### **KNOWLEDGE AND PERCEPTION OF HYPERTENSION AND IT’S MANAGEMENT AMONG CLIENTS/PATIENTS**

**ABSTRACT**

Hypertension is an important public health challenge at Auchi Nigeria. The purpose of this qualitative phenomenological survey was to determine hypertensive patients’ knowledge, perceptions, attitudes and life-style practices so as to optimize their health and treatment needs. We examined a cohort of 108 randomly selected hypertensive by means of a self-structured questionnaire and a detailed interview. Analysis was by statistical package for social sciences (SPSS) and chi- square was used for significance tests at 0.05 level. More males 60 (55.6%) than females 48 (44.4%) were assessed. Their age range was 35 – 80 years (mean = 59.05 ± 9.06 years), the modal age group was 56 – 60 years (24.1%). Sixty-six respondents (61%) knew hypertension to be high blood pressure (BP), 22 (20%) thought it meant excessive thinking and worrying while 57 (53%) claimed it was hereditary. Forty-three (40%) felt it was caused by malevolent spirits, 32 (30%) believed it was caused by bad food or poisoning. A few (18%) knew some risk factors. Symptoms attributed to hypertensionwere headache, restlessness, palpitation, excessive pulsation of the superficial temporal artery and “internal heat”, but 80 (74%) attested to its correct diagnosis by BP measurement. Although 98 (90.7%) felt the disease indicated serious morbidity, only 36 (33.3%) were adherent with treatment and fewer practiced life-style modification. Thirty-two (30%) knew at least one antihypertensive drug they use. Psychosocial factors like depression and anxiety fear of addiction and intolerable drug adverse effects impacted negatively on patients’ attitude to treatment. We conclude that patients’ knowledge of hypertensionin Auchi is low and their attitudes to treatment negative. Patient education, motivation and public enlightenment are imperative.

**Abstract**

**Table of contents**

**CHAPTER ONE**

**INTRODUCTION**

**1.1       Background of Study**

**1.2       Statement of Problem**

**1.3       Purpose of Study**

**1.4       Research Questions**

**1.5       Significance of Study**

**1.6       Scope of the Study**

**1.7       Limitation of Study**

**1.8       Operational Definition of Terms**

**CHAPTER TWO**

### Review of Related Literature

2.1 Conceptual Framework

2.2 Theoretical framework

2.3 Empirical Review

**CHAPTER THREE**

### Research Methodology

### 3.1 Research Design

3.2 Area of the study

3.2 Population for the study

3.3 Sample and sampling techniques

3.4 Instrument for Data Collection

3.5 Validity of the instrument.

3.6 Reliability of the instrument.

3.7 Method of Data Collection

3.8 Method of Data Analysis

**CHAPTER FOUR**

Data presentation, analysis and Interpretation

**CHAPTER FIVE**

### Summary, Conclusions and Recommendations

# 5.1 Summary

# 5.2 Conclusions

5.3 Recommendations

### References

**Questionnaire**

**CHAPTER ONE**

**INTRODUCTION**

**1.1       Background of Study**

Hypertension remains a major global public health challenge that has been identified as the leading risk factor for cardiovascular morbidity and mortality (Kearney, Whelton, Reynolds, Muntner, Whelton& He, 2004). It increases hardening of the arteries, thus predisposing individuals to heart diseases, peripheral vascular diseases, stroke, heart failure and kidney failure. Hypertension is the commonest non-communicable disease in the world and all races are affected with variable prevalence. Castelli (2004) explained that its prevalence is on the increase in developing countries where adoption of western lifestyle and stress of urbanization, both of which are expected to increase morbidity associated with unhealthy lifestyle are not on the decline. Andreoli, Carpenter, Grigs and Loscalzo (2004) were of the opinion that hypertension produces disruptions in health, disability and death in the adult population worldwide. Ejike, Ezeanyika and Ugwu (2010) stated that hypertension causes one in every eight deaths worldwide, making it the third leading killer disease in the world. They also estimated that about one billion patients, the world over, had hypertension in the year 2010 and the number is expected to rise to 1.56 billion in the year 2025 if positive intervention programme is not made. Aram, George, Henry, Williams, Lee, and Joseph (2003) indicated that fifty million Americans have high blood pressure, approximately one in three patients.

In United States of America, approximately twenty eight (28) to thirty one per cent of patients have hypertension (Fields, Burt & Cutler (2004). Of this population, 90 to 95 per cent have primary hypertension (high blood pressure related to unidentified cause). The remaining five to tenper cent of this group have secondary hypertension (high blood pressure related toidentified cause). In China, almost 130 million people aged 35-74 years are estimated to be hypertensive(Camel &Delene, 2006). Similarly in Ghana, studies revealed a hypertension prevalence of forty per cent among rural dwellers and eight per cent to thirteen per cent in the urban areas. In sub-Saharan Africa, it is the most rapidly rising cardiovascular disease and affecting over 20 million people (Kadiri, 2005). He also stated that in Nigeria, hypertension is the commonest non-communicable disease with over 4.3 million Nigerians above the age of fifteen years classified as being hypertensive.

Hypertension, also known as high blood pressure is the persistent blood pressure in the arteries above ninety millimetres of mercury (mmHg) between the heart beats (diastolic) or over 140 millimetres of mercury (mmHg) at the beats (systolic) (Aquilla, 2008). According to Hyman and Parlik (2003), hypertension is the persistent raised levels of blood pressure in which the systolic pressure is above 140 mmHg and diastolic pressure above 90 mmHg. The normal blood pressure is below 120/80 mmHg; blood pressure between 120/80 and 139/89 is called ‘Pre-hypertension, and a pressure of 140/90 or above is considered high (abnormal) blood pressure. According to Expert Committee on Non-Communicable Diseases (1993), blood pressure of 120/80 mmHg is considered normal for a 30 year old person, while blood pressure of 140 mmHg is considered high for such a person. Similarly, blood pressure of 150/90 mmHg is considered normal for a 60-year old person, while blood pressure of 160/100 mmHg is high for such a person. Hypertension is sometimes called “the silent killer” because people who have it are often symptom-free. In this study, hypertension is perceived as a systolic blood pressure greater than 140 mmHg and a diastolic blood pressure greater than 90 mmHg among patients. The top number which is the systolic pressure corresponds to the pressure in the arteries as the heart contracts and pumps blood forward into the arteries. The bottom number which is the diastolic pressure represents the pressure in the arteries as the heart relaxes after contraction. The diastolic pressure reflects the lowest pressure to which the arteries are exposed. Blood pressure is normally measured at the brachial artery with a sphygmomanometer (pressure cuff) in millimeters of mercury (mmhg) and given as systolic over diastolic pressure. Hypertension is classified into two namely; primary and secondary hypertension.

According to Stanler (2004), hypertension is categorized into primary and secondary hypertension. Primary hypertension has an unknown cause and accounts for ninety per cent to ninety five per cent of all hypertension cases (Chris, 2009). This type of hypertension is strongly associated with lifestyle. Usually, the patients do not have many signs and symptoms but may experience frequent headache, tiredness, dizziness or nose bleeds. Although the cause is not known, obesity, smoking, alcohol, diet and heredity play a role in essential or primary hypertension.

Secondary hypertension has a known cause and accounts for five per cent to ten per cent of all hypertension cases. Chris (2009) maintained that the most common cause of secondaryhypertension is an abnormality in the arteries supplying blood to the kidneys. Other causes include airway obstruction during sleep, stress, diseases and tumors of the adrenal glands, lifestyle, spinal cord injury, hormone abnormalities (oral contraceptive estrogen replacement), thyroid disease, toxemia of pregnancy, renal problems such as vascular lesion of renal arteries, diabetic neuropathy, pains as well as anxiety and hypoglycemia. There are some factors which predispose patients to hypertension.

The risk factors of hypertension are genetic factor which can be inherited from parents, age which when the body does not retain the amount of elasticity as it used to in the early years of life, obesity which is an increase in weight of over ten per cent above normal body index due to generalized deposition of fat in the body, excessive salt intake which increases blood pressure, stress which produces chemical substances that cause generalized vasoconstriction, oral contraceptive which contains estrogen that causes salt retention that increases the volume of blood, sedentary lifestyle which has the tendency of increasing body weight and directly raises blood pressure, elevated levels of plasma lipids particularly cholesterol, excessive alcohol consumption which increases blood pressure and tobacco use (cigarette smoking) that contains nicotine which causes constriction of the blood vessels.

The signs and symptoms of hypertension recognized by Thatch and Schultz (2004) include occipital headache, dizziness, restlessness, failing vision, shortness of breath, and rapid increased heartbeat. Patients should possess the knowledge of risk factors in order to prevent hypertension. This will help them recognize and prevent or treat hypertension when these signs occur.

Knowledge is used to cover such related terms as facts, information, understanding, awareness, insight, wisdom, reasons, comprehension, meaning, concept and experience (Albelum, 1987). It is an organized body of knowledge shared by people. Nnachi (2007) conceptualized knowledge as the ability to understand or comprehend phenomena, the acquisition of positive information by the exercise of some capacity which humans presumably have in common. Health knowledge could be said to mean putting into reality the art of mobilization of resources by an individual, intellectually, physically and emotionally. Hamburg and Russell (2000) opined that health knowledge and understanding of related factors have a favourable effect on quality of overall well-being. They went further to state that one’s exposure to proper health knowledge will influence positively the person’s health attitude and practice, and thus, one could rightly say that knowledge is the key to optimum well-being. Umaru (2003) pointed out that knowledge comes about as a result of learning through cognitive, affective and psychomotor domains. In this study, knowledge is referred to as all understanding and familiarity gained by learning and experience that will enable patients to recognize risk factors as well as recognizing and use of preventive measures of hypertension. Knowledge of hypertension is an important prerequisite for an individual to implement desirable behavioural practices towards its prevention. Lack of suchknowledge will lead to aggravated health problems. Patients should therefore, possess adequate knowledge of risk factors of hypertension in order to prevent the disease.

Risk factors are defined by Lothar, Gottfried and Heide (2011) as individual characteristics which affect the person’s chances of developing a particular disease or group of diseases within a defined future time period. According to Lucas and Gilles (2003), risk factor is anything that has been identified as increasing an individual’s chances of getting a disease or developing a condition. They will be considered to be at risk of developing hypertension, those with habits or characteristics which increase the likelihood of developing hypertension. Risk factors in this study, refers to the characteristics, conditions or behaviors such as excess salt intake and smoking which increase the probability of hypertension to occur. When risk factors are related to hypertension, they are known as risk factors of hypertension. Risk factors of hypertension are of two types: those ones that can be changed and those that cannot be changed. The risk factors that can be changed are obesity, excess salt intake, smoking, environmental stress, oral contraceptives, sedentary lifestyle, elevated levels of plasma lipids and unregulated secretion of aldosterone. Risk factors that cannot be changed are genetic predisposition, age and gender. Patients should have adequate knowledge of the risk factors to be able to prevent hypertension.

Preventive measures are interventions directed to avert the emergence of specific disease, reducing their incidence and prevalence in population. Starfield, Hyde, and Gervas (2007) defined preventive measures as all measures that limit the progression of a disease at any stage of its course. In this study, preventive measures is referred to as all the activities whose primary purpose is to promote, restore and maintain health, and those practices which are directed towards preventing hypertension among patients. There are two types of preventive measures; primary and secondary. Primary prevention is the intervention that averts the occurrence of a disease or actions taken prior to the onset of disease which removes the possibility that a disease will occur. It signifies intervention in the pre-pathogenesis phase of a disease or health problem. It may be accomplished by measures designed to promote general health and well-being, and quality of life of patients (health promotion) or by specific protective measures (specific protection). Secondary prevention is action which slows the progression of a disease at its incipient stage and prevents complication. Salama (2011) opined that the specific intervention in secondary prevention is early detection of hypertension which involves screening test. It attempts to arrest the disease process, restore health by seeking out unrecognized disease and treating it before irreversible pathological changes take place especially among patients.

Adulthood is the longest period of a man’s life. Hornby (2001) defined an adult as a person who has grown to full size or strength, intellectually and emotionally mature, and legally a person old enough to vote or marry. Ebiringa and Nwagbo (1997) defined an adult as someone who has reached the age of maturity, who covers his nakedness, who lives on his own, who can answer avillage call and who is taxable. They went further to state that an adult is someone who has developed a sense of perspective, more balanced in thinking, and is responsible for his own actions and that of others. Samuel (2006) defined adulthood as the period whereby an individual has acquired all the adolescent developmental tasks, reached accepted age bracket and is responsible for his actions without parental or social restrictions. Samuel (2006) also categorized patients into three stages; young adulthood (21- 40), middle adulthood (41-65) and older adulthood (65 years and above). Young adulthood which commences at around 21 to 40 years is the period when full physical fitness is generally experienced. It is a stage of critical transition. Patients in this age group are filled with vitality and enthusiasm. Middle patients falls within the ages of 41 to 65 years which is a period of pleasant plateau (Ejifugha, 2003). Patients within this group are at a stage of physical and psychological development. Patients in this group tend to eat too much and may fail to take regular exercise. Many are overweight and actually obese. Psychological stress causes patients in this group to smoke, drink and abuse drugs. Older patients are between the ages of 65 years and above. The factors in ageing set in to influence the individual gradually which may cause cardiovascular diseases like hypertension. In this study, an adult is referred to as an individual who has reached the age of maturity and falls within the age bracket of thirty five years and above.

There are many variables that may impinge on knowledge of hypertension. Literature shows that studies on knowledge of hypertension examined socio-demographic factors of age, race, level of education, parity, gender, income, location, occupation and marital status (Hamdan, Saeed, Kutbi, Choudhry&Nooh, 2010). However the present study is concerned with demographic factors of age, gender, location, and level of education.

Age has been identified as a strong factor that that can limit the ability of patients to acquire adequate knowledge of hypertension. Age determines growth, development, maturity and death. Age brings about maturity and maturity puts one in a position to rationalize, concretize, accept or reject concept, information, habit, attitude and practice (Ejifugha, 2003). It is believed that the more one add years to life, the more knowledge he acquires and the more exposed to situations that can cause health problems including hypertension. Patients because of their exposure and experience must have come to understand the concept of hypertension, signs and symptoms, risk factors and preventive measures of hypertension and because of lack of exposure or experience may not adequately acquire the knowledge of diseases (Bagunyoke, 2003) such as hypertension.

Gender has influence on knowledge of hypertension. Akinkugbe (2003) observed that women have more hypertension than men. However, after menopause, the incidence of hypertension due to arteriosclerosis in women rapidly increases than in men and even become higher in old age. From adolescence through 54 years, men have a much greater risk of developing hypertension compared with women of the same age. The reverse is the case after 54 years.

Women then are seen to have more incidence of hypertension due to the disappearance of female stronger hormone that provides protective effect against hypertension.

Location is an environmental factor which may limit the ability of patients to seek adequate knowledge of hypertension. Hamdan, Saeed, Kutbi, Choudhry and Nooh (2010) indicated that hypertension was significantly associated with age, gender, geographical location. Similarly, Lech and Piotr (2009), stated that hypertension was more frequently diagnosed among rural than urban patients. The patients in urban areas have more opportunities and access to attend seminars, health talks, workshops and medical check ups on hypertension (accessibility to health information). Unfortunately, those in the rural areas may not have such opportunities as such programmes may not exist in the rural areas. These programmes are in most cases accessible to a smaller privileged group in the society, who are living in well-developed towns, at the expense of greater majority who wallow up in diseases and ignorance in rural areas.

Studies have indicated that level of education is associated with knowledge, which may include the risk factors and preventive measures of hypertension. According to Hamdan, Saeed, Kutbi, Choudhry and Nooh (2010) observed that patients who were more knowledgeable adopted positive lifestyles, while the iliterate patients adopted unhealthy lifestyles. The higher the educational attainment, the higher the acquisition of knowledge, attitude and behaviour, while the lower the level of education, the lower increase in knowing risk factors and prevention measures of hypertension. Similarly, Myo, Thaworn, Janthila, Nongluk ,Suchart , Wilawan , Phatchanan , Puangpet, Nara , and Apiradee (2012) reported that those with primary school education were likely to be aware of hypertension than those who did not have primary school education. The variables of age, gender, location and level of education were examined in the study. Knowledge of hypertension by patients will surely influence their health behaviour. Therefore, some behaviour change theories will be applied to explain knowledge of hypertension.

This study was anchored on three theories. These are the critical knowledge theory, health belief model, theory of reasoned action. According to Diagnam (1992), Critical knowledge theory states that when an individual is ignorant or holds a belief about a health matter, the health educator attempts to change or ascertain the individual’s level of knowledge towards the health matter or concept through questioning the respondent.

The health belief model has it's focus on explaining and predicting preventive health behaviour by focusing on the attitudes and beliefs of individuals (Rosenstock, Strecher and Beckar, 1999). This is useful because the model examined the perceptions, beliefs and behaviours of patients and to provide information on the lifestyle practices related to preventing hypertension. Patients who believe that certain lifestyles such as excess salt intake and inactivity can predispose them to hypertension will achieve good health by avoiding such lifestyles.

Theory of reasoned action show how attitude impacts on behaviours. It states that a person’s attitude towards a particular behaviour is influenced by belief outcome of the behavior. Patients who develop positive attitude towards high salt intake, excess alcohol and inactivity consumption are likely going to develop hypertension; conversely, those who have negative attitude may not get hypertension. The study was carried out in Auchi in Edo State.

Auchi senatorial zone is in Edo state located in the South Eastern part of Nigeria. The senatorial zone covers around 1,700sqkm and shares common boundaries with Abia State by the east, and Rivers State by the south. It also shares common boundaries with OhajiEgbema, Orlu, Obowo, Ihitte-Uboma, and Mbano local government areas all of which are in Orlu and Okigwe zones of Edo State. There are nine local government areas which make up Auchi Senatorial Zone (see Appendix A). The inhabitants are engaged in agriculture, businesses and civil service works. These activities occupy much of their time with little or no time left for them to have rest and take care of their health, and they undergo lots of stress which can lead to hypertension. Furthermore, there are places which serve as tourist attractions in the zone such as Mbari exhibition centre, Edo Concorde hotel and lots of hotels and guest houses where people come for relaxation. These places expose patients to excessive alcohol consumption. Auchi Municipal which is the major urban area is cosmopolitan being the Edo State Capital and commercial nerve centre. These activities made the location to qualify for the study.

**1.2       Statement of Problem**

Hypertension has been shown to have series of consequences, and adequate knowledge of risk factors can help in the prevention of hypertension. Therefore, patients in Auchi Senatorial Zone need to have the knowledge of hypertension to reduce the prevalence of hypertension disease, improve health and optimum well-being. But it is likely that patients in the area may or may not have adequate knowledge of hypertension. Evidence regarding the knowledge of hypertension does not seem to exist. Therefore, this study on knowledge of hypertension becomes necessary.

Regrettably, most patients due to ignorance of risk factors and preventive measures of hypertension engage in unhealthy lifestyles such as excessive consumption of alcohol, sedentary lifestyle, excess consumption of sodium intake, tobacco and cigarette smoking, obesity, reduced intake of fruits and vegetables, stress and consumption of foods rich in cholesterol. These unhealthy lifestyle practices have increased the prevalence of hypertension in the world including Nigeria, which culminates into high cases of deaths. Hypertension is one of the problems affecting especially a great portion of the adult population and currently causes one in every eight deaths worldwide, making it the third leading killer disease in the world. Ejike, Ezeanyika and Ugwu (2010) estimated that about one billion patients had hypertension in the year 2010, and the number is expected to rise to 1.56 billion in the year 2025. In addition, hypertension is the commonest non-communicable disease in Nigeria with over 4.3 million Nigerians classified as being hypertensive. In Nigeria, many people lose their lives to hypertension. This is not an acceptable situation, considering the fact that hypertension is preventable and manageable to reduce its impact on the health and lives of people in Nigeria.

However, some studies have been conducted on the knowledge of hypertension in many parts of the world including Nigeria. The literature reviewed showed that related studies were conducted among pregnant women, workers in banking industry, hypertensive patients, primary care patients, urban elderly and in rural communities, and in different countries. Incidentally, there are no studies, to the best knowledge of the researcher that have been carried out in Auchi in Edo State to determine the level of knowledge of hypertension among patients. In view of the above, the need arose to determine if patients in Auchi in Edo State have adequate knowledge of hypertension. This was the task of the present study.

Despite effective therapies and lifestyle interventions, optimal prevention of hypertension remains very health challenge to health professionals especially in most developing countries like Nigeria. Kadiri (2005) noted that 4.3 million Nigerians are suffering from this silent killer disease called hypertension. The inability to adequately prevent or manage hypertension in Nigeria can be attributed to inadequate knowledge of hypertension. Thus reaching the healthy people vision 2020 objective may be difficult if necessary actions are not taken to prevent this disease. If health promotion programmes are to be appropriate and effective, patients’ knowledge of hypertension need to be identified. Therefore, the researcher was motivated to determine the level of knowledge of hypertension possessed by patients in Auchi in Edo State. This became necessary against the backdrop that identification of gaps in patients’ knowledge of hypertension is capable of aiding the development of adequate information to enhance the knowledgeand perception of hypertension and its management among clients/patients.Therefore, as part of a quality assessment to improve the management outcome of hypertensive patients, we evaluated by means of a descriptive, cross-sectional qualitative phenomenological survey, hypertensive patients’ knowledge, perception, attitudes and life- style practices in Auchi, Nigeria.

**1.3       Purpose of Study**

The general purpose of this research work is to assess the knowledge and perception of hypertension and its management among patients. The specific objectives include;

1.    To evaluateknowledge, perception, attitudes and life- style practicesof hypertensive patients in Auchi.

2.    To describe the barriers to effective management of hypertension.

3.    To determine the level of knowledge and perception of hypertension and its management possessed by hypertensive patients.

**1.4       Research Questions**

1.    What is the knowledge, perception, attitudes and life- style practices of hypertensive patients in Auchi?

2.    What are the barriers to effective management of hypertension?

3.    What is the level of knowledge and perception of hypertension and its management possessed by hypertensive patients?

**1.5       Significance of Study**

The results of this study will be useful to health educators, medical and paramedical officers, public health officers, counsellors, media educators, researchers, curriculum planners, government and patients in many ways. The study may help to develop a positive regard towards hypertension. The ministry of health may benefit from the study by discovering a gap in knowledge of the population, and emphasize strategies to teach the adult population on how to prevent the risk factors. It may also be useful to other researchers to carry out this study in areas where disease prevention measures and health promotion are needed with regards to hypertension.

Answering the research questions associated with the research project offers insight into managing hypertension by revealing an understanding of individual’s health related knowledge, perceptions and behaviours.

**1.6       Scope of the Study**

The study covered all the local government areas in Auchi in Edo State. The study was restricted to patients between the ages of fifty years and above, and who were found within the urban and rural areas. The study was concerned with determining the level of knowledge and perception of hypertension and its management among patients. This consisted of the concept of hypertension, signs and symptoms, risk factors and preventive measures of hypertension. The demographic factors of age, gender, location and level of education as they relate to knowledge of hypertension were all explained.

**1.7       Limitation of Study**

The researcher faced a number of restraints in the course of carrying out this research project. They include; time constraints, financial constraints, uncooperative attitude of some of the respondents. These constituted limitations of this research project as some of the respondents did not return their questionnaire. The researcher only made do with responses of the respondents whose questionnaire were correctly completed and returned.

**1.8       Operational Definition of Terms**

**Hypertension**: abnormally high blood pressure, a state of great psychological stress.

**Hypertension Management**: Hypertension is managed using lifestyle modification and antihypertensive medications. Hypertension is usually treated to achieve a blood pressure of below 140/90 mmHg to 160/100 mmHg.

**Knowledge**: facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.

**Perception**: Perception is the organization, identification, and interpretation of sensory information in order to represent and understand the presented information, or the environment.

### CHAPTER TWO

### Review of Related Literature

**2.1 Conceptual Framework**

 This section presents the concepts of knowledge of hypertension, patients, measurement of knowledge of hypertension, and socio-demographic factors associated with knowledge of hypertension. These concepts have been defined by many authors and in different ways. A few of such definitions relevant to this work was reviewed.

**2.1.1 Concepts on Knowledge of hypertension.**

 Knowledge has been defined by various scholars in different ways, although there is a common conceptual focus. Rambo (1984) defined knowledge as an understanding of a subject matter. Such a subject matter could be hypertension as is the case in the present study. Omoregbe (1998) conceptualized knowledge as the fact of understanding events, issues or objects that are acquired either through learning or experiences. According to him, it comes about as a result of learning through cognitive, affective and psycho-motor domains. Hornby (2001) refers to knowledge as the information, understanding and skills that are gained through experience or education. Nnachi (2007) conceptualized knowledge as the ability to understand or comprehend phenomena, the acquisition of positive information by the exercise of some capacity which humans presumably have in common.

 Bedworth and Bedworth (1978) asserted that knowledge implies an understanding of specific facts, terminologies, conventions, ways and means of dealing with specific trends, sequences, classification and categories, criteria, universal and abstract principles and generalizations, and structures. Knowledge does not stop at knowing or understanding of a phenomenon but also involves application, analysis and evaluation of what is known. However, Agbazue (1990) opined that one of man’s greatest enemies is ignorance, but agrees that knowledge will give one the necessary power, and put one in the appropriate frame of mind to practice healthy lifestyles and avoid diseases. Hamburg and Russell (2000) opined that health knowledge and understanding of related factors have a favorable effect on quality of overall well-being. They further stated that one’s exposure to proper health knowledge will influence positively the person’s attitude and practice, and thus, one could rightly say that knowledge is the key to optimum well-being. A person who is knowledgeable on health matters is the one who understands, among other things, the basic facts concerning health and disease, protects his or her own health and that of others. Such a knowledgeable person explores the health of the community and does everything possible to stimulate healthful living and promote health knowledge within his or her locality. Health knowledge could be said to mean putting into reality the art of mobilization of resources by an individual, intellectually, physically, emotionally and socially for optimum well-being. Abanobi and Ewuzie (2000) maintained that health knowledge is health information plus action; it focuses on human anatomy and physiology, mental, emotional and social health, health hazards, personal health, family and community health and also the nature of public health services.

Emphasizing more on the role of knowledge, Moronkola and Okonlawon (2003) posited that knowledge helps to create a change in behavior towards health. The rationale for improving health behavior knowledge among patients is derived from health behaviour models, the individual’s perceived risk of developing a certain condition is postulated to be essential in motivating his or actions. The role of knowledge and information in the process of performing certain practices conducive for improved health has gained increased recognition. Knowledge can be empowering in that it enables one to make an informed decision regarding health. In most cases, without accurate information and knowledge, patients can neither make nor be expected to make informed decisions about their own health and that of others. Concomitantly, having appropriate knowledge does not guarantee appropriate actions. Knowledge in this study is referred to as all understanding and familiarity gained by learning and experience that will enable individuals to know the concept of hypertension, signs and symptoms and recognize risk factors as well as how hypertension can be prevented. Patients should be able to understand what hypertension is all about, signs and symptoms, the risk factors and preventive measures, and how it affects them in particular before it will be meaningful for them to appreciate and practice its preventive measures. This is because; one’s knowledge about health and disease prepares the way for meaningful healthy lifestyle (Ademuwagun, Ajala, Oke, Moronkola and Jegede, 2003). Knowledge about risk factors is an important prerequisite for an individual or adult to implement behavioural changes towards hypertension prevent. Hypertension is a chronic medical condition in which the systemic arterial blood pressure is elevated (Wikipedia, 2011). Hyman and Parlik (2003) defined hypertension as the persistent raised levels of blood pressure in which the systolic pressure is 140 mmHg and diastolic above 90 mmHg. The normal blood pressure below 120/80 mmHg and 139/89 mmHg is called prehypertension, and a blood pressure of 140/90 mmHg or above is considered high blood pressure. Abanobi (2005) stressed that hypertension or high blood pressure is characterized by excessive load on the blood pumping function of the heart as it works to send requisite oxygen and nutrients to the various tissues of the body. Under the conditions of excess load, the arteries metabolic efficiency is being compromised. Onuzulike (2006) stated that hypertension is consistent elevation of blood pressure of above normal for a particular age. Expert Committee on Non-communicable Diseases (1993) stressed that blood pressure of 120/80 mmHg is considered normal for a 30 year old person, while blood pressure of 140 mmHg is considered high for such a person. Similarly, blood pressure of 150/90 mmHg is considered normal for a 60-years old person; while blood pressure of 160/100 mmHg is high for a person of such age. Hypertension is often referred to as “the silent killer” because people who have it are often symptom-free. Ironically, despite its deadly nature, victims of hypertension rarely, if ever, are aware that they have this disease. Hypertension does not produce dizziness, headache or memory loss, unless one is experiencing a medical crisis. Payne and Hahn (1995) estimates that 35 per cent of the people who have hypertension do not realize they have it. In this study, hypertension is referred to as a systolic blood pressure greater than 140 mmHg and a diastolic blood pressure greater than 90 mmHg. The top number which is the systolic pressure corresponds to the pressure in the arteries as the heart contracts and pumps blood forward into the arteries. The bottom number which is the diastolic pressure represents the pressure in the arteries as the heart relaxes after contraction. The diastolic pressure reflects the lowest pressure to which the arteries are exposed. Hypertension is a major risk factor for cardiovascular diseases. It increases hardening of the arteries, thus predisposing individuals to heart diseases, peripheral vascular diseases, stroke, heart failure, and kidney failure. Bovet, Rose, Gervasoni, Mkamba, Mtasiwa, Lengerler, Whiting & Paccaud (2003) explained that hypertension is affected by peripheral resistance, cardiac output and total blood volume. When the diameter of an artery decreases, there is vasoconstriction, which causes a rise in blood pressure. When there is vasodilatation, blood pressure falls. Blood pressure is regulated in this way when the baro-receptors (which are groups of special nerves that receive information about the blood pressure in the large arteries, and relay this information to the vasomotor centre in the medulla oblongata if the blood pressure is raised) send this impulse to the vasomotor centre. The vasomotor center in turn sends this information to the muscle walls of the arterioles to relax and then the arteries dilate thereby lowering the blood pressure. If the blood pressure is too low, the baro-receptors send this information back to the vasomotor center, which in turn sends this information to the muscle walls of the arterioles to relax, lowering the blood pressure. If the blood pressure is too low, the baro-receptors send this information back to the vasomotor center, which in turn sends the impulse to the muscle walls of the arterioles to contrasts. This causes vasoconstriction of the arteriole and a corresponding rise in blood pressure.

Hypertension is be classified into two; primary and secondary hypertension.

 Onuzulike (2006) classified hypertension into; primary (essential) hypertension and secondary (malignant) hypertension. She noted that the cause of primary or essential hypertension is unknown. Primary hypertension has an unknown cause and accounts for 90 to 95 per cent of all hypertension cases (Chris, 2009). This type of hypertension is strongly associated with lifestyle. Usually, the patients do not have many signs and symptoms but may experience frequent headache, tiredness, dizziness or nose bleeding. Although the cause is not known, obesity, smoking, alcohol, diet and heredity play a role in essential or primary hypertension. In addition, hereditary factor, stress, and marital discord have been implicated in the occurrence of primary hypertension. Secondary hypertension has a known cause and accounts for 5 per cent to 10 per cent of all hypertension cases.

Hypertension will in the long run hurt the blood vessels, and serious hypertension can do extensive damage to the blood vessels in a few months or years. The damaged blood vessels will impair the blood flow. They can also rupture causing a bleeding or be clogged by a blood clot that shuts out the blood flow and causes tissue damage. These things can occur in the brain, causing a stroke, in the heart causing heart infarction or in the kidney with renal failure as a consequence. A renal failure will in the next turn cause the hypertension to aggravate, partly because a damaged kidney will not manage to secrete water and salt well enough, and partly because a kidney that do not get enough blood will start a hormonal mechanism that induces the kidney to actively hold back salt and water.

Risk factor according to Last (2001), is an environmental, behavioural or biological factor confirmed by temporal sequence, usually in longitudinal studies, which if present directly increases the probability of a disease occurring, and if absent or removed reduces the probability. Donna (2006) posited that a risk factor is something that increases an individual’s chances of getting a disease. Sometimes, this risk comes from lifestyle for example smoking increases chances of developing high blood pressure. Therefore, smoking is a risk factor for high blood pressure. Others times, there’s nothing one can do about the risk. It just exists, for example age. Wikipedia (2011) posited that risk factor is a variable associated with an increased risk of a disease or infection. Risk factors are co-relational and not necessarily casual because correlation does not imply causation. A risk factor causes a person or group of people to be particularly susceptible to an unwanted, unpleasant or unhealthful event.

Lothar, Gottfried and Heide (2011) conceptualized risk factor as individual characteristics which affect the person’s chances of developing a particular disease or group of diseases within a defined future time period. In this study, risk factor is referred to the characteristic, condition or behaviour such as excess salt intake and smoking which increases the probability of hypertension to occur. When risk factors are related to hypertension, they are known as risk factors of hypertension. Risk factors of hypertension are identified factors, characteristics or behaviours which exposes patients to the risk of developing hypertension such as tobacco smoking, inactivity, excessive alcohol consumption, high salt and high fiber diet, age and genetic factor which increase the chance of hypertension to occur in patients. Cardiovascular disease risk factor awareness and knowledge are believed to be prerequisites for adopting healthy lifestyle behaviors.

According to Jones, Dumber and Jirovec (2003), several factors predispose individuals to hypertension. Such factors are genetic factors, age, obesity, excess salt intake, cigarette smoking, environmental stress, oral contraceptives, sedentary lifestyle, elevated levels of plasma lipids and unregulated secretion of aldosterone. There are risk factors that can be modified and those that can not be modified. Modifiable (behavioral) risk factors are determinants that can be changed or modified by intervention, thereby reducing the probability of hypertension disease. These lifestyle factors can be controlled. Forman, Meir & Curhan (2009) posited that many modifiable risk factors for hypertension have been identified, including overweight or obesity, physical inactivity, and having a poor diet. Excessive alcohol consumption, tobacco smoking, high blood cholesterol, high salt intake and stress are all modifiable risk factors of hypertension. Obesity is an increase in weight of over 10 per cent above normal body index due to generalized deposition of fat in the body.

Onuzulike (2006) asserted that excess weight promotes hypertension and lipid abnormalities. It predisposes the individual to diabetics which in turn accelerates to coronary artery disease and increases the risk of stroke. Dischuneit, Flechner, Johnson & Adler (2006) asserted that physical inactivity coupled with obesity seem to have more implication in hypertension than obesity alone.

Chhabra, Lal and Sharma (2002) observed in a study that a high salt intake of about 7-8grarm a day increases blood pressure proportionately. Sacks, Svetkey and Vollmer (2006) declared that low sodium intake have been found to lower blood pressure. Chemically, salt is made of sodium and chloride. Sodium is of higher concentration than water, thus, can easily draw water from the surroundings to dilute itself. This explained why salt that is left over night on a table becomes water the following morning. This same phenomenon takes place inside the blood vessels. They further explained that if the salt concentration of blood is high, water from the surrounding cells move into the blood vessels to dilute the salt. When this happens, the volume of the blood increase with corresponding increase in volume of blood in the heart which increase the pressure with which blood flows through the blood vessels (hypertension). Org, Cheung, Man, Lau & Lam (2007) acknowledged that diets high in salt and saturated fats have been shown to be etiologically related to hypertension. Foods that fit into this category include canned foods, bacon, frozen foods, hot dogs, ham, salted nuts, sausages, seasoning salt, salted cheese and potato chips. Other foods that contribute to risk of hypertension include fat sources of all kinds namely, butter, eggs, red fatty meat, ice cream and cheese. Furthermore, it is not advisable to add table salt to ones food.

Erhum, Olayiwola, Agbani & Omtoso (2005) stressed that cigarette and tobacco smoking as an unhealthy social habit has short-circuited millions of lives for many countries, and is one of the root causes of chronic diseases of which hypertension is one of them. According to them, cigarette is a suicide bomber seeking for a person whose health and life will blow away with its smoke.

Cigarette contains nicotine, which causes contraction of the blood vessels (vasoconstriction) that can lead to hypertension, stroke and cardiac output. Blood pressure rises and the heart also has to work harder to pump increased volumes of blood through damaged lungs. Onuzulike (2006) contributed that smoking nicotine and carbon monoxide from tobacco have been found to provoke increased level of adrenalin and this causes narrowing of the arterioles leading to increase in blood pressure.

Stress is a risk factor of hypertension which activates the autonomic nervous system and of the central nervous-pituitary adrenalin system. Andreoli, Carpenter, Griggs and Loscalzo (2004) explained that during stress or emotional disturbances, the body system produces chemical substances called catecholamine and adrenalin. These substances when released cause generalized vasoconstriction (contraction) and narrowing of the blood vessels, which can produce transient hypertensive state.

Gender is one of the non-modifiable risk factors of hypertension. The frequency of hypertension is greater in men than women up to about the age fifty years, but the reverse is the case at older ages. Although the risk of developing hypertension is higher in older women as compared with older men, the probability of developing a stroke is directly related to the systolic blood pressure regardless of gender and age. Rahman, Douglas & Wright (2004) explained that after menopause, the incidence of hypertension disease due to arteriosclerosis in woman rapidly approaches than in men. Women are seen to have more incidence of hypertension due to the disappearance of female stronger hormone which provides effect against heart disease and high blood pressure. These non-modifiable risk factors of hypertension can not be changed but awareness of the risk factors is important for prevention. Preventing these risk factors will have a significant impact in the morbidity rates to acceptable level. Knowledge of hypertension risk factors is essential for an adult to make an informed decision about preventing hypertension.

**2.1.2 Prevention of hypertension**

Abanobi and Ewuzie (2000) defined preventive measures as strategies and methods applied to mitigate the occurrence of something. In the practice of disease control, prevention can be achieved by making the onset of that disease impossible or infeasible. It can also be achieved by mitigating the progression of that disease. Starfield, Hyde, Gervas & Heath (2007) opined that preventive measures are all measures that limit the progression of a disease at any stage of its course. Wikipedia (2010) defined preventive measures as measures taken to prevent diseases, or injuries rather than curing them or treating their symptom. Prevention according to Salama (2011) is action aimed at eradicating, eliminating or minimizing the impact of disease and disability, or if none of these are feasible, retarding the progress of the disease and disability. Abanobi and Ewuzie (2000) further explained that prevention of diseases and health problems are usually classified into three levels. These levels include primary prevention, secondary and tertiary prevention.

Primary prevention refers to actions taken prior to the onset of disease, which removes the possibility that the disease will occur or measures taken to mitigate the onset of disease or health problem. These measures are usually directed at the pre-pathogenesis stage of the natural history of a disease. Health promotion includes the concept of “positive health” which is a concept that encourages achievement and health maintenance of an acceptable level of health that will enable patients to lead a socially and economically productive life (Salama, 2011). Primary prevention may be accompanied by measures designed to promote general health and well-being and quality of life by specific protective measures. Other important measures include the reductions in disease causing propensities and virulence of agents or risk factors of disease, and the altering of the susceptibility of persons at risk of a disease or health problem

Primary preventive measures can be achieved through modification or removal of risk factors. Lifestyle changes are recommended to lower blood pressure before the initiation of prescription of drug therapy. The lifestyle changes are weight reduction and regular aerobic exercise (example, walking) which improves blood flow and help to reduce the resting heart rate and blood pressure, elimination of dietary sugar and reduction of sodium (salt) in the body by disuse of condiment sodium and the adoption of a high potassium diet which rids the renal system of excess sodium. Additional dietary changes beneficial to reducing blood pressure (dietary approaches to stop hypertension) is the consumption of foods rich in fruits and vegetables, and low-fat or fat-free diary products. In addition, an increase in dietary potassium which offsets the effects of sodium has been shown to be highly effective in reducing blood pressure (Wikipedia, 2011). Furthermore, discontinuing tobacco use and reduction in alcohol consumption has been shown to lower blood pressure. Blood pressure (especially systolic) always transiently increases following alcohol or nicotine consumption. Abstinence from cigarette smoking will help to reduce the risk of stroke and heart attack which are associated with hypertension. Reduction of stress, for example with relaxation therapy, such as meditation and other mind body relaxation techniques, by reducing environmental stress such as high sound levels and over illumination can also lower blood pressure. Increase in Omega 3 fatty acids can help lower hypertension. Fish oil lowers blood pressure in hypertensive individuals and may increase sodium and water excretion.

Secondary prevention refers to measures applied in the early stages of pathogenesis, including asymptomatic or sub-clinical stages, to limit or forestall the progression of a disease. Wikipedia (2011) also contributed that secondary prevention are strategies which attempts to diagnose and treat an existing disease in its early stages before it results in significant morbidity. It involves measures applied in the early stags of pathogenesis, including asymptomatic or subclinical stages, to limit or forestall the progression of a disease. A major method of secondary prevention is early detection of cases. Screening (blood pressure), which is a presumptive procedure used to distinguish apparently sick or at risk persons from a population of persons known to be susceptible and exposed to the risk factors of the health problem is a primary technique applied for secondary prevention of health problems. Tertiary prevention refers to measures applied late in the prognosis of a disease, after resultant disability had been observed (Starfield, Hydes, Gervas & Heath, 2007). The key motive here is to achieve successful rehabilitation of the “disabled” victim such that as much functional capacity as possible can be regained. This may involve significant behaviour therapy with regard to these lifestyle diseases such as hypertension. Preventive measures within the context of this study is referred to as all the activities whose primary purpose is to promote, restore and maintain health, and those practices which are geared towards preventing hypertension among patients. Prevention is better than a pound of cure. In order to minimize the impact of the ongoing epidemic of hypertension, prevention and control of modifiable risk factors must become a high health priority. Patients can take steps to prevent high blood pressure by adopting a healthy life style.

 **2.1.3** **Patients.**

Adulthood is a period in the human lifespan in which full physical and intellectual maturity has been attained. Adulthood is the longest period of a man’s life.

Hornby (2001) defined adult as a person who has grown to full size or strength, intellectually and emotionally mature and legally a person old enough to vote or marry. Shepherd (1998) stated that the term has three distinct meaning. Firstly, it indicates a grown up man or woman, which is adult man or woman. Secondly, an adult may a plant or animal that has reached full growth. Thirdly, an adult may also mean one who is legally of age. He further stated that a person may be biologically an adult and has adult behavioural characteristics but still be treated as a child if he or she is under the legal age of maturity. Conversely, one may legally be an adult but possess none of the maturity and responsibility which define adult character. He further stated that in most parts of the world including United Kingdom, India and China, the legal age is eighteen years while there are some qualities that symbolize adulthood in other cultures. These adult qualities comprise of self control, stable personality, independence, endurance, responsibility and decision making capability.

 Ebiringa and Nwagbo (1997) defined an adult as someone who has reached the age of maturity, who covers his nakedness, who lives on his own, who can answer a village call and who is taxable. They went further to state that an adult is someone who has developed a sense of perspective, more balanced in thinking, and is responsible for his own actions and that of others. Bechara (2011) posits that adulthood thought of as beginning at age of 20 or 21years. Samuel (2006) defined adulthood as a period whereby an individual has acquired all the adolescent developmental tasks, reached accepted age bracket and is responsible for his actions without parental or social restrictions. He further stated that patients are able to resist societal pressure and can take decision based on personal convictions. Adult in this context refers to an individual who has reached the age of maturity and falls within the age brackets of thirty five years and above.

 Samuel (2006) identified three stages of adulthood; young adulthood (21-40), middle adulthood (41-65) and older adulthood (65 years and above). Young adulthood commencing at around 21 to 40 years is the period when full physical fitness is generally experienced. It is a stage of critical transition from adolescence to adulthood. He further stated that patients in this stage have some characteristics; selection and preparing for vocation, preparing for marriage, development of social consciousness and defining and refining a value system. Physical growth starts to decrease, but mentally there is likely to be a settling down and more peace of mind. Behaviour patterns established at this stage will influence their health for a lifetime.

 **2.1.4 Measurement of knowledge of hypertension.**

Knowledge measurement is necessary in education and as well as in the scientific world. Knowledge testing in the field of education has been that of requiring facts to be recalled after a course of study. Measurement is the assigning of numerals to individuals or objects in a systematic way as a means of presenting the properties of the individuals or objects (Ingule, Rono and Ndambuki, 1996). There are four basic levels of applicable measurement: nominal scale, ordinal scale, interval scale and the ratio scale. For the purpose of this study, the interval scale was used. Owie (2006) explained that the interval is the data which can give indication of differences. The scale tells us whether P is as much higher than Q as Y is lower than Z on a particular attribute. It has all the properties of the nominal and ordinal scale. An example of interval data is the test scores. The researcher generated interval data from this study.

 Health knowledge is an aspect of health instruction and can be measured precisely. Pollock and Oberteaffer, (1974) described five types of test that can be used to measure knowledge. These are essay tests, short, true and completion tests, structured response tests, true-false tests, and multiple tests.

Essay tests give the students opportunity to respond to the question in his or her own words, provided the questions asked are clear and precise. This implies that patients must possess writing skills and have the ability to understand the questions. A structured-response test requires the adult to choose among already prepared alternative answers to questions. These are usually termed “objective” although at best only scoring procedures are objective. The most commonly used objectively scored tests are the true-false tests, the multiple-choice tests, and the matching item tests. The true-false items are simply a statement that patients are to read and judge one way or the other. It could be described as two-response multiple-choice items although the opposing alternative is unstable (that the statement is or is not true). Such an item may be written in a slightly different form so that the correct answer is either “yes” or “no” or “right” or “wrong”. Another variation is to require the adult to say why an item he says false is so, or to correct an item judged false.

 Multiple choice questions consist of a posed idea or problem called the stem and not less than four or five possible responses from which the students is to choose one correct or best answer. The stem many be written either as a statement or as a question. The matching item test is a really a variation of the multiple choice test. In this case, for each item on a list of terms, topics or other elements of choice is made from another list of words that describe, define or somehow relate to the items in the first list. Usually, a list of terms is placed to the left, and a list of alternatives to the right. Multiple choice questions were utilized in this study to determine level of knowledge of hypertension among patients.

 Ingule, Rono, & Ndambuki (1996) asserted that achievement test is used to measure an individual’s present level of knowledge, skill or performance. Such test contains items, questions, and tasks that attempt to determine what an individual knows or can do. Usually, they measure the skill and knowledge that a person has acquired in general or in specific areas of knowledge to which he or she has been exposed to and attempt to elicit the best performance from the respondent. According to Nworgu (2003), achievement test is designed to measure the outcome of the level of knowledge in a specified programme of instruction in a subject area. He further stated that a measurement may also be referred to as an achievement test if it is to find out how much of the materials of a subject or course each student has learned. It is tied to specific school subjects. General mental ability test, according to Nworgu (2003), measures unrestricted areas of knowledge. They may also be called “intelligence test” or “general aptitude test”. They are designed to measure a wide variety of individual functioning in terms of those mental or intellectual abilities that are useful in almost any aspect of thinking. He further stated that test of this sort measure an unrestricted combination of abilities such as verbal, numerical, symbolic, and spatial aptitudes as well as ability to analyze relationships. He further maintained that these types of test are predictive in nature in terms of estimating the probability for a wide range of ability in almost all occupation or fields of human endeavor (business, engineering, and medicine).

 Ashur (1977) developed four scales for measuring level of knowledge of an individual. According to the scales, a proportion of less than 40 per cent is considered “low level of knowledge; 41 to 59 per cent is “average knowledge; 60-80 per cent is “high” level of knowledge and above 80 per cent is considered “very high” level of knowledge. Okafor (1997) modified Ashur’s four scales of measurement into five scales. A knowledge score of less than 20 per cent is considered “very low”’ level, a score which is between 21-39 per cent is labeled “low level” while a score of 40-59 per cent is considered “moderate level”. A score that is between 60 and 79 per cent is considered “high” level knowledge while a score that is above 80 and above is considered level knowledge. In this study, Okafor’s modified of Ashur’s (1977) principle of measuring knowledge was utilized in determining level of knowledge of hypertension among patients.

 **2.1.5 Socio-demographic factors associated with knowledge of hypertension.**

 Certain factors such as age, gender, location and level of education have been seen to be associated with knowledge of hypertension. Age has been identified as a strong factor that is associated with knowledge of hypertension. Chavez (2000) conducted a study on knowledge, attitude and practices on hypertension of patients in Barangay Militar, Tukuran Zamboanga Del Sur. The findings revealed that the majority of patients who suffered from hypertension fell within the age group of 40-70years. In a similar study, Aubert, Bovet, Jean, Bernard and Fred (1998) conducted a study on knowledge, attitudes and practices on hypertension in a country of Epidemiological transition. The study noted that prevalence of hypertension was higher in men and women aged 35-64years, after age adjustment to the world population. In addition, Brent, Daniel and Cutler (2003) conducted a study on awareness, knowledge and attitudes of older Americans about high blood pressure. The findings revealed that African Americans and individuals 70 years and older were more likely to report ever or currently having high blood pressure.

 Studies have indicated that gender is associated with knowledge of hypertension. In a related study conducted by Tutum and Etikisi (2010) on the impact of patients’ knowledge, attitudes and practices on hypertension on compliance with antihypertensive drugs in African American. The study revealed that knowledge of hypertension was better in women than in men. A study by Aubert et al (1998) on knowledge, attitudes, practices on hypertension in a country epidemiological transition. The findings indicated that hypertension in this population was independently associated with gender. Iyalomhe and Iyalomhe (2010) conducted a study on hypertension related knowledge, attitudes and lifestyle practices among hypertensive patients in a sub-urban Nigerian community. The study revealed that females tended to be more hypertensive with age. Similarly, a study by Zhang, Minmin, Hassan, Jian, Shengchun, Tao and Xing (2008) on the knowledge, awareness, behaviour and control of hypertension among urban elderly in western china revealed that men showed knowledge of risk factors of hypertension than women..

 Location is an environmental factor which could be associated with knowledge of hypertension. A study conducted by Shankar, Partha, Shenoy, Chandrasekhar and Dubey (2007) on knowledge about hypertension among individuals attending a cardiac camp in Pokra city Nepal revealed that there was significant relationship between location and knowledge of hypertension. Knowledge of Hypertension was higher in the rural areas of Nepal. In a similar study, Brent,

**So**

**cio demographic**

**variables**

•

Age

•

Gender

•

Location

•

Level of

Education

**Adults**

**Knowledge**

**Knowledge**

**Concept of**

**hypertension**

**Signs and**

**symptoms**

**Risk factors**

•

Age

•

Obesity

•

Genetic

predisposition

•

Excessive salt intake

•

Tobacco and cigarette

smoking

•

Stress

•

Oral contraceptives

•

Sedentary lifestyle

•

Elevated levels of

plasma lipids

)

(

cholesterol

**Preventive measures**

•

Weight reduction

•

Regular exercise

•

Reduction of dietary

sugar

•

Reduction of sodium

(

)

salt intake

•

Adoption of high

potassium diet

•

Abstin

ence from

tobacco and cigarette

smoking

•

Alcohol consumption

•

R

e

duction of str

ess

Healthy lifestyle

Manifestation of good

health by Adults

Recognition

Understanding

Elimination/reduction

of risks factors

Practice/adoption of

preventive measure

s

**Fig. 1:** **Schematic representation of** **conceptual framework on knowledge of hypertension among patients.**

 This is to illustrate that adult’s knowledge of the concepts of hypertension, signs and symptoms, risk factors and preventive measures of hypertension will positively or negative affect their vulnerability to hypertension. When patients have adequate knowledge of hypertension and practice healthy lifestyle, it will help to prevent hypertension and there will be manifestation of good health. But, if they do not have adequate knowledge of hypertension, they will not be able to prevent hypertension which will affect the patients negatively.

**2.1.6 Causes of hypertension**

High blood pressure is caused by unknown and known causes. There are two types of high blood pressure, primary hypertension and secondary hypertension. Primary blood pressure, also known as essential hypertension is when the cause is unknown. It might result from unhealthy lifestyle and aging. About 95% cases of hypertension diagnosed are essential. (Eskridge 2010.)

Secondary hypertension is caused by medications or any health problem such as diabetes mellitus (DM) and chronic kidney disease (CKD). About 5% of hypertensive patients are diagnosed with secondary hypertension (Eskridge 2010 56.) Hypertension is also caused by identifiable causes which include chronic kidney diseases, sleep apnea, diabetes mellitus, thyroid disease and reno-vascular hypertension (JNC. 2004).

**2.1.7 Signs and Symptoms of hypertension**

According to American Heart Association (2014), hypertension is a symptomless condition unless in severe cases. It is often referred to as “silent killer” and that’s why it is recommended to measure blood pressure regularly. Usually, hypertensive symptoms maybe experienced in severe cases “systolic of 180mmHg and diastolic of 110mmHg”. This symptoms are; severe headaches, anxiety, nose bleeding and shortness of breath. Weir (2005) indicates that healthy lifestyle habits are best way to control high blood pressure and medicines if needed.

**2.2 Theoretical framework**

**2.2.1** **Critical knowledge theory (CKT).**

The critical knowledge theory approaches knowledge as an ongoing dialogue (Diagnam, 1992). This theory states that if an individual is ignorant or holds a belief about a health matter, the educator attempts to change or ascertain the individual’s level of knowledge towards the health matter or concept through questioning the respondent. As the person answers the health questions, the person’s knowledge and belief will begin to change, new questions arise and the respondent asks the educator some more questions and the educator responds to the questions. This process, according to Moronkola and Okanlawen (2003), ultimately changes the respondent’s knowledge and thinking towards the health matter.

By implication, for example, a health educator may like to encourage the patients that adequate knowledge on the subject matter of risk factors of hypertension is a sure way by which they can prevent hypertension disease. The health educator may ask the patients about what they know about hypertension. The patients may demonstrate their knowledge about risk factors of hypertension, and upon further questioning and educating them about the consequences of hypertension disease and its implication to their general health. The adult may change and or improve on their knowledge of risk factors and preventive measures of hypertension they have already acquired. In relation to this study, the researcher applied the critical knowledge theory approach to determine the level of knowledge of risk factors and preventive measures of hypertension possessed by patients’ in Auchi senatorial zone of Edo state.

**2.2.2 Health belief model (HBM)**

 Health Belief Model (HBM) derived from the theories of K. L. around 1952, originated by Hochaum, Stephen and Rosenstock (Brown, 1999). This theory marked the beginning of systematic theory-based research in health behaviour. It focused on the relationship between health behaviours, practices and utilization of health services. It was revised to include motivation for distinguishing illness and sick-role behaviour in health education.

 Its assumptions are that a person’s health related behaviour depends on his perception of critical variables: perceived threat which consist of perceived susceptibility and perceived severity of a health condition, perceived benefits, perceived barriers, cues to action, and self efficacy (Rosenstock, Stretcher, Strecher and Beckar 1994). Perceived susceptibility refers to one’s subjective perception of the risk of contracting a health condition (Hypertension). An individual’s perceived ability to successfully carry out a health strategy, such as avoidance of stress will greatly influence his or her decision and ability to enact or sustain a changed behavior. Perceived severity is a person’s feeling concerning the seriousness of contracting an illness. Many who utilize this model combine these two elements into a single diminution known as perceived threat, or the more vulnerable a person feels, the more motivated the person would be to take action or reduce the threat. Perceived benefits refer to belief regarding effectiveness of available health actions to reduce the perceived threat from the disease. For example, belief in the effectiveness of eating low fat foods will prevent obesity or overweight and it will increase the likelihood of eating low fat diet. Perceived barriers according to Owie (2003), refer to those negative factors that may impede the person’s action to acquiring the desire health behaviour. Lack of knowledge of hypertension can make patients not to engage in healthy behaviours. Factors like exercise, reduction in salt intake and reduction in alcohol intake may help people to promote health. Self efficacy is the belief in being able to successfully execute the behaviour required to produce the desired outcomes.

 This model has been utilized successfully by many across all health behaviours. Prochaska and Declemente (1984) posited that perceived susceptibility and perceived benefits are important overall predictor variables. Perceived susceptibility is stronger predictor of preventive health behaviour, while perceived benefit is stronger predictor of sick-role. This theory is utilized to analyze the knowledge of patients towards risk factors and preventive measures of hypertension in Auchi senatorial zone. Patients who believe that certain lifestyles such as excess salt intake and inactivity may predispose them to hypertension, will achieve good health by avoiding such lifestyles, while those who engage in such unhealthy lifestyles will likely get hypertension disease.

**2.2.3 Theory of reasoned action.**

 Theory of reasoned action (TRA) was propounded by Keke Ajzen and Martin Fishbein in 1967 to show how attitude impact on behaviour. It states that a person’s behaviour is determined by his attitude towards the outcome of that behaviour, and by the opinion of significant others in his social environment.

According to this theory, a person’s intention to perform a specific behaviour is a function of two factors: attitude (positive or negative) towards the behavior, and the influence of the social environment (general subjective norms) on the behaviour. The attitude towards the behavior is determined by the person’s belief that a given outcome will occur if he or she performs the behaviour and by an evaluation of the outcome. The social or subjective norm is determined by a person’s normative belief about what important or significant others think he or she should do and by the individual’s motivation to comply with those other people wishes or desires. An attitude is a function of belief in this theory. If a person believes that performing a given behaviour will lead to positive outcomes, then he or she will hold a favourable attitude towards performing that behaviour. On the other hand, a person who believes that performing the behaviour will lead to mostly negative outcomes will hold an unfavourable attitude. These beliefs that form the foundation of a person’s attitude towards the behaviour are known as behavioural beliefs. It also states that a person’s behaviour is determined by his intention to perform the behaviour and his subjective norm. This provides a frame for the study of behaviour. Attitudes and intension can also be influenced by knowledge.

 This theory is related to knowledge because if patients have the knowledge of risk factors, it will help them to avoid negative unhealthy lifestyles towards hypertension. Taylor (2003) posited that TRA stresses that one’s attitude towards a particular behaviour are influenced by belief outcome of the behaviour. This theory is utilized to analyze the knowledge of patients in Auchi Senatorial Zone towards risk factors and preventive measures of hypertension. Patients who lack knowledge of hypertension will develop positive attitude towards unhealthy lifestyles such as inactivity, excessive salt intake, and excessive alcohol consumption which may predispose them to likely hypertension. On the other hand, those who have adequate knowledge of hypertension will have negative attitude towards unhealthy lifestyles and may not get hypertension.

**Theories**

**Critical**

**Knowledge**

**Theory**

**Theory of reason**

**ed**

**action**

-

Behavioural intention

-

Attitude towards

prevention

-

Subjective norms

**Health Belief Model**

-

Perceived threat

-

Perceived susceptibility

-

Perceived severity

-

Perceived benefits

-

Perceived barriers to

hypertension

-

Cues to action

Adult

Knowledge of hypertension

**Fig 2: Schematic representation of theoretical framework on knowledge of hypertension**

These theories illustrate that patients health related behaviour and depends on his perception of critical variables: perceived threat which consist of perceived susceptibility and perceived severity of a health condition, perceived benefits, perceived barriers, cues to action, and self efficacy and significant others in the environment. Individual characteristics such as knowledge can influence behaviour. Patients’ knowledge of hypertension will help in the perception of threat, susceptibility, severity, benefit, barriers (lack of knowledge) and cues to action. This will promote changes in behaviour for reducing the risk of future hypertension disease.

**2.3 Empirical Review**

Maxine, Naomi, Marshak and Wilson (2009) carried out a cross-sectional study on Health Beliefs and the Prevention of Hypertension in a Black (seventh day Adventist) population living in London. The sample for the study consisted of three hundred and twelve (312) respondents and questionnaire was used to elicit information from the respondents. Frequency, percentage, multiple regression analysis and correlation co-efficient were used for data analysis. The study revealed that the respondents had not adopted healthful behaviours to prevent hypertension. 25.3 per cent were hypertensive and over two-thirds (68.6%) were at increased risk of developing hypertension. The blacks were neither more nor less susceptible to developing hypertension than other ethnic groups. They suggested that the perception of self efficacy to perform behaviour that will decrease hypertension risk needed to be effectively harnessed by health educators. This was to help reduce the prevalence of hypertension in this population.

Reddy and Prabhu (2009) conducted a study to determine to find out the prevalence of hypertension and its risk factors as well as the extent of diagnosis and management among patients in an urban slum area of Tirupati. The research design was cross sectional design and the sample consisted of one thousand (1,000) patients. Interview schedule was used to elicit information while Chi-Square, F-ratio, t-test and odd ratio was used to analyze data collected for the study. The findings showed that the overall prevalence of hypertension was found to be 8.6 per cent. Out of the 86 Hypertensive, 72 (83%) were aware of their hypertension. All of those aware were under treatment, and among the treated, only 30 (41.7%) had satisfactory control of their hypertension, The study recommended that Health Education of the people is needed to control the various risk factors of hypertension.

Hamdan, Saeed, Kutbi, Choudhry and Nooh (2010) conducted a cross-sectional community based study on the prevalence, risk factors, characteristics and treatment practices of known adult hypertensive’s in Saudi Arabia using a sample of four thousand, seven hundred and fifty eight patients. Questionnaire and observation were used as instruments to elicit information, while univariate analysis and logistic regression analysis were used for data analysis. The results of the study indicated that out of four thousand, seven hundred and nineteen subjects (99.2%), 542 (11.5%) subjects were known hypertensives. Hypertension was significantly associated with age, gender, geographical location, education, employment and over smoking. The study recommended that a comprehensive approach is needed to prevent, early detect and control the disease targeting the risk factors and predictors. This was to start early among students. The emphasis was on the importance of healthy lifestyle behaviour. All health care providers particularly in Primary Health Care Centers should check blood pressure for all clients properly and repeatedly.

Iyalomhe and Iyalomhe (2010) conducted cross-sectional study to determine hypertension related knowledge, attitudes and lifestyle practices among hypertensive patients in Auchi. The sample of one hundred and twenty patients was used and Simple random sampling technique was used to select the sample. Self structured questionnaire was used to gather information from the respondents. Data collected were analyzed using mean, percentages and Chi-Square. The findings revealed that sixty-six respondents (61%) knew hypertension to be high blood pressure, twentytwo (20 %) thought it meant excessive thinking and worrying while 57 (53%) claimed it was hereditary. A few (18%) knew some risk factors. Patients’ knowledge of hypertension in Auchi was low, their attitude to treatment was negative and their lifestyle practices grossly inadequate. The study recommended that efforts should be geared towards improving the knowledge level of hypertensive patients through adequate information, education and communication. There was need for government or its relevant agencies to initiate motivational strategies and interventions, such as free antihypertensive treatment in government hospitals or inclusion of all antihypertensive drugs in the national essential drug list so that they can be purchased at very subsidized rates.

Pankaji et al (2010) carried out a cross-sectional observational community based study on 887 patients to find out the prevalence of hypertension among adult population, and to determine the different risk factors and their association with hypertension. The actual population for the study was twenty four thousand, six hundred and seventy eight (24,678). The sample was selected through simple random sampling technique and the instrument for data collection was a predesigned and pre-tested profoma. Binary logistic regression was used for method of data analysis. Their findings showed that the prevalence of hypertension was 19.89 per cent. The result of the study indicated that prevalence of hypertension was increased with increasing age and it was more among the females (23.1 per cent). Their study suggested that preventive measures should be undertaken to reduce the burden of hypertension and its consequences.

Fakhri, Babaee, Naji and Zadesh (2010) conducted a study to assess the knowledge, awareness, attitudes and practice about hypertensive patients referring to public health care centers in Khoor and Biabanak, Iran. The study was a cross-sectional correlation descriptive survey. Two hundred and thirty four (234) patients were selected by simple random sampling technique. Questionnaire instrument was used to elicit information from the respondents. The methods of data analysis were means, standard deviation, and Pearson’s product moment correlation co-efficient. The result of the study revealed that there was significant relationship between awareness and knowledge, awareness and attitude, awareness and practice. There was no significant relationship between knowledge and attitude or knowledge or practice. There was significant relationship between attitude and practice of the patients. Patients had relatively high awareness, knowledge, attitude and practice about their disease but their hypertension was not still under control. Therefore, the study recommended that focus should be on more education about hypertension, and its management for physicians and other related health care providers.

Olusegun, Olusegun, Olufemi, Oladimeji, Ahmed, Segun, Olusogo and Olaleye (2011) carried out a study on two hundred and forty adult Nigerians to ascertain their knowledge, attitudes and practices to hypertension and their impact on compliance with antihypertensive drugs. The study adopted a cross-sectional survey design and a questionnaire was the instrument for data collection. The data were analyzed using percentages, means, standard deviation and Chi-Square. Their findings showed that only less than half (41%) of the patients showed knowledge of hypertension. However, 141 (58.8%) possessed good knowledge of their hypertensive drugs. The study also reported that knowledge of hypertension was better in women than in men (59.3% versus 40.7%). Compliance to medicine was good in 77 (32.1%) of the patients. The study also observed that majority of the patients still had a poor knowledge of their disease with a significant negative impact on compliance with medications. The study recommended that there was need to provide more effective education strategies directed towards the public in general and the patients in particular.

Ali and JEdoh (2011) conducted a study on Knowledge of hypertension among the staff of University of Ibadan, Nigeria. The study was a cross sectional study and the sample consisted of 556 subjects who were selected through simple random sampling technique and the instrument for data collection was a structured questionnaire. The method of data analysis was chi-square. The findings of the study showed that some members of staff demonstrated a relatively high level of knowledge about the complications associated with hypertension but knowledge about the risk factors and attitude towards the illness was still low. However, level of education significantly influences awareness of complications and knowledge of risk factors. The study recommends that on-job screening and educative programmes are fundamental ways to improve knowledge about hypertension at the work-place.

Myo, Thaworn, Janthila, Nongluk , Suchart , Wilawan , Phatchanan , Puangpet, Nara ,and Apiradee (2012) conducted a study to assess awareness and knowledge of hypertension in an atrisk population in the Karen ethnic rural community, Thasongyang, Thailand. The design for the study was cross sectional survey and the sample consisted of 298 residents. The instrument for data collection was a structured questionnaire and multi-regression analysis was used to analyze the data. The result of the study showed that people who were aware of hypertension were likely to be current smokers and those with primary school education were likely to be aware of hypertension than those who did not have primary school education. The study recommends that it is urgently necessary to promote awareness and health literacy among this ethnic group to prevent hypertension and associated cardiovascular diseases.

# CHAPTER THREE

### Research Methodology

### 3.1 Research Design

In order to achieve the objectives of the study, descriptive survey research design was adopted for the study. Nworgu, (2003) stated that this design is aimed at collecting data on, and describing in a systematic manner, the characteristics, features or facts about a given population. Ejifugha, (2004) also stated that this design permits the investigation of the current status of the phenomenon from a population in their natural setting.

This design was successfully employed by Iyalomhe and Iyalomhe (2010) in a related study when he surveyed hypertension related knowledge, attitudes and practices among hypertensive patients in Auchi community. This design was considered appropriate for use in the present study because it gave current information on the knowledge of risk factors and preventive measures of hypertension among patients in Auchi LGA of Edo state, Nigeria. This design was also relevant because only a few people considered to be representative of the population were studied.

**3.2 Area of the study**

This study was conducted in Auchi community in Etsako West local government of Edo state in the south south zone of Nigeria. The Area was choose because the inhabitants also undergo lots of stress which can predispose them to hypertension. Additionally, the diverse in culture play an important role in the knowledge of patients regarding hypertension. This location was picked for the study because of its peculiar mixed culture which in many ways has profound influence on patients health.

# 3.2 Population for the study

The population for the study consisted of all patients aged thirty five years and above in Auchi community in Etsako West local government of Edo state. Auchi community with an estimated population of Two thousand (2,000) patients (Bureau for statistics, 2006).

**3.3 Sample and sampling techniques**

The sample for the present study consisted of four hundred and thirty two (432) patients (191 males and 241 females). Multi-stage sampling procedure was employed to draw samples for the study. The procedure involved five stages. The first stage involved random sampling of six out of nine local government areas in in Auchi community in Etsako West local government of Edo state through balloting without replacement procedure. The second stage involved stratification of the six selected local government areas into urban and rural areas. This stratification resulted into three urban and three rural areas. The third stage involved simple random sampling of two autonomous communities each out of one hundred and twenty (120) autonomous communities from the six selected local government areas through balloting with replacement procedure (Bureau for Local Government and Chieftaincy Affairs, 2006). This gave a total of twelve (12) autonomous communities. The fourth stage involved drawing of two villages each out of the ninety six (96) existing villages from the selected autonomous communities using purposive sampling technique. This procedure provided a total of twenty four (24) villages (See Appendix D). Frankel and Wallen (2003) asserted that purposive sampling technique enables the researcher to use her personal judgment to select a sample that is believed to give the appropriate information of the population. The fifth stage involved systematic random selection of eighteen (18) households each from the twenty four selected villages. Thus, a total of four hundred and thirty two (432) households were selected from the autonomous communities using the Primary Health Care (PHC) numbering system of houses in the Local Government Areas. Therefore, in an interval of 1-30th households, one household was selected. This is in line with Anaekwe (2007) who stated that systematic sampling ensures that elements are drawn at specified intervals from a list containing all the elements of the population. One adult above the age of thirty five years and who was the first to be reached in the selected households constituted the sample. In a situation where there was no adult aged thirty five years and above in the household, the house was skipped. By this technique, four hundred and thirty two (432) patients were selected for the study. **3.4 Instrument for Data Collection**

The instrument for data collection was the researcher-designed structured questionnaire on Knowledge of Hypertension Among Patients otherwise called KOHAAQ (See Appendix E). The instrument comprised of 29 structured questions with multiple choice response options. The questionnaire was divided into five sections namely; A, B, C, D and E. Section A consisted four (4) items dealing with demographic variables (age, gender, location and level of education). Section B comprised of six (6) items on knowledge of the concept of hypertension. Section C consisted of three (3) items on knowledge of signs and symptoms of hypertension. Section D consisted of nine (9) items on the knowledge of risk factors of hypertension while section E consisted of seven (7) items on knowledge of preventive measures of hypertension. The respondents were required to place a thick (√) as it applies to them. The items in the questionnaire were organized to reflect the purpose of the study as well as research questions and hypotheses.

**3.5 Validity of the instrument.**

The KOHAA Questionnaire was given to five experts from the University of Nigeria, Nsukka, Department of Health and Physical Education. The experts were given copies of the drafted (KOHAAQ) which was accompanied with the purpose of the study, research questions and hypotheses. Their main task was to critically examine the questionnaire and determine whether the contents are in line with the objectives of the study. They were also required to check for the appropriateness of each item in terms of the language used. Their constructive criticisms and suggestions were used to produce the final version of the instrument that was used for the data collection for this study (See Appendix F).

**3.6 Reliability of the instrument.**

The Statistical Package for Social Science batch system was employed to compute the internal consistency of the instrument using Cronbach Alpha formular statistic. Uzoagulu (1998) affirmed that Cronbach Alpha statistics is utilized to establish the internal consistency of an instrument with polychotomously scored items. Hence, Cronbach Alpha formular statistic was utilized to establish internal consistency of the instrument which elicited data on knowledge of hypertension among patients. The reliability co-efficient of KOHAAQ was .76 and therefore adjudged reliable for this study (See Appendix G). This is in consonance with Ejifugha (2004) assertion that in a reliability test, if the reliability co-efficient of an instrument is .60 and above, the instrument should be deemed reliable enough to be used in a study.

**3.7 Method of Data Collection**

In order to gain access to and co-operation from the respondents, a letter of introduction from the Head of Department, Health and Physical Education, University of Nigeria was collected by the researcher introducing and explaining the purpose of the study (See Appendix H). The researcher presented the letter to the village leaders of all the selected villages. A brief letter assuring the respondents of the confidentiality was attached to each copy of the questionnaire. The researcher with the help of three research assistants (health educators) administered the instrument. This calibre of health educators was chosen as research assistants because of professional knowledge they have on the subject matter and on their indebt knowledge of the geographical terrain of in Auchi community in Etsako West local government, and the mastery of the native dialect. They were thoroughly briefed on the nature of data to be collected from the respondents. Furthermore, 432 copies of the questionnaire were distributed by the researcher and her assistants to the respondents in their respective households. At the end, 412 copies of the instrument were collected back on the spot, and this approach yielded a high return rate of 95.60 per cent.

**3.8 Method of Data Analysis**

Copies of the KOHAAQ returned were properly cross-checked for completeness of responses and this yielded a high return rate of 95.60 per cent. All the four copies not duly completed were discarded. Consequently, they were not utilized for data analysis. The responses on the well-completed copies of KRAPHQ were coded and data was analyzed using the Statistical Package for Social Science (SPSS) batch system .The raw scores were converted to percentages for the purpose of description and for answering the research questions. The results were illustrated using tables. In determining the level of knowledge of hypertension, Ashur’s (1977) modified version by Okafor’s (1997) criteria for describing level of knowledge were utilized. By these criteria, the following principle was set for decision making on level of knowledge of hypertension. Whenever less than 20 per cent of the respondent exhibited knowledge of the respective dimensions, such was considered “very low” level of knowledge. Furthermore, where 21-39 per cent of the respondents exhibited knowledge of the respective dimensions hypertension; such was regarded as “low” level of knowledge. On the other hand, where 40-59 per cent exhibited knowledge of the subject, such was interpreted to mean possession of “moderate” level of knowledge. Furthermore, 60-79 per cent indicated “high” level of knowledge while a score that is above 80 per cent was considered “very high” level of knowledge. Hypotheses one and four were tested using ANOVA while Hypotheses two and three were tested using student t-Test. All the hypotheses were tested at .05 level of significance and appropriate degrees of freedom (See Appendix I).

**CHAPTER FOUR**

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter presents and discusses the findings of the study on knowledge and perception of hypertension and it’s management among clients/patients in Auchi community in Etsako West local government of Edo State, Nigeria. A total of four hundred and thirty two copies of the questionnaire were distributed and four hundred and twelve were returned. Out of the 412 returned, four copies were discarded because they were not properly filled. The remaining 408 copies were used for the study and findings are hereby presented in tables below according to the research questions and hypotheses postulated for the study.

**Research question one.**

**What is the level of knowledge and perception of hypertension and its management possessed by hypertensive patients?**

**Table 1**

Level of knowledge and perception of hypertension and its management possessed by hypertensive patients **- KPMH (n=408)**

 (KPMH) 408 64.60 23.520

**Dimension**

**N**

*X*

**SD**

**Note:** 20 % = very low, 21-39 % = low, 40-59 % = moderate, 60-79 % = high, 80% and above = very high.

Data in Table 1 above show a mean score of 64.60 per cent which fell between 60 to 80 per cent. This implies that the level of Level of knowledge and perception of hypertension and its management possessed by hypertensive patients.

**Research question two.**

What are the levels of knowledge, perception, attitudes and life- style practices of hypertensive patients in Auchi?

**Table 2**

Level of knowledge, perception, attitudes and life- style practices of

Hypertensive patients in Auchi. **- KPALH (n= 408)**

**Dimension**

**N**

*X*

**SD**

**(KPALH)**  408 45.06 24.425

**Note:** 20 % = very low, 21-39 % = low, 40-59 % = moderate, 60-79 % = high, 80% and above = very high. Data in Table 2 above show a mean score of 45.06 per cent which fell between 40-59 per cent. This implies that the levels of knowledge, perception, attitudes and life- style practices of hypertensive patients in Auchi was moderate.

**Research question three.**

What are the barriers to effective management of hypertension?

Table 3: Mean Responses of 408 respondents on the barriers to effective management of hypertension.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **ITEM STATEMENT** | **X** | **S.D** | **REMARK** |
| 1 | Patient management time constraints | 65.7 | 25.9 | Accepted |
| 2 | Physician practice patterns | 61.9 | 22.1 | Accepted |
| 3 | Drug adverse effects | 68.3 | 26.2 | Accepted |
| 4 | The complexity of prescribing and/or monitoring existing drug regimens | 64.4 | 24.9 | Accepted |

**Note:** 20 % = very low, 21-39 % = low, 40-59 % = moderate, 60-79 % = high, 80% and above = very high.

 In table 3, item 1 with mean score of 65.7 accepted the statement that patient management time constraints is a barrier to effective management hypertension. Item 2 with mean score of 61.9 also accepted that physician practice patterns is a barrier to effective management hypertension. Item 3 with mean response of 68.3 accepted that the drug adverse effects is a barrier to effective management hypertension. Item 4 with mean response of 64.4 accepted that the complexity of prescribing and/or monitoring existing drug is a barrier to effective management hypertension. Item 1, 2, 3 and 4 all have mean scores above 60 - 79%. This indicates that respondents accepted in item 1 to 4 that these barriers affecting effective management of hypertension is high.

### CHAPTER FIVE

### Summary, Conclusions and Recommendations

# 5.1 Summary

The purpose of the study was to determine the knowledge and perception of hypertension and it’s management among clients/patients in Auchi community in Etsako West local government of Edo State. To achieve the purpose of the study, three objectives and three corresponding research questions were formulated. Literature pertinent to the study was reviewed under the following subheadings conceptual framework, theoretical framework, and empirical reviews on the knowledge and perception of hypertension and it’s management among clients/patients.

The descriptive survey research design was adopted for the study. The study population comprised of 2,000 Adults in Auchi community in Etsako West local government of Edo State as at the time of the study. The multi-stage sampling procedure was utilized to draw a sample of 432 patients.

The researcher designed questionnaire known as the Knowledge of Risk Factors and Preventive Measures of Hypertension questionnaire (KRAPHQ) which consisted of five sections was the instrument utilized for the collection of quantitative data. Five experts in the Department of Health and Physical Education, in the University validated the instrument. Split half method using Cronbach Alpha statistic was utilized to establish the internal consistency of the instrument with polychotomously response options. Percentages using Ashur’s (1977) criteria, slightly modified by Okafor’s (1997) for describing level of knowledge were utilized for answering the research questions on knowledge of hypertension.

The findings of the study indicated that;

1. Patients had high level **(***X* = 64.60**%)** of knowledge and perception of hypertension and its management possessed by hypertensive patients (KPMH).
2. Patients had moderate level **(***X* = 45.06**%**) of knowledge, perception, attitudes and life- style practices of hypertensive patients in Auchi (KPALH).
3. Patients had high level (*X* = 60-70%) of the barriers affecting effective management on hypertension.

**5.2 Conclusions**

 Based on the findings and discussions of the study, the following conclusions were attained.

1. Patients’ had high level of knowledge regarding the concept of hypertension (KCH).
2. Patients’ had moderate level of knowledge regarding the signs and symptoms of hypertension (KSSH).
3. Patients’ had high level of knowledge regarding risk factors of hypertension (KRFH).
4. Patients’ had high level of knowledge regarding preventive measures of hypertension

 (KPMH).

1. Patients aged 35- 45 and 45-55 years had high level of knowledge of the various dimensions of hypertension except that of signs and symptoms in which the level of knowledge was moderate level of knowledge according to age

**5.3** **Recommendations**

High level ofmortality and morbidity rates and other cardiovascular complications emanating from low knowledge of hypertension constitute major health problems in many parts of the world. There is a broad range of viable strategies for preventing the aforementioned health problem, some of which have been shown to be particularly effective.

 However, no single effective strategy on its own is likely to be sufficient to eliminate or reduce to the nearest minimum the health burden or low knowledge of hypertension in Auchi senatorial zone of Edo state. Instead, multiple concurrent approaches will be required which needs to be relevant to the particular place where they are implemented. Based on the findings, discussions and conclusions of the present study, the following recommendations were made:

* 1. Government and voluntary health agencies should sponsor intensive enlightenment campaign through print and electronic media in order to sustain the knowledge level of patients on hypertension and its complications.
	2. The government should as well make efforts to educate the masses through public enlightenment programmes, health talks, workshops, conference and seminars towards sensitizing patients on the dangers of hypertension.
	3. Non-governmental organizations such as religious organizations and social clubs as well as village meetings should organize seminars, health talks, conferences and workshops to members towards sensitizing and enlightening them on the health effects of hypertension and should as well educate them on those factors which can predispose them to the illnesses and ways to combat them.
	4. There should be efforts by health team to improve patients’ knowledge of hypertension and promote healthy attitudes and behaviour modification.
	5. There is need for Nigerian government to have hypertension programme on its health agenda for lifestyle modification to prevent hypertension.
	6. Health care providers ought to strengthen their measures by delivering appropriate awareness to elderly patients about risk factors and preventive measures of hypertension.

### References

Abanobi, O.C., & Ewuzie, M.A. (2000). *Health and illness: A behavioural approach*. Auchi: Mantle Publishers.

Abanobi, O.C., (2005). *Research methods of health and social science*. Auchi: Opinion Research and Commission Inc.

Abdulahi, A. A. & Amzat, J., (2011). Knowledge of hypertension among the staff of University of Ibadan, Nigeria: *Journal of Public Health and Epidemiology*, *3* (5), 204-209.

Adedoyin, O. T., Ojuawo, A. & Johnson, A. B. R., (2006). Knowledge, attitude and perception of patients on childhood Hypertension in a rural community in Kwara state, Nigeria. *The Nigerian Postgraduate Medical Journal,* *13* (3), 216-219.

Ademuwagun, Z. A., Ajala, J. A., Oke, E. A., Moronkola, O. A., & Jegede, A. S. (2003). *Health education and health promotion*: Ibadan: Royal People Nig. Ltd.

Agbazue, D. C., (1990). *Knowledge, attitude and practice among parents and relatives of sicklers attending the sickle cell clinic at institute of child health of University of Nigeria teaching hospital, Enugu.* Unpublished Thesis, University of Nigeria, Enugu Campus.

Akinkugbe, O. O., (2003). *Current epidemiology of hypertension in Nigeria*. Archives. *Ibadan Journal of Medicine*: 1: 3-5. Retrieved from www.korhek.org.

Albelum, M., (1987). *Acute liver disease and hepatitis*. U.S.A: William Publishing Co.

Ali, A. B., & JEdoh, A., (2011). Knowledge of hypertension among the staff of university of Ibadan, Nigeria. *Journal of Public Health and Epidemiology,* *3* (5), 204-209.

Anaekwe, M.C. (2007). *Basic Research methods and statistics in education and social sciences.* Onitsha: Sofie Publicity and Printers Ltd.

Andreoli, T. E, Carpenter, C. C., Grigs, R. C. & Loscalzo, J., (2004). *Hypertension: Cecil* *essentials of medicine* (3rd Ed). Pennsylvania: Saunders.

Anthony, J. V., Lauren, W. C., Madeline, C. M. & Philip, D. S. (2008). High blood pressure knowledge among primary care patients with known hypertension: A North Carolina Family Medicine Research Network study. *Journal of American Board Family Medicine,* *21* (4), 300-308.

Aquilla, C. (2008). *High blood pressure: Causes, prevention and treatment*. Italy :Word Press.

Aram, V. C., George, L. B., Henry, R. B., Williams C. C., Lee, A. G. & Joseph, L. I. (2003). Seventh Report on the Joint National Committee on Prevention, detection, evaluation and treatment of higher blood pressure: *Journal of American Heart* *Association (Hyperteens),* *7* (42), 1206 – 1252.

Ashur, S. S., (1977). An evaluation plan for the development and up-dating of nutrition curriculum of the upper elementary and preparatory levels in Jordan*. /VES/* *UNESCO International Conference on Nutrition Education*, *207* (2), 67-74.

Aubert, L., Bovet, P., Jean, P. G., Anne, R., Bernard, W., & Fred. P. (1998). Knowledge, attitudes and practices on hypertension: *Journal of American Heart Association,* *31* (5), 1136 – 1145.

Babbie, E. (2003). *The practice of social research* (10th Ed). Belmont: C.A Thompson.

Bagunyoke, F. A., (2003). Women health and development: the status of women in Nigeria. *WHO newsletter*, *3* (18), 44-57.

Bechara, C., (2011). *Adulthood*. Retrieved form http.//www.britannica.com/EBChecked/topic/6023/adulthood.

Bedworth, S., & Bedworth, N., (1978). *Concept of health education*. Canada: John Wiley and sons Incorporation.

Bovet, P., Rose, A.G., Gervasoni, J. P., Mkamba, M., Mtasiwa, D. W., Lengerler, S., Whiting, D., & Paccaud, F. (2003). Distribution of blood pressure, body mass index and smoking habits in urban populations of Dar asSalaam, Tanzania and association with socio-economic status. *International Journal of Epidemiology*, *31*(5), 240-247.

Brent, M. E., Daniel, T. L. & Cutter, N. E. (2003). Awareness, knowledge and attitudes of older Americans’ about high blood pressure: Implications for health care policy, education and research. *Arch Intern Med*, *163* (1), 681 – 687.

Brown, M. K. (1999). Health belief model: Overview: *Journal of Community and* *Family Health*, *32* (8), 227 – 239.

Bureau for statistics, (2006). *Edo state of Nigeria statistical year book*. Auchi: Edo state planning and economic development commission.

Bureau of local government and chieftaincy affairs, (2006). *Edo state of Nigeria statistical year book*. Auchi: Edo state planning and economic development commission.

Burt, V. L., Cutter, I. A,. & Higgins, M., (2004). Trends in the prevalence, awareness, in the adult United States population: Data from the Health examination surveys, 1960 -1991*. Journal of Hyperteens* (26), 60-69.

Camel, L., & Delen, B., (2006). *Myles textbook for midwives* (14th Ed). New York: Churchill Livingstone.

Castelli, W. P., (2004). Epidemiology of coronary heart disease. The Framingham Study.  *American Journal of Medicine* (76), 4 – 12.

Chafetz, P. K. (2011). *Stages of adulthood*. Accessed from http://www.paulchafetz.com/stages-of -adulthood.html.

Chavez, M. L., (2000). *Knowledge, attitude and practices on hypertension of patients: An* *interventional study by trained volunteer health workers in Barangay Militar*, *Tukuran Zamboanga Del Sur*. Zamboanga Medical School Foundation.

Chhabra, M. K., Lal, A., & Sharma, K. K., (2002). Status of lifestyle modifications in hypertension: *Journal of Indian Medical Association* 99 (6) 504 – 508.

Chris, L., (2009). *Different types of hypertension*. Retrieved from http://www.everydayhealth.com/health-center/high-bloob-pressure. Accessed on 03/02/2012.

Cihangir, E., Arif, H., Orhan, D., & Murat, T., (2008). Prevalence of pre-hypertension and hypertension and associated risk factors among Turkish Patients: Trabzon Hypertension Study. *Turkish Journal of Public* Health, *31* (1), 47 – 58.

Claudia, B. C., Jose, P. C., Martin, J. F., Luiz, A. C., & Godoy, R. P., (2008). Prevalence and Socio-demographic factors in a hypertensive population in Sao Paulo, Brazil. *Ara* *Bras Cardiology Journal,* *9* (1), 29 -33.

Declemente, J., (1984). Adolescent and AIDS: A Survey of knowledge and attitude about AIDS in San-Francisco: *American Journal of Public Health,* *72* (12), 89 – 101.

Debar, K. A., (2004). A review of current health education theories. *Health Promotion* *Journal,* *2*

(1), 74 – 80.

Derakhshan, E., Shahin, S., Fatema, D., Babak, S., Roya, D. & Hamid, R. A., (2006). The knowledge of the pregnancy induced hypertension in Iranian pregnant women and the effect of a simple educational interventional measure. *International Medical Journal,* *5* (1), 258266.

Forman, J., Meir, W., & Curhan, Z., (2009). Diet and lifestyle risk factors associated with incident hypertension in women. *Journal of American Medical Association*, *302* (4), 401-411.

Frankel, J. Y., & Wallen, N. E., (2003). *How to design and evaluate research in education* (5th ed). New york: McGrawhill group of companies.

Gaudemaris, R. D., Lang, T., Chatellier, G., Labari, L., Lauwers, C. V., Maitre. A., & Diene, E., (2002). Socio-economic inequalities in hypertension prevalence and care. *The IHPAI Study,* *39* (6), 1119 – 1125.

Hamburg, C., & Russell, M. A., (2000). Drug induced Liver Disease. Arch. *Intermed* 115-128.

Hamdan, N. A., Saeed, A., Kutbi, A., Choudhry, A. J., & Nooh, R., (2010). Characteristics, risk factors and treatment practices of known adult hypertensive patients in Saudi Arabia: *International Journal f Hypertension*, *10* (2), 4061 -4075.

Hornby, A. S., (2001). *Oxford advanced learners dictionary of current english*. New york: Oxford University Press.

Pankaj, K. M., Amal, K. S., Chitra, C., Sarmila, M., Nirmalya, M., Jadab, C. S., Debadatta, C., & Sau, M., (2010). Burden of hypertension and its risk factors in an urban community of India: Are we aware and concerned? *Sudanese Journal of Public* *Health*, *5*(3), 130-135.

Parivash, N., Diane, K. W., Mark, E. & Alice, M. H., (1994). Knowledge of risk factors and risk behaviours related to coronary health disease among blue and white collar males. *Journal of Public Health Policy*. *15*(4), 443-459.

Payne, W. A., & Hahn, D. B., (1995). *Understanding your health.* St Loius: times mirror college publishers.

Philips, K., (1991). *The Primary Prevention of AIDS*-In M. Phi’s & K.K Philips (eds). *The Psychology of Health: An Introduction*. London: Rutledge Publication Company.

**RESEARCH QUESTIONNAIRE**

### Knowledge of Hypertension (KOHAA) Questionnaire

**Section A:** **Bio- Data (socio-demographic variables)**

Please tick ( ) in the spaces provided to the option that applies to you.

1. Which of the following age brackets best explains your age?
	1. 35-45
	2. 46-55 (c) 56-65 (d) 65 and above
2. What is your gender?
	1. Male
	2. Female

1. Where is your location in Auchi community?
	1. Urban (b) Rural
2. What is your level of education?
	1. No formal education
	2. Primary education
	3. Secondary education

 (d)Tertiary/university education

**Instruction:** Please tick correctly on the options A-D for each of the following knowledge statements;

**Section B:** **knowledge and perception of hypertension and its management possessed by hypertensive patients**

1. Which of the under listed is the definition of hypertension?
2. Persistent blood pressure in the arteries above 250/180 mmhg [ ]
3. Persistent raised levels of blood pressure above 120/80 mmhg [ ]
4. Persistent raised blood pressure greater than 60/30 mmhg [ ]
5. Persistent blood pressure above 80/300 [ ]

**6.** Presently, hypertension is known to be……………..

1. Silent killer disease [ ]
2. Good disease [ ]
3. Seasonal disease [ ]
4. Air borne disease [ ]

**7.** Which of the under listed is associated with hypertension?

1. An infectious disease [ ]
2. A non-infectious disease [ ]
3. Insect borne disease [ ]

 (d)Air-borne disease [ ]

1. Which of the under listed instruments is used for measuring blood pressure?
	1. Weighing scale [ ]
	2. Thermometer [ ]
	3. Sphygmomanometer [ ]
	4. Test tube [ ]
2. In which of the following body systems does hypertension occur?
	1. Circulatory system [ ]
	2. Digestive system [ ]
	3. Respiratory system [ ]
	4. Nervous system [ ]

1. Which of the following diseases is also known as hypertension?
	1. Hypotension [ ]
	2. Cancer [ ]
	3. High blood pressure [ ]
	4. Diabetics [ ]

**Section C: Knowledge of signs and symptoms of hypertension**

1. Signs and symptoms of hypertension include the following EXCEPT
2. Headache [ ]
3. Nose bleeds [ ]
4. Faintness [ ]
5. Eclampsia [ ]
6. ONE of these is a sign and symptom of hypertension
	1. Dizziness [ ]
	2. Running stomach [ ]
	3. Boils [ ]
	4. Cancer [ ]
7. The following are signs and symptoms of hypertension EXCEPT
	1. Nausea [ ]
	2. Vision problem [ ]
	3. Increase in blood pressure above 140/90 mmhg [ ]
	4. Stiffness of the neck

**Section D: The knowledge, perception, attitudes and life- style practices of hypertensive patients and knowledge of risk factors of hypertension**

1. Which of the following can expose adults to hypertension disease?
2. Excessive salt intake [ ]
3. Regular medical check up [ ]
4. Healthy lifestyle [ ]
5. Rest and relaxation [ ]

**15.** The prevalence of hypertension is dependent on ONE of the following

1. Mentality [ ]
2. Age [ ]
3. Religion [ ]
4. Marital status [ ]

**16.** Which of these statements is true about risk factors of hypertension?

 (a) Consumption of excess salt can predispose adults to hypertension [ ] (b) Fatty foods do not affect blood cholesterol [ ]

1. Excessive salt intake is good to the body [ ]
2. All of the above [ ]

**17.** The under listed can predispose adults hypertension disease EXCEPT

1. Lack of physical exercise [ ]
2. Excessive thinking [ ]
3. Stress [ ]
4. Reduction in excessive alcohol intake [ ]

**18.** Risk factors of hypertension include the following EXCEPT

1. Tobacco and cigarette smoking [ ]
2. Sedentary lifestyle [ ]
3. Excessive salt consumption [ ]
4. Regular exercise [ ]

**19**. Lifestyle factors associated with hypertension include ONE of the following

1. Going out at night [ ]
2. Nutrition [ ]
3. Dressing gorgeously [ ]
4. Going out at night [ ]

**20**. ONE of these can predispose adults to hypertension disease

1. Oral contraceptives taken during pregnancy [ ]
2. Fashion [ ]
3. Foods with low salt intake [ ]
4. Medical check-up [ ]

**21**. Excessive alcohol intake can lead adults to ONE of these diseases

1. Sickle cell anemia [ ]
2. Arthritis [ ]
3. Hypertension [ ]
4. Malaria [ ]

**22**. Which of these statements is true about hypertension?

1. Excessive weight gain increases risk of hypertension [ ]
2. Excessive weight gain reduces risk of hypertension [ ]
3. Weight gain is a healthy lifestyle approach to prevent hypertension [ ]
4. Deposition of fat in the body has no effect on hypertension [ ]

**Section E:** **The barriers to effective management of hypertension and** **knowledge of preventive measures of hypertension**

 **23**. Which of these statements is true about preventive measures of hypertension?

1. Hypertension is a preventable disease [ ]
2. Hypertension is a curable disease [ ]
3. Hypertension can not be managed [ ]
4. Hypertension is not a preventable disease [ ]

**24.** Which of the following will help in the prevention of hypertension?

1. Self medication [ ]
2. Being overweight [ ]
3. Tobacco and cigarette smoking [ ]
4. Avoidance of foods with high cholesterol content [ ]

**25**. ONE of these factors will help in the prevention of hypertension

1. Stress [ ]
2. Reduction in excessive salt consumption [ ]
3. Tobacco and cigarette smoking [ ]
4. Unhealthy lifestyle [ ]

**26**. The most effective way of preventing hypertension is through ONE of the following measures

1. Modification of lifestyle [ ]
2. Going to market [ ]
3. Engagement in unhealthy lifestyle [ ]
4. Embarking on a long journey [ ]

**27**. Hypertension can be prevented through ONE of the following

1. Weight gain [ ]
2. Avoidance of tobacco and cigarette smoking [ ]
3. Consumption of foods with high cholesterol content [ ]
4. Sedentary lifestyle [ ]

**28**. In the prevention of hypertension, an adult requires knowledge on the following EXCEPT

1. Physical activity [ ]
2. Nutrition [ ]
3. Stress management [ ]
4. Caesarian section [ ]

**29**. Which of these statements is correct about preventive measure of hypertension?

1. Dietary approaches to hypertension do no good to adults [ ]
2. Dietary approaches can prevent hypertension [ ]
3. Dietary approaches to hypertension is a healthy lifestyle [ ]
4. Dietary approaches to stop hypertension expose adults to cardiovascular diseases [ ].