

**LAY BELIEFS OF HYPERTENSIVE PATIENTS ATTENDING  
KATLEHO DISTRICT HOSPITAL (KDH) IN VIRGINIA IN  
FREE STATE REGARDING THEIR DISEASE**

**M MED (MEDICINE)**

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**2010**

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KATLEHO DISTRICT HOSPITAL (KDH) IN VIRGINIA IN  
FREE STATE REGARDING THEIR DISEASE**

BY

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RESEARCH DISSERTATION

Submitted in fulfillment of the requirements for the degree of

MASTER OF MEDICINE

IN

FAMILY MEDICINE

IN THE

FACULTY OF HEALTH SCIENCES

(School of Medicine)

at the

UNIVERSITY OF LIMPOPO

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2010

## DECLARATION

I, ....., hereby declare that the work on which this research is based is original (except where acknowledgments indicate otherwise) and that neither the whole work nor any part of it has been, or it has been submitted for another degree at this or any other university.

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STUDENT NUMBER:

.....

DATE

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Hypertension is a common chronic condition that requires a good understanding of the lay beliefs people have about it (EJAJ Beune, 2006). Ubiquitous, hypertension commonly known as high blood pressure still remains a major public health problem worldwide. One billion individuals are hypertensive worldwide. High blood pressure affects approximately 50 million individuals in the United States (Donald G. Vidt, 2000).

K. Wolf-Maier *et al.* (2003) showed that higher blood pressure levels and hypertension are more prevalent in Europe (average 44, 2%) than in the United States and Canada.

Ueshima (2000) showed in an epidemiologic study in Japan that there may be more than 100 million people of undesirable levels of blood pressure in China and that the prevalence of hypertension increases to an average of 47% for both men and women.

Hypertension affects 10 to 20 million individuals in sub-Saharan Africa; where it is said to be one of the continent's greatest health challenges after HIV/AIDS (Kluger J, 2004).

Steyn (1998) conducted a survey that showed there are high levels of hypertension in the South African community. In this country the crude rate of hypertension in people older than 20 years is said to be 23, 9%. Almost 1 in 4 of the adult population in South Africa has an elevated blood pressure.

Hypertension is among the deadliest of all known cardiovascular risk factors. Recent clinical trials and current advances in hypertension management indicate that blood pressure control can be achieved in most patients. An accurate measurement of blood pressure in order to classify individuals to blood pressure related risk and guide to management is no longer a problem. Unfortunately the majority of patients' blood pressure remains uncontrolled in all societies (Katharina Wolf-Maier, 2004).

Detection and management of hypertension among communities is said to be good, but evidence demonstrates that its control remains poor, many factors are to blame.

Lahdernpera & Kyngas (2000) showed that where compliance is poor control in conditions that requires a change in lifestyle than in ones that do not need any action. Hypertension is one of the medical conditions that require life changing actions.

Its asymptomatic nature explains the late consultation as well as the poor compliance to treatment.

Morgan (1988) is of the opinion that the fact that many patients choose to "leave off" medication and go for traditional remedies is a great barrier to the control of blood pressure.

## **1.2 Background of Setting**

The researcher practices, at Katleho District hospital, in Virginia. Virginia is a gold mining town in the Free State province of the Republic of South Africa.

Employment in this town is mainly in mines known as the Free State goldfields.

Established in 1946 the town is situated between the Gold and Uranium mines of Beatrix (Gencor), Harmony, Free State Saaiplaas (Anglo), Joel (JCL) and Oryx (Gengold). It is 20Km south east of Welkom and 140Km north east of

Bloemfontein, the capital city of the Province. The population of the town is estimated at approximately 122502 inhabitants. The main languages spoken in Virginia are Sesotho and Afrikaans. There are five government clinics for the whole town of Virginia and its surroundings.

There is no such study recorded in this setting, the daily presentation of patients with uncontrolled hypertension and its complications, warranted that an investigation of the phenomenon be conducted namely; patients and their beliefs regarding high blood pressure and that the findings would contribute to the improvement of management of hypertension.

## **1.2 Background to the Research Problem**

Health workers are on a daily basis dealing with hypertension from normal to high blood pressure, which is by any means associated with increased risk of experiencing fatal, and non-fatal cardiac events to complicated stage III hypertension with severe end organ damage (JNC5, 1993).

Antihypertensive drugs are available and free in the public sector specifically in the researcher's setting. In his encounter with these patients the researcher noticed

acknowledgment by some patients of use of traditional remedies sold on days of old age pension payouts and over the counter at pharmacies.

The number of complications from hypertension among non-adherent patients was a concern to the researcher. The most common complications were; malignant hypertension, heart failure, renal failure and stroke.

According to Elzubier AG, *et al* (2000) most complications result from poor compliance to treatment, which in turn stems from the patients' poor knowledge of hypertension.

The patients understanding of high blood pressure based on personal lay beliefs, knowledge and experiences are important and have to be taken into account.

The increasing use of alternative medicine (80% of South Africans) and the impact of belief systems on the management of several medical conditions is well established (Mbokazi, AJ 2006). Misconceptions about hypertension generally result from lack of knowledge of high blood pressure.

A survey in Ga-Rankuwa Township north of Pretoria showed that people understood high blood pressure as "excess blood in the body" (Henbest *et al* 1995).

Patients do consult alternative healers. The combination of modern and traditional remedies appears common in the researcher's practice setting and may influence compliance to treatment and control of high blood pressure.

This study sought to explore lay beliefs about hypertension amongst patients attending at Katleho District Hospital in Virginia in the Free State. He also sought to understand patients' lay beliefs and their own understanding of hypertension and the

possible link with the poor compliance therefore understating the lack of control of blood pressure and probably the increasing number of complications.

### **1.3 Health Care Facilities**

The only one district hospital is surrounded by five government clinics. The district hospital is located at 1,5Km from the town. The distance from the district hospital to local government clinics are the following: Saaiplaas clinic (6Km), town clinic (1,5Km), Meloding clinic (5Km), Kutahlang Clinic (6Km) and OR Tambo clinic (8Km).

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1. INTRODUCTION**

In this chapter, literature review is done under the following headings:

- Epidemiology of hypertension
- Hypertension in general
- Lay beliefs regarding hypertension and its management.
- Health belief models

The search was done first by sending key words to the Medunsa Resource centre. Secondly by personally using the same key words through Google.co.za as well as PubMed. The key phrase used was “ Lay beliefs of hypertensive patients regarding hypertension”. The complete articles found after the search are reviewed hereunder.



## 2.2. EPIDEMIOLOGY OF HYPERTENSION

High blood pressure and its consequences is a major contributor to the global disease burden (Ezzati M *et al* 2002)

According to a review 26% or 1 out of 4 of the world adult population had hypertension in

2000 and because a larger proportion of the world population is expected to be older in 2025. , 29,25% were projected to have high blood pressure by that time.(Theodor A Kotchen 2007).

In the developing world the number of adults with hypertension was predicted to increase by about 60% to a total of 1, 56 billion.

High blood pressure is estimated to account for 6% of deaths worldwide (Murray CJ *et al.* 1997)

According to the World Health Organization (WHO), the global disease burden attributable to a systolic blood pressure of 115 mmHg or above is:

- 20% of all deaths in men and 24% of all deaths in women
- 62% of strokes and 49% of coronary heart disease, and
- 11% of disability adjusted life years.

Hypertension is one of the greatest health problems and a common indication for visits to physicians. . For example, higher rates of High Blood Pressure and increased risks of cardiovascular disease have been consistently reported among African Americans when compared with non-Hispanic whites. (Cooper RS *et al* 1996).

In England, the Joint Health surveys unit (2004) estimates that 32% of men and 30% of women aged 16 years or over have a persistent raised blood pressure of 140/90mmHg or above or are being treated for high blood pressure.

The China National Blood Pressure Survey, carried out in 1991, showed that there may be more than 100 million people with an undesirable level of blood pressure at that time, a prevalence of 11%.

In Japan an aged-adjusted prevalence of hypertension in adults aged 30 years or more was 27,9% in men and 24,6% in women (Liu L *et al* 1999)

Wu YK (1982) observed lower levels of blood pressure and prevalence of hypertension in rural compared to urban areas in both men and women.

Konishi M *et al.* (1990) reported also an urban-rural difference in the prevalence of hypertension in Japan.

Similarly, hypertension has increased in developing countries south of the Sahara. In South Africa for example, it is estimated that approximately 6,5 million South Africans (14%) have blood pressure beyond 140/90 mmHg and approximately 3,2 million above 160/95 mmHg

Although most are asymptomatic, a study conducted in Ga-Rankuwa township north of Pretoria suggested that people could tell if their blood pressure was up (Henbest, Malete 2000)

Millions of African Americans die each year as a result of strokes, heart attack, and other cardiovascular-related illnesses that are directly linked to uncontrolled hypertension, and costs associated with hypertension have been estimated to be greater than \$110 billion per year. (Smith MD *et al* 1996).

The asymptomatic nature of hypertension complicates the problem of early diagnosis because at primary health care level, symptoms are the most common trigger of consultations. That is why screening for hypertension in populations at risk is important. It is not costly because only three blood pressure measurements are needed to diagnose hypertension.

This is done at primary health care where every encounter with the patient is seen by Family physicians as an opportunity for education and health promotion (McWhinney 1997)

## 2.3. HYPERTENSION

### 2.3.1 Definition of Hypertension

Hypertension is defined as an increase in blood pressure due to an increase in cardiac output and/or peripheral resistance (Ker J A, 2006).

Blood Pressure (BP) is measured in millimeters of mercury (mmHg). The joint National Hypertension Guideline Group of South Africa regards a BP of 120/80 as a normal blood pressure.

In practice, hypertension is defined as a Blood pressure (BP) equal or more than 140/90mmHg (Chobanian AV *et al* 2003). Because of the cumulative evidence of association between the increasing BP and risk of cardiovascular events: Stroke, coronary heart disease, peripheral arterial disease, heart failure, renal failure, dementia and death; Most guidelines recommend lower blood pressure targets (130/80mmHg) for people with diabetes, heart failure or chronic kidney disease than the normal population. MacMahon W S *et al.* (2007) after a randomized controlled trial on effects of a fixed combination of perindopril and indapamide on macrovascular and microvascular outcomes in patients with type 2 diabetes mellitus (the ADVANCE trial) reinforced this recommendation.

Wright JT *et al* (2002) in effect of blood pressure lowering and antihypertensive drug class on progression of hypertensive kidney disease demonstrated a slowing of GFR decline with angiotensin converting enzyme inhibitors appearing to be more effective.

Hypertension can be classified either essential (primary) or secondary. In essential hypertension no specific medical cause can be found to explain a patient's condition. Secondary hypertension indicates that the high blood pressure is a result of another condition, such as kidney disease or tumors.

### **2.3.2 Historical background**

Hypertension or high blood pressure is not new in human history. It is as old as humanity itself. Long ago blood pressure was measured in horses using a simple manometer (Stephan Hales, 1732).

The dissection of ancient Egyptian mummies showed that high blood pressure has been a health problem since the early Egyptian empires. Richard Bright (1836) invented the sphygmomanometer.

Hypertension is a primary factor in the occurrence of stroke, cardiac failure, coronary disease, and renal deaths (National Heart, Lung, and Blood Institute, 1993).

This is and should be a priority.

### **2.3.3 Aetiology**

The following are the possible causes of hypertension:

#### **2.3.3.1 Aortic regurgitation**

Aortic regurgitation is characterized by diastolic reflux of blood from the aorta into the left ventricle due to malcoactation of the aortic cusps. It is accompanied by systolic hypertension and wide pulse pressure (Raffi Bekeredjian 2005).

About 10 percent of patients with systemic hypertension have a basal diastolic blowing murmur indicating aortic regurgitation (Barlow J 1960).

#### **2.3.3.2 Thyroid Disease.**

Hypertension is much more frequently associated with thyrotoxicosis (hyperthyroidism); the prevalence is estimated at 20% to 30% (L. Michael Prisant 2006)

In patients with this condition, systolic pressures are typically elevated and diastolic pressures are often low, which results in a widened pulse pressure. These findings are attributable to increased cardiac output, stroke volume, heart rate, and cardiac contractility.

The prevalence of hypertension among patients with hypothyroidism is approximately 3 % (L. Michael Prisant 2006).

In patients with hypothyroidism, both systolic and diastolic pressures are elevated; the severity of the thyroid disorder seems to correlate with the increase in diastolic pressure. The onset of hypothyroidism may be subtle and unrecognized for a prolonged period; therefore, elevated diastolic blood pressure may represent a valuable clinical clue in older persons

#### **2.3.3.3 Obesity:**

Obesity is associated with more severe hypertension (Bramlage P *et al.* 2004). It is a common feature of patients with resistant hypertension. (Nishizakia MK *et al.* 2005)

#### **2.3.3.4 Renal causes**

Several studies showed that hypertension might result from a variety of renal disorders (Caetano *et al.* 2001; Adamczak M *et al.* 2002; Torpy *et al.* 2002; Hayden PS *et al.* 2003).

The most common parenchymal kidney diseases associated with hypertension are chronic glomerulonephritis, polycystic kidney disease, and hypertensive nephrosclerosis. (JNV7 2004).

Family studies have shown that hypertension is more frequent in first-degree relatives of patients with primary glomerular pathologies or diabetic nephropathy than in the general population (Adamczak M *et al.* 2002).

(Marcantoni C et al.2002; Hayden PS et al.2003; Kaperonis N & Bakris G2003) respectively showed that African Americans are more likely than their white counterparts to develop hypertension-related end-stage renal disease.

#### **2.3.3.5 Arteriosclerosis**

Atherosclerotic disease accounts for around two-thirds or more of patients with renovascular hypertension (Ashish Bhalla 2003)

Atherosclerotic renovascular disease occurs predominately in men over age 45 and one-third of patients with this lesion have bilateral lesions at the of initial diagnosis (Maxwell MH *et al.* 1972)

Others intrinsic and extrinsic causes of renovascular hypertension exist, including emboli within a renal artery or compression of this vessel by nearby tumors. (Ashih Bhalla 2003).

There is increasing evidence associating polcythaemia and hypertension caused by renal artery stenosis. (Coulthard 2002, Luke RG 1965)

#### **2.3.3.6 Endocrine causes**

a) Adrenocortical dysfunction (Cushing's disease and syndrome and Conn's syndrome)

Hypertension induced by adrenocortical dysfunction-hypertension in 17 alpha-hydroxylase deficiency and metoprone-induced hypertension is largely studied. Saruta T *et al* (1978) compared hypertension in 17 alpha-hydroxylase deficiency to hypertension in Cushing's syndrome or in primary aldosteronism.

In a series of 58 cases on association of hypertension and hypokalemia with Cushing's syndrome caused by an ectopic ACTH secretion. David J *et al.* (2002) showed that Cushing's syndrome is associated with hypertension in approximately 80% of cases. Hypertension contributes to the marked increased mortality risk of past or current Cushing's syndrome, largely because of increased cardiovascular risk.

The same study demonstrated that the commonest causes of hypertension were bronchial carcinoid (40%) and thymic carcinoid (10%), but 18 of 58 (31%) patients had an unknown source of ectopic ACTH. Hypertension (systolic blood pressure >140 mmHg and/or diastolic blood pressure >90 mmHg in adults) was noted in 45 of 58 (78%) ectopic Cushing's patients (David J 2002)

**b) Pheochromocytoma:**

Pheochromocytoms are rare but clinically important tumors of chromaffin cells that take up, produce, store, release, and metabolize catecholamines. It usually but not always manifest clinically as hypertension, which can be sustained or paroxysmal (Davids S G 2004)

Evidence is more than enough where it is established that pheochromocytoma causes hypertension (Mizuta E 2006, Chris M. Caraang 2006, Kobal SL 2008)

**c) Primary Aldosteronism**

Mosso L *et al* (2003) in his study on primary aldosteronism and hypertensive disease documented a high prevalence of primary aldosteronism. He demonstrated in the same study that the serum potassium levels were rarely low in patients confirmed to have primary aldosteronism, suggesting that hypokaliemia is a late manifestation of the disorder preceded by the development of hypertension.

In a study conducted in Seattle, Washington, primary aldosteronism was diagnosed in 17% of patients with resistant hypertension (Gallay BJ *et al* 2001)

In Oslo, Eide IK *et al* (2004) confirmed later primary aldosteronism in 23% of patients with resistant hypertension.

**d) Acromegaly**

Hypertension is a complication of acromegaly, contributing to the increased morbidity and mortality of this condition. Prevalence of hypertension in acromegalic patients is about 35%, ranging from 18 to 60% in different clinical series, and the incidence is higher than in the general population (Marta Bondanelli, 2001).

In acromegaly, hypertension is more frequent than in the general population. It involves predominantly diastolic blood pressure, and occurs earlier. It is not related to gender, and is less frequently related to family history of hypertension (Vitale G, 2005)

### **2.3.3.7 Oral contraceptives**

Woods (1967) described 6 cases with pre-existing hypertension was accentuated by oral contraceptives.

Clezy TM *et al* (1972) in his study on oral contraceptives and hypertension: an epidemiological survey showed that women who had a parental history of hypertension or a history of hypertension during pregnancy were more likely to become hypertensive during oral contraceptive therapy. The same study also established that the development of hypertension was likely to occur soon after beginning with oral contraception.

Weir R.J. *et al* (1971, 1974) in a prospective study on a group of normotensive women over a four year period showed a significant rise in systolic blood pressure after one year and a significant rise in diastolic pressure at the end of second year. In the same study he observed that a discontinuation of oral contraceptives resulted in return of blood pressure to pretreatment levels within 3 months. Lubianca J N *et al* (2005) demonstrated a decrease of at least 20 mmHg in systolic blood pressure or 10 mmHg in diastolic blood pressure in patients who stopped oral contraceptives. In the same study he also observed that the association of combined oral contraceptives with high blood pressure was attenuated with pills with smaller doses of oestrogen.

### **2.3.3.8 Drug-related causes**

Several classes of pharmacological agents can increase blood pressure and even contribute to treatment resistance. Studies suggest that the use of nonnarcotic analgesics, including nonsteroidal antiinflammatory agents such as aspirin and



acetaminophen, are probably the most common cause of hypertension (Dedier J *et al* 2002 & Forman JP 2005).

Johnson AG *et al* (1994) in his meta analysis on the effects of anti-inflammatory drugs on blood pressure indicated average increases in mean arterial pressure of approximately 5,0 mmHg.

Sympathomimetic compounds such as decongestants, certain diet pills, amphetamine-like stimulants may worsen blood pressure control. (Taneja I *et al* 2005)

### **2.3.3.9 Psychogenic**

Gressel, GC, *et al.* (1949) in his study on personality factors in arterial hypertension concluded in favour of a statistically significant association of hypertension with obsessive-compulsive and with 'subnormal assertiveness'.

Carl Binger (1951) concluded in the light of his review of literature that proof consistent with psychogenic influences in essential hypertension are lacking but he recognized that from many studies of sufferers from essential hypertension conducted by a number of independent observers emerges the evidence of certain kinds of emotionally conflictive states which all the patients involved seemed to be unable to resolve.

### **2.3.3.10 Increased intracranial pressure (acute)**

Intracranial pressure, (ICP) is the pressure exerted by the cranium on the brain tissue, cerebrospinal fluid (CSF), and the brain's circulating blood volume. ICP is a dynamic phenomenon constantly fluctuating in response to activities such as exercise, coughing, straining, arterial pulsation, and respiratory cycle. ICP is measured in millimeters of mercury (mmHg) and, at rest, is normally 7–15 mmHg for a supine adult, and becomes negative (averaging –10 mmHg) in the vertical position (Steiner LA, 2006).

#### **2.3.3.11 Spinal cord section (acute)**

Rabchevsky, AG (2006) of the University of Kentucky explaining the mechanisms of autonomic dysreflexia following spinal cord injury said when sensory nerves below the injury site are stimulated; exaggerated nerve activity in the spinal cord can lead to a condition called autonomic dysreflexia a potentially life-threatening condition that causes bouts of very high blood pressure (hypertension). It is most common in people with complete injuries at the T6 level and above.

Lee MY, (2006) in his study on Homocysteine and hypertension in persons with spinal cord injuries showed that the plasma homocysteine levels were elevated in persons and inversely related to renal function, which suggests that renal dysfunction may be a link between homocysteine and hypertension in persons with spinal cord injuries.

#### **2.3.3.12 Coarctation of aorta**

Coarctation of the aorta is a relatively common defect that accounts for 5-8% of all congenital heart defects. The diagnosis of coarctation of the aorta may be missed unless an index of suspicion is monitored, and diagnosis is often delayed until the patient develops congestive heart failure which is common in infants, or hypertension, which is common in older children (P Syamasundar Rao 2005).

#### **2.3.3.13 Hypercalcaemia**

Calcium mobilized in the blood stream by parathyroid hormone is associated with renal stones, osteoporosis and other diffuse symptoms of hypercalcaemia

Primary hyperparathyroidism is reported to be associated with hypertension, (Lafferty F 1986)

#### **2.3.3.14 Polyarteritis**

In a hospital-based study on spectrum of renovascular hypertension in the young in India it was established that Takayasu's arteritis was the leading cause of hypertension (Sharma BK *et al.* 1985).

Cases are countless in the literature presenting polyarteritis nodosa as a cause or medical entity in association with hypertension (Thel MC, 1993; Uyama H *et al.* 1995; Oguzkurt L. 1997 Blaustein DA, 2004)

### **2.3.3.15 Essential hypertension**

Essential hypertension is thought to arise from an interaction between susceptibility genes and environmental factors. To date, investigation of the genetic basis of hypertension has largely focused on some genes from the renin-angiotensin system. In fact, there is support for linkage and association of the angiotensinogen gene to hypertension in two different populations of white European origin and one population of African Caribbean ethnicity (Jeunemaitre X 1992, Caulfield M 1994, 1995). The sympathetic nervous system represents a second important regulator of blood pressure naturally through alterations in vascular responsiveness, renin release, renal sodium handling, and cardiac output (Victor RG, 1995).

Accordingly, genetic variation in either the  $\alpha$ -adrenoceptor, leading to enhanced vasoconstriction, or  $\beta_2$ -adrenoceptors, leading to attenuated vasodilatation, might be important for increasing total peripheral resistance and hence blood pressure. In addition, evidence from cultured skin fibroblasts indicates that the expression of  $\beta_2$ -receptors in normotensive white Europeans with sodium-responsive blood pressure is less than half of that observed in salt-resistant subjects (Victor RG 1995; Kotanko P, 1992)

A number of studies have demonstrated some people display greater cardiovascular reactivity to a number of physical and mental stressors.

Calhoun DA (1992) in his study on hypertension in Blacks: Socioeconomic stress and sympathetic nervous system activity reported that blacks experience chronic sympathetic system activation due to more recurrent exposure to social and environmental factors.

It is also demonstrated that black children with a family history of essential hypertension manifest greater increases in total peripheral resistance, leading to greater increases in blood pressure in response to cold pressor test and the mental stress of playing a video game (Dysart *et al.* 1989 and Treiber *et al.* 1994)

#### **2.3.3.16 Toxaemia of pregnancy**

Pre eclampsia is defined as the development of hypertension with proteinuria (presence of 300mg or more of protein in 24-hour urine collection or a 1+ reaction on a standard urine dipstick) occurring after 20 weeks of gestation in a woman whose blood pressure was previously normal and eclampsia as new onset grand mal seizure in a pre-eclamptic patient. (Tan KH, 2006)

Pre-eclampsia has a genetic basis because it occurs across the globe in all environmental conditions and because it 'runs' in families (Adams & Finlaryson, 1961; Chesley, Cosgrove & Annito, 1961,1962)

#### **2.3.3.17 Obstructive Sleep Apnoea**

Untreated obstructive sleep apnoea is strongly associated with hypertension and in non hypertensive persons predicts development of hypertension (Nieto FJ 2000 & Olivieri O, 2004)

### **2.3.4 Pathophysiology**

Disruption of the following three mechanisms involved in BP regulation explain the abnormality observed in essential hypertension:

**2.3.4.1 Sodium and fluid balance:** The renin-angiotensin system promotes sodium and fluid retention responsible for hypertension.

There is accumulating evidence that the pathophysiological basis of hypertension in blacks is different than that in whites. Hypertension is characterized with an abnormal haemodynamic reactivity and increased salt sensitivity. Recent studies suggest that endothelin-1, a 21 amino acid residue peptide with potent vasopressor actions, and its receptors are also involved in the regulation of sodium and water

reabsorption, excretion and may contribute to the development or maintenance of salt-sensitive hypertension. (Ohuchi T 1999; & Alcock GH, 1998)

#### **2.3.4.2 Vasomotor tone of peripheral arteries:**

The development and progression of hypertension are related to abnormal haemodynamic reactivity characterized by increased peripheral vascular resistance in response to external stimuli, including physical and mental stress (Anderson NB, 1989). The endothelin-1 synthesized by endothelial cells is a potent vasoconstrictor (Haynes WG, 1998). Its intravenous administration is followed by a sustained increase in blood pressure (Yanagisawa M, 1988). The increase in peripheral arterial resistance is the most important event in the genesis of hypertension.

#### **2.3.4.3 Ageing and pulse pressure:**

The main event responsible for high blood pressure is the decreased distensibility of the large arteries.

In industrialized nations, systolic blood pressure continuously rises throughout life, whereas diastolic blood pressure tends to level off or even decline in persons older than 50 years (Izzo JL, 2000; Welton PK, 1994). Supported by a vast body of epidemiological data, the focus has recently shifted from diastolic blood pressure to systolic blood pressure and, in particular, pulse pressure as a major cardiovascular risk factor (Izzo JL, 2000). Although ventricular ejection and stroke volume contribute to pulse pressure, the age-dependent rise in pulse pressure is largely determined by progressive "stiffening" (i.e. less distensibility) of central elastic arteries, which reflects the biologic aging of the arterial system (Nichols WW, 1998; O'Rourke MF, 1999; Bilato C, 1996; Cooper LT, 1994). Avolio AP (1995) & Boutouyrie P, (1992) have demonstrated increased stiffness of central arteries in hypertensive patients.

O'Rourke M, (1995) suggested that the abnormal aortic function in hypertension is generally attributed to accelerated breakdown of elastin in the aorta, leading to dilatation of the lumen and stiffening of the wall as elastin is replaced with stiffer collagen.

This age-associated rise in systolic blood pressure occurs as a consequence of increased arterial stiffness.

The role of renin in renovascular hypertension has been established (Pickering TG, 1989).

The release of increased amounts of renin when sufficient ischaemia is induced to diminish pulse pressure in renal arteriols has direct effects on sodium excretion, sympathetic nerve activity, intra-renal prostaglandine concentrations, and nitric oxide production; and thus cause renovascular hypertension (Ashish Bhalla, 2003)

The mechanism of production of hypertension by oral contraceptives remains uncertain. Few studies suggested the following:

Catt *et al* (1971) described a rise in plasma angiotensin II in hypertensive women on oral contraception. Lin *et al* (1970) suggested that the oestrogen component of the contraceptive agent may contribute to the development of hypertension. Weir *et al* (1971) demonstrated that an increase in systolic blood pressure was the same in women taking either low dose or high dose oestrogen oral contraceptive preparations.

The obstructive sleep apnoea is associated with intermittent hypoxemia, and/or an increased upper airway resistance associated with sleep apnoea inducing a sustained increase in the sympathetic nervous system activity. (Somers VK *et al* 1995; & Grassi G *et al* 2005). By this mechanism the increase in sympathetic nervous system allow a raise in blood pressure through increases in cardiac output and peripheral resistance as well as via fluid retention.

The pathophysiology of hypertension in people of pheochromocytoma is related to the level of norepinephrine secretion by the tumour (Ito Y *et al* 1992)

### **2.3.5 Diagnosis, Common presentations and investigations**

To establish the diagnosis of hypertension, it is advised that the same observer using the same technique must document at three separate visits at least three readings that average greater than 140mmHg systolic or 90mmHg diastolic, preferably.

Many people with hypertension are asymptomatic and unaware of their illness.

Most of hypertensive patients are diagnosed during a consultation for an unrelated problem, this constitute therefore the need to emphasize all the importance of case finding and screening in identifying some hypertensive individuals (A J Mbokazi, 2006).

### 2.3.5.1 Clinical Presentation

Mild to moderate primary hypertension is usually asymptomatic and can remain so for many years. Some of the "early" symptoms of primary hypertension that patients may eventually experience include headaches (especially early morning, pulsating, suboccipital headaches), visual disturbances, ringing in the ears, dizziness, coldness or tingling of the extremities, and fatigue. Symptoms of severe or later stage hypertension are related to the potential cardiovascular, cerebrovascular, and renal complications of the disease.

### 2.3.5.2 Diagnosis

Most clinicians perform the following in their diagnostic examination of a patient with suspected primary hypertension: a complete medical history, blood pressure measurement, ocular fundus and retinal examination, auscultation of the heart and arteries, examination of all major peripheral pulses.

The JNC7 recommends a 12-leads electrocardiogram; urinalysis; blood glucose and haematocrit; serum potassium, creatinine and calcium; a fasting lipoprotein profile. Optional tests including measurement of urinary albumin excretion or albumin/creatinine ratio; exemption being those with diabetes or kidney disease. (Jensen JS 2000)

Screening and diagnostic studies for secondary hypertension \*

Possible cause	Study
Coarctation of aorta	<ul style="list-style-type: none"> <li>• Chest film</li> <li>• Two-dimensional echocardiogram</li> <li>• Aortogram</li> <li>• Magnetic resonance imaging (MRI)</li> </ul>
Cushing's syndrome	<ul style="list-style-type: none"> <li>• Dexamethasone suppression test</li> </ul>

	<ul style="list-style-type: none"> <li>• 24-hour urinary free cortisol</li> <li>• Computed tomography (CT)</li> </ul>
Primary aldosteronism	<ul style="list-style-type: none"> <li>• Plasma aldosterone: rennin ratio</li> <li>• Aldosterone excretion rate during salt loading</li> <li>• Adrenal CT</li> </ul>
Pheochromocytoma	<ul style="list-style-type: none"> <li>• Plasma catecholamines</li> <li>• Urine catecholamines (metanephrine, vanillylmandelic acid)</li> <li>• Clonidine suppression test</li> <li>• CT</li> <li>• MRI</li> <li>• Iodine 131 metaiodobenzylguanidine scan</li> </ul>
Renovascular disease	<ul style="list-style-type: none"> <li>• Captopril renography</li> <li>• Renal duplex sonography</li> <li>• MRI</li> <li>• Angiography</li> <li>• Renal vein renin ratio</li> </ul>
Thyroid disease	<ul style="list-style-type: none"> <li>• Thyrotropin level</li> <li>• Serum thyroid hormone level</li> <li>• Serum calcitonin level</li> </ul>
Hyperparathyroidism	<ul style="list-style-type: none"> <li>• Calcium and phosphorus levels</li> <li>• Serum parathyroid hormone level</li> </ul>
Renal parenchymal disease	<ul style="list-style-type: none"> <li>• 24-hour urine protein and creatinine levels</li> <li>• Renal ultrasound</li> </ul>



	<ul style="list-style-type: none"> <li>• Iothalamate glomerular filtration rate</li> <li>• Renal biopsy</li> </ul>
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\* Donald G. Vidt, 2000.

Commonly patients present themselves for the first time with complicated hypertension. These are some common presentations:

- *Hypertension crisis*: with two main components:

Hypertension emergency	Hypertension urgency
<p>Severely elevated blood pressure with evidence of end organ damage or dysfunction.e.g.</p> <p>Hypertensive encephalopathy, Intracerebral haemorrhage, Myocardial infarction, Acute left ventricular failure, Dissection of aorta, Eclampsia</p> <p>Treatment ideally in an intensive care unit</p>	<p>Severely elevated blood pressure without evidence of end organ damage or dysfunction</p> <p>It is associated with headache, epistaxis...</p> <p>Treated ideally in hospital</p>

- *Cerebrovascular events*

Ischaemic stroke and hemorrhagic stroke are the two main components of cerebrovascular events

- *Chronic kidney disease*

It is an end-stage renal disease characterized clinically by body weakness, fatigue, headaches, hiccups, anorexia, nausea, vomiting and pruritus with a reduced glomerular filtration rate.

- *Heart failure*

### 2.3.5.3 Risk factors for hypertension

Evidence is increasing of risk factors predisposing a patient to hypertension.

Some are modifiable others are not

Non modifiable	Modifiable
Age and gender	Body mass index high than normal
Race	Increase salt intake
Family history of hypertension	Alcohol intake
Diabetes mellitus	Excessive stress
	Physical inactivity
	Smoking
	Socioeconomic status
	Psychosocial stressors
	Low birth weight
	Being formula-fed as a baby

The prevalence of hypertension in the community is determined principally by age and ethnicity.

- **Age and gender**

The prevalence of hypertension increases with age. It is actually established that the differences in blood pressure changed with age according to gender. In China for example according to the China National Blood Pressure Screen done in 1991 the prevalence of blood pressure was higher in men under 40 years old, remained similar between both sexes from 40 to 50 years old, and reversed after 50 years old. Tzhang XH (1995) in the sex ratio of mortality and its secular trends suggest that blood pressure correlating to gender difference was almost similar to that of China, but in women aged 70 years or more hypertension was higher than for men in the same age group. This reflects the increasing prevalence of factors that contribute to the development of hypertension, such as obesity, reduced physical activity, and the age-related progressive reduction in vascular compliance directly associated with increased peripheral vascular resistance and increased blood pressure (Henry E 2002).

For any given age up to about 65 years, in England, The Joint Health Surveys unit showed that women tend to have a lower systolic blood pressure than men, and this is the opposite after 65 years of age.

- **Ethnicity**

The estimated prevalence of high blood pressure in Afro-Caribbean population is about 33%, and this hypertension appears to be difficult to control in black patients.

Burt VL *et al* (1995) suggest that the prevalence of essential hypertension in black people is twice that of whites.

Several studies describe hypertension among Blacks as characterized by earlier onset, more severe course and increased susceptibility to some hypertension-related complications, such a left ventricular hypertrophy, stroke and end-stage renal disease in comparison to white hypertensives (Wallin JD 1986; Dustan HP *et al* 1987; Whittle JC *et al* 1991).

- **Family history**

Williams FMK (2004) suggests that up to 40% of variability in blood pressure in twins may be explained by genetic factors.

Some studies argue that genetic predisposition is relatively weak compared with the powerful influence of lifestyle and environment (Poulter NR 1990, Forrester T 1998 & Salmond CE 1989).

- **Psychosocial stressors**

Steptoe A (2000) demonstrated that blood pressure may also persistently increase over a long period in response to a wide range of stressful situations, including stress at work.

The Whitehall II cohort study showed that systolic and diastolic blood pressure were greater in participants reporting low job control compared with those reporting high job control, independent of sex, employment grade, body mass index, age, smoking status and physical activity ( Steptoe A & Willemsen G 2004)

- **Low birth weight**

Barker DJP (1996) in the foetal origins of hypertension explains that there appears to be a relationship between adult hypertension and low birthweight and poor growth and development in the first year of life.

Others studies showed that fast catch-up growth where small babies grow quickly in the first months of life may also contribute to later hypertension (Williams S *et al* 2002; & Huxley R.R *et al* 2000))

- **Being formula-fed as a baby**

Exclusively formula-fed babies tend to have higher systolic blood pressures than breastfed babies and this difference extends into adult life (Wilson AC *et al.* 1998 & Singhal A *et al* 2001)

- **Socioeconomic status**

The known risk factors, age and gender, are directly associated with hypertension but other factors such as education and socioeconomic status also have a role in the course of hypertension (Winkleby M 1998)

### **2.3.6 Management of hypertension**

The first step in treating a hypertensive patient is to use non-drug, or non-pharmacologic, therapy. There is no doubt that non-pharmacologic therapy has a major role to play in the management of hypertension. This part of treatment based mainly on lifestyle modification often leads to a reduction in blood pressure therefore a decrease in drug requirements.

It includes the followings:

#### **A. Non-pharmacologic therapy**

##### **1. Achieving a normal BMI (18,5-24,9Kg/m<sup>2</sup>).**

The trials of Hypertension Prevention Collaborative Research Group, in their phase II showed that every loss of 10kg in weight is followed by a reduction of systolic blood pressure ranging from 5 to 20mmHg.

There is no doubt that weight loss improves endothelial function, which, in turn, implies reduced cardiovascular risks. (Pierce G.I. *et al* 2008)

##### **2 Alcohol intake less than or equal to 30ml per day**

Xin X *et al.* (2001) in a meta-analysis of randomized controlled trials on the effects of alcohol reduction on blood pressure demonstrated that a moderate consumption (not more than 2 drinks for men and no more than 1 drink per day for woman reduce the systolic blood pressure from 2 to 4 mmHg. A drink being 12 oz of beer, 5 oz of wine and 1,5 oz of 80-proof liquor

At a Finnish hypertension clinic, heavy drinkers, as suggested by increases in liver transaminase levels, were much less likely to have their blood pressure controlled during a 2-year follow up compared with patients with normal transaminase levels ((Henningesen NC *et al.* 1980)

Aguilera MT *et al* (1999) in the effect of alcohol abstinence on blood pressure, an assessment by 24-hour ambulatory blood pressure monitoring observed that patients reduced 24-hour ambulatory systolic blood pressure by 7,2 mm Hg and diastolic blood pressure by 6,6 mm Hg with a drop in prevalence of hypertension from 42% to 12%

### **3 Regular aerobic exercise**

Regular aerobic exercise such as brisk walking at least 30 minutes per day, most days

of the week reduce systolic blood pressure from 4-9mmHg(Kelly GA *et al* 2000) and

(Wheton SP 2002)

The JNC7 recommends that everyone who is able should engage in regular aerobic physical activity such as brisk walking at least 30 minutes per day most days of the week.

### **4 Smoking cessation**

The JNC7 declare that for overall cardiovascular risk reduction, patients should be strongly counseled to quit smoking.

### **5 Salt intake**

Dietary sodium intake less or equal to 2,4g/day or 6g sodium chloride per day reduce

the systolic blood pressure from 2 to 8 mmHg (Chobanian AV 2000).

Excessive dietary sodium intake contributes to the development of resistant hypertension directly in increasing blood pressure and by blunting the blood pressure

lowering effect of most classes of antihypertensive drugs (He FJ & MacGregor GA

2003; Luft FC 7 Weimberger MH 1988; Weimberger MH *et al* 1998).

Nishizaka MK *et al* (2005) observed that in patients referred for resistant hypertension the average dietary salt ingest based on 24-hour urinary sodium excretion exceeded 10 g a day.

The JNC7 recommends a dietary sodium intake of not more than 2,4 g per day.

## **6 Fruits and vegetables consumption**

Increased consumption of vegetables and fruit. The DASH eating plan recommends a

diet rich in fruits, vegetables, and low fat dairy products with a reduced content of saturated and total fat.

Evidence show that this is followed by a decrease in blood pressure ranging from 2 to 8 mmHg

## **7 Stress management**

Spencer JD *et al* (1999) made the following recommendations:

- In patients with hypertension, the contribution of stress should be considered.
- For hypertensive patients in whom stress appears to be an important issue, stress management should be considered as an intervention; Individualized cognitive behavioural interventions being more effective than single-component interventions

## **B. Pharmacologic Treatment.**

1) Goals:

Hypertension in itself is a risk factor of disease such kidney failure, heart failure, heart attack, stroke. Therefore reducing blood pressure lowers the risk of having all these diseases (Kearney PM *et al* 2005)

Lowering blood pressure helps then to achieve the following:

- To achieve a normal level of BP
- Reduce cardiovascular and renal complications

- Increase longevity
- Improve quality of life

2) Drugs (see attachment antihypertensive drugs)

3) Algorithm for treatment of hypertension (see attached algorithm)

## 2.4 LAY BELIEFS ON HYPERTENSION

A significant proportion of hypertensive patients attending health facilities and receiving conventional treatment also use complementary and alternative therapies. (Oluwaoyin C Amira & Okubadejo, NU 2007; Eisenberg *et al.* 1998; MacLennan AH *et al.* 1996; Eddouks M *et al* 2002; Astin JA, 1998).

The 1984 Report of the Joint National Committee on Detection, Evaluation, and treatment of high Blood Pressure, National Heart, Lung, and Blood Institute acknowledged that poor patient compliance with prescribed treatment is one of the most important factors in poor blood pressure control both among Black and White.

Several studies have shown that the differences between patient/practitioner models of health and illness are the source of many problems in complying with treatment (Harwood A 1971; Logan MH 1973; Snow LF, 1974).

Petrie KJ *et al.* (1996) showed that patients' perceptions of their illness (eg, beliefs about the causes, likely duration and consequences) have been shown to account for a significant proportion of the variance between clinical disease severity and outcome. He also suggested that certain beliefs may be viewed as maladaptive in that they act as barriers to adherence or predict higher levels of disability and reduced quality of life

Fongwa Marie N (2008) showed a number of beliefs that are not consistent with adherence:

- Participants expressed not knowing what hypertension is.
- For some working overtime damages the valves and this causes hypertension.



- Stressors such as taking care of children and grandchildren contribute to uncontrolled blood pressure.
- Hypertension medication believed to be addictive and therefore concerned with addiction
- Participants felt that prayers or communication with God was critical in the efforts to abide by care providers' orders.

Alexander G *et al* (2003) showed that the problem among patients with hypertension was low compliance and this could be explained by:

- Patient being inadequately informed of the disease.
- Patient beliefs that there are no reasons for them to remain permanently on antihypertensive treatment based on their objective perception of health status and disease severity.

Horne R (2001) suggested that non-adherence falls into two broad categories Unintentional (e.g. forgetfulness and intentional (based on patients' decision making),

Unintentional non-adherence may result from poor doctor-patient communication or from lack of ability to follow the advice.

Intentional non-adherence occurs when the patient knows what is required but decides not to follow this advice.

John Astin, (1998) showed that the majority of alternative medicine users appear to be doing so not so much as a result of being dissatisfied with conventional medicine but largely because they find the health care alternatives to be more congruent with their own values, beliefs, and philosophical orientations towards health and life.

Blumhagen D (1980) discovered that patients may lack knowledge about hypertension, or they may harbour beliefs that are discordant with those of the traditional medical paradigm regarding the treatment and causes of hypertension.

Gant RN, 1993 in his study conducted in Jamaica on Women's Health Beliefs regarding hypertension, showed that 65% respondents believed that being hypertensive included feeling stressed and consuming too much salt, respectively.

He went on giving the distribution of responses regarding methods used to prevent or control hypertension and showed the proportion in percentages:

Methods used to control hypertension and proportion of individuals in Jamaica according to Gant (1993).

Methods	Proportion in percentage
Eat less salt	28
Avoid worry	27
Seek medical care	20
Adhere to prescribed treatment	13
Use home remedies	12

Findings of a study done in Al-Khobar, Saudi Arabia, concerning the compliance of hypertensive patients on patients' knowledge and misconceptions about hypertension, indicate that there was a clear need for health education among patients with hypertension (L.S. Al-sowielem *et al* 1998)

The consultation offers an opportunity to investigate patients' lay beliefs and health behaviour in order to offer effective care with regards to health education and promotion, which is one of the important components of the patient-centered clinical approach (Mash Bob 2000).

Jacqueline Spencer (2005) showed that 58% of respondents think that hypertension can be cured.

She also showed in the same study the following beliefs and knowledge:

- Hypertensive patients do not have knowledge about their disease.
- Daily Life stressors cause hypertension.
- Traumatic life events cause hypertension and
- Behavioural factors.

Patricia Connell *et al.* (2005) showed the following:

- A number of participants reported that when their blood pressure was high they had symptoms ( pain in the head, in the chest, dizziness)
- Feeling well, with an absence of symptoms, was equated with being well. For example *“Well I don’t take something (medication), if I’m not sick. I don’t take it. Would you take something if you don’t feel sick? (a participant)”*
- Participants contrasted prescribed drugs with “bush’ remedies: ‘Bush’ was seen as more natural than pharmaceuticals, which added impurities to the blood and body. The bitter properties of ‘Bush” was viewed as especially potent.
- Participants occasionally forgot to take their medication

## 2.5 HEALTH BELIEFS

Anthropological research in clinical contexts has shown that differences between patient/practitioner models of health and illness can be a source of many problems in complying with treatment (Snow, LF 1974; Harwod A, 1971; Logan MH, 1973)

The fact that asymptomatic patients do not feel unwell may encourage non-compliance. To examine health beliefs in the context of compliance many psychological theories have been developed:

### 2.5.1 The Health Belief Model

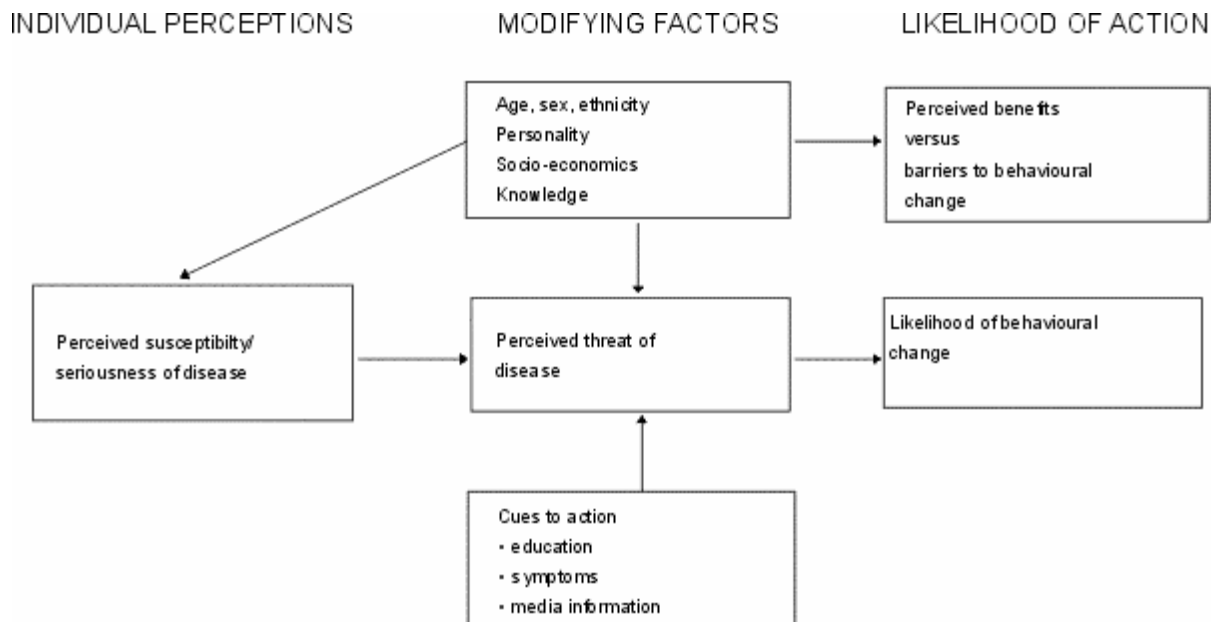
First developed in the 1950s, by social psychologists Hochbaum, Rosenstock and Kegels, the Health belief Model attempts to explain and predict health behaviours focusing on the attitudes and beliefs of individuals. (Becker, M.H., Radius; S.M., & Rosenstock, I.M. 1978).

The Health Belief Model is based on the understanding that a person will take health-related action (i.e., tobacco cessation) if that person:

- Feels that a negative health condition can be avoided,
- Has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition, and

- Beliefs that he/she can successfully take a recommended health action.

## Conceptual Model



Source: Glanz *et al*,(2002).

Cornner & Norman (1996) identified three broad areas where the Health Belief Model can be easily applied:

Preventive health behaviours, which include health promotion (e.g. diet, exercise and health-risk (e.g. smoking) behaviours.

Sick role behaviours, which refer to compliance with recommended medical regimens

Clinic use, which includes physician visits for a variety of reasons.

The Health Belief Model provides the following concepts:

- Perceived susceptibility: One's opinion of chances of getting a condition

- Perceived severity: One's opinion of how serious a condition and its consequences are
- Perceived benefits: One's belief in the efficacy of the advised action to reduce risk or seriousness of impact and
- Perceived barriers: One's opinion of the tangible and psychological costs of the advised action.

It is assumed that these concepts suggested by the Health Belief Model account for people's "readiness to act."

Rosenstock I M ( 1974 ) and others added the concept of self-efficacy, or one's confidence in the ability to successfully perform an action. This concept fit the challenges of changing habitual unhealthy behaviours, such as lack of exercise, smoking or overeating.

### 2.5.2 The theory of planned behaviour/Reasoned action

The best predictor of a person's behaviour according to the theory of reasoned action is intention. This theory describes action as secondary to intention.

Three things determine this intention:

- The person's attitude towards the specific behaviour
- His subjective norms, and
- His perceived behavioural control.

### 2.5.3 The self-regulatory model

The self-regulatory model proposes that health-related behaviour is strongly influenced by ideas around certain themes such as: identity, time-line, cause, consequences and cure/control. Beliefs about these components of illness determine coping strategies.

According to this psychological model compliance is regarded as a specific problem focused on coping strategies; patients weigh up whether the proposed treatment is in line with what they believe about their illness in order to decide whether or not to comply with it.

Patients will also assess the success of their treatment and may not continue with it if they perceive it to be unsuccessful.

## **2.6. ALTERNATIVE MEDICINE**

Bratman, MD, Steven (1997) define alternative medicine as any healing practice “that does not fall within the realm of conventional medicine.

Assessing its prevalence in 13 countries, Ernst & Assileth (1998) in a systematic review of studies concluded that about 31% of cancer patients use some form of complementary and alternative medicine.

In practice, alternative medicine encompasses therapies with a historical and cultural basis.

In addition to a range of practices, the commonly cited practices of alternative medicine include naturopathy, chiropractic, herbalism, traditional Chinese medicine, Unani, Ayurveda, meditation, yoga, biofeedback, hypnosis, homeopathy, acupuncture, and diet-based therapies.

Deepak and Shrivastava Anshu(2008)shared that practices observed in alternative medicine are based on traditional medicine, folk knowledge, spiritual beliefs, or newly conceived approaches to healing

## **2.7. CONCLUSION OF THE LITERATURE REVIEW**

Hypertension is one of the greatest worldwide health problem and a common reason for visits to physicians. In South Africa 1 out of 4 of adult population have hypertension. More than 95% of cases have an unknown aetiology. A lot has been done to control this condition largely responsible for cardiovascular death. Poor compliance, patients quitting conventional treatment for alternative remedies is one the biggest today problem. The health belief model and patients beliefs and

knowledge are of paramount importance in understanding the phenomena particularly in an age where alternative medicine is unavoidable.





## **CHAPTER 3**

### **METHODS**

#### **3.1. INTRODUCTION**

This chapter describes methods used in this study. It was a qualitative study involving ten respondents who have been living with high blood pressure. Their beliefs with regard to their condition (hypertension) were explored using the free attitude interview

#### **3.2. AIMS AND OBJECTIVES**

##### **AIM:**

The aim of this study was to gather a clear understanding of patients' lay beliefs associated with hypertension of patients attending Katleho District Hospital.

##### **OBJECTIVES:**

The objectives of the study were (1) to determine amongst hypertensive patients attending Katleho District Hospital the lay beliefs about high blood pressure. (2) To use this information to recommend ways to improve patient education on hypertension and its control.

### **3.3. STUDY DESIGN**

This was an exploratory descriptive qualitative study using the free attitude interview technique (one to one) for data collection.

### **3.4. STUDY POPULATION**

The study population were patients suffering from hypertension who attended the outpatient department of Katleho District Hospital during the time of research.

### **3.5. SAMPLING**

The research used the purposive sampling strategy. Deliberately, subjects able to provide relevant information were chosen. Ten known hypertensive patients were the keys informants. They helped to gather in depth details; witch details are analyzed in the present study.

### **3.6. METHOD OF DATA COLLECTION**

In this particular research, the researcher used free attitude interview technique (face-to face interviews) and field notes to collect data.

This interview technique helped to identify the respondent's own lay belief with regard to high blood pressure.

An audiotape (a tape recorder) was used per respondent to record each interview.

An assistant helped the researcher in collecting notes fields and observation.

### **3.6.1 Research question:**

“What are the lay beliefs of hypertensive patients attending Katleho District Hospital in Virginia in Free State, concerning their illness?”

### **3.6.2 Exploratory question:**

The exploratory question addressed to the participant:

“Can you please explain to me your beliefs about high blood pressure as well as its causes, its cure and what do you do when you are suffering from high blood?”

Sesotho translation:

*“Ke kopa u phahamise lentswe la hau re tle ne tsebe ho fumana tsohle tseo re tla di bua. Ke kopa u utlhalosetse tumelo ya hau mabapi le high blood pressure le hone na e bakwa ke eng, efodiswa ka eng le hone u etsa eng ha e u tshwene?”*

During the process, facilitation, clarification and reflective summary helped to correct misconceptions based on what the interviewee says.

### **3.6.3 Data collection**

Written consent was obtained and participants were assured confidentiality.

Demographic data like age, sex, education level, marital status and number of children were noted for each participant prior to the interview. Respondents were given an opportunity to talk in the language of their choice. This

removed language barriers and allowed the respondent to approach the topic fluently and in depth. The interviews were audio taped. Enough time (twenty to forty minutes) was given during this face to face interview until the point of saturation was reached.

Observations, behaviors of each and every respondent were noted in a research diary. The data was appropriately grouped according to the emerged themes

#### **3.6.4 Interview venue**

All the interviews were conducted in the office of the social worker (far from noise) at Katleho District Hospital. The researcher paid backs the transport fees for the participants.

#### **3.6.5 Period of data collection**

The research data collection took place in July 2007

### **3.7. TRANSCRIPTION/TRANSLATION**

The research assistant transcribed the data verbatim in Sesotho from the audiotapes and from Sesotho into English. The process of transcription and translation was tiresome and long. It took two months.

### **3.8. DATA ANALYSIS**

The researcher supported by the assistant analyzed the data. Transcribed recording of interviews, field notes and observational field notes were part of the generated and analyzed data. Themes were developed

from each in depth interview and a list was formed. All the themes were identified manually by color coding and grouping of ideas together according to Krueger (1994): This is the "cut and paste" method. The emerging themes were integrated with the actual medical knowledge regarding high blood pressure to answer the research question

### **3.9. TRUSTWORTHINESS**

Hamberg et al (1994) have recommended suitable criteria for evaluation of trustworthiness of a qualitative research, to list: credibility, dependability, confirmability and transferability in opposition to validity, reliability, objectivity and generalization applicable to a quantitative research.

#### **(a) Credibility**

Credibility relates to the truthfulness of data both when collected and analysed. The audiotapes allowed the interviews to be played back to the respondents later. This provided the opportunity to clarify fuzzy points and to make additional comments, which were taken down in the field notes.

#### **(b) Dependability**

The following measures enhanced dependability:

- The interviews were conducted in SeSotho, the respondent's vernacular.
- The interviews were audiotaped
- Field notes were taken.
- Themes developed by the researcher were reconciled to those developed by the assistant researcher.

- The researcher attended the Medunsa Research methodology (REME 801)

(c) Confirmability

To avoid researcher fabrication of data or his subjective feelings to interfere with the data or results, in depth interviews and field notes were the sole sources of findings presented in this study.

(d) Transferability

The data generated in this research is transferable to situations that are similar in setting as so far as the studied population is concerned.

## **BIAS**

The researcher was involved with managing hypertensive patients attending Katleho District Hospital for over three years. The reduction of bias was achieved by allowing a trained research assistant to be in the forefront conducting the interviews sessions (instead of the researcher himself).

Others measures used to reduce bias were:

- A different research assistant translated the Sesotho transcript into English.
- A single question as the key question to initiate interview

## **3.10. ETHICAL CONSIDERATIONS**

Permission to conduct the study was sought from the Departmental Research Committee of the Department of Family Medicine & PHC of the

University of Limpopo (Medunsa Campus). Approval to conduct this research was granted by the then Research Ethics and Publications Committee of the University of Limpopo (Medunsa Campus), the clearance certificate number: MP 15/2006. Permission to conduct the study was also obtained from the hospital management of Katleho District Hospital. Written consent was requested from all the respondents' prior to commencement of each interview. Respondents were assured of confidentiality and information given was safely kept and used only for this study.

## **CHAPTER 4**

### **RESULTS**

#### **4.1 INTRODUCTION**

The researcher analyzed the transcribed data and coded all common ideas. These ideas were grouped into themes. Themes were then put in a list according to the recommendation. (Walker, 1989; Taylor & Bogdar, 1984; Holam, 1993; Patton 1990).

In this chapter the researcher will present first the combined list of themes from all the interviews and lately the results of individual interviews.

Direct quotations from the respondents are supplemented with information from observation and field notes.

#### **4.2 COMBINED LIST OF THEMES**

##### **4.2.1 Lay Beliefs about Hypertension**

All the Lay beliefs are presented here through different statements as following:



#### 4.2.1.1. The use of Aloe

One participant answering the question in connection with his belief about hypertensive treatment said: *" I am drinking Aloe in the morning daily ..."*. He went on saying: *"People have advised me to drink aloe..."*. This treatment is not taken on daily basis as he could say: *" I am not using it daily because it is bitter."*

*Responding to almost the same question, another participant said:*

*' There was a lady who made a traditional medicine for me.* The participant confessed that the result was perfect as long as he was under the treatment but because of the cost he was unable to continue with the treatment on regular basis. He said: *'It helped me a lot but I could not continue using it because it was expensive..."* One may say conventional medicine is expensive. Financial accessibility of health care aimed in primary health care is still a big problem. This treatment is taken twice a day. The respondent continued:

*" I drink it in the morning and afternoon, it looks like dye but with water taste ..."*

One would say traditional medicine is like the classic, western medicine. As long as you continue taking your pills you have your high blood pressure controlled. As explained by another respondent who said: *' when I stopped taking it, my sickness started again..."*

Another respondent showed where he was buying the treatment in the market, in small bottle. Because of the trust he had in this treatment he was just taking this treatment despite the fact that he did not know the name of portion. He said:

*" I am just drinking...I don't know its name. I forgot it. But it is sold by small bottles, on the day of old age pension, people are there selling it."*

He described the treatment as green, bitter. He used hot water to prepare the mixture. Explaining, he said

*" it is the medicine, not actually the pills, it is green and bitter. It needs to be mixed with hot water and then cooked."*

Another respondent confirmed the same practice:

*"I then went to those people again who are selling medicine on the day of old age pension and they recommended something which I used and make this better."*

To summarize:

There was acknowledgement on the use of alternative medicine in combination or not with western medicine. Not only based necessary on the belief system but sometimes as another way of help in the pursue of remedy to the uncontrolled nature of hypertension

#### **4.2.1.2. Thinking hard, Frustrations and stress cause High Blood Pressure**

Almost all the participant believed that hard thinking, stress and frustrations were found in their daily elevation of blood pressure and that a reduction in this was followed by a decreased in the blood pressure reading as well as in severity of symptoms.

They expressed it in different ways:

*" I think thinking hard and talking to yourself too much as well as stress."*

*" ...when you are thinking hard in time of problems."*

*"...because after dropping out of school, I started to think hard..."*

*"...I was that person who was really thinking hard."*

*" This illness is caused by thinking hard..."*

One referred himself to what he learned in the community with regard to cause of hypertension, he shared the following:

*"People say it is because of hard thinking and I don't know if I am thinking hard or not,"*

This hard thinking seemed to be caused by several situations.

Sickness, as in case of one respondent was the root of the stress. He said:

*"...Because my mother is sick I keep on thinking, I perhaps want to see her and I don't have money, it really makes me think hard."*

A difficult child with unpredictable behavior was the cause according to the respondent who concluded:

*"...the other is 23 years and he is mentally retarded and very naughty. He was stabbed seven time."* She continued:

*"He has the habit of going around in the house naked during the night..."*

Domestic violence as explained by another respondent appeared to be a cause of frustration and stress

*"...I was stressed up by my husband at that time; we fought a lot and I really experienced difficulties at that time, sometimes I felt tired. I could not even stand up. I felt like I was having a heart problem."*

*"Even my children were no longer quiet, they kept on asking me to leave, and even now I can't tell you why did I stay in such abusive marriage..."* Moving out or separation relieved the situation, hopefully the blood pressure: *"...He moved out and my children were so relieved. He was a pensioner but he couldn't give me money..."*

#### **4.2.1.3. The control of Blood Pressure is a matter of lucky**

*"I believe that high blood can be cured, but mine is not. It keeps on going up even if I am taking pills."*

This respondent has tried by all means but without success to control her blood pressure. To her to conclude it is by chance that some people have their blood pressure controlled.

#### **4.2.1.4. Church, Prayer and Water help**

The respondent stated the important role of prayer and water in alleviating high blood pressure symptoms. Each and every one pictured the experience in his or her own way:

*“ And I am always better when I come from church because I like it and it is better than when I am alone at home.”*

*“ She used to take me there, they could pray for me and give me water.”*

*“ I used that water for my painful headache.”*

*“No I am just with my God, attending church.”*

Their relationships with others when attending church as well as them socializing with brothers and sisters help reduce high blood pressure

#### **4.2.1.5. Blood Pressure is a curable disease**

*“ I believe that high blood can be cured...”*

The respondent expressed here her own belief. She stated it with emotion and faith that hypertension is a curable disease.

#### **4.2.1.6. Sleeping makes things better**

A respondent felt like to keep quiet and not talk to anybody when her blood pressure is high. Fortunately as she shared sleeping helped a lot:

*“ I don't really know sister what is happening and by that time when I don't want to talk to people I really feel like sleeping and fall into a deep sleep.”*

She confirmed when waking up life is worth to live:

*“I wake up better and then manage to talk to people.”*

*“Yes, because always when I wake up I feel better.”*

This respondent explained clearly her own experience of sleeping on uncontrolled blood pressure. Headache, intolerance of others caused by her elevated blood pressure disappears after a good time of sleep.

#### **4.2.1.7. Sugar consumption increases Blood Pressure.**

***She explained one of the causes of hypertension as follows:***

*“But eating a lot of sugar perhaps sweet tea, drinks that’s make my Blood Pressure high”*

#### **4.2.1.8. (Life) problems cause High Blood Pressure**

Four respondents presented problems accounted through life as being one of the etiology of hypertension. They stated it as following:

*“ Mother from my perspective, this (high blood pressure) is caused by problems...”*

*“ I am an orphan and I completely don’t know my mother, I was brought up by my sisters; my father was still alive but when I was seven years and supposed to be starting school my father also died. Do you understand how miserable my life was.”*

*“ The other thing that is frustrating me is my girl child; she matriculated and did not manage to further her studies. She got married and her marriage is problematic.”*

*“ When you are having this problem you need to avoid painful things or bad feeling, for instance if you have attended the funeral when you comeback your blood pressure is high because of those painful feelings.”*

### **4.2.2 Knowledge about Hypertension**

#### **4.2.2.1. Lack of knowledge**

Three respondents have been living with hypertension for more than five years. At several occasions they have been in touch with health care providers but they still lack knowledge on what really is high blood pressure. Responding to question what is hypertension one answered: *' I truly don't know what it (high blood pressure) means.'*

Another one had never heard anything that could be qualified as cause. He went on saying: *' I truly don't know what causes it.'*

The last respondent believed that it without reason that he was suffering with hypertension. Responding to the same question he said:

*" I just take it like any other illness because I just suffer from it without any reason."*

#### **4.2.2.2. Salt, Fat and smoking cause High Blood Pressure**

The following are causes of high blood pressure given by almost all the respondents:

*"...I have heard people saying it is caused by salt, fat..."*

*" Oh all these things cause high blood: salt, beers, cigarettes, fat meat."*

*" I believe it is caused by overweight, fat, salty food that I am eating..."*

*" I don't know" (the cause of high Blood Pressure)*

*" I can say the cause of high blood pressure can be stress..."*

*"Hypertension is like the disorder that is being caused by cholesterol and..."*

Salt consumption, alcohol intake, smoking, fat or oily food (cholesterol), over weight as well as stress are the listed etiologies of hypertension. These factors when considered help improve the control on blood pressure.

#### **4.2.2.3. Food**

People in general love food. Some of the respondent expressed their attachment to food in several ways: *'Hee! Mme I am eating, I like food.'*

*“ Oh! I don't have to eat much! What am I going to do, even now I feel like eating because we are talking about food.”*

*“ I am just eating everything except sour things because I am allergic to them otherwise I am eating food like other people...”*

Many respondents knew that foods that have a positive or negative effect on the control of blood pressure are available. Vegetables help reduce high blood pressure while salt and fat are not good:

*‘...to eat food which will assist in reducing this illness...’*

*“ May be cabbage and other vegetables...”*

*“ we must eat food without fat...”*

*“ We must eat food that is helping to reduce high blood.”*

*“...we must not eat salty food because as long as food is salty, the blood pressure is high as well.”*

One respondent is surprised when told to not eat oily food or add a lot of oil in the food. He exclaimed:

*“ You mean, they don't have to add oil?”*

Another shared that low cholesterol intake help control blood pressure:

*“...You can control it on diet by taking low cholesterol...”*

One respondent even believed that the way the food is cooked (medium) could reduce high blood pressure

*“...they should be mediumly done in order to normalize our blood pressure.”*

#### **4.2.2.4. Onset/time of discovery of Blood Pressure**

Many respondents remembered when they were for the first time told to have high blood pressure as well as the circumstances of discovery of their medical condition.

One could not forget that for the first time she felt pregnant hypertension was the only ailment she suffered. She said:

*"...it was discovered at the clinic in...with my first born pregnancy and I started to take treatment there."*

Another one recalled that an uncontrolled headache made visit a friend occupational therapist who advised the blood pressure to be taken. She stated:

*"One day I had headache and went to the occupational... and he said that I had to have my blood pressure taken and it was high. I went to casualty and they put me on treatment."*

For this mother her blood pressure expressed itself whilst she discovered that her son almost died. She explained herself in this way:

*"There was a flat which was burnt down in 2003 in Johannesburg and my child was staying on the 6<sup>th</sup> floor but apparently there was a helicopter which rescued them even though there were others who died. That is when my hypertension start."*

*"I just collapsed at work because I was on duty and I found out that my blood pressure was high."*

#### **4.2.2.5. Can say Blood Pressure is high**

*"yes high blood pressure was high because I was having a terrible headache."*

*"I am somehow feeling dizzy sometimes"*

*"It's like I passed out somewhere..."*

*"That brother was the one who told me I was found in my room passed out and bleeding (from the nose)."*

*"I also have a pain on my head, I can't even put anything on the head, I am always like that and I am often bleeding."*

*"I feel terrible headache with tearful eyes..."*



*“Ache mama! I am not really fine about it. Lately I feel dizzy...”*

*“...I have headache...and feel like keeping quiet.”*

And when it was, once, worse she lost consciousness.

*“...I even collapsed...”*

*“Some other times my head is paining with my eyes tearful and painful...”*

*“It keeps on going up even if I am taking pills. Sometimes I do not even want to talk to people, I feel like keeping quiet and be alone.”*

*“...With terrible headache...”*

*“...My nerves were also stiff and painful at the back of my head.”*

*“I could not turn the head and I went to municipality clinic where I was diagnosed as hypertensive until now.”*

*“It is up when I have painful headache.”*

*“I was always having uncontrollable headache...and dizziness”*

Many participants knew for sure when to say blood pressure reading is elevated or not most of them because of the same symptoms they were experiencing.

#### **4.2.2.6. Pregnancy and High Blood Pressure**

*“I think it was caused by my pregnancy; my blood didn't flow well.”*

*“from the head my blood flow was not good.”*

*“My child was not in the placenta. She was just in the stream of blood”.*

*“I started to have high blood at that time.”*

*“I became pregnant and started to be sick.”*

*“I already have high blood when I have all my children and giving birth has made it worse.”*

*“...With my last born I had to be operated because of this illness (hypertension).”*

Those who experienced blood pressure and pregnancy could witness that really the condition was worsened by being or becoming pregnant.

#### **4.2.2.7. Diet, exercise and weight control help reduce Blood Pressure**

*“ Sometimes I lose two kilos and become alright.”*

*“ During the day I eat fruits and at night a little of full meal, may be a spoon of porridge and vegetables.”*

*“...You can control it on diet by taking low cholesterol...”*

*“...And you must also socialize with other people to control stress.”*

*“To control blood pressure you can take a walk and do exercises as well as getting yourself out of difficult situation and socialize with other people.”*

*“...As I am overweight like this it means it is not going to get controlled”.*

*“I manage to exercise, I manage to walk long distance also.”*

Some respondents showed that they were aware that diet, exercise and weight control were important in lowering high blood pressure.

#### **4.2.2.8. Compliance is a must**

*“ Once you are told that you are hypertensive, you must comply with treatment and take it accordingly.”*

This respondent expressed not only her knowledge but also her own experience of the importance of adherence to the prescribed treatment when you are willing to control your hypertension.

#### **4.2.2.9. Can say Blood Pressure is controlled**

*“...But it is controlled now, it ranges between 110 and 120.”*

This same respondent was able to tell when her blood pressure is high or not. After a lot of commitment she concluded now her blood pressure was controlled.

#### **4.2.2.10. We have Blood Pressure by inheritance**

*‘ My biological mother was hypertensive, and sometimes these things are inherited.’*

#### **4.2.2.11. Blood Pressure makes me behavior somehow**

*“ I don’t even want to talk to people, I feel like keeping quiet and be alone.”*

*“...When I am like that, I don’t even feel like greeting people.”*

*“I don’t really know, sister, what is happening and by that time when I don’t want to talk to people I really feel like sleeping and fall into a deep sleep.”*

Respondents described an inability to control themselves when having severely elevated blood pressure readings. This affects even their relationships as well as the all social context.

#### **4.2.2.12. Hypertension is an unknown disease**

*“ Hei mother nobody knows anything about this illness, truly speaking nobody.”*

The experience is described as helpless. During the interview she was saying health care workers advice; people suggestions even alternative care providers could not provide a correct explanation of High Blood Pressure as well as the definitive treatment.

#### **4.2.2.13. Forgetfulness**

*“ I have forgotten other thing beside the pills, salt, fat and cigarettes”*

*“It is, it is. I have forgotten them.”*

This seems to be normal, but affects unfortunately compliance to treatment which is indispensable for the control of hypertension.

### **4.2.3 Source of Informations**

#### **4.2.3.1. People as source of Information**

*“ I have heard people saying it is caused by salt, fat...”*

*“ No, it is people talking.”*

*“ The elders told me that it (Aloe) reduces high blood.”*

*“ And our doctors also keep on telling us...”*

*“ Somebody told me not to do anything in the morning.... “*

*.”... they said I must not sweep.”*

*“ I do not really find out what kind of illness is high blood; people say it is the flow of blood I don't know.”*

*“ People say it is because of hard thinking...”*

People will always have something to say about anything. They do have experience and therefore share experience.

#### **4.2.3.2. Lack of Interest**

*“ I don't want to lie, I have never asked.”*

*“ I have never asked.”*

*“ I have said I'm just considering it as any other ordinary sick.”*

This lack of interest implied not only a lack of self-involvement in the management of the high blood pressure but also the lethargy to get information related to hypertension.

#### **4.2.3.3. Blood Pressure is a life condition**

*“ They say it is life time condition; it only gets better.”*

This participant stated a universal truth where in more than 95% a cause cannot be found to explain elevated blood pressure. This is called essential hypertension and can only get better.

#### **4.2.3.4. Poor communication**

*“ They did not explain, I was just told its high blood and given treatment.”*

*“Mother you know by then we could not talk to nurses as I am talking to you like this, they were very rude; at that time, we were scared of them and they were like bosses.”*

These respondents showed how poor the relationship between patient-health care providers can be.

#### **4.2.3.5. Health Worker’s attitude and behavior**

Two respondents expressed their disappointment with regard to health care providers. They stated it as following:

*’...they are impatient.’*

*“...everybody at his/her work can sometimes be rude...”*

The results of the individual interview are presented hereunder:

### **4.3 INTERVIEW 1**

#### **Respondent Profile and Background**

She is a 43 year-old female originally from Thaba-nchu in the Free State Province. She is single, mother of two children. She stopped formal schooling in standard 4. Unemployed, she lived in one-room shack. The main income is the grant of her last born who is only six year old. She does household chores and the garden at home. At the start of the interview she looked a bit uncomfortable, during the explanation of the purpose and what the interview was about she was reluctant to look at the interviewer, her hands were folded, but later eye contact improved and she was so excited displaying her knowledge and beliefs on hypertension.

### **4.3.1. Lay Belief about Hypertension**

The following is the only lay belief practice gathered from the face to face interview with the respondent.

#### **4.3.1.1. Use of Aloe**

Responding to the question about his lay belief about treatment for hypertension he said: “ *I am drinking aloe every morning daily with the hospital treatment.*” On enquiry as to the preparation “ *I am preparing it with hot water I cut it into small pieces and then pour hot water.*”

The reason he gave for taking the mixture was that “ *it sharpens my appetite I eat well.*”

She shared that he started taking aloe from the time he was diagnosed with hypertension: “*In 2003 when I first discover I have high blood pressure.*” She said he was advised by elderly people in her circle “*The elders told me it reduces high blood.*” She reiterated that he takes the aloe with her medication from the hospital. She also said that her blood pressure fluctuates “*sometimes my high blood is low, sometimes it is high.*” Having shared the fluctuation of his blood pressure, her demeanour changed again as if she was not sure of what to say

### **4.3.2. Knowledge about Hypertension**

The following are her knowledge about hypertension:

#### **4.3.2.1. Don't know what Blood Pressure is**

She doesn't have a clue when it comes to the meaning of high blood pressure.

*“ I truly don't know what it (high blood pressure) means.”*

#### **4.3.2.2. Salt, fat and smoking cause High of Blood Pressure**

She listed a number of factors as causes of hypertension.

*“...I have heard people saying it is caused by salt, fat...”*

*“ Oh all these things cause high blood: salt, beers, cigarettes, fat meat.”*

As it appears in her own statement people still the source of her knowledge

#### **4.3.2.3. The love of Food**

She expressed a concern about the necessity of cutting down the number of meal in order to establish weight control. Of which she believe to be difficult. She knows that the quality of food matter for example fatty or oily food is not advised.

*“Hee! Mme I am eating, I like food.”*

*“ Oh! I don't have to eat much! What am I going to do, even now I feel like eating because we are talking about food.”*

*“ You mean, they don't have to add oil?”*

#### **4.3.2.4. Forgetfulness**

The respondent acknowledged that she forgot a lot.

*“ I have forgotten other thing beside the pills, salt, fat and cigarettes”*

She could no longer recall a certain number of information even things pertaining to life style modification and high blood pressure management.

#### **4.3.3. Source of Information**

She learned from health care providers, from people in the community and most importantly from elders.

She also stated a poor relationship with health care worker what affected seriously her knowledge about hypertension.

#### **4.3.3.1. People as source of information**

People in her day-to-day life though her a lot things in connection with high blood pressure.

*“ I have heard people saying it is caused by salt, fat...”*

Two times she said she got this information from hear say in the community.

*“ No, it is people talking.”*

#### **4.3.3.2. Elders as source of information**

She explained that elders told her that aloe is a remedy to her problem of high blood pressure.

*“ The elders told me that it (Aloe) reduces high blood.”*

#### **4.3.3.3. Health Worker’s attitude and behavior**

She complained of how inpatients and sometimes rude are the health workers.

*“...they are impatient.”*

*“...everybody at his/her work can sometimes be rude...”*

This, probably, prohibits her of asking anything in connection with her condition.

#### **4.3.4. Summary of themes from Interview-1**



She used Aloe as alternative treatment for her High Blood Pressure. She acquired this knowledge and belief from elders in the community.

The respondent lacked basic knowledge on high blood pressure and forgot the little told to her by health care workers.

She knew that salt, fat and smoking play a role in the genesis of hypertension. She got medical information from people in the community and from elders. She stopped inquiring information from nurses because of their bad behavior and attitude.

#### **4.4. INTERVIEW 02**

##### **Respondent Profile and background**

She is a 55 year-old female who is married for more than 15 years. Her formal education stopped in standard 8. She is unemployed and mother of 4 children. Overweight, she tried to lose weight without success. She believed that losing weight is part of her blood pressure control. She entered the interview room with confidence and participated actively in the interview.

##### **4.4.1. Lay Belief about Hypertension**

The respondent mentioned two things she believed to be the cause of her Blood Pressure: Sugar consumption and thinking hard.

##### ***4.4.1.1. Sugar consumption increase Blood Pressure***

***She explained one of the causes of hypertension as follows:***

**“But eating a lot of sugar perhaps sweet tea, drinks that’s make my Blood Pressure high”**

#### **4.4.1.2. Thinking hard cause Blood Pressure**

Here the respondent highlighted the unique role of stress and thinking hard in the genesis of high blood pressure.

*“ I think thinking hard and talking to yourself too much as well as stress.”*

She believed the unsolved problems of daily living make you think hard looking for ways out is one of the causes of hypertension.

*“ ...when you are thinking hard in time of problems.”*

#### **4.4.2. Knowledge about hypertension**

Her knowledge of hypertension is described in the following statements:

##### **4.4.2.1. Salt, fat and a lot of weight cause High Blood Pressure**

The respondent gave a list of what she believed to be the cause of hypertension in addition to sugar or sweet foods.

*“ I believe it is caused by overweight, fat, salty food that I am eating...”*

##### **4.4.2.2. Exercises help control Blood Pressure**

Not only that she knows the place of physical activity in the management of her condition but she regularly manages to exercise.

*“I manage to exercise, I manage to walk long distance also.”*

##### **4.4.2.3. Some foods help reduce Blood Pressure**

She is adamant that food exist that help in reducing blood pressure

*“...to eat food which will assist in reducing this illness...”*

#### **4.4.2.4. Forgetfulness**

The patient forgot the treatment she is on. Generally this is a result of illiteracy or a simple inability to recall thing when they are needed common in the average people.

*“It is, it is. I have forgotten them.”*

#### **4.4.3. Source of Information**

##### **4.4.3.1. Doctors as source of information**

She emphasized that health care workers especially doctors do insist, repeat themselves in connection with her medical condition.

*“ And our doctors also keep on telling us...”*

##### **4.4.3.2. Does not visit traditional doctors**

Responding to the question if she sometimes visited doctors who are praying for people he said:” *No, no, no, I have not gone there.*”

#### **4.4.4. Summary of themes from Interview-2**

Although she got information from health workers; she believed that eating sugar or sweets foods and thinking hard are the most important causes of high blood pressure. Salt, fat and a lot of weight were also responsible for High Blood Pressure. She knew that exercise helps reduce blood pressure as well as some food.

She used to get health information from doctors and nurses but forgetfulness does not allow her to comply with all the recommendations

### **4.5 INTERVIEW 03**

## **Respondent Profile and Background**

She is a 67-year-old woman who lost her parents at the age of 7 years. She went to live with her sister and studied to standard 6. She got married to a man she knew since her early teenager. She is unemployed and mother of 2 children. She looked worried throughout the interview. From time to times she could display some elements of interest toward the interview. She appeared to be a good listener. Her body language as well as her verbal response showed a bit of discomfort.

### **4.5.1. Lay Belief about Hypertension**

The respondent believed that Prayer and water blessed by the pastor improve hypertension.

Life problems as well as thinking hard were responsible for High Blood Pressure.

#### ***4.5.1.1. Prayer and Water help***

She claimed that she was too sick that with the assistance of her sister they sought for help in the church.

*“ She used to take me there, they could pray for me and give me water.”*

Whenever she could experience symptoms the remedy was there.

*“ I used that water for my painful headache.”*

She went on happily saying she is sure she has the solution.

*“No I am just with my God, attending church.”*

#### ***4.5.1.2. Life problems cause High Blood Pressure***

Her opinion is that problems are the main cause of hypertension as she said:

*“ Mother from my perspective, this (high blood pressure) is caused by problems...”*

She explained how becoming an orphan especially at an early age destroyed her life.

*“ I am an orphan and I completely don’t know my mother, I was brought up by my sisters; my father was still alive but when I was seven years and supposed to be starting school my father also died. Do you understand how miserable was my life.”*

The frustration of seeing her own daughter’s future jeopardized has a role on her own blood pressure.

*“ The other thing that is frustrating me is my girl child; she matriculated and did not manage to further her studies. She got married and her marriage is problematic.”*

#### **4.5.1.3. Thinking hard causes Blood Pressure**

She believed that hard thinking was the beginning of her blood pressure especially as early as it was.

*“...because after dropping out of school, I started to think hard...”*

She described herself well when she is saying:

*“...I was that person who was really thinking hard.”*

#### **4.5.2. Knowledge about Hypertension**

Her Knowledge of Blood Pressure is poor. She had on contrary an experience to tell. She could say when her Blood Pressure was high. She remembered the circumstances surrounding the diagnosis of her Blood Pressure.

##### **4.5.2.1. Lack of knowledge**

She could not hide the shame of not knowing the cause of hypertension and said:

*“ I truly don’t know what causes it.”*

##### **4.5.2.2. Can say Blood Pressure is high**

She noticed some symptoms that synchronized with elevated blood pressure.

*“ yes high blood pressure was high because I was having a terrible headache.”*

And

*“ I am somehow feeling dizzy sometimes...”*

*“In the worse scenario I could even passed out”*

*“It’s like I passed out somewhere...”*

*“That brother was the one who told me I was found in my room passed out and bleeding (by the nose).”*

#### **4.5.2.3. Onset/time of discovery of Blood Pressure**

She became aware of her blood pressure when she was going to give birth to her first born.

*“...it was discovered at the clinic in...with my first born pregnancy and I started to take treatment there.”*

#### **4.5.3. Summary of themes from Interview-3**

The respondent believes firmly that Prayer and water had a positive effect on the control or treatment of her blood pressure

She demonstrated a lack of knowledge relating to high blood pressure. She discovered her blood pressure when she became pregnant. She believed that (Life) problems and thinking hard were the major causes of high blood pressure. From her experience she could say when her blood pressure is high.

## **4.6. INTERVIEW 04**

### **Respondent Profile and Background**

She is 53 years and mother of three children. She studied up to standard 4 and stopped because she had to get married traditionally to her husband. She quitted her job (domestic worker) hoping that this, as she has been told, will improve her blood pressure. She is actually a housewife. Her body languages conveyed interest to the interview. Her participation in the process of interview is active and appreciated by the interviewer.

#### **4.6.1. Lay Belief about Hypertension**

She believes traditional medicine works

##### **4.6.1.1. Traditional Medicine helps**

She gave a detailed account on how best traditional treatment is helping:

*' There was a lady who made a traditional medicine for me. It helped me a lot but I could not continue using it because it was expensive...'*

*" I drink it in the morning and afternoon, it looks like dye but with water taste ..."*

*"When I stopped taking it, my sickness started again..."*

She believes it works.

##### **4.6.1.2. Ectopic site of her baby and her blood flow**

She expressed her lay belief in this way:

*"I think it was caused by my pregnancy; my blood didn't flow well."*

*" from the head my blood flow was not good."*

She believed her baby was out of the uterus and think was in the flow of the blood.

*“My child was not in the placenta. She was just in the stream of blood”. And because of that. “I started to have high blood at that time.”*

She knows by her own experience that there is a link between pregnancy and blood pressure.

*“ I became pregnant and started to be sick.”*

#### **4.6.2. Knowledge about Hypertension**

The respondent knows that frustrations can increase blood pressure.

She is also able to tell when her blood pressure is high

##### **4.6.2.1. Frustration and problems cause High Blood Pressure**

Frustration and problems were always there.

*“...the other is 23 years and he is mentally retarded and very naughty. He was stabbed seven time.”*

This could not let me live in peace.

*“ He has the habit of going around in the house naked during the night...”*

##### **4.6.2.2. Can say Blood Pressure is high**

*“ I also have a pain on my head, I can't even put anything on the head, I am always like that and I am often bleeding.”*

*“ I feel terrible headache with tearful eyes...”*

*“ Ache mama! I am not really fine about it. Lately I feel dizzy...”*

This is how she could tell her blood pressure was high.



### **4.6.3. Source of Information**

#### ***4.6.3.1. People as source of Information***

She got her knowledge from people. Others went telling her that the cause of her trouble could be working

*“ Somebody told me not to do anything in the morning.... They even suggested her stopping even the lightest job she could do.”... they said I must not sweep.”*

#### **4.6.4. Summary of themes from Interview-4**

The respondent knew when her blood pressure was elevated . She learned a lot in connection with her condition from people in the street other than health care workers. She believed that her unborn baby was sitting in the flow of the blood what was making the blood pressure to be high.

From her own experience traditional medicine has done a lot in improving her condition.

## **4.7. INTERVIEW 05**

### **Respondent Profile and Background**

The respondent is a well-built 62-year-old lady. She is divorcee, unemployed and mother of 4 children. She schooled up to standard 6. Her main source of income is

grant. Curious at the start of the interview, she kept a good eye contact throughout the interview. Well dressed and clean, she relates her opinions very well and with competency. Compared to others respondent she can tell which medication she is using.

#### **4.7.1. Lay Belief about Hypertension**

The interview was poor in lay belief. The respondent displayed also a poor knowledge about hypertension. He could recall the circumstance surrounding the onset.

From her own experience she could tell whether or not her Blood Pressure is high.

#### **4.7.2. Knowledge about Hypertension**

##### ***4.7.2.1. Lack of knowledge***

At the question of what are her lay beliefs about high blood pressure and if she is treating herself? She kept rubbing her hands and could only say:

*“ Oh blood pressure...”*

##### ***4.7.2.2. Can say Blood Pressure is high***

She claimed that when her blood pressure is high, she experiences some symptoms.

*“...I have headache...and feel like keeping quiet.”*

And when it was worse she lost consciousness.

*“...I even collapsed...”*

##### ***4.7.2.3. Onset/time of discovery***

Thanks to the same symptoms she discovered that she was having high blood pressure after a visit to a health care worker who routinely took her blood pressure

*“ One day I had headache and went to the occupational... and he said that I had to have my blood pressure taken and it was high. I went to casualty and they put me on treatment.”*

#### **4.7.2.4. Weight loss, fruits and vegetables help control Blood Pressure**

She experienced that when she loses weight the blood pressure seemed to be controlled

*“ Sometimes I lost two kilos and become alright.”*

And to reinforce this control she adopted the following lifestyle:

*“ During the day I eat fruits and at night a little of full meal, may be a spoon of porridge and vegetables.”*

#### **4.7.3. Summary of themes from Interview-5**

The interview was very poor in lay beliefs.

The respondent remembered exactly the circumstances of onset of her actually condition. She could also tell when her blood pressure is high. She displayed a lack of knowledge with regard to high blood pressure.

### **4.8. INTERVIEW 06**

#### **Respondent Profile and Background**

This female respondent is 49 year-old. Single and mother of one child she attended school in the township until standard 9. She is not threatened by the interview. From

the beginning of the interview she shows more interest and is willing to talk about herself. Through all the process of interview she was characterized by Good eye contact, high speech and impeccable body language.

#### **4.8.1. Lay Belief about Hypertension**

The respondent explained her beliefs as following:

##### **4.8.1.1. Thinking hard causes Blood Pressure**

She believes that thinking hard is the cause of high blood pressure.

*“ This illness is caused by thinking hard...”*

##### **4.8.1.2. Medium cooked food normalized Blood Pressure**

She believed that medium cooked food reduce blood pressure.

*“...they should be mediumly done in order to normalize our blood pressure.”*

##### **4.8.1.3. Problems and funerals cause high Blood Pressure**

The respondent explained how the interaction between problems of daily living and thinking lead to increased blood pressure.

*“ When you are having this problem you need to avoid painful things or bad feeling, for instance if you have attended the funeral when you comeback your blood pressure is high because if those painful feelings.”*

#### **4.8.2. Knowledge about Hypertension**

The following statements contained her knowledge about hypertension:

#### **4.8.2.1. We have Blood Pressure by inheritance**

She acknowledged a family distribution by inheritance.

*“ My biological mother was hypertensive, and sometimes these things are inherited.”*

#### **4.8.2.2. Foods reduce Blood Pressure**

She knew that from the multitude of food available under the sun, there are food that help reduce blood pressure and suggested that they are a must when you are an hypertensive.

*“ May be cabbage and other vegetables...”*

*“ we must eat food without fat...”*

*“ We must eat food that is helping to reduce high blood.”*

And are to not be eaten those who increase the blood pressure.

*“...we must not eat salty food because as long as food is salty, the blood pressure is high as well.”*

#### **4.8.2.3. A lot of weight is not good**

She recognizes the importance of losing weight in blood pressure control and declared that:

*“...As I am overweight like this it means it is not going to get controlled”.*

#### **4.8.3. Summary of themes from Interview-6**

This respondent believed that thinking hard; problems and funerals are the causes of Blood Pressure.

She also believed that medium cooked food normalized hypertension.

She knows we have high blood pressure by inheritance and eating foods that reduce Blood Pressure, losing weight will help control hypertension.

## **4.9. INTERVIEW 07**

### **Respondent Profile and Background**

She is 58 year-old woman, married and mother of two children. Her formal education stopped in standard 6. Explanations and good facilitation free her from reluctance and worries surrounding the interview.

#### **4.9.1. Lay Beliefs about Hypertension**

She disclosed that she did not know the name of portion she was using to control her high blood pressure. She exclaimed: *"I am just drinking. I don't know its name. I have forgotten it but it is sold in small bottles on the day of old age pensions..."*. We could observe the body language of self-confidence and pride of using this remedy. She also pictured herself as a church believer.

##### **4.9.1.1. Green and Bitter 'Muti' helps**

She is using "muti" with success. Not knowing the name does not matter to her

*"I am just drinking...I don't know its name. I forgot it. But it is sold by small bottles, on the day of old age pension, people are there selling it."*

She knew exactly how to prepare it.

*"it is the medicine, not actually the pills, it is green and bitter. It needs to be mixed with hot water and then cooked."*

The end result seems to be good and again and again she goes back to get same portion to ease her headache the most common expression of her uncontrolled blood pressure.

*“I then went to those people again who are selling medicine on the day of old age pension and they recommended something which I used and make this better.”*

#### **4.9.1.2. Church makes it better**

She discovered that going to church relieves her pain that seemed to be worsened by remaining alone at home

*“ And I am always better when I come from church because I like it and it is better than when I am alone at home.”*

#### **4.9.2. Knowledge about Hypertension**

From her own experience she came to establish the causes, signs and treatment of her own condition. She stated her knowledge as following:

##### **4.9.2.1. Can say Blood Pressure is high**

Because of the high blood pressure she could, from time to time, experience the headache, painful and tearful eyes:

*“ Some other times my head is paining with my eyes tearful and painful...”*

##### **4.9.2.2 Stress and fights cause Blood Pressure**

Fights and stress destroyed all her well being and probably increase blood pressure.

*“...I was stressed up by my husband at that time; we fought a lot and I really experienced difficulties at that time, sometimes I felt tired. I could not even stand up. I felt like I was having a heart problem.”*

An abusive relationship was for sure the reason of her blood pressure not being controlled. But she could not explain why she was unable to take decision to quit the relationship with her abusive husband.

*“ Even my children were no longer quiet, they kept on asking me to leave, and even now I can't tell you why did I stay in such abusive marriage...”*

But finally when the stress factor was removed she had peace of mind and everybody in the family supported her.

*“...He moved out and my children were so relieved. He was a pensioner but he couldn't give me money...”*

#### **4.9.3. Summary of themes from Interview-7**

This respondent has a story to tell. From her own experience, she came to know that stress and fights were the most important causes of her High Blood Pressure. She was unable to control her Blood Pressure because her daily level of stress was too high.

She was able to tell when her blood pressure was normal or high.

She stated that Green and bitter “Muti” bought again and again on the day of old age pension as well as going to church have been the remedies to her uncontrolled high blood pressure.

#### **4.10. INTERVIEW 08**

##### **Respondent Profile and Background**



She is a 42 years and known hypertensive for more than ten years. Her formal education stopped in standard 6. She is a single mother of 3 children. She kept good eye contact throughout the interview. Her body language showed that she was confident and relaxed.

#### **4.10.1. Lay Belief about Hypertension**

The following statements contain the respondents' lay beliefs with regard to High Blood Pressure.

##### **4.10.1.1. The use of Aloe**

When it comes to unconventional therapy she acknowledged using Aloe.

*"People have advised me to drink aloe..."*

*"I am not using it daily because it is bitter."*

##### **4.10.1.2. Blood Pressure makes me behavior "somehow"**

*"I don't even want to talk to people, I feel like keeping quiet and be alone."*

*"...When I am like that I don't even feel like greeting people."*

*"I don't really know, sister, what is happening and by that time when I don't want to talk to people I really feel like sleeping and fall into a deep sleep."*

This is the way she described what hypertension what hypertension can do in somebody's life: an "antisocial personality" type.

##### **4.10.1.3. Sleeping make things better**

She noticed that going to bed not only improve all her symptoms and allow her to enjoy her relationships.

*"I don't really know sister what is happening and by that time when I don't want to talk to people I really feel like sleeping and fall into a deep sleep."*

*"I wake up better and then manage to talk to people."*

*"Yes, because always when I wake up I feel better."*

*That is how*

#### **4.10.2. Knowledge about Hypertension**

Her knowledge of High Blood Pressure was as Following:

##### **4.10.2.1. Hypertension is an unknown disease**

She believed that no one from the community truly knows anything about high blood pressure.

*“Hei mother nobody knows anything about this illness, truly speaking nobody.”*

##### **4.10.2.2. Blood Pressure is a curable disease**

She have a belief that hypertension can be cured.

*“I believe that high blood can be cured...”*

##### **4.10.2.3. The control of Blood Pressure is a matter of luck**

She doesn't understand why her blood pressure is going up and up despite the treatment.

*“I believe that high blood can be cured, but mine is not. It keeps on going up even if I am taking pills.”*

##### **4.10.2.4. Can say when Blood Pressure is high**

*“It keeps on going up even if I am taking pills. Sometimes I do not even want to talk to people, I feel like keeping quiet and be alone.”*

*“...With terrible headache...”*

*“...My nerves were also stiff and painful at the back of my head.”*

*“I could not turn the head and I went to municipality clinic where I was diagnosed as hypertensive until now.”*

When she is going through all this she is quite sure her blood pressure is high.

#### **4.10.2.5. Pregnancy worsen Blood Pressure**

She experienced that giving birth disturbs the control of her blood pressure.

*“ I already have high blood when I have all my children and giving birth has made it worse.”*

*“...With my last born I had to be operated because of this illness (hypertension).”*

To her to conclude it make it worse.

#### **4.10.2.6. Hard thinking is the cause of Blood Pressure**

She knows that from people's point of view hard thinking is the cause of hypertension. She is not quite sure if she is thinking hard.

*“People say it is because of hard thinking and I don't know if I am thinking hard or not,”*

She at least remembers that from time to time she is thinking hard because of her mother medical problem

*“...Because my mother is sick I keep on thinking, I perhaps want to see her and I don't have money, it really makes me think hard.”*

#### **4.10.3 Source of Information**

People are the main source of information. She acknowledged no asking information from health workers.

She also states that health care providers themselves are not willing to educate patients. They are rude and anti social.

She conveyed this in the following statements:

#### **4.10.3.1. People as source of Information**

People define high blood pressure as the flow of blood.

*“ I do not really find out what kind of illness is high blood; people say it is the flow of blood I don't know.”*

The cause of the flow of blood (hypertension) according to what she has been hearing is hard thinking.

*“ People say it is because of hard thinking...”*

#### **4.10.3.2. Poor communication**

She highlights the poor communication with health care worker in the following way:

*“ They did not explain, I was just told its high blood and given treatment.”*

*“Mother you know by then we could not talk to nurses as I am talking to you like this, they were very rude; at that time, we were scared of them and they were like bosses.”*

#### **4.10.3.3. Lack of Interest**

When asked if she did really insist to be given information with regard to her condition she replied.

*“ I don't want to lie, I have never asked.”*

#### **4.10.4 Summary of themes from Interview-8**

This respondent believed that High Blood Pressure is a curable disease.

She has done a lot to control, without success, her hypertension. She concluded that the control of Blood Pressure is a matter of luck.

Blood Pressure makes her behavior “somehow”. People talk a lot about hypertension but she believed that really no one knows exactly what high blood pressure is. She knows when her blood pressure is elevated and when it is normal. The cause of hypertension according to her experience was hard thinking. She knows that pregnancy worsen high blood pressure.

Sleeping and the use of Aloe relieved her symptoms of hypertension. She justifies her lack of interest in the poor communication between her and the health care providers.

#### **4.11. INTERVIEW 09**

##### **Respondent Profile and Background**

She is 44 years old and has been married for more than 20 years although she started her relationship with her husband long before that. She went to school up to standard 7. She has 4 children all attending school. She appeared to be a good listener and actively and assertively participate in the interview

##### **4.11.1. Lay Belief about Hypertension**

The interview was poor in lay beliefs about hypertension.

##### **4.11.2. Knowledge about Hypertension**

The respondent expressed her knowledge in the followings statements:

##### **4.11.2.1. Do not know the Etiology of Blood Pressure**

She states that she doesn't know the cause of hypertension although she took it as any disease.

*“ I just take it like any other illness because I just suffer from it without any reason.”*

*“ I don’t know” (the cause of high Blood Pressure)*

#### **4.11.2.2. Lack of Interest**

To allow herself to not go for further research in connection with high blood pressure she considered it as any other ordinary disease.

*“ I have never asked.”*

*“ I have said I’m just considering it as any other ordinary sick.”*

#### **4.11.2.3. No Food restriction**

There is no food limitation.

*“ I am just eating everything except sour things because I am allergic to them otherwise I am eating food like other people...”*

#### **4.11.2.4. Can say the Blood Pressure is high**

She knows when and can tell when her blood pressure is high

*“ It is up when I have painful headache.”*

#### **4.11.2.5. Blood Pressure is a life Condition**

At least this is true and she knows that we are hypertensive for life.

*“ They say it is life time condition; it only gets better.”*

### **4.11.3. Summary of themes from Interview-9**

She had no insight when it comes to the cause of hypertension and was not willing to know anything about this condition. She could tell when her blood pressure was high. She accepted it as a lifetime condition. She also believed that food do not affect the physiology of blood pressure.

## **4.12. INTERVIEW 10**

### **Respondent Profile and Background**

This respondent is 44 years old. Married very early, she schooled up to grade 12. She lives with her mother, her two children, and her husband in a two room in the township.

During the interview she was comfortable and had a good eye contact with the interviewer.

#### **4.12.1. Lay Beliefs about Hypertension.**

##### ***4.12.1.1. Well balanced social life help control Blood Pressure***

The respondent believed firmly that socializing and having a well balanced social life control blood pressure. She stated it in the following way:

*“...And you must also socialize with other people to control stress.”*

#### **4.12.2. Knowledge about Hypertension**

The respondent expressed her knowledge as following:

##### ***4.12.2.1. The Etiology of Blood Pressure***

The list she gave contains principally stress and cholesterol as causes of blood pressure

*“ I can say the cause of high blood pressure can be stress...”*

*“Hypertension is like the disorder that is being caused by cholesterol and...”*

#### **4.12.2.2. Diet, exercises help control Blood Pressure**

*“...You can control it on diet by taking low cholesterol...”*

*“To control blood pressure you can take a walk and do exercises as well as getting yourself out of difficult situation and socialize with other people.”*

She believes and knows that low cholesterol intake, socializing, and walk, as well as exercise help control pressure.

#### **4.12.2.3. Can say Blood Pressure is High or is controlled**

From her own experience she could say when her blood pressure is high because of the relationship elevated blood pressure-headache.

*“ I was always having uncontrollable headache...and dizziness”*

She expresses a satisfaction as to confirm that the goal sets in managing hypertension is possible.

*“...But it is controlled now, it ranges between 110 and 120.”*

#### **4.12.2.4. Compliance is a must**

In dealing with hypertension, she came to understand that adherence is a must.

*“ Once you are told that you are hypertensive, you must comply with treatment and take it accordingly.”*

#### **4.12.2.5. Onset/time of discovery**



She can say when and in which circumstances she came to know for the first time that she was hypertensive.

*“There was a flat which was burnt down in 2003 in Johannesburg and my child was staying on the 6<sup>th</sup> floor but apparently there was a helicopter which rescued them even though there were others who died. That is when my hypertension start.”*

*“ I just collapsed at work because I was on duty and I found out that my blood pressure was high.*

#### **4.12..3 Summary of themes from Interview-10**

She believed that stress and high cholesterol were the cause of High Blood Pressure. A disastrous situation in her family signed the onset of her hypertension

She had an exact knowledge of signs and symptoms expressing an elevated Blood Pressure

By the time of interview she could say without any doubt that her blood pressure was controlled. Making the compliance to treatment a must was the secret to achieving a better control on hypertension.

She acknowledged the role of diet, exercise and a balanced social life on the control of blood pressure.

## **CHAPITRE 5: DISCUSSION OF THE RESEARCH PROJECT**

### **5.1. INTRODUCTION**

This chapter describes the processes and outcome of the research as a whole. It deals with the discussion of method, the results, limitations of the study, conclusions and recommendations.

## 5.2. METHOD

The qualitative method using in depth attitude was appropriate for the study. This method allows deeper exploration of lay beliefs of hypertensive patients with regard to their condition.

The strong merit of qualitative method is the ability to describe social phenomena as they occur naturally, opinion, experiences and feelings of individuals (Beverley Hancock 2000). The discussion in Sesotho facilitated free flow of information as the respondents were at ease and participated actively. This use of respondent's own language enhanced credibility and minimizes bias in the study.

A well-trained research assistant conducted the interviews, which were audio taped.

The audio taped interviews were played back to the respondents after the sessions allowing them thereby to clarify and add comments on some issues.

Field notes from observations supported the data and consolidated the credibility of the study.

The use of triangulation and at a later stage respondent validation of the audiotaped interview strongly contributed to the credibility of the study (Britten at all 1995)

### 5.2.1 Study population

The study population consisted of adults known hypertensive regularly attending katleho District Hospital and/or his locals' clinics. The study sample was collected from this population

The research used the purposive sampling strategy. Deliberately, subjects able to provide relevant information were chosen. . Ten known hypertensive patients, who

were the keys informants helped to the in depth collection of details; which details are

analyzed in the present study.

### 5.2.2 Data analysis

Data were analyzed manually using content or thematic analysis, which is the systematic examination of the text in order to identify and group themes and to develop categories (Paton, 1990).

These data included the transcribed recordings of the interviews, field notes and the interviewer's reflective notes during the process.

The translated version was compared with the original transcript, for agreement, in order to minimize bias.

The researcher read timely again the data to identify common themes. The “cut and paste” method was used to select and group together section of data on related themes.

Each interview was analyzed separately. There were ten respondents. The emergent themes and content were analyzed manually.

### 5.3. RESULTS

The result present in this study is a condensation of the vast data generated, and its interpretation by the researcher.

Synthesis of the views, lay beliefs and knowledge about hypertension of respondents as well as different sources of information that transparent across the individual interviews are discussed here.

#### A. Lay beliefs about Hypertension

##### 1. The use of Aloe

Two respondents (I and VIII) acknowledged the use of Aloe as part of their treatment. In fact the hypotensive effects of Aloemodin, aloinA from Aloe barbadensis have been study.

Cheryl A Lans (2006) found that the Aloe Vera was commonly used in the treatment of hypertension

In a study on hypotensive effect of chemical constituents from Aloe barbadensis done

in Pakistan, aloemodin emerged as a potent hypotensive agent in current pharmacological investigations and caused 26%, 52% and 79% falls in mean arterial

blood pressure at the corresponding doses of 0.5, 1 and 3mg/kg in rats (Saleem R et

al.2001)

## 2. Thinking hard and stress cause high blood pressure

The researcher found that four respondents (II, III, VI and VIII) reported the role of hard thinking in the genesis of blood pressure.

Patient II believes that unsolved problems of life are the principal sources of all the stress. For another respondent the miserable life she went through is to blame.

The end result of interaction between problems of daily living and hard thinking

especially when there is no or little hope produce an imbalance in the control of blood pressure

## 3. Church

Two respondents (III and VII) highlighted the importance of church and its practices in the management of high blood pressure. Another respondent expressed quite clearly that church make her feel better. She also revealed that water and prayer provided to her by her church to sick people help

Exploring the role of religiosity in hypertension management among African Americans, Carolyn M (2000) found that patients' personal religious commitment enabled them to feel protected from immediate and long-term negative consequences of hypertension and served to enhance their ability to cope with having hypertension. This should not be deny to patients in dealing with hypertension in a believer.

#### 4. Traditional Medicine help

Two respondents (IV and VII) had a true experience of traditional medicine. For them it is effective in reducing high blood pressure

One respondent's testimony (respondent IV) is straightforward: It helped me a lot but I could not continue using it because expensive. She went on observing that the day she stopped taking it, her sickness came back.

The other respondent (VII) said he used to buy his "MUTI" on the day of old age pension. He confirmed: "It is green and bitter. It makes my high blood pressure better".

This practice is spreading and need an approach, understanding in the light of evidence-based research for patients' safety in general.

#### 5. Medium cooked food normalize Blood Pressure

One respondent (VI) believed that the way food is cooked has an important place in the control of blood pressure. For him a medium cooked food decreased blood pressure. The researcher did not find such evidence in his review of literature.

#### 6. Blood pressure is a curable disease

Another respondent (VIII) believed that hypertension can be cured. This is a lay belief and its impact cannot be evaluate especially in long run.

7. The control of Blood Pressure is a matter of luck

The respondent (VIII) thought she was not lucky enough. Although she is taking pills her blood pressure keep going up. For her it's by chance that others are having their blood pressure controlled.

8. Hypertension is an unknown disease

One respondent (VIII) has been going through a situation where she believed there is no hope. Her hypertension seems special with regard to the symptoms. The end result is she is more than convinced that no one knows really what blood pressure is. She could express herself as following: "Hei mother nobody knows anything about this illness, truly speaking nobody." One of the reasons being probably because she has been complying with the treatment but it does not get better.

9. Sleeping make it better

A respondent (VIII) described a good experience: the impact of sleep or sleeping on the symptomatic aspect of her blood pressure. She concluded sleeping make my hypertension better. Several studies confirm that both systolic and diastolic blood pressures fell significantly during sleeping time (Richardson et al. 1968, Littler W.A et al. 1975, Bristow et al. 1969).

10. Blood pressure make me behavior "somehow"

A respondent discovered that she has been behaving funny especially when her blood pressure is high. She pictured herself as following: don't want to talk to people,

feel like keeping quiet, don't feel like greeting people. A kind of "anti social behavior" and she is very concerned with that.

#### 11. Sugar consumption increases Blood Pressure.

Another respondent (II) believed consumption of sweet things like sugar, sweet tea and drinks are the causes of high blood pressure.

### **B. Knowledge about Hypertension**

#### 12. Lack of knowledge

Four respondents (Patients I, III, V and VIII) showed complete lack of knowledge from a simple definition to the name of the commonest used antihypertensive drug (Ridaq). Jiang X et al (2002) observed that higher the grade of hypertension knowledge more the response to higher rate of awareness, treatment, and control.

For respondent VIII, she was not the only one who doesn't know what is hypertension. She went on to add ' no one really know any thing about hypertension'.

The reason of inadequate motivation for treatment of arterial hypertension, as seen in these respondents, is the lack of general knowledge about hypertension (Sipak M et al.2005, Petrella RJ and Campbell NR 2005,)

#### 13. Forgetfulness

Two respondents (I and II) could say easily it was told to them but they could not remember what it is again. They simply forget. This type of respondents found themselves in a condition where they experience a poor control of their condition by lack of compliance. This is described as unintentional non-adherence. The



respondent probably due to his inability to remember whatsoever pertains to his or her condition (Horner R 2001) is not able to comply with the advices.

#### 14. The love of food

Respondent (I) could not see herself eating less although she was obese. Another one (IX) could say I do not have a restriction when it comes to food. I eat everything. There is, as highlighted by Kornitzer M (1999), a strong and direct relationships between excess weight and hypertension. This is enough to explain why people should eat less and control their own weight.

#### 15. Exercise help control blood Pressure

One respondent (Respondent II) knew that exercise helps control blood pressure. She makes it a point where on daily basis she manages to walk a long distance. She went on to add I can feel that my body is now loose and am no longer getting tired. The JNC7 recommendation is that this respondent should be engaging in regular aerobic physical activity such as brisk walking at least 30 minutes per day, most days of the week.

#### 16. Some foods help reduce blood pressure

Two respondents (II and VI) stated the importance of food that help reducing or controlling blood pressure.

Respondent II knows that food without salt, unskinned chicken meat, vegetables bring down blood pressure.

She went on adding that food like sugar, sweet, tea, and drinks elevate blood pressure. This knowledge is not evidence based and should be one of the priorities of health care workers.

Respondent VI heard from his doctor that red meat, fatty meat cause blood pressure. Avoiding this kind of foods help reduce or control hypertension. There is no to date any established link between red meat and blood pressure.

This issue of food helping controlling blood pressure is one of the challenges for the health team and is to be addressed.

#### 17. We have high blood pressure by inheritance

One respondent (VI) knew that she got high blood pressure by inheritance. This is partly true. The role of environment and the life style is also important

#### 18. A lot of weight is not good

Kornitzer M et al. 1999 states that there is a clear, direct and strong relationship between excessive weight and hypertension. The respondent expressed concerns about what he called a lot weight and its impact on the blood pressure. He is aware that a lot of weight is not good. He went on asking if the blood pressure will get controlled as he is overweighed.

#### 19. Pregnancy worsen Blood Pressure

The respondent (VIII) is known hypertensive for a long time. She observed that pregnancy particularly giving birth make it worse. She went saying that it was serious with the last pregnancy as she ended up delivering by caesarian section. The allegation that pregnancies worsen hypertension seems to be true. Evidence show

that women who experienced raised blood pressure in pregnancy have a long term risk of hypertension, an increased risk of stroke and, to a lesser extent, an increased risk of ischaemic heart disease (Wilson BJ et al 2003)

#### 20. Lack of interest

Two respondents (VIII and IX) showed a lack of interest in their own medical condition. Patient lack of interest has been considered as a barrier to preventive interventions. Cornuz J et al. (2000) found that patient lack of interest negatively influence physician in providing preventive counseling as of part the management.

#### 21. Blood pressure is a life condition

Respondent (IX) said this condition cannot be cured; it is a life time condition. It is the researcher point of view that such declaration or response imply that the patient is more likely to be motivated to take his or her medicines as prescribed because she or he fully understand, accept the diagnosis and agree with the proposed lifelong treatment.

#### 22. Compliance is a must

One respondent (X) acknowledged the importance of compliance in the management of hypertension. The respondent emphasized the fact that once you are been diagnosed with hypertension you have adhere to the prescribed treatment. Evidence is overwhelming for this issue. The world health organization explained it clearly that poor adherence to prescribed medicines is the most

important cause of uncontrolled blood pressure and accounts for three-quarters of patients not achieving optimum blood pressure levels.

### **C. Source of information**

#### **23. Poor communication**

One respondent highlighted the poor communication with health care worker. She said there is no or little conversation with nurses.

Houston-Miller N (1978) attests that the interaction between the physician and his/her patient can significantly affect compliance with medical advice and medication.

Bell RA (2008) found that hypertensive patients were receiving relatively little information about hypertension and beneficial lifestyle changes

#### **24. People as source of information**

Three respondents (I, IV and VIII) acknowledge that they were getting health related information from people in the community. The problem here is the issue of oral tradition.

Oral tradition is still a way for many people to get connected, it is a way for a society to transmit history, literature, law and other knowledges across generations without a writing system. The true problem being the source itself. People are getting information from unqualified people.

The respondent (I) insisted his advices or information are from elders

Respondent II got the health related information only from his doctor and others health workers. Reasons for seeking information elsewhere should also be addressed if we want to be effective in managing chronic conditions in general.

#### 25. Health workers' attitude and behavior

One respondent (I) noticed that health workers' attitude and behaviors are inconsistent with good patient-staff relationships, and is therefore a cause of poor management.

Several studies suggest that factors such as warmth and empathy on the part of the physician, adequate time spent with the patient, providing clear information about the diagnosis and medication, all provide strong positive influences, which increase the likelihood of medication compliance (Benson J 2003, Becker MH 1985 and Pratt JH et al. 2005). This is therefore to be encouraged.

#### 26. Onset/time of discovery of Blood Pressure

Three respondents (III, V and X) could still remember the time and circumstances of onset or discovery of their high blood pressure.

Respondent III discovered that she was hypertensive during an antenatal visit.

Respondent V discovered his condition after a consultation for a severe headache

Respondent X just collapsed and later on find out that she is hypertensive. These examples stressed common way of diagnosing hypertension. These patients were unaware of their illness. Because of this and of the fact that many people with

hypertension are asymptomatic, Mbokazi A J (2006) strongly advise case finding and screening in identifying hypertensive individuals.

#### 27. Can say blood pressure is high

Six respondents (III, IV, V, VII, VIII X) attested that they could say either or not their blood pressure was elevated. Every one of them was experiencing a number of symptoms( headache) with or without tearful eyes, feeling dizzy, passing out, bleeding of the nose, feel like keeping quiet, could collapse, stiff nerves) that appeared to be synchronic to the elevated blood pressure. These symptoms were indicative according to their experience to their elevated blood pressure.

In his study Morgan M (19995) found that two-third of the Afro-Caribbean respondents and one-third of white respondents thought they could tell when their blood pressure was high, with the most common symptoms being the experience of headache or pressure around the forehead.

#### 28. Pregnancy as cause of Blood Pressure

One respondent (IV) believed that being pregnant was the cause of her blood pressure.

This respondent explained her situation in this way:” My child was just in the stream of blood” She believed that as the baby was in the stream of blood, the flow of the blood was disrupted by the presence of the baby. This is, according to the respondent, the cause of her hypertension. Pregnancy induced hypertension is a well known entity but the pathophysiology described by this respondent is incorrect and is part of her belief system. It is part of her lay knowledge and need to be addressed.

#### 5.4. LIMITATION OF THIS STUDY

The following were the limitations of the study

##### 5.4.1 The issue of generalization

This study, as in all qualitative studies, may not be generalized beyond the studied sample. Its findings can be transferable only to a population having same characteristics with the sample.

##### 5.4.2.The issue of translation

The process of translation from Sesotho to English invariably suffered some lack of accuracy probably altering the intended meaning by the interviewee.

## **CHAPITRE 6: CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 CONCLUSIONS**

The following conclusions were made from the analysis of the results and discussion

- All the respondents presented the common risks factors of hypertension as direct causes of high blood pressures. Overweight, high alcohol intake, cigarette smoking, fat or oily food (high choleresterol intake), a stressful life,

life's problems , as well as the so called "thinking hard" were the common listed causes of high blood pressure.

- The researcher found a variety of beliefs and practices not always evidence based sometimes unrevealed to the practitioner aiming to the control of blood pressure. The use of prayer and holy water in alleviating high blood pressure symptoms is rooted one the practice seemingly well established in the general population. The use of Aloe, the use of that green and bitter mixture that to the eyes of respondents really controlled high blood pressure are some of the practices revealed by this study. The place or/and role sleeping in the control of ,probably, severe hypertension transpired also in this study.
- Each and every patient carries a cultural background that may not appear during the encounter with the health system. It may be religious based, community based defining a certain paradigm
- The use of alternative and/or traditional medicine in conjunction with conventional medicine is a fact. This should therefore be investigated by physician for a better holistic management of the client.
- Behaviors and attitudes as barriers to empowering patient in term of evidence based knowledge

## **6.2 RECOMMENDATIONS**

- Adopting the holistic approach in daily encounters with patient help
- Physician should avoid considering patient as tabula rasa. The researcher suggests that they should always address patient centered factors such as knowledge, views and health beliefs.



- One of the goals in dealing with patient should be to make sure that patient fully understand, accept the diagnosis, and proposed treatment.
- To make a room to inquire without being judgmental about any current alternative and/or traditional medicine
- Correct any misplaced (lays) beliefs or knowledge about the illness and the treatment

The interaction between physician and his/her patient can significantly affect not only compliance with medical advice and medication but at a great level patient attitude and behavior toward seeking health support. Physician is requested here to bear in mind that the way he approaches the patient matter.

## APPENDIX I

<b><u>CONSENT FORM</u></b>
----------------------------

### **Statement concerning participation a Clinical Trial/Research Project\*.**

Name of Project/ Study/ Trial\*

### **LAY BELIEFS OF HYPERTENSIVE PATIENTS ATTENDING KATLEHO DISTRICT HOSPITAL (KDH) CONCERNING THEIR ILLNESS.**

I have read the information on /heard the aims and objectives of the proposed study and was provided the opportunity to ask questions and given adequate time to rethink the issue. The aim and objectives of the study are sufficiently clear to me. I have not been pressurized to participate in any way.



\*Delete whatever is no applicable

## REFERENCES

1. Acharya, Deepak ,Shrivastava A; Indigenous Herbl Medicines: Tribal Formulations and Traditional Herbal Practices Aavishkar Publishers Distributor, Jaipur-India. Pp 440. 2008.
2. AdamcZack M, ZeierM, Dikow R, Ritz E (2002) Kidney and hypertension, *Kidney Int suppl* 62-67
3. *Adams EM, Finlaryson A. Familial aspects of pre-eclampsia and hypertension in pregnancy. Lancet. 1991.23;2(7217):1375-8.*
4. Aguilera MT, De la Sierra A, Coca A, Estruch R, Fernandez-Sola J, Urbano-Marquez A. Effect of Alcohol Abstinence on Blood Pressure: Assessment by 24-Hour Ambulatory Blood Pressure Monitoring. *Hypertension* 1999;33:653-657.
5. Alexander G. Rabchevsky, Patrick G. Sullivan, Isabella Fugaccia, Stephen W. Scheff. *Journal of Neurotrauma*. July 1, 2003, 20(7): 659-669
6. Allcock GH, Venema RC, Pollock DM, Et<sub>A</sub> receptor blockade attenuates the hypertension but not renal dysfunction in DOCA-salt rats. *Am J physiol*. 1998; 44:R245-252.
7. Al-sowielem LS, Elzubier AG. Compliance and knowledge of hypertensive patients attending PHC centres in Al-khobar, Saudi Arabia *Eastern Mediterranean Health Journal* 1998,301-307

8. Amira OC, Okubadejo NU. Frequency of complementary and alternative medicine utilization in hypertensive patients attending an urban tertiary care centre in Nigeria. *BMC Complementary and Alternative Medicine* 2007,7:30
9. Amoah AG. Hypertension in Ghana: a cross-sectional community prevalence study in greater Accra. *Ethn Dis* 2003; 13:310-315
10. Anderson NB, Myers HF, Pickering T, Jackson JS. Hypertension in blacks: psychosocial and biological perspectives. *J hypertens.* 1989;7:161-172.
11. Anthony J. Reid, MD, MSC, CCFP. What we want: qualitative research Promising frontier for family medicine canadiean *Family Physician* vol 42 march 1996
12. Ashish Bhalla, Sanjay D'cruz, Lehl SS, Ram Singh. Renovascular Hypertension-Its evaluation and Management. *JIACM* 2003;4(2):139-46
13. Astin JA: Why patients use alternative medicine: result of a national study. *JAMA* 1998, 279: 1548-1553.
14. Azjen I. From intentions to actions: a theory of planned behaviour. In: Kuhl J, Beckmann J (eds). *Action control: From Cognition to Behaviour.* Springer: Heidelberg, 19985, pp11-39.
15. Barker DJP. 1996. The fetal origins of hypertension. *Journal of Hypertension*; 14:suppl 5:117-20
16. Barlow J, Kincaid-Smith P. The auscultatory findings in hypertension. *Br Heart J* 1960; 22:5005-14

17. Becker MH. The Health Belief Model and personal health behaviour. Health Educ Monogr 1974; 2(4): 376-316
18. Becker, M.H, Radius., S.M., & Rosenstock,I.M. (1978). Compliance with a medical regimen for asthma: a test of the health belief model, Public Health Reports, 93, 268-77.
19. Bekeredjian R, Grayburn PA. Valvular Heart Disease: Aortic Regurgitation. Circulation 2005;112:125-134
20. *Binger C. On so-called psychogenic influences in essential hypertension. Psychosom Med. 1951;13(5):273-6*
21. Blumhagen D. Hypertension: a folk illness with a medical name. Cult Med Psychiatry. 1980; 4:197-224.
22. Bob Mash, Handbook of Family Medicine: 13-41
23. *Bondanelli M, Ambrosio R M, Degli Uberti EC. Pathogenesis and Prevalence of Hypertension in Acromegaly. Journal of Pituitary. 2001;4:239-249.*
24. Boutouyrie P, Laurent S, Benetos A, et al Opposing effects of ageing on distal and proximal large arteries in hypertensives> J Hypertens suppl. 1992; 10:S87-S91.
25. Bramlage P, Pittrow D, Wittchen H-U, Kirch W, Boehler S, Lehnert H, Hoefler M, Unger T, Sharma AM. Hypertension in overweight and obese primary care patients is highly prevalent and poorly controlled. Am J Hypertens. 2004;17:904-910.
26. Bratman,MD, Steven (1997). The Alternative Medicine Medicine Sourcebook. Lovell House pp.7

27. Britten N. Qualitative Research: Qualitative interviews in medical research 1995. *BMJ* 311:251-253.
28. Burt VL et al Trends in the prevalence, awareness, treatment, and controls of hypertension in adult US population. *Hypertension* 1995; 26:60-69.
29. Calhoun DA. Hypertension in blacks: socioeconomic stress and sympathetic nervous system activity. *Am J Med Sci.* 1992;23:8-12
30. Catt K J., Cran, E., Zimmet, P.Z., Best, J.B., Cain, M. D., and Coghlan, J. P. (1971). Angiotensin II blood-levels in human hypertension. *Lancet*, I, 459
31. Chesley LC, Cosgrove RA, Annitto JE. Pregnancy in the sisters and daughters of eclamptic women. *Pathol Microbiol.* 1961;24:662-6
32. China 1991 Blood Pressure Screen Steering Committee. China National Blood Pressure Screen in 1991-data book. Beijing, 1993.
33. Chobanian AV & Hill M 2000 National Heart, Lung, and Blood Institute Workshop on Sodium and Blood Pressure: a critical review of current scientific evidence. *Hypertension* **35** 858–863
34. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, Jones DW, Materson BJ, Oparil S, Wright JT Jr, Roccella EJ; Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National Heart, Lung, and Blood Institute; National High Blood Pressure Education Program Coordinating Committee. *Hypertension.* 2003; 42:1206-1252

35. Chris M Carrang et al. Asymptomatic pheochromocytoma Manifested pre-operatively as severe hypertension and Bradycardia. ULCA department of Medicine Mon, 2006
36. Clezy T. M. Oral contraceptives and hypertension an epidemiological survey. British Heart Journal, 1972;34: 1238-1243
37. Connell P, McKeivitt C, Wolfe C. Strategies to manage hypertension: a qualitative study with black Caribbean patients. British Journal of General Practice. 2005;55:357-361.
38. Conner M, Norman P. (1996). Predicting Health Behavior. Search and Practice with Social Cognition Models. Open University Press: Ballmore: Buckingham.
39. Cooper Lt, Cooke JP, Dzau VJ. The vasculopathy of aging. J Gerontol.1994; 49:B191-B196.
40. Cooper RS, Rotimi C. Establishing the epidemiologic basis for prevention of cardiovascular disease in Africa. Ethn Dis.1993; 3:S13-S22.
41. Couthard MG, Lamb WH. Polycythaemia and hypertension caused by renal artery stenosis. Arc Dis Child 2002; 86:307-310
42. David J., Torpy, Mullen N, Ioannis Ilias, Lynnette K. Nieman Association of hypertension and Hypokalemia with Cushing's Syndrome caused by Ectopic ACTH Secretion Ann. N.Y. Acad. Sci. 970: 134-144 (2002).
43. Dedier J, Stampfer MJ, Hankinson SE, Willett WC, Speizer FE, Curhan GC. Nonnarcotic analgesic use and the risk of hypertension in US women. Hypertension. 2002;40:604-608.

44. Donald G. Vidt. Contributing factors in resistant hypertension: truly refractory disease is rarely found in a properly conducted workup. *Postgrad Med* 107(5):57-70
45. Duchna HW, Orth M, schulthze-Werninghaus G. Guilleminault C, stoohs RA. Long-term effects of nasal continuous positive airway pressure on vasodilatory endothelial function in obstructive sleep apnea syndrome. *Sleep* 2005;9:97-103
46. Dustan HP, Curtis JJ, Luke RG, Rostand SG, Systemic hypertension and the kidney in black patients. *Am J Cardiol* 1987; 60:731-771.
47. Eddouks M, Maghrani M, Lemhadri A, Ouahidi ML, Jouad H: Ethnopharmacological survey of medicinal plants used for the treatment of diabetes mellitus, hypertension and cardiac diseases in the south-east region of Morocco (Tafilalet). *Ethnopharmacol* 2002, 82(2-3): 97-103.
48. Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, Kessler RC: Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA* 1998, 280:1569-1575.
49. Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional Medicine in the United States- Prevalence, Costs, and Patterns of Use. *N Engl J Med* 1993, 328: 246-252.
50. Elzubier AG, Husain AA, Suleiman IA, Hamid ZA. Drug compliance among hypertensive patients in Kassala, eastern Sudan. *East Mediterr Health J.* 2000 Jan;6(1):100-5



51. Ernst & Cassileth(1998). The prevalence of complementary/Alternative medicine in cancer
52. Fisher P, Ward A: Medicine in Europe: Complementary medicine in Europe. BMJ 1994, 309: 107-111.
53. Fongwa MN,Evangelista LS, Hays RD, Martins DS, Elashoff D, Cowan MJ, Morisky DE. Adherence treatment factors in hypertensive African American women. Vascular Health and Risk management 2008;4(1) 157-166
54. Franklin SS, Gustin W 4<sup>th</sup>, Wong ND, Larson MG, Weber Ma, Kannel WB, Levy D. Hemodynamic patterns of age-related changes in blood pressure: the Framingham Hearth Study. Circulation. 1997;96;308-315.
55. Glanz K, Rimer BK, Lewis FM (2002)> Health Behavior and Health Education. Thory, Research and practice. San Fransisco: Wiley & Sons.
56. Grant R.N. M.(1993) Women's Health Beliefs regarding Hypertension. West Indian Medical Journal. 42:158-160
57. *Gressel GC, Shobe FO et al. Personality factors in arterial hypertension. J Am Med Assoc. 1949. 21;140(3):265-72.*
58. Hall JE. The kidney, hypertension, and obesity. Hypertension.2003;41(part2):625-633.
59. Hamberg K, Jonhansson E, Lingren , Westman G. Scientific rigour in qualitative research-Examples from a study of women's health in family practice. Family Practice, 1994; 11(20): 176-181.
60. Harwood A: The hot-cold theory of disease. JAMA 1971; 216:1153-1158.

61. He FJ, Macgregor GA. Effect of longer-term modest salt reduction on blood pressure. The cochrane Database of systematic reviews. 2004;(3): CD004937.
62. Henbest, Malete. How do people in Ga-Rankuwa Township understand high blood pressure. SA Fam Pract 2000;22(3)
63. Henbest, RJ Malete, NH. can people tell if their blood pressure is up? SA Fam Pract 525 august 1995.
64. Henry Elliot. Epidemiology, aetiology and prognosis of hypertension. Hypertens 2002.
65. Heurtin-Roberts S Reisin E. The relation of culturally influenced lay models of hypertension to compliance with treatment. Am J Hypertens. 1992; 5(11): 787-792.
66. Holam, H.R. Qualitative inquiry in medical research. Journal of Clinical Epidemiology. Pergamon Press 1993;46(1):29-3
67. Horne R, Clatworthy J, Polmear A, Weinman. Do hypertensive patients' beliefs about their illness and treatment influence medication adherence and quality of life? Journal of human hypertension 2001; 15,suppl1, S65-S68
68. Keamey PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. The Lancet 2005; 365:217-223

69. Kitai E, Vinker S, Sandiuk A, Hornik O, Zeltcer C, Gaver A: Use of complementary and alternative medicine among primary care patients. *Fam Pract* 1998, 15: 411-414.
- .L.S. Al-Sowielem, A.G. Elzubier: Compliance and Knowledge of hypertensive patients attending PHC centers in Al-Khobar, Saudi Arabia, volume4: 301-307.
70. Lavie L, Hefetz A, Luboshitzky R, Lavie P. Plasma levels of nitric oxide and l-arginine in sleep apnea patients: effects of nCPAP treatment. *J Mol Neurosci.* 2003;21:57-63
71. Luft FC, Weinberger MH. Review of salt restriction and the response to antihypertensive drugs: satellite symposium on calcium antagonists. *Hypertension.* 1988;11(suppl 1):I-229-I-232.
72. MacLennan AH, Wilson DH, Taylor AW: Prevalence and cost of alternative medicine in Australia. *Lancet* 1996, 347: 569-573.
73. Mhlongo, SWP. Lay beliefs and responses concerning hypertension and its management in two culturally distinct groups *SA Fam Pract* vol.25 number 2, 2002
74. Morgan M, Watkins CJ. Managing hypertension – beliefs and responses to medication among cultural groups. *Social Health Illn* 1988; 10(4):561-578.
75. Patton, MQ. *Qualitative evaluation and research methods*, 2<sup>nd</sup> edition. London: Sage Publication, 1990.

76. Nicky Britten, Roger Jones, Elizabeth Murphy, Rosie Stacy. Qualitative research methods in general practice and primary care Oxford University Press 1995 Vol.12 N° 1
77. Ogedegbe GO, Harrison M, Robbins L, Mancuso CA, Allegrante P. Barriers and facilitations of medication adherence in hypertensive African Americans: a qualitative study. *Ethn Dis.* 2004; 14(1): 3-13.
78. Peltzer K. Health beliefs and prescription medication compliance among diagnosed hypertension clinic attendees in a rural South African Hospital. *Curationis.* 2004; 27(3): 15-23.
79. Singh V, Raidoo DM, Harries CS: The prevalence, patterns of usage and people's attitude towards complementary and alternative medicine(CAM) among the Indian community in Chatsworth, South Africa. *BMC Complement* 2004. 4(3): 1-7.
80. Singhal A, Cole TJ, Lucas A. 2001. Early nutrition in preterm infants and later blood pressure: two cohorts after randomised trials. *Lancet*; 357:413-19.
81. *Smith MD, McGhan W. More bang for the buck in managing high blood pressure. Bus Health 1996;14(5):44-7*
82. Snow LF. Folk medical beliefs and their implications for care of patients. *Ann Int Med* 1974;81:82-96.
83. south African Family Practice Manual Volume 1-12 february 1995 page 3.16
84. Spencer J, Phillips E, Ogedegbe G. Knowledge, attitudes, beliefs, and blood pressure control in a community based sample in Ghana. *Ethnicity & disease* 2005, 15:748-752

85. Steptoe A. 2000. Psychosocial factors in the aetiology and prognosis of hypertension. *Annals of medicine*, 32:371-75
86. Steptoe A, Willemsen G, 2004. The influence of low job control on ambulatory blood pressure and perceived stress over the working day in men and women from the Whitehall II cohort. *Journal of Hypertension*; 22:915-20.
87. Steyn K, Levitt N, Fourie J, Rossouw K, Martell R, stander I: Treatment status and experiences of hypertension patients at a large health center in Cape Town.
88. Svensson S, Kjellgren KI, Ahlner J, Saljo R. Reasons for adherence with antihypertensive medication. *Int J cardiol* 2000; 76: 157-163.
89. Taylor, Bagdan. *Qualitative data analysis*. 1984.
90. Walker, M. *Analysing qualitative data: ethnographie and the evaluation of medical education*. *Medical Education* 1989;24:498-503
91. Weinberger MH, Cohen SJ, Miller JZ, Luft PC, Grim CE, Fineberg nS. Dietary sodium rstriction as adjunctive treatment of hypertension. *JAMA*. 1988;259:2561-2565.
92. Weir R J et al. Blood pressure in women after one year of oral contraception. *Lancet*, 467
93. whelton SP, Chin A, Xin X, He J. The effect of aerobic exercise on blood pressure: a meta-analysis of randomised, controlled trials. *Ann Intern Med* 2002; 136:493-503.
94. Wildman RP, Gu D. Muntner P, Huang G, Chen J, Duan X, He J. Alcohol intake and hypertension subtypes in Chinese men. *J hypertens*. 2005;23:737-743.

95. Winkleby M et al. Ethnic and socioeconomic differences in cardiovascular disease risk factors. Finding for women from the Third National Health and Nutrition Examination Survey, 1988-1994. *JAMA* 1998; 280: 356-362
96. World Health Organization (WHO). The World Health Report 2000: Reducing Risks, Promoting Healthy Life. Geneva: WHO; 2002
97. Wu YK. Reports from Chinese National Hypertension Survey in 1979-1980. Chinese Academy of Medical Sciences: Beijing, 1982,pp 1-15
98. Xin, X., He, J., Frontini, M. G., Ogden, L. G., Motsonai, O. I., Whelton, P. K. (2001). Effects of Alcohol Reduction on Blood Pressure: A Meta-Analysis of Randomized Controlled Trials. *Hypertension* 38: 1112-1117