 years	1	2.1
22-32 years	7	8.4
33-43 years	16	17.9
44-54 years	23	25.3
Above 54 years	43	46.3
Total	90	100.0

4.2.2 Gender of the respondents

The sample consisted of 69 (73%) male and 26 (27%) females, the findings reveal that majority of the sample hypertension patients consisted of male. This is shown in figure 4.1 below

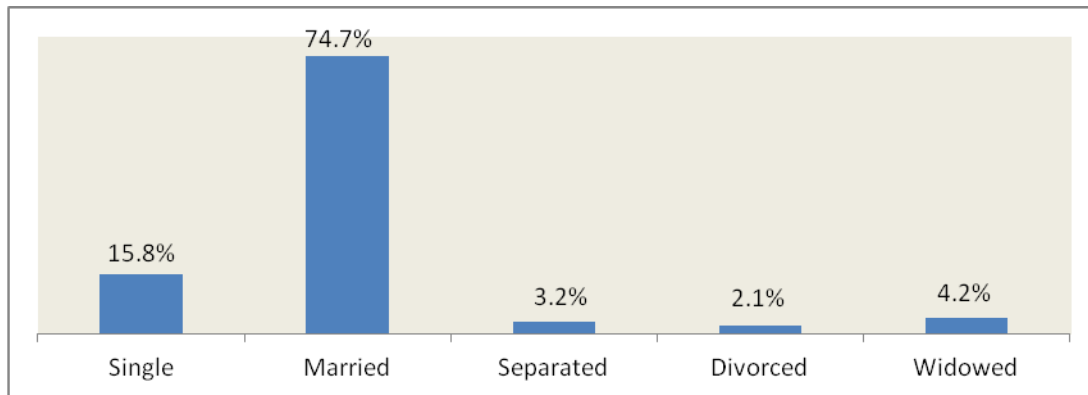
Figure 4. 1 Gender of the respondents



4.2.3 Marital status of the respondents

The majority of the respondents 4.7% identified themselves as married, 15.8% as single, 4.2% as widowed, 3.2% as separated and 2.1% identified themselves as divorced. From the findings it can be depicted that majority of the sampled hypertension respondents consisted of married victims.

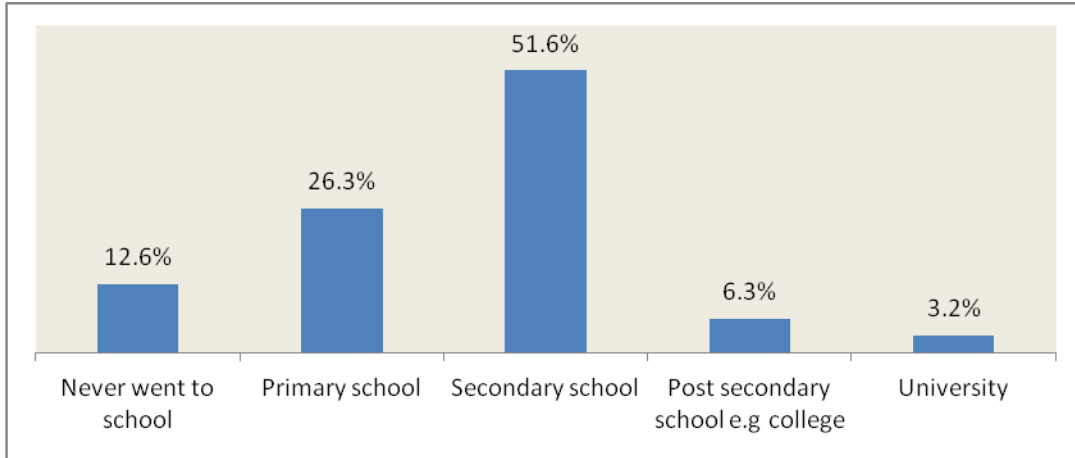
Figure 4. 2 Marital status of the respondents



4.2.4 Highest level of education of the respondents

The majority of the respondents 51.6% had attained secondary school education, 26.3% attained Primary education, 12.6% never went to school, 6.3% attained post secondary school education e.g. college, while only 3.2% of the sampled respondents had attained University education. The findings revealed that majority of the hypertension patients interviewed had attained secondary education level.

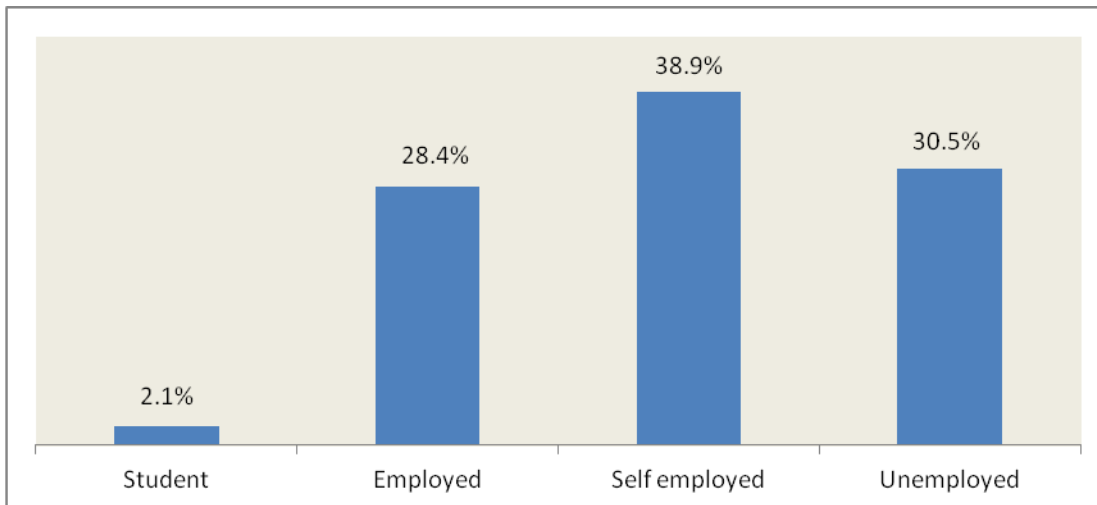
Figure 4. 3 Highest level of education of the respondents



4.2.5 Occupation of the respondents

The majority of respondents 38.9% reported to be self employed, 30.5% unemployed, 28.4% employed while only 2.1% of the respondents reported to be students. The findings thus reveal that most of the sampled respondents to the study were self employed. This is shown in the figure 4.4 below.

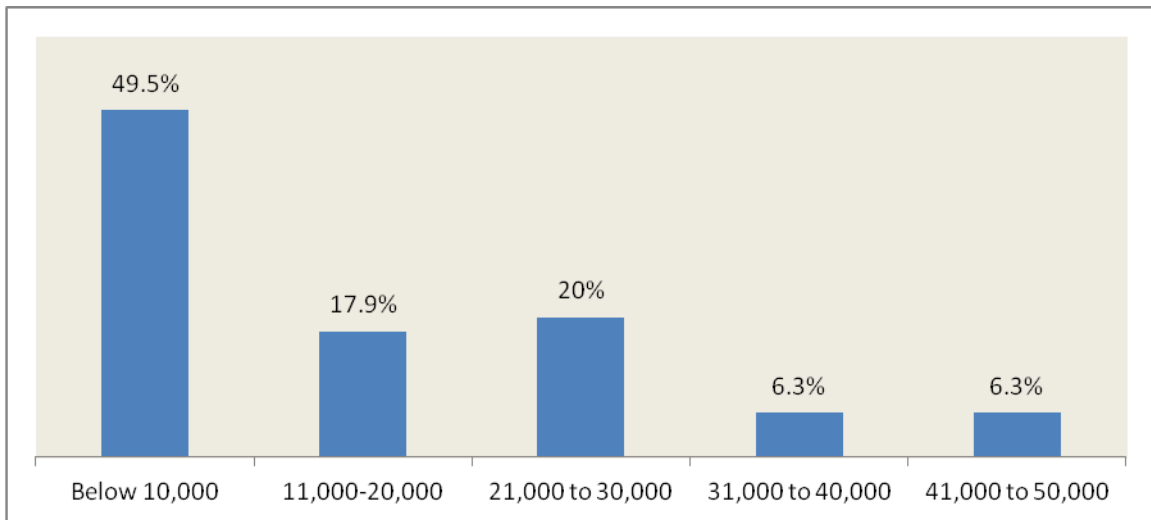
Figure 4. 4: Occupation of the respondents



4.2.6 Monthly income of the respondents

Majority of the respondents (49.5%) reported to earn below 10,000, 20.0% earn between 21,000 to 30,000, 17.9% earn between 11,000 to 20,000 while 6.3% of the respondents earned between 31,000 to 40,000 and 41,000 to 50,000 respectively. The findings reveal that majority of the hypertension patients interviewed earned a monthly salary of below Kshs 10,000. This is shown in the figure 4.5 below

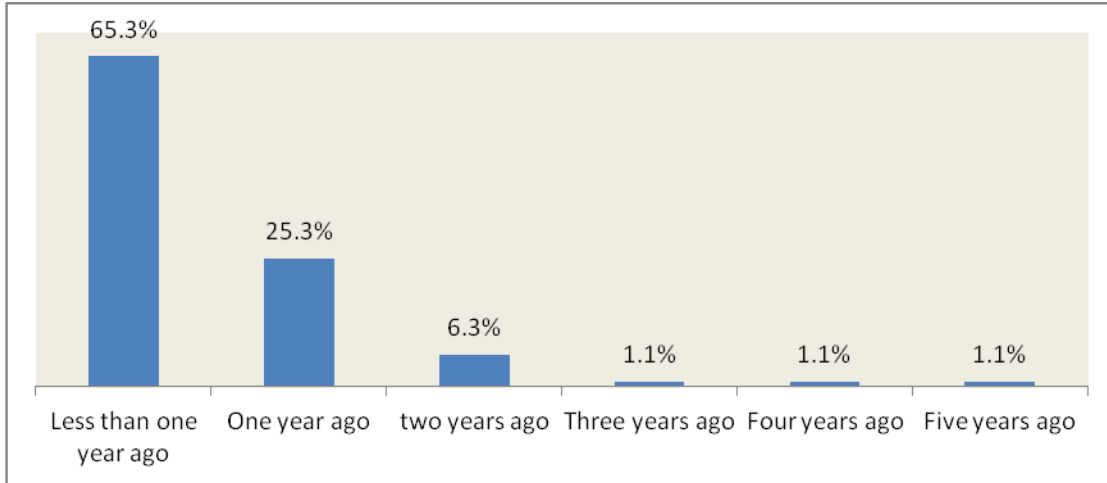
Figure 4. 5 Monthly income of the respondents



4.2.7 Period diagnosed with blood pressure

Majority of the respondents 65.3% reported to have been diagnosed less than one year ago, 25.3% reported to have been diagnosed one year ago, 6.3% reported to have been diagnosed two years ago, 1.1% reported to have been diagnosed three years ago, four years ago and five years ago respectively. The findings revealed that most of the hypertension patients who were sampled for the purpose of this study have been diagnosed of with blood pressure less than one year ago. This is shown in the figure 4.6 below.

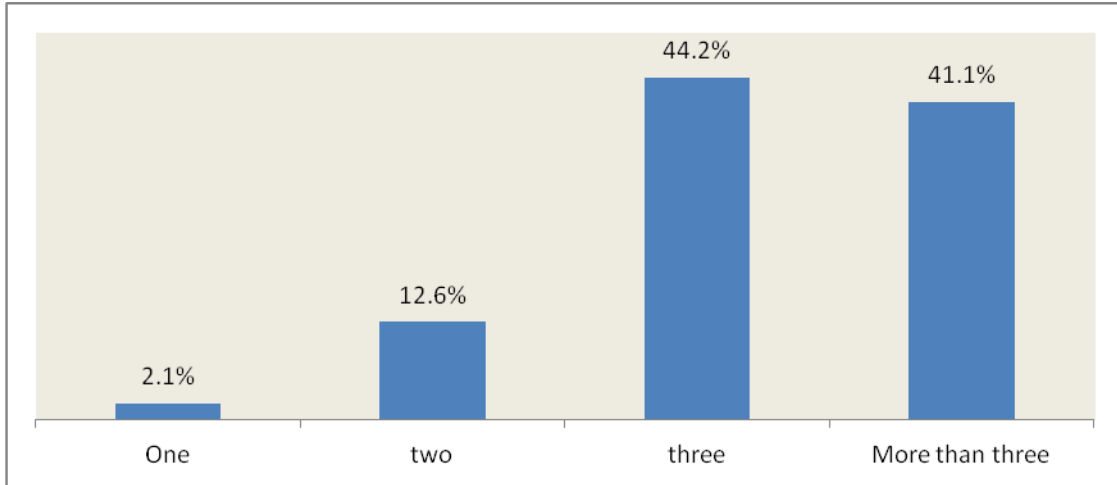
Figure 4. 6 Period diagnosed with blood pressure



4.2.8 Kinds of medicine taken for blood pressure

Majority of the respondents 44.2% reported to have taken three kinds of medicine for blood pressure, 41.1% reported having taken more than three kinds of medicine for blood pressure, 12.6% of them reported to have taken two kinds of medicine for blood pressure while only 2.1% of the respondents reported to have taken only one kind of medicine for blood pressure. The findings reveal that most of the hypertension patients who were sampled for the purpose of this study have been on three medications for blood pressure. This is shown in the figure 4.7 below. These findings were also confirmed by the Clinical officer who reiterated that majority of the hypertension patients have been on three medications as shown by the findings, on verification of the clinical records clinic clerk also reaffirmed these findings.

Figure 4. 7 Kinds of medicine taken for blood pressure



4.3 Knowledge of the Hypertension disease

The study intended to establish the respondents’ knowledge of the hypertension disease. In this section the researcher specifically asked the following research question: What knowledge do the patients have on hypertension disease?

Table 4. 2 knowledge of the hypertension disease

	Strongly agree	Agree	Disagree	Strongly Disagree	Mean	Std. Dev
Hypertension is a serious disease	34	26	20	15	4.23	1.106
Hypertension complications can lead to instant death or permanently being disabled	34	27	19	15	3.94	1.108

From the findings (35.7%) of the respondents strongly agreed that hypertension is a serious disease and 27.3% of the respondents agree that hypertension is a serious disease showing that 63% of the respondents have the knowledge and are aware that hypertension is a serious disease.35% of the respondents strongly agreed that

hypertension medication can lead to instant death or permanently being disabled and that 28.4% of the respondents agreed that hypertension complication can lead to instant death and permanent death Hypertension.

From the Key informant interview, an interview with a pharmacist from the Mama Lucy referral clinic revealed that there is an erroneous view among some hypertension patients that hypertension was not a serious disease. This is mainly because it had no symptom and this she attributed to lack of awareness among the patients on hypertension disease which is supported by the findings that around 37% didn't have the correct knowledge and awareness about the hypertension disease

4.4 Adherence to Hypertension medication regimen

The researcher intended to establish from the respondents their adherence to hypertension medication regimen. The researcher was therefore specifically addressing the research question, what are the adherence levels of hypertension medication of patients with hypertension?

Table 4.3: Adherence to Hypertension medication regimen (N=90)

	Daily	Frequently	Rarely	Never	Mean	Std.Deviation
Do you forget taking your medicine	0	0	28	62	1.29	0.458
Do you stop taking your medicine because you feel better	0	1	19	71	1.26	0.466
Do you stop taking medicine because you feel worse	0	0	10	80	1.13	0.333
Do you stop taking medicine because you feel they are ineffective	0	1	8	81	1.17	0.453
Do you stop taking medicine because you fear side effects	0	0	10	80	1.17	0.453
Do you stop medication because of cost of medication	10	72	3	5	2.89	0.388

Results suggest that most of the hypertension patients never forget taking medicine. This was shown by a mean score of 1.29 other respondents also reported that they never stopped taking medicine just because they felt better as shown by a mean score of 1.26. Some of them reported that they never stopped taking medicine because of fear of side effects not that they felt they are ineffective. Respectively this was shown by a mean score of 1.17 in each case. A few of the respondents reported that they never stopped taking medicine simply because they felt worse of their situations as shown by a mean score of 1.13. However cost of medication had a significant effect on the adherence to hypertension medication as a significant figure as shown by a mean score of 2.89. of the respondents reported to stop medication frequently due to the cost of medication. Therefore from the findings it can equally be established that (70.5%) of the total respondents adhered to hypertension medication since they never forget taking

medication as prescribed, (74%) of the respondents reported never to forget taking medication when they feel better, (87.3%) of the respondents reported of never stopping taking medication due to worsening in their feeling after taking the medication, equally (85.2%) of the respondents reported never to stop taking medication due to a feeling of ineffective and fear of side effects of the medication. These adherence rate are comparable to (71.57%) which were established in another study in the island of Praslin Pakistan in June 2009. This 68.38% adherence rate at Mama Lucy Kibaki Hospital is way below 95% and above recommended by WHO (2003) per health care institution. The study reveals that 31.62% of the patients at Mama Lucy Kibaki Hypertension Clinic are non adherent these figure are unacceptable since hypertension medications should be taken as prescribed and not intermittently. Consequently from the key informant interview, a clinical pharmacist from Mama Lucy Kibaki referral hospital reported that majority of the hypertension patients have not been able to keep track with medication prescribed despite close follow up by the clinic nurses this could be attributed to the influence of the above factors. A nurse equally reported that low income which was a common factor among the patients of hypertension has subsequently influenced their adherence rate to prescribed medication due to inability to meet the cost of such medications, thus confirmed most of the respondent were highly likely to stop medication due to low income.

4.5 Perception on Adherence to Hypertension Medication

The researcher intended to establish from the respondents on their perception on adherence to hypertension medication. The table 4.4 below shows the findings from the respondents.

Table 4. 4 Perception on adherence to hypertension Medication

	agree	Agree	Disagree	Disagree	Mean	Std. Dev
Adherence to medication keeps my blood pressure under control	29	31	20	10	3.53	1.066
Adherence to medication improves my quality of life and protects me from complications	48	13	20	10	3.61	0.992
Adherence to medications decreases my chance of dying	18	47	11	14	4.51	0.979

From the findings majority of the respondents strongly agreed that adherence to medication decreases their chances of dying this was shown by a mean score of 4.51. Others reported that adherence to hypertension medication improves their quality of life and protect them from complications, this was shown by a mean score of 3.6. Consequently others indicated that adherence to medication keeps their blood pressure under control as was shown by a mean score of 3.51. By implication most of the hypertension patients believed that adherence to medications, decreases chances of death, improves quality of life and keeps blood pressure under control. Consequently (50.5%) of the respondents reported to perceive adherence to hypertension medication as important as shown by their response that adherence to hypertension medication improves quality of life and protect against other complications.

4.6 Social cultural factors

The researcher intended to establish from the respondents on social cultural factors associated with adherence to the hypertension medication.

Table 4. 5: Social cultural factors on adherence to hypertension medication

	Daily frequently	Rarely	Never	Mean	Deviation
Do you stop medication because you are using traditional medicine from traditional healers	0	1	3	86	1.05 0.268
Do you stop medication because of your religious beliefs	0	1	1	88	1.03 0.228

Majority of the respondents reported that they never stop medication because of using traditional medicine from traditional healers as shown by mean score of 1.05. Other respondents equally reported not stopping medication due to their religious beliefs as indicated by a mean score of 1.03. Consequently from the findings it can be established that 95.8% of the hypertension patients indicated that there was no significant relationship between traditional medication and their adherence to medication prescribed.

A clinical officer equally reported that despite the increase of herbal and traditional medicine in the market none of the patient reported substituting the conventional medicine with the traditional medicine with only a few reporting supplementing both.

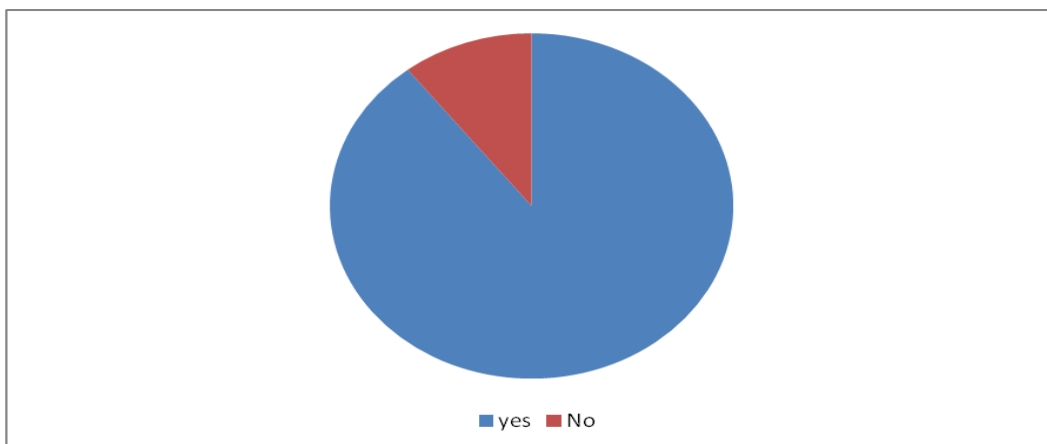
4.6.1 Patient provider relationship

The researcher intended to measure the patient provider relationship. Frequencies and percentages were used to present this information;

4.6.1.1 Kind of care received from the provider

The study sought to inquire about the kind of care that the hypertension patients received from their providers; the researcher intended to ascertain this by inquiring whether providers encouraged the patients to ask questions; from the findings. Majority (89.5%) of the respondents reported that their providers encouraged them to ask questions, while only (10.5%) of the respondents reported that their providers did not encourage them to ask questions (refer figure 4.8 below). By implication majority of the providers encouraged the hypertension patients to ask questions as concerns their status this promoted good relationship between the providers and the patients, it also help to create awareness among the hypertension patients.

Figure 4. 8: Response on kind of care received from the provider



4.6.1.2 Availability of the health care provider

The interview schedule inquired from the respondents of availability of the health care providers when they needed them; from the findings Majority of the respondents (84.2%) reported that health care provider was readily available when they needed them, while only 15.8% of the respondents reported that health care providers were not readily available when they needed them, by implication health care providers were readily available to the hypertension patients when they needed them indicating commitment from the side of the health care providers (refer to table 4.5 below)

Table 4. 6 Availability of health care providers

	Frequency	Percentage %
yes	88	84.2
No	2	15.8
Total	90	100.0

4.6.1.3 Effects on adherence rates by the services offered

The interview schedule inquired from the respondents whether there were some effects on their adherence to medication as a result of the services offered. From the findings majority of the respondents (96.8%) reported that there was effects on their adherence rate as a result of the services offered in the clinic, while only (3.2%) of the respondents reported that there was no effects on their adherence rate as a result of services offered in the clinic. By implication from the respondents responses services offered in the clinic pose some effects on adherence to hypertension medications. This is shown in the Table 4.8 below

Table 4. 7 Effects on adherence rates by the services offered

	Frequency	Percent
yes	87	96.8
No	3	3.2
Total	90	100.0

4.6.1.5 Patience of the health care provider

The interview schedule asked from the respondents on the patience of the health care provider when dealing with them. From the findings health care providers are reported to be patient when dealing with the patients of the hypertension. This enhanced good relationship between the patients and the health care service providers as reported by the majority of the respondents (refer to table 4.9 below)

Table 4. 8 Patience of the health care provider

	Frequency	Percentage %
yes	89	98.9
No	1	1.1
Total	90	100.0

4.6.1.6 Confidence with the knowledge ability to hypertension disease

The interview schedule inquired from the respondents on their confidence that the health care providers were knowledgeable to hypertension disease; from the findings all of the respondents 90 (100%) reported that the health care providers were knowledgeable on the hypertension disease. By implication health care providers possessed credible

information on hypertension disease which warrant them the credibility to offer such services to the victims of hypertension. Further the researcher wanted to ascertain whether the service provider listens to the concerns of the hypertension patients, from the findings, all the respondents 90 (100.00%) indicated that the health care providers listened to their concerns.

4.7 Relationship between the biological variables and Adherence to hypertension medication.

This section seeks to answer the following research question; what is the relationship between adherence to medication and the following biological variables among the patients diagnosed with hypertension at Mama Lucy Kibaki referral hospital; socio-demographic factors (age, gender, marital status, work status, income status and education status)?

Cross tabulations using frequencies and percentages were used to answer the above research questions. Plots were developed to elucidate the associations between the research variables stated in the research questions.

At 95% level of confidence, age, gender, marital status, work status and education status demonstrated a significant statistical association with adherence to medication. The findings were as follows;

From the findings there was a slightly significant relationship that was found between age and medication adherence, the study established that hypertension patients who were above 54 years of age reported slightly high adherence rate to their medications than respondents who were younger than 54 years of age (40%)

A significant relationship was found to exist between gender and adherence to medication, with male (60%) reporting high adherence rate to medication as compared to female.

A strong significant relationship was found to exist between marital status and adherence to the hypertension medication, with married (65%) were statistically more adhered to hypertension medication as compared to others who were either single, divorced or widowed. This can be attributed to the support from the couple.

From the findings a slightly significant relationship was found to exist between education and adherence to hypertension medication with secondary school leavers (45%) of the respondents reporting to be more adhered to hypertension medication as compared to others.

A slightly significant relationship existed between work status and adherence rate to hypertension medication, from the findings self-employed (34%) of the respondents reported to be more adhered to hypertension medication as compared to others.

CHAPTER FIVE: SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter is on summary, conclusions and recommendations which have emerged from the analysis of the data in the previous chapter. This study was motivated by the researchers' observation that the prevalence of uncontrolled remained high in Kenya. The literature review confirmed that non-adherence to hypertension medication was the most significant cause of uncontrolled hypertension. A critical review of the related was done where gaps were developed which this study has attempted to fill. The purpose of this study was assessing the factors that influenced adherence to hypertension medication among the patients diagnosed with hypertension and attending clinic at Mama Lucy Kibaki referral hospital Embakasi Nairobi.

Specifically the study sought to answer the following four questions; what knowledge do the patients have on hypertension disease? What are the adherence levels of hypertension medication of patients with hypertension at Mama Lucy Kibaki referral hospital hypertension clinic? What perception do the patients have towards the importance of hypertension medication adherence? What social-cultural factors influence/ determine prediction to hypertension medication adherence?

5.2.1 Knowledge of the hypertension medication

The study has established that 63% of the patients attending clinic at Mama Lucy kibaki hospital have the knowledge and are aware that hypertension is a serious disease and uncontrolled hypertension can lead to complications and later instant death or

permanently being disabled, however 37% do not have the correct knowledge and the consequences of non adherence to hypertension medication.

5.2.2 Adherence to Hypertension medication regimen

From the study the cost of medication has come out as the top most factor influencing adherence to hypertension medication among the patients interviewed. (75.7%) of the respondents reported that they frequently stopped medication because they could not afford to take the medication as prescribed on a daily basis due to financial constrain. The study established that the hospital had 68.38% of its patients strictly adhering to their medication as prescribed by the health care provider, While 31.62% of the patients were not following their medication as prescribed by their service providers.

5.2.3 Perception on the importance of adherence to hypertension medication

From the study (50.5%) of the respondents reported to perceive adherence to hypertension medication as important as shown by their response that adherence to hypertension medication improves quality of life and protect against other complications. 64% of the respondents also reported to perceive that adherence to medication keeps their blood pressure under control while 68.4% had the perception that adherence to medication decreases their chance of dying.

5.2.4 Social cultural factors

The study revealed that socio-cultural factors had an insignificant influence on the adherence to conventional medicine among the patients attending clinic at mama Lucy Kibaki hospital with (95.8%) stating that they adhered to their medications without using

traditional medicine while (4.2%) stated they rarely used traditional medicine and also (98%) stated that they adhered to their medication without any influence by their religious belief

5.3 Conclusions

The study revealed that 63% of the patients attending clinic at Mama Lucy kibaki hospital have the knowledge and are aware that hypertension is a serious disease and uncontrolled hypertension can lead to complications and later instant death or permanently being disabled, however 37% do not have the correct knowledge and the consequences of non-adherence to hypertension medication.

The study also revealed that cost of medication has come out as the top most factor influencing adherence to hypertension medication among the patients interviewed. (75.7%) of the respondents reported that they frequently stopped medication because they could not afford to take the medication as prescribed on a daily basis due to financial constrain. The study established that the hospital had 68.38% of its patients strictly adhering to their medication as prescribed by the health care provider, While 31.62% of the patients were not following their medication as prescribed by their service providers.

The study concludes that (50.5%) of the respondents reported to perceive adherence to hypertension medication as important as shown by their response that adherence to hypertension medication improves quality of life and protect against other complications. 64% of the respondents also reported to perceive that adherence to medication keeps their blood pressure under control while 68.4% had the perception that adherence to medication decreases their chance of dying.

Finally the study revealed that socio-cultural factors had an insignificant influence on the adherence to conventional medicine among the patients attending clinic at mama Lucy Kibaki hospital with (95.8%) stating that they adhered to their medications without using traditional medicine while (4.2%) stated they rarely used traditional medicine and also (98%) stated that they adhered to their medication without any influence by their religious belief

5.4 Recommendations

1. Doctors should educate the patients about the disease and how severe and dangerous it is. They should also impart knowledge to them about the causes management and consequences of non-adherence.
2. Hypertension medication is a long life endeavor that patients should continue with as long as they are alive so as to improve their life. Patients should be told the consequences of discontinuing medication and also stopping medication altogether. The study has established a good health care provider /patient relationship. The doctor should use this good relationship to impart the necessary education to the patient about hypertension.
3. The study has established that cost of medication was the major factor influencing adherence. The government should come up with mechanisms and subsidize the cost of hypertension medication to improve adherence and quality of life.

5.4.1 Recommendations for further studies

This study focused on a public hospital in an urban setting. The findings of this study cannot be used to generalize patients in all health care institutions. A comprehensive study should be undertaken to study a public hospital with a private hospital and also include rural health care institutions to get a clear picture of factors influencing hypertension medication in these different health care setting.

A qualitative data research should also be done on factors that can improve hypertension medication adherence.

5.4.2 Limitations of the study

The study focused on only social cultural factors that influence adherence to hypertension medication. It did not include clinical factors that influence adherence to hypertension medication.

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APPENDICES

APPENDIX I: INTRODUCTION LETTER

Anthony Tony Mueke

P.O. ox 88-00515

Nairobi – Kenya

Tel: 0720700669

...../...../2013

Dear Sir/Madam,

I am a student in the University of Nairobi pursuing a Masters Degree in sociology (Medical Sociology Cluster). I am conducting an academic research on adherence of hypertension medication. A case study of hypertension patients at Mama Lucy Kibaki Referral hospital Embakasi Nairobi. You have been identified as a suitable person to provide information on hypertension medication adherence. I am kindly requesting you to fill the enclosed questionnaire as accurately and honestly as possible. The information given will not in any way affect your treatment in the health facility. The information given will be treated with ultimate confidentiality. Participation in this study is voluntary and you are free to withdraw at any stage.

Thank you.

Yours faithfully

Anthony Tony Mueke

APPENDIX II: QUESTIONNAIRE

Instructions

Participation in this exercise is voluntary. Kindly answer these questions honestly and accurately. Do not write your name anywhere in this questionnaire. Please tick or fill appropriate box (✓)

Section A: Background data and demographic information

1. Age

- a. Below 10 years
- b. 11 – 21 years
- c. 22 – 32 years
- d. 33 – 43 years
- e. 44-54 years
- f. Above 54 years

2. Gender

Male Female

3. Marital Status

Single Married Separated
Divorced Widowed

4. What is the highest level of education you have completed

Never went to school Primary School
Secondary school Post-secondary school e.g College
University

If others specify

5. What is your occupation?

Student Employed
Self-employed Unemployed

6. What is your monthly income?

- Below 10,000 /= 11,000 to 20,000
 21,000 to 30,000 31,000 to 40,000
 41,000 to 50,000 51,000 to 60,000
 Above 60,000

7. When were you diagnosed with blood pressure?

- Less than one year ago
 One year ago
 Two years ago
 Three years ago
 Four years ago
 Five years ago
 More than five years ago

8. How many kinds of medicine are you taking for high blood pressure

- One two three
 More than three

Section B: Adherence to Hypertension medication regimen

9.

	How often	Daily 1	Frequency 2	Rarely 3	Never 4
(a)	Do you forget taking your medicine				
(b)	Do you stop taking your medicine because you feel better				
(c)	Do you stop taking your medicine because you feel worse				
(d)	Do you stop taking medicine because you feel they are ineffective.				
(e)	Do you stop taking your medicine because you fear side effects				

Section C: Social cultural factors

10

	How often	Daily 1	Frequently 2	Rarely 3	Never 4
(a)	Do you stop medication because you are using traditional medicine form traditional healers				
(b)	Do you stop medication because of your religious beliefs.				
(c)	Do you stop medication because of any other social/cultural factors please specify here				
(d)	Do you stop medication because of cost of medication				

Section (D) Perception and knowledge of adherence to hypertension medication

11.

	To what extend do you agree or disagree with the following statement	Strongly agree	Agree	Disagree	Strongly disagree
(a)	Hypertension is a serous disease				
(b)	Hypertension complications can lead to instant death permanently being disabled				
(c)	Adherence to medication keeps my blood pressure under control				
(d)	Adherence to medication improves my quality of life and protects me from complications				
(e)	Adherence to medication decreases my chance of dying				

Section E: Patient provider relationship

12.

- (a) Please rate the kind of care you receive from your provider. Does your provider encourage you to ask questions?
 Yes No
- (b) Is the health care provider readily available as and when you need him?
 Yes No
- (c) Are the services offered in your clinic affordable
 Yes No

- (d) Do the services offered in this clinic affect your adherence rates
Yes No

Please specify how

.....
.....
.....
.....

Is the health care provider patient when dealing with you.

- Yes No

- (e) Do you have confidence with your health care provider that he is knowledgeable to hypertension disease.

- Yes No

- (f) Does your health care provider listens to your concerns

- Yes No

APPENDIX 3: KEY INFORMANTS INTERVIEW GUIDE

1. How long have you worked at the hypertension clinic?
2. What are your duties at the hypertension clinic?
3. What challenges do you face when dealing with hypertension patients at the clinic?
4. What measures have been put in place to address these challenges?
5. What questions do the hypertension patients ask when they come to the clinic regarding service delivery to them
6. What do you as staff at the hypertension clinic at Mama Lucy Kibaki Referral hospital think about
 - a. Your patients' perception of hypertension?
 - b. Your patients' knowledge of hypertension disease and the complications rising from un-controlled hypertension?
7. What are the adherence levels of you have recorded over the years if any ?
8. Are there any social/cultural factors that you have observed that influence your patients on medication adherence?
9. Hypertension patients normally miss their doses. What do you think makes your patient miss or don't miss their doses.
10. From your experience over the years what do you think needs to be done to improve adherence levels at your clinic and other clinics in general
11. Hypertension is now known as a silent killer what you recommend to be done to improve its awareness, and management.