ASSESSMENT OF KNOWLEDGE AND COMPLIANCE TO ANTI-HYPERTENSIVE PRESCRIPTION PATTERN AMONG OUT-PATIENTS IN A TERTIARY HEALTHCARE FACILITY IN EDO STATE.

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DECEMBER , 2025

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PRESENTED TO

FACULTY OF NURSING SCIENCES
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IN PARTIAL FULFILLMENT OF THE AWARD OF THE DEGREE OF BACHELOR OF NURSING SCIENCE FACULTY OF NURSING SCIENCES, UNIVERSITY OF BENIN, BENIN CITY.

DECEMBER, 2025

DECLARATION

This is to declare that this research project titled **ASSESSMENT OF KNOWLEDGE AND COMPLIANCE TO ANTI-HYPERTENSIVE PRESCRIPTION PATTERN AMONG OUT-PATIENTS IN A TERTIARY HEALTHCARE FACILITY IN EDO STATE.** was carried out by **EKPETI SANDRA** is solely the result of my work except where acknowledged as being derived from other person(s) or resources.

MATRICULATION NUMBER: _____

FACULTY OF NURSING SCIENCE, UNIVERSITY OF BENIN, BENIN CITY

SIGNATURE: _____

DATE: _____

CERTIFICATION

This is to certify that this project **ASSESSMENT OF KNOWLEDGE AND COMPLIANCE TO ANTI-HYPERTENSIVE PRESCRIPTION PATTERN AMONG OUT-PATIENTS IN A TERTIARY HEALTHCARE FACILITY IN EDO STATE,** was carried out by **EKPETI SANDRA,** MATRICULATION NUMBER: **BMS1902129** under the supervision of **PROF. F.U OKAFOR.**

PROF. F.U OKAFOR **DATE**

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Head of Department of
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EXTERNAL EXAMINAL **DATE**

DEDICATION

This research study is dedicated to God Almighty, the master of the Day of Judgment whose mercy, grace, strength, wisdom, love, guidance and protection has kept me through my period of training and also enabling me to carry out and complete this research work.

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ABSTRACT

Hypertension is diagnosed if the blood pressure is elevated on at least three different blood pressure measurements taken on two or more office visits. Blood pressure is an indication of the amount of work that the heart has to do to pump blood around the body. Hypertension is a major risk factor for cardiovascular events and mortality. This research focused on the assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility (University of Benin Teaching Hospital) in Edo state. A total of 254 questionnaires were administered, and 251 were returned, representing a response rate of 98.8%. The study adopted descriptive design. A convenient sampling technique. The results showed that the overall level of knowledge regarding anti-hypertensive prescription patterns among the respondents showed that the majority of the respondents (42.6%) had a fair level of knowledge, followed by those with poor knowledge (29.1%) and those with good knowledge (28.3%). Also, the overall compliance level of respondents to anti-hypertensive prescriptions showed that the majority of the respondents (46.6%) had a fair level of compliance, followed by those with poor compliance (28.7%) and those with good compliance (24.7%). Furthermore, the findings revealed that the factors influencing compliance to anti-hypertensive prescriptions were found to have a high influence on compliance. The most influential factor was financial constraints, followed by busy schedules, too many medications, lack of information about the disease, and side effects from medication.

KNOWLEDGE: *Anti-hypertensive prescription, Blood pressure control, Hypertension, Out-patients,*

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Hypertension is diagnosed if the blood pressure is elevated on at least three different blood pressure measurements taken on two or more office visits (Chobanian et al., 2023; Aronow et al., 2021). The blood pressure should be taken after the patient is sitting comfortably for at least 5minutes, with the back supported, feet on the floor, arm supported in the horizontal position on a desk or table, with the middle of the blood pressure cuff on the patient's upper arm at the level of the right atrium (the midpoint of the sternum) (Aronow et al., 2021; Weir, 2024). Blood pressure is an indication of the amount of work that the heart has to do to pump blood around the body. Hypertension is a major risk factor for cardiovascular events and mortality (Chobanian et al., 2023; Aronow et al., 2021; Mancia et al., 2023). Hypertension occurs in 69% of individuals with first myocardial infarction, 77% of individuals with first stroke, 74% of individuals with heart failure, and 60% of individuals with peripheral arterial disease (Aronow et al., 2024; Wright & Williamson, 2020). Hypertension has been diagnosed if the systolic blood pressure is 140 mmHg or higher or if the diastolic blood pressure is 90 mmHg or higher (Chobanian et al., 2023; Mancia et al., 2023).

Pseudohypertension is a falsely increased systolic blood pressure caused by markedly atherosclerotic arteries which do not collapse during inflation of the blood pressure cuff (Aronow et al., 2021; Zweifler & Shahab, 2023). Pseudohypertension should be suspected in older persons with refractory hypertension, no target organ damage or cardiovascular disease, and symptoms of overmedication (Aronow et al., 2021). Diagnosis of pseudohypertension should be confirmed by direct intra-arterial measurement of blood pressure (Spence, 2022). White coat hypertension is diagnosed if a patient not receiving antihypertensive medication has

a persistently high office blood pressure with a normal; ambulatory blood pressure or home blood pressure (Chobanian et al., 2023; Parati et al., 2020). Masked hypertension is diagnosed if the patient has a normal office blood pressure measurement but increased ambulatory blood pressure monitoring or home blood pressure measurements that are consistently increased (Banegas et al., 2024).

In most patients with hypertension, a combination of two or more drugs is required to reach the target BP goal (Chobanian et al., 2023). Medications commonly used in the treatment of hypertension include: calcium channel-blockers (CCBs), beta-blockers, diuretics, angiotensin-converting enzymes inhibitors (ACEI) and angiotensin receptors blockers (ARBs) (Chobanian et al., 2023). The renin-angiotensin system (RAS) blockers, ACEIs and ARBs are known to be associated with an increase in serum creatinine levels. An increase of up to 35% from the baseline level is, however, acceptable unless there is associated hyperkalaemia. Anti-hypertensive medications that are associated with worsening of some co-morbid conditions of hypertension should be avoided in patients with such conditions. Beta-blockers should be avoided in patients with reactive airways or asthma and in patients with heart blocks. The RAS blockers should be avoided in pregnant women or women who are likely to be pregnant while on these medications (Flack et al., 2020).

Blood pressure (BP) does not stay the same all the time. It changes to meet your body's needs and it is normal for your blood pressure to go up and down throughout the day. It is affected by various factors, including body position, breathing, emotional state, exercise and sleep. Blood pressure can also become elevated because of anxiety. This can lead to 'white coat hypertension,' where anxiety in the doctor's surgery causes a reading that is higher than normal. Therefore, to get a true picture of the patient's blood pressure, ambulatory monitoring is necessary. Ideally, this should be carried out in a discrete manner. Self-monitoring of blood

pressure at home is very helpful in the diagnosis and management of hypertension (McManus et al., 2024; Agarwal et al., 2021). At 1-year follow-up of 450 patients with hypertension at high risk of cardiovascular disease, compared with a control group, self-monitoring of blood pressure with self-titration of antihypertensive medication reduced the blood pressure 8.8/3.1 mmHg (McManus et al., 2024). Thus, this has prompted the researcher to carry out this study on assessment of anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

1.2 Statement of the Problem

Hypertension is a disease of global public health importance. The disease affects an estimated one billion people worldwide. Hypertension accounts for about 10.4 million deaths in 2022 (Chobanian et al., 2023). This condition is mostly asymptomatic and is best detected through population screening or opportunistic measurement of blood pressure (BP) during an encounter with patients at a hospital visit. Hypertension is more common among Blacks compared to Caucasians (Chobanian et al., 2023; Flack et al., 2020). It is also noted that Blacks tend to develop hypertension at an earlier age and develop complications of hypertension more commonly compared to other races (Chobanian et al., 2023; Ahluwalia & Bangalore, 2022). The reason for this is not clear, but racial differences in renal physiology and socio-economic factors have been suggested as possible causes of this difference.

The relationship between blood pressure and cardiovascular and renal complications is continuous, thus making the cut-off values for hypertension arbitrary. The prevalence of hypertension increases with the ageing of individuals (Chobanian et al., 2023). The estimated prevalence of hypertension in urban settings of Nigeria is 30.6% (Adeloye et al., 2020). It is reported by some studies that the reduction of BP when antihypertensive medications are use is associated with a reduction in the rates of cardiovascular diseases (CVDs) among patients

with hypertension (Ahluwalia & Bangalore, 2022; Vidal-Petiot et al., 2023). The main goal of treating hypertension is to lower the morbidity and mortalities associated with renal and cardiovascular complications of the disease (Chobanian et al., 2023; Vidal-Petiot et al., 2023). The number of hypertensive patients that do not have their blood pressure at the goal target for control is increasing worldwide (Ikeda et al., 2024). It is, therefore, important to adopt strategies on how to improve control of hypertension to the goal of the treatment target (Ikeda et al., 2024).

Blood pressure is one of the most fundamental and important biological indicators, and it provides information about any diseases of the cardiovascular system. Conversely, overestimating true blood pressure by 5mmHg would lead to inappropriate treatment with antihypertensive medications, with attendant exposure to adverse drug effects, the psychological effects of misdiagnosis, and unnecessary cost (James & Gerber, 2023). Older patients should also be evaluated for postprandial hypotension, which is especially common in frail older patients taking multiple antihypertensive and psychotropic drugs (Aronow et al., 2023). The justification for this study is that despite the availability of guidelines for the management of hypertension and strict adherence to anti-hypertensive prescription, a wide variation still exists among hypertensive patients in the choice of antihypertensive medications for BP control especially with prescription compliance which was observed by the researcher during her clinical learning experience. This study aims to review the prescription pattern of antihypertensive medications assess the level of blood pressure control among outpatients attending a tertiary healthcare facility in Edo state.

1.3 Objectives of the Study

The main objective of this study is assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

The specific objectives of this study are to;

1. Assess the level of knowledge on anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.
2. Assess the level of compliance to anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.
3. Determine the factors that influences compliance to anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

1.4 Research Questions

1. What is the level of knowledge on anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state ?
2. What is the level of compliance to anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state ?
3. What are the factors that influences compliance to anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state ?

1.5 Hypothesis of the Study

To aid the completion of the study, the following research hypotheses were formulated;

H1: There is no significant difference between sociodemographic data (age, gender, level of education) and knowledge anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

H2: There is no significant difference between the level of knowledge and compliance to anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

1.6 Significance of the Study

The significance of the study lies in its potential to address assessment of anti-hypertensive prescription on blood pressure control among out-patients in University of Benin Teaching Hospital, Benin city, Edo state, and its broader implications for public health and patient's well-being. The study holds the following key significance:

Advancing Patients' Health: By investigating the anti-hypertensive prescription on blood pressure control among out-patients, the study can identify specific areas where awareness, education and adherence are lacking. Addressing these gaps can empower patients with essential information to take charge of their health, promoting proactive behaviours and preventive measures towards its health complications. The study will help the nurse to develop measures that will aid the patient in coping and adhering to various management strategies.

Contribution to Public Health: The result of this study will also help healthcare providers to give education and awareness on the management of hypertension. In addition hypertensive patients and family members will realize the benefit of pharmacological management for the successful control of the disease and its complication. This study will help the society to encourage patients with hypertension to adhere to anti-hypertensive prescription in blood pressure control in order to reduce the adverse effects of hypertension.

Healthcare Policy and Planning: The result of this current study could be useful as a base line in implementing a community based awareness program which will promote the importance of pharmacological management in the prevention of health complications, and control of non-communicable diseases, particularly hypertension. Therefore it is helpful for all stakeholders that involves in this areas i.e patients, caregivers, healthcare providers, health institution and policy makers (NGO, WHO etc).

Empowering Hospital Healthcare Services: Furthermore, University of Benin Teaching Hospital (UBTH), can use the result from this study for improving its services for hypertensive patients. It also helps to encourage good services of the clinics and modify the possible problems of between hospital mission and actual services given for follow up on hypertensive patients. The hospital management can use this result to expand its services especially, this can help the hospital and hypertension association as feedback for the services they are giving to the patients and clients.

Academic Contribution: Findings from this study will contribute to the development of educational materials and programs that focus on increasing awareness and understanding of the importance of management of hypertension, and also it will help the hypertensive patient to be more aware and to know the importance of compliance to anti-hypertensive prescription regimen in the management of the high blood pressure. It will add to the existing body of knowledge in nursing and helps as basis for further research.

1.7 Scope of the Study

The scope of this research is the assessment of anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state. The selected tertiary healthcare facility in Edo state that was used for this study is the University of Benin Teaching Hospital, Benin city, Edo state. This study was equally delimited to the stated three(3) research objectives, research questions and two(2) research hypotheses.

1.8 Operational Definition of Terms

Blood Pressure: Blood pressure is the pressure of blood on the walls of your arteries as your heart pumps blood around your body. It is an indication of the amount of work that the heart has to do to pump blood around the body.

Knowledge: In the context of this study, it refers to the participants' understanding regarding meaning, mode of administration, types and effects of anti-hypertensive prescription as used in the control of high blood pressure.

Anti-hypertensive Prescription: These are drugs prescribed by a healthcare provider to a hypertensive patient in the control of high blood pressure.

Outpatient: These are participants who were once admitted in the University of Benin Teaching Hospital (UBTH) as patients and were being manage for high blood pressure but have now being discharge home to visit the hospital on scheduled appointment for follow up care.

Compliance: The degree to which patients with hypertension follow their prescribed anti-hypertensive drugs as part of management of hypertension as recommended by their healthcare providers.

CHAPTER TWO

LITERATURE REVIEW

This chapter deals with the review of related literature. The review of related literature was discussed under the following subheadings: Conceptual review, Theoretical framework and Application to the study, Empirical review and Summary of Literatures.

2.1 Conceptual Review

Hypertension has become an important health problem. The incidence and prevalence of hypertension continue to increase around the world (Bosworth et al., 2022; Chen et al., 2021). Currently, 1.5 billion people are affected with high blood pressure globally (Chockalingam, 2023). There are several effects as a result of hypertension. High blood pressure is a disease of cardiovascular system and is a major modifiable risk factor for coronary heart disease, congestive heart failure, stroke, renal failure, renal dysfunction and eye problems (Black & Hawks, 2020; Chockalingam, 2023; Ong et al., 2022). Hypertension is linked with 70% of strokes and 60.5% of kidney diseases and increases the risk of vascular dementia. Therefore, once hypertension has been identified, the patients should be monitored for their blood pressure at regular intervals, in order to know the blood pressure is in control or not and to take necessary action (Black & Hawks, 2020; Smeltzer & Bare, 2024). Even though prevention and control of hypertension has been reported as an important public health issue, finding a strategy for controlling high blood pressure has been worldwide problem (Chen et al., 2021). It has been well recognized that one of several factors is the patient's lack of knowledge related to self-management in terms of adherence to pharmacological treatments (such as antihypertensive drug use), and modification of lifestyles (such as diet control, exercise). Poor control of blood pressure is the greatest cause of increasing morbidity and mortality of people with hypertension (Black & Hawks, 2020; Bosworth et al., 2022).

2.1.1 Concept of Hypertension

Blood pressure is the pressure or force of blood within the arteries' wall, when passing or circulation of blood throughout the body. Average blood pressure is 100/70 - 120/80 mmHg. It is primarily produced by the contraction of the heart muscle. The first number, 100-120, is called the systolic blood pressure. It represents the pressure that the blood exerts on the walls of the arteries while the heart is contracting. The second number, 70-80, is called the diastolic blood pressure. It refers to the pressure that the blood exerts on the walls of the arteries when the heart is resting and filling with blood (Hengwattana, 2021). Persistent elevation of blood pressure is called hypertension. Hypertension is often an asymptomatic disorder characterized by persistent elevation of the systolic blood pressure at a level of 140mmHg or higher and diastolic blood pressure at a level of 90mmHg or higher (Black & Hawks, 2020; Smeltzer & Bare, 2024). When persistent, progressive increases in peripheral resistance continue, blood pressure remains elevated. In order to diagnose hypertension, a person has to take a rest for at least 5minutes, and check the blood pressure separately by at least 2minutes using proper cuff instruments and methods. The diagnosing of high blood pressure is based on the average of two or more readings taken at each of two or more visits after an initial screening. There is evidence that poorly controlled hypertension could lead to cardiovascular and renal complications (Danaei et al., 2024).

Hypertension self-care activities are important in the management of hypertension as recommended by the Joint National Committee on Prevention, Detection, Evaluation and Treatment of hypertension (US Department of Health and Human Services, 2024). Medication adherence alone has proven not to be sufficient in the optimal management of blood pressure (Svetkey et al., 2023). Recent studies have shown that patients who take their medications without engaging in dietary changes or physical activity have no higher rate of improved blood pressure than those who engaged in dietary changes and physical activities without taking their

medications as at when due (Weir et al., 2020). Also, studies have proved that adherence to hypertension self-care activities could lead to optimal control of blood pressure, increased efficacy of antihypertensive medications, reduced complications, morbidity and mortality (Weber et al., 2024). This can help health professionals develop an intervention to help achieve a better control of hypertension.

2.1.2 Types and causes of hypertension

Hypertension can be categorized into two types (Dunphy & Winland-Brown, 2021; Smeltzer & Bare, 2024).

i. **Primary Hypertension:** Primary hypertension is known as essential or idiopathic hypertension. More than 95percent of patients have primary hypertension, with no identifiable cause. Primary hypertension results from the interplay of multiple genetic and environmental factors, including lifestyle influences.

ii. **Secondary Hypertension:** It was found that less than 5 percent of patients have secondary hypertension. The cause of elevated blood pressure can be identified, such as narrowing of the renal arteries, renal parenchymal disease, certain medications, pregnancy, and coarctation of the aorta.

The precise cause for most cases of hypertension has not been identified. However, it is understood that hypertension is a multifactorial condition. Hypertension is the result of an increased sympathetic nervous system activity related to dysfunction of the autonomic nervous system. This leads to an increased renal absorption of sodium chloride, and water related to a genetic variation in the pathways by which the kidneys handle sodium (Esler, 2020). Increased activity of the renin-angiotensin-aldosteron system also results in expansion of extracellular fluid volume and increased systemic vascular resistance (Manrique et al., 2024). Structural and

functional changes in the heart and blood vessels contribute to increases in blood pressure with the age.

2.1.3 Epidemiology of Hypertension

Hypertension has become an important health problem. The incidence and prevalence of hypertension continue to increase around the world (Bosworth et al., 2022; Chen et al., 2021). Currently, 1.5 billion people are affected with high blood pressure globally (Chockalingam, 2023). There are several effects as a result of hypertension. High blood pressure is a disease of cardiovascular system and is a major modifiable risk factor for coronary heart disease, congestive heart failure, stroke, renal failure, renal dysfunction and eye problems. Hypertension is linked with 70% of strokes and 60.5% of kidney diseases and increases the risk of vascular dementia. Therefore, once hypertension has been identified, the patients should be monitored for their blood pressure at regular intervals, in order to know the blood pressure is in control or not and to take necessary action (Black & Hawks, 2020; Smeltzer & Bare, 2024). In Nigeria, hypertension has become an important health problem. The burden of hypertension has been on the increase because of the increasing adult population and change in lifestyles of Nigerians (Ogah et al., 2022). During the last two decades, there has been a rise in the number of prevalence studies regarding hypertension and other non-communicable diseases (Ekpenyong et al., 2022).

In 2021, the prevalence of hypertension was reported to range from 6.2% to 48.9% in males and 10% to 47.3% in females using a BP benchmark of 140/90 mmHg (Ulasi et al., 2021). The overall crude prevalence was reported to be 2.1% to 47.2% in Nigerian adults aged 18 years and above. Studies also have shown a higher prevalence in urban areas (17.5% to 51.6%) compared to rural areas (4.6% to 43%) (Oluyombo et al., 2024). More than half of adults who have hypertension in Nigeria have their blood pressure uncontrolled. Poor control of blood

pressure is the greatest cause of increasing morbidity and mortality of people with hypertension (Black & Hawks, 2020; Bosworth et al., 2022). Several surveys from many countries around the world pointed out that public awareness about blood pressure levels was poor (Chockalingam, 2023). Although multiple treatments are available for hypertensive control, it was reported that even in the developed countries, such as the United States of America, only one third of patients with hypertension had their blood pressure well controlled (Bosworth et al., 2023).

2.1.4 Classification of High blood pressure for Adults and the Elderly

High blood pressure for adult and elder patients can be classified into 3 categories based on the level of systolic or diastolic blood pressure (Smeltzer & Bare, 2024). The classifications in the table below shows the people who are not taking antihypertensive (blood pressure-lowering) drugs and are not acutely ill. When a person's systolic and diastolic pressures fall into different categories, the higher category is used to classify the blood pressure status.

Table 2.1: Classification of High Blood Pressure for Adults and Elders

Category of Hypertension	Systolic (mm Hg)	Diastolic (mm Hg)
Stage 1	140-159	90-99
Stage 2	160-179	100-109
Stage 3	≥ 180	≥ 110
Hypertensive crisis	>210	>120

Although the precise cause for most cases of hypertension cannot be identified, it is understood that hypertension is a multifactorial condition. There are several major non-modifiable risk factors, such as family history, age, gender and ethnicity. Mortality statistics indicate that the death rates for adult black women are highest, and modifiable risk factors, including stress,

obesity, sodium consumption and substance abuse contribute to the development of hypertension (Black & Hawks, 2020).

2.1.5 Clinical manifestations

Hypertension is sometimes called “the silent killer” because people who have it are often symptom-free. In the early stages of development of hypertension, no clinical manifestations are noted by clients or practitioners. Prolonged blood pressure damages blood vessels in the target organ such as the heart, kidneys, brain, and eyes. High blood pressure is a major risk factor for heart disease, congestive heart failure, stroke, impaired vision, and kidney disease (Smeltzer & Bare, 2024). Clinical manifestations will become apparent, and clients will eventually complaint about persistent headaches, fatigue, dizziness, palpitations, flushing, blurred or double vision, or epistaxis. Black and Hawks (2020) described the signs and symptoms in hypertensive patients as follows:

i. **Headache:** Most people have experienced headaches from time to time. However, headache is one of the effects of hypertension and does signal the need to get it checked. There is a specific kind of headache and neck-ache when blood pressure is higher than normal.

ii. **Nosebleeds:** Having nosebleeds with no apparent reason can be an indication that a person’s blood pressure has gone higher for one reason or another. Nosebleeds that occur without any regularity are difficult to stop and it is the time to get the blood pressure checked. A nosebleed is a usually side effect of high blood pressure.

iii. **Blurred vision**: Blurred vision can also be a sign of high blood pressure. If a person’s vision becomes blurred, it should be checked out very quickly.

iv. **Dizziness:** Dizziness is one of the common complaints of people whose blood pressure is high. Even low blood pressure can be accompanied by dizziness. If dizziness is experienced it is wise, to get a check-up by a health-care provider.

v. **Palpitations:** There are many different types of palpitations. Palpitations can be happening due to heart problems, nervousness, and/or people worrying about themselves which only make patients more nervous and so the palpitations get worst. High blood pressure is one of the reasons for experiencing palpitations.

vi. **Tinnitus:** Ringing in the ear, which is also known as tinnitus, is seen as one of the symptoms of hypertension.

2.1.6 Management of Hypertension

Hypertension is a chronic condition and leads to serious complications if the person cannot control the blood pressure. Hypertensive management consists of 2 main parts, pharmacological therapy and lifestyle modifications.

2.1.6.1 Pharmacological therapies

Treating high blood pressure can help prevent serious, even life threatening complications. The major types of medication used to control high blood pressure include diuretics drugs, combined alpha and beta blocker, beta-blockers, angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, calcium antagonists, and vasodilators.

Table 2.2: Medication for Patients with Hypertension and its Major Action and Side Effects

S/N	Medications	Major Action	Side Effects
1.	Diuretics: Furosemide (lasix)	Volume depletion Blocks reabsorption of sodium chloride and water in kidney	Thirst, Nausea, Vomiting, Skin rash, Postural hypotension, Drowsiness, Lethargy, Headache-decrease dosage.
2.	Combined Alpha and Beta Blocker:	Blocks alpha and beta adrenergic receptors; causes peripheral dilation and	Orthostatic hypotension, Tachycardia.

	Labetalol hydrochloride	decreases peripheral vascular resistance.	
3.	Beta-blockers: Propranolol	Block the sympathetic nervous system, especially the sympathetic to the heart, producing a slower heart rate and lowered blood pressure.	Insomnia, Lassitude, Weakness, and Fatigue. Nausea, Vomiting, and Epigastric distress. Check heart rate before giving.
4.	Angiotensin-converting Enzyme Inhibitors: Captopril (Capoten)	Inhibit conversion of angiotensin I to angiotensin II lower total peripheral resistance.	Gerontologic considerations: Requires reduced dosages and loop of diuretics with renal dysfunction.
5.	Angiotensin II Receptor blockers : Losartan (Cozaar)	Block the effects of angiotensin II at the receptor. Reduced peripheral resistance.	Monitor for hypokalemia
6.	Calcium Antagonists: Non-dihydropyridines diltiazem hydrochloride	Inhibits calcium ion influx, Reduces cardiac afterload	Do not discontinue suddenly. Observe for hypotension. Report irregular heartbeat, dizziness, and edema
7.	Vasodilators: Hydrolyzing hydrochloride	Decreases peripheral resistance but concurrently elevates cardiac output acts directly on smooth muscle of blood vessels.	Headache, tachycardia, flushing, and dyspnea.

2.1.6.2 Lifestyle modifications

Lifestyle modification is also adjunct therapy for all clients with hypertension who are receiving pharmacologic therapy. Continued healthy lifestyle practices can reduce the number and dosage of antihypertensive medications (Black & Hawks, 2020). There was evidence that the blood pressure of persons who are able to modify their lifestyles were lower and could

reduce other major cardiovascular risk factors. Those who modified their lifestyle could reduce the likelihood of heart attack, stroke, and diabetes (Kaplan, 2022). Nurses can help patients modify their lifestyle by informing them that there are several modifiable factors that have been shown to contribute to hypertension. These include: obesity; lack of regular aerobic exercise; daily alcohol intake exceeding 1 oz of ethanol on a regular basis; excessive sodium intake; and a stressful life style. In addition nurses can assist the client to identify how he/she can make appropriate changes in lifestyle to modify the above factors. Lifestyle modification for hypertensive patients includes; weight reduction, dietary management, alcohol restriction, stopping smoking, exercise, stress management, and regular medication adherence.

Weight reduction

Weight reduction is important for patients whose body mass index is ≥ 25. Weight reduction helps in reducing blood pressure. Weight reduction also enhances the effectiveness of antihypertensive medications (Black & Hawks, 2020; Kaplan, 2022). The incidence of hypertension increased threefold at a body mass index (BMI) of 26 as compared to a BMI of 21. The maintenance of significant weight loss is difficult for obese patients. Weight loss lowers blood pressure through multiple effects including an improvement in insulin sensitivity. This may result in: a decrease in visceral fat; a decrease in sympathetic nervous system activity; an increase in plasma leptin levels; and reversal of endothelial dysfunction revealed by nitric oxide induced vasodilatation (Kaplan, 2022). Weight reduction can be done by balancing the diet, reducing salt intake, and taking regular exercise.

Dietary management

Dietary adjustments can reduce the severity of hypertension and in some cases, reduces the need for medication. The persons with hypertension should eat a diet low in salt, calories, cholesterol, and saturated fat. Persons with hypertension should eat more fruits, vegetables,

grains and beans as compared to fats. In addition, they need to replace the beef in their diet with alternatives like fish or chicken. It is also suggested that grilled or boiled food rather than fried are recommended. The Dietary Approaches to Stop Hypertension (DASH) demonstrated that modification in diet can aid in controlling blood pressure. The DASH recommended healthy eating patterns in order to control hypertension (Chen et al., 2021).

Table 2.3: The DASH Diet Plan

S/N	Food Group	Recommended Serving	Serving Sizes (Example)
1.	Grain product: whole grain breads and cereals	7-8 serving per day	1 slice whole wheat bread
2.	Fruits & Vegetables	8 - 10 serving per day	1/2 cup fruit or vegetable
3.	Dairy products: low fat (<1% M.F) milk products and low fat cheeses	2-3 servings per day	8 oz milk
4.	Meat & alternatives lean meat/fish/poultry	2-3 servings per day	3 oz cooked meat
5.	Nuts, seeds and dry beans	4-5 servings per week	1/3 cup nuts

Sodium restriction

A moderate restriction of sodium intake can lower the blood pressure at some cases of stage one hypertension. If sodium intake is lowered, the amount of medication needed may be decreased. Sodium is a hidden ingredient in many processed food. In general, the average adult daily intake of salt is 5 to 15 grams, but the therapeutic effects of sodium reduction on blood pressure do not occur until salt intake is reduced to 6grams /day or lower (Black & Hawks, 2020).

Dietary fat modification

Modification of dietary intake of fat by decreasing the fraction of saturated fat and increasing of polyunsaturated fat leads to decreases in the levels of blood pressure and cholesterol significantly. Because dyslipidemia is a major risk factor in the development of coronary artery disease, diet therapy aims at reducing the lipids in the total dietary regimen (Black & Hawks, 2020).

Potassium supplementation

The high ratio of sodium to potassium in the modern diet was found to be responsible for the development of hypertension. Many studies examined the effect of potassium on blood pressure and most of them identified a salutary effect (Ducher et al., 2021). Potassium restriction causes a deficit in cellular potassium that triggers cells to gain sodium in order to maintain their tonicity and volume. The deficits of potassium, sodium, and chloride in the body imposed in those early studies contracted both the intracellular and extracellular compartments, thereby rendering a decrease in blood pressure (Adrogue & Madias, 2022).

Alcohol restriction

The consumption of more than 1 ounce of alcohol per day is associated with a higher prevalence of hypertension and poor adherence to antihypertensive therapy (Black & Hawks, 2020). In addition to the mechanisms involved, unresolved issues about the alcohol-blood pressure relationship include whether there is a threshold dosage of alcohol for association with hypertension, the alcohol-associated hypertension and the roles of interactions with gender, ethnicity, other lifestyle traits, drinking patterns, and choice of beverage (Klatsky & Gunderson, 2023).

Smoking cessation

Stopping smoking in hypertensive patients could provide a reduction of mortality risks similar to a permanent reduction of 40mmHg in blood pressure, over and above any antihypertensive medications. The use of a “blood pressure equivalence of smoking” can link the two separate risk factors and may lead to a paradigm shift in overcoming an existing clinical challenge (Wen et al., 2023). Smoking cessation is strongly recommended in order to reduce the risk for cardiovascular disease.

Exercise

A lifestyle of physical activity can reduce the risk of developing hypertension. A regular program of aerobic exercise attains a moderate level of physical fitness in cardiovascular conditioning and can aid the obese hypertensive clients in weight reduction and also minimize the risk of cardiovascular disease. Aerobic exercise is an exercise that involves or improves the oxygen consumption of the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process (Donatelle, 2020). Aerobic exercise is helpful for patients and should be performed at a moderate level of intensity for extended time periods. A regular exercise activity can lower the blood pressure in hypertensive clients. Exercise can heighten the client’s sense of wellbeing, reduces emotional tension and raises the level of high-density lipoproteins (HDL), enables lipids like cholesterol and triglycerides to be transported within the water based blood stream and decreases the risk of cardio-vascular morbidity and mortality (Black & Hawks, 2020). The recommended exercises for patients with hypertension involves walking, jogging or cycling of moderate intensity ranging from 4-52 weeks in length and each session typically lasted 30-60 minutes (Baster & Baster-Brooks, 2020). Walking, swimming, cycling and practicing yoga are also recommended.

Stress management

A variety of relaxation therapies, including meditation, yoga, music, rest and psychotherapy can reduce blood pressure. Relaxation can be highly beneficial if practiced routinely in one's everyday life. Techniques involving relaxation are widely used by people to reduce anxiety and cope with stress-related problems. Relaxation procedures are active and educational forms of therapy that can decrease the occurrence of tension and anxiety disorders (Schneider et al., 2020).

Regular adherence to medication

Hypertension is a chronic illness that needs a person to adhere to the medication and treatment. Persons with hypertension should take medication as prescribed and should make regular visit to the physician for appointments for monitoring their blood pressure.

2.1.7 Strategies for Self-Management in Patients with Hypertension

The self-management perspective is receiving increased attention in the chronic illness literature. Several self-management programs have been developed to support patients with chronic illness such as diabetes, hypertension, heart disease and systemic lupus erythomatus. Self-management programs appeared to improve clinically significant parameters in patients with diabetes and hypertension (Lin, 2021). Self-management programs aim to:

i. Help the client to acquire more effective interpersonal, cognitive, and emotional behaviors;
ii. To alter the client's perceptions and evaluative attitudes of problematic situations
iii. To either change a stress inducing or hostile environment or learn to cope with it by accepting that it is inevitable (Kanfer & Gaelick-buys, 2021).

According to Mc Donald & Gibson (2021), self-management refers to the individual's ability to manage the symptoms, treatment, physical and psychological consequences and life style

changes inherent in living with a chronic condition. DeMonaco & Hippel (2022) defined self-management as a person's behavior in:

i. Engaging in activities that protect and promote health
ii. Monitoring and managing symptoms and signs of illness
iii. Managing the impacts of illness on function, emotions, and interpersonal relationships
iv. Adhering to treatment regimens.

Hypertension is a chronic illness that requires a person to manage their own healthcare on an on-going basis. According to Lin et al. (2023) self-management for hypertensive patients consisted of 5 components. These included: self- integration; self-regulation; interaction with professionals and significant others; self-monitoring; and adherence to a recommended regimen.

2.1.7.1 Self-Integration

Self-integration refers to a patient's ability to integrate health care into their daily lives through activities such as proper diet, exercise, and weight control. Patients with hypertension should be able to:

i. Manage food portions and choices when eating out
ii. Eat more fruits, vegetable, grain and beans
iii. Decrease the fraction of saturated fat
iv. Consider effects on blood pressure when making food choices
v. Avoid drinking alcohol (less than 1 ounce per day)
vi. Take salt at about 6 grams/day or lower in food
vii. Reduce weight effectively
viii. Manage food choices to control blood pressure

ix. Exercise to control blood pressure and weight by walking, jogging or cycling lasting 30-60minute per session

x. Merge hypertension into daily life successfully

xi. Adjust hypertension routines to fit new situations

xii. Stop smoking

xiii. Control stress by listening to music, taking rest, and talking with family members.

2.1.7.2 Self-regulation

Self-regulation reflects patient's self-regulation of their behaviors through self-monitoring of body signs and symptoms (that is identifying life situations and causes related to the changes in blood pressure and taking action based on these observations). Self-regulation behaviors include:

i. Understanding reasons for the changes in blood pressure levels

ii. Recognizing the signs and symptoms of high and low blood pressure

iii. Acting in response to symptoms

iv. Attending to symptoms of high and low blood pressure

v. Treating low blood pressure reactions

vi. Making decisions based on experience

vii. Attending to situations that may affect blood pressure levels

viii. Comparing differences between current and target blood pressure levels.

2.1.7.3 Interaction with health professional and significant others

Interaction with health professional and significant others is based on the concept that good health care involves collaboration with health care providers and significant others. Behaviors that reflect interaction with health professionals and significant others are as follows:

i. Comfortably discussing degrees of flexibility in treatment plans with health care providers
ii. Comfortably suggesting treatment plan changes to heath care providers
iii. Comfortably asking health care providers questions
iv. Collaborating with health care providers to identify the reasons for poor blood pressure control
v. Comfortably discussing out-of-range blood pressure tests with health care providers
vi. Comfortably asking health care providers about hypertensive care resources
vii. Asking others for help with high blood pressure
viii. Asking others for help in controlling blood pressure
ix. Comfortably asking others for high blood pressure management techniques.

2.1.7.4 Self-monitoring

Self-monitoring is concerned with the monitoring of blood pressure for detecting blood pressure levels in order to adjust self-care activities. Self-monitoring behavior includes:

i. Checking blood pressure when feeling sick;
ii. Checking blood pressure when experiencing low blood pressure symptoms;
iii. Checking blood pressure to help make hypertension self-care decisions.

Blood pressure (BP) measurement is widely recognized as being a routine observation that can be used as a way to assess cardiac output and its effectiveness for adequate tissue perfusion (Odell, 2023). Thus, the presence of a BP is a requirement for human existence (Lip & Beevers, 2020). BP measurement, which includes interpreting results and taking appropriate action, is therefore considered a key clinical skill to acquire and maintain, as results can determine the patient care that needs to be delivered (Lister et al., 2021). The cuff sphygmomanometer-based BP measurement is one of the oldest and most known diagnostic instruments. The maintenance

of blood pressure upon assuming an upright posture depends on several autonomic and neuroendocrine mechanisms. In a normal individual, standing upright causes a pooling of venous blood in the legs followed by a decrease in cardiac output and blood pressure. Under normal circumstances the gravitational changes associated with standing upright are rapidly compensated for by an increase in venous return by contraction of skeletal leg muscles, vasoconstriction, and enhanced cardiac output. These compensatory changes occur through an autonomic reflex arc activated by baroreceptors in the carotid sinus and aortic arch. The stimulation of the sympathetic nervous system leads to an increase in levels with consequent changes in circulating blood volume, heart rate, and cardiac output.

During prolonged standing, activation of the renin-angiotensin-aldosterone system and secretion of vasopressin contribute to the maintenance of the blood volume and blood pressure (Freeman, 2023). Orthostatic hypotension occurs if these homeostatic mechanisms fail or autonomic function is impaired. Orthostatic (postural) hypotension is a physical finding related to the abnormal regulation of blood pressure during postural changes such as sitting and standing. This condition is characterized by a sudden decrease in blood pressure that occurs upon moving from a supine to a standing position and is usually alleviated upon resuming a recumbent position (Mathias & Kimber, 2024; Mathias, 2020). The extreme decrease in blood pressure usually occurs within three minutes of standing upright and may be accompanied by a slight increase in heart rate (15 to 30 beat per minute) depending on its etiology (Freeman, 2023). All healthcare workers (including nurse practitioners) who measure blood pressure should know what the numbers mean. Knowing when to treat the patient and the current guidelines is important. This measurement should be obtainable by clinicians, nurses, chiropractors, and other ancillary healthcare practitioners (Di Bonito et al., 2024; Phelps et al., 2024).

2.1.7.5 Adherence to recommended regimens

Adherence to recommended regimens refers to patient's adherence to prescribed hypertensive medication and clinic visits. This dimension also involves taking the prescribed amount of medication, taking medication the prescribed number of times, and seeing health care provider every 1-3 months.

2.2 Theoretical Review

This is based on Health Belief Model

2.2.1 Health Belief Model

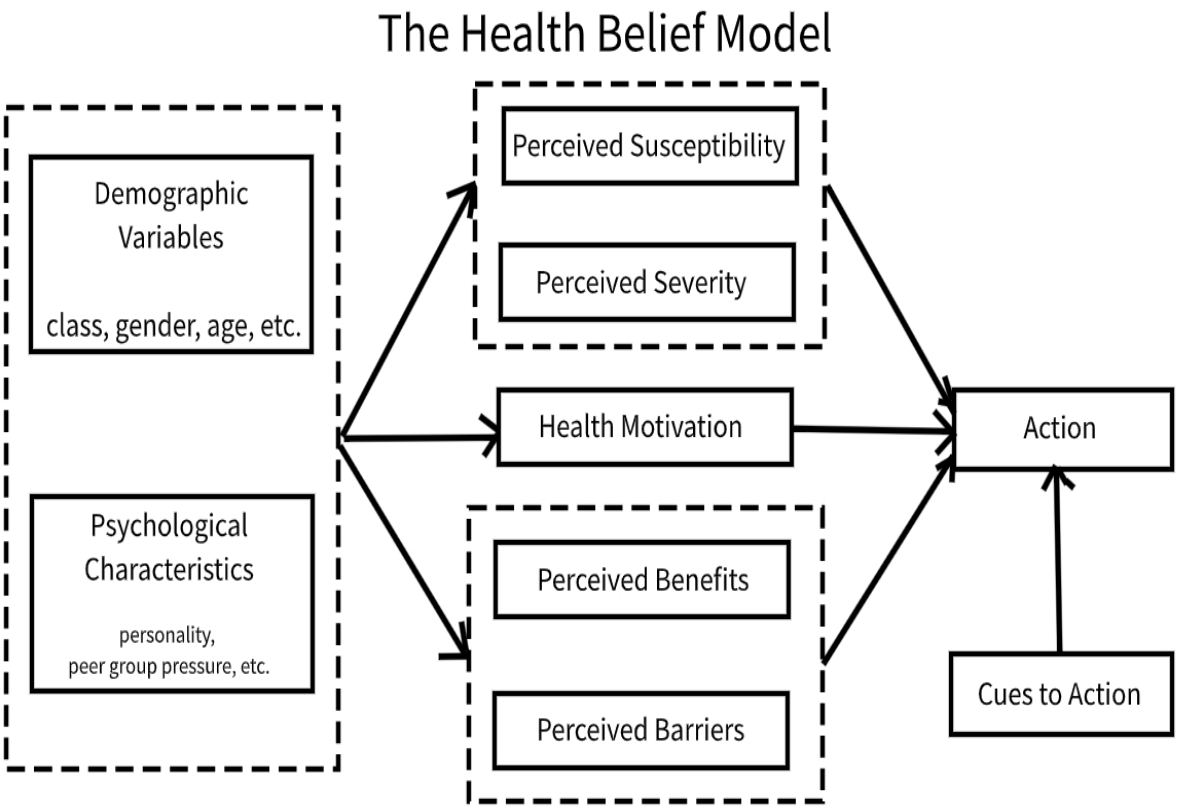

Fig 2.1: Historical Origins of health belief model (Rosenstock & Irwin 1974)

The Health Belief Model (HBM) was developed in the early 1950s by social scientists at the U.S. Public Health Service in order to understand the failure of people to adopt disease

prevention strategies or screening tests for the early detection of disease. Later uses of HBM were for patients' responses to symptoms and compliance with medical treatments. The HBM suggests that a person's belief in a personal threat of an illness or disease together with a person's belief in the effectiveness of the recommended health behavior or action will predict the likelihood that the person will adopt the behavior. The HBM derives from psychological and behavioral theory with the foundation that the two components of health-related behavior are;

i. The desire to avoid illness, or conversely get well if already ill
ii. The belief that a specific health action will prevent, or cure, illness.

Ultimately, an individual's course of action often depends on the person's perceptions of the benefits and barriers related to health behavior. The Health Belief Model (HBM) is one of the most widely used conceptual frameworks for understanding health behavior. Developed in the early 1950s, the model has been used with great success for almost half a century to promote greater condom use, seat belt use, medical compliance, and health screening use, to name a few behaviors. Health belief model (HBM) has been developed to help determine whether an individual is likely to participate in disease prevention and health promotion activities. It examines the meaning of predisposing characteristics and analysis how individuals specific health belief affects decisions to seek care and adopt health behaviors. It can be a useful tool in developing programs for helping people change or develop a more positive attitude towards preventive health measures. Knowledge and practice of occupational health safety has been identified as an effective instrument in early detection as well as prevention for occupational health hazard. Nurses are still dying of and are victims of occupational health hazard and this could have been avoided or minimized if they accept that they are at risk and engage in occupational health safety as an effective tool against occupational health hazard and thus stay

free of occupational health hazard, be healthy, alive, and continue with their positive contributions to the development of their families, healthcare system and nations.

2.2.2 Applications to the Study

The health belief model has been used to develop effective interventions to change health-related behaviors by targeting various aspects of the model's key construct (Christopher, 2010). The Health Belief Model (HBM) is a psychological framework often applied to understand and improve health behaviors, including adherence to antihypertensive prescriptions for blood pressure control through the following:

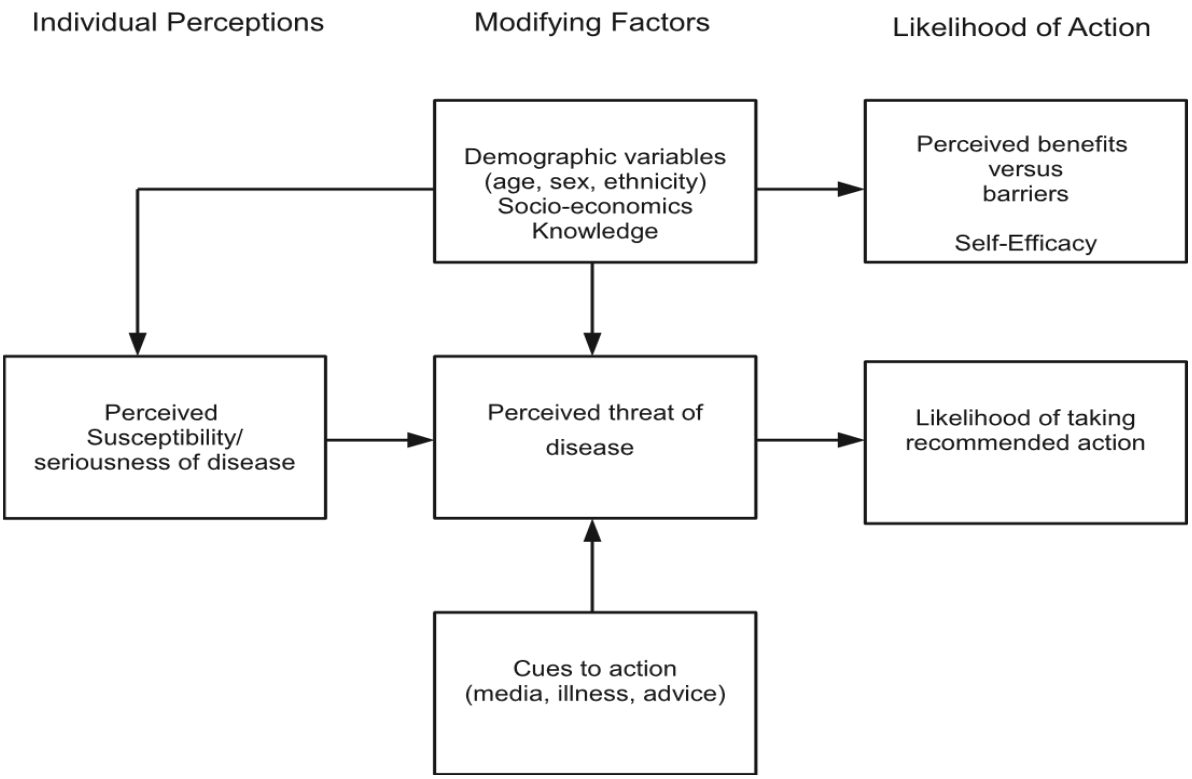

Figure 2.2: Factors of Health Belief Model (Rosenstock, 1974)

Perceived Susceptibility: Patients are educated about their risk of complications from uncontrolled hypertension, such as heart disease or stroke. This awareness can motivate them to adhere to prescribed medications.

Perceived Severity: Highlighting the serious consequences of untreated hypertension can encourage patients to take their condition seriously and follow medical advice.

Perceived Benefits: Demonstrating the effectiveness of antihypertensive medications in preventing complications and improving quality of life can enhance compliance.

Perceived Barriers: Addressing obstacles like medication side effects, cost, or forgetfulness through counseling or support systems can improve adherence.

Cues to Action: Reminders, such as follow-up appointments, text messages, or family support, can prompt patients to take their medications regularly.

Self-Efficacy: Empowering patients with knowledge and skills to manage their condition, such as monitoring their blood pressure at home, can boost their confidence in adhering to treatment.

2.3 Empirical Review

2.3.1 Knowledge on anti-hypertensive prescription on blood pressure control

According to a study carried out by Ogundele et al. (2021), to review the prescription pattern of antihypertensive medication and the level of BP control in patients with hypertension. This is a cross-sectional study among hypertensive patients attending follow-up clinics of a tertiary hospital. Methodology: Structured questionnaires were used to collect information on the antihypertensive medications and clinical profiles of the study participants. Questionnaires were administered to participants during the attendance of the follow-up clinic to capture information relevant to the study. Information retrieved from patients includes details about their baseline demographic characteristics, clinical history, anti-hypertensive drug history and

blood BP recordings. The study protocol was reviewed and approved by the institutional ethics committee. Statistical Analysis: Data were analysed using Microsoft Excel 2003 and the Statistical Package for the Social Sciences version 22.0 software. Their results revealed that a total of 489 hypertensive patients took part in the study. The study found that the rate of BP control was 44.6% among the participants. Calcium channel blockers (CCBs) are the most common antihypertensive medication prescribed in our clinics. There was no significant relationship between how long a patient had been attending the follow-up clinic and the level of BP control in patients who have attended the clinic for a minimum period of 3 months. Conclusion: BP control was less than optimal in more than half of the participants, and the most commonly prescribed antihypertensive medication were CCBs.

Also, according to a study carried out by Udem et al. (2022), focused on the drug utilization pattern of antihypertensive drugs. The study was a retrospective study of facility records on drug use among hypertensive patients. It was conducted in a private health care setting facility in Enugu. A total of 1,005 prescriptions were evaluated for drug prescribing patterns. The blood pressure control was evaluated. A combination of two drugs was frequently prescribed (42.3%). Drug prescribing pattern showed that Angiotensin receptor blocker (Losartan) was mostly frequently prescribed (38.94%). Drug utilization of antihypertensive drugs was in agreement with JNC 7&8 recommendations. In the study combination of two or more anti-hypertensive drugs was frequently prescribed. The blood pressure control among the population was greater than 90%.

Furthermore, according to a study carried out by Idoko et al. (2023), to evaluate the effectiveness of antihypertensive therapy in BP control among patients on long-term therapy and its sociodemographic determinants. This was an observational cohort study involving 125 subjects recruited from among hypertensive patients receiving care at a tertiary healthcare

facility. Patients who were ≥ 30 years of age and have been receiving therapy for at least four months participated in the study. The enrolees were followed up for six months on existing antihypertensive drug(s) and the BP control target was set at 140/90mm/Hg. Data was collected during physician consultations and analysed with SPSS version 21 using descriptive and inferential statistics. The chi-square test was used to determine the association between sociodemographic variables and achievement of the BP control target. P values ≤ 0.05 were considered statistically significant. Their results showed that while patients on monotherapies achieved 63.9% and 88.1% of systolic blood pressure (SBP) and diastolic Blood pressure (DBP) targets respectively, those on dual therapies achieved 57.5% and 84% SBP and DBP target respectively. Several factors including long duration of therapy (P = 0.052) and high body mass index (BMI), (P = 0.016) were found to be significantly associated with the achievement of BP control targets. It was also observed that there were slightly more subjects on monotherapies who achieved BP control targets (76%) compared to those on dual therapies (72%). They further concluded that antihypertensive therapies remain effective in long term BP control, however monotherapies achieved slightly better outcome compared to dual therapies. It is clear that failure to achieve and sustain BP control over time should be an important consideration in drug selection and pharmaceutical care interventions.

2.3.2 Compliance to anti-hypertensive prescription on blood pressure control

According to a study carried out by Ukoha-Kalu et al. (2021), to access the Hypertension self-care activities of hypertensive patients receiving care in a Secondary health care facility in Kogi state Nigeria. This was a prospective cross sectional study conducted among Hypertensive patients receiving care in the Kogi State Specialist Hospital in Lokoja, Kogi state. All hypertensive patients visiting the Kogi State Specialist Hospital during the period of study and have given consent were allowed to participate in the study. A profoma was designed to collect the socio-demographic and clinical characteristics like the blood pressure, weight(in

Kilograms) and height (in meters) while the H-SCALE was used to collect information on self-care activities. The data cleaning was conducted in Microsoft excel after which information were exported and analysed using the Statistical Package for Social Sciences (SPSS for windows, Version 16.0. SPSS Inc. 2007.Chicago, USA) software. The results from their study revealed that more than half of the patients under study 183 (61.4%) were adherent to the medication. However, almost all the patients 305 (99.1%) and 308 (100%) did not adhere to low salt diets and physical activity respectively. A majority of the patients 266 (87.0%) admitted not to be smoking while more than half of the patients 221 (63.1) did not follow good weight management practices. About three-fourths of these patients did not abstain from drinking alcohol. Although more of the males (31.5%) adhered to their medications more than the females (27.9%), this was not statistically significant. More of those who adhered to their medications, had a low salt diet, engaged in physical activity and weight management practices had a source of income. Patients who had obtained a formal education had a better medication adherence, adhered to low salt diets, engaged in weight management practices and smoked less when compared to those who had no formal education. Patients who adhered to their medication and engaged in weight management practices had a greater duration of hypertension and this was statistically significant. In conclusion, adherence to hypertension self-care activities is low. This could lead to an increased risk of hypertension related complications.

Also, according to a study carried out by Iloh et al. (2023), to describe medication adherence and BP control amongst adult Nigerians with primary hypertension attending a primary care clinic of a tertiary hospital in a resource-poor environment in Eastern Nigeria. A cross-sectional study was carried out in 140 adult patients with primary hypertension who have been on treatment for at least 6 months at the primary care clinic of Federal Medical Centre, Umuahia. A patient was said to have achieved goal BP control if the BP was < 140 per 90 mmHg.

Adherence was assessed in the previous 30 days using a pretested researcher-administered questionnaire on 30 days of self-reported therapy. Adherence was graded using an ordinal scoring system of 0–4; an adherent patient was one who scored 4 points in the previous 30 days. Reasons for non-adherence were documented. The results revealed that adherence to medication and BP control rates were 42.9% and 35.0% respectively. BP control was significantly associated with medication adherence ($p = 0.03$), antihypertensive medication duration ≥3 years ($p = 0.042$), and taking ≥ one form of antihypertensive medication ($p = 0.04$). BP at the recruitment visit was significantly higher than at the end of the study ($p = 0.036$). The most common reason for non-adherence was forgetfulness ($p = 0.046$). They further concluded that the rate of BP control amongst the study population was low, which may be connected with low medication adherence. This study urges consideration of factors relating to adherence alongside other factors driving goal BP control.

Furthermore, according to a study carried out by Odili et al. (2020), to assess the prevalence, awareness, treatment and control of hypertension in Nigeria. They used the World Health Organization (WHO) STEPwise approach to chronic disease risk factor surveillance to evaluate in a nationally representative sample of 4192 adult Nigerians selected from a rural and an urban community in one state in each of the six geo-political zones of the country. The results from their study revealed that the overall age-standardized prevalence of hypertension was 38.1% and this varied across the geo-political zones as follows: North-Central, 20.9%; North-East, 27.5%; North-West, 26.8%; South-East, 52.8%; South-South, 44.6%; and South-West, 42.1%. Prevalence rate did not differ significantly ($p > 0.05$) according to place of residence; 39.2% versus 37.5 %; urban vs rural. Prevalence of hypertension increased from 6.8% among subjects less than 30 years to 63.0% among those aged 70 years and above. Awareness was better (62.2% vs. 56.6%; $P = 0.0272$); treatment rate significantly higher (40.9 % vs. 30.8%; $P < 0.0001$) and control similar (14 vs. 10.8%) among urban compared to rural residents. Women

were more aware of (63.3% vs. 52.8%; P < 0.0001); had similar (P > 0.05) treatment (36.7 vs. 34.3%) and control (33.9% vs. 35.5%) rates of hypertension compared to men. They further concluded that a large burden of hypertension in Nigeria and a closing up of the rural-urban gap previously reported. This calls for a change in public health policies anchored on a primary health care system to address the emerging disease burden occasioned by hypertension.

2.3.3 Factors that influences compliance to anti-hypertensive prescription on blood pressure control

According to a study carried out by Osibogun, & Okwor (2024), aimed at identifying associated co-morbid conditions, the prescribing patterns and cost of prescription for the treatment of hypertension in an outpatient clinic at Lagos University Teaching Hospital. A cross sectional study was carried out. A total of 147 prescriptions were obtained from the case notes of patients treated at the LUTH outpatient department between February 2022 and August 2022. For each prescription, the number of drugs, the class and combinations of antihypertensives were recorded. The monthly cost of a 30-day anti-hypertensive supply based on the recommended daily dose was calculated. Their results revealed that the mean age of the patients was 54(+/−14) years and of the 147 prescriptions, 77(52.4%) was for females and 70(47.6%) was for males. The mean systolic blood pressure was 141.6 mmHg (+/−20.5SD) and mean diastolic blood pressure was 86.5 mmHg (+/−13.3SD). Of the 147 prescriptions, 112(76.2%) were for patients with co-morbidities. The frequency of prescription of the various classes of anti hypertensives are; diuretics 117(79.6%), angiotensin receptor blockers 78(53.1%), angiotensin converting enzyme inhibitors 65(44.2%), calcium channel blockers 65(44.2%) beta blockers 54(36.7%) and centrally acting agents 12(8.2%). Average cost per month was =N=6611.47 (US$44). There was a statistically significant association between co morbid conditions and high cost of prescriptions with 73.7% of those with diabetes and 63.2% of those with renal disease having cost of prescriptions within the high cost group (p < 0.05). They further

concluded that the cost per month is high and it is recommended that hypertension should be addressed as part of an integrated care program. Ingenious ways of health care financing also have to be promoted.

Also, according to a study carried out by Ekanem et al. (2023), to determine the prevalence of high BP in a semi-urban community in Nigeria. It was a cross-sectional study, where all the adult residents of the community were enrolled. Data was collected using a multi-section questionnaire, including anthropometric measurements. Data entry and analysis was done using SPSS 17.0 for windows and STATA 10. The results showed that 47.0% of the study population had a raised BP >140/90mmHg. At a univariate level, age, sex, higher income, more people in the household, daily cigarette smoking, daily alcohol intake and BMI, showed increased risk for high BP. However, sleeping for at least 8 hours a day showed protective influence against raised BP among the participants. In the adjusted model, only age, sex and BMI remained statistically significant with Odds Ratio (OR) of 1.04 (95%CI; 1.00, 1.08), 0.45 (95%CI; 0.22, 0.90) and 1.08(95%CI; 1.03, 1.13) respectively. The model had an area under curve of 71.9%. They further concluded that there is a high prevalence of raised BP in this semi-urban community, thus the need for intervention and preventive services to curb the looming epidemic of hypertension in this community in particular, and Nigeria as a whole, cannot be overemphasized.

Furthermore, according to a study carried out by Abdu et al. (2024), to assess level of BP control among hypertensive patients on treatment in Dutse, Jigawa state, and to identify treatable causes of failure to achieve target for better management. It was a cross sectional study of all hypertensives for more than one year attending medical out patients clinic who have consented. An interviewer administered questionnaire was used to obtain information from the patients. Their results revealed a total of 123 patients of which 45% were females with

mean age, duration of hypertension of 51.9 and 5.9 years respectively and BMI of 40.9Kg/m2. Eighty-three per cent, 91% and 94% were aware of salt restriction, cessation of smoking and alcohol moderation as lifestyle modifications respectively. The mean Systolic and Diastolic BP were 142mmHg and 86mmHg respectively. Fifty-two per cent were on two drugs combination including a diuretic while 4.87% were on three drugs or more. Less than a third (27.6%) had their BP controlled at <140/90mmHg. There was no significant difference in the demographic and clinical data between patients with controlled and uncontrolled BP. They further concluded that control of BP is still poor in our setting. This could be due to physician inertia in the treatment, use of inappropriate combination of anti-hypertensive or failure to reinforce lifestyle modifications.

2.4 Summary of Literature Review

The researcher has attempted to review existing literatures on the study covering the definition, types, epidemiology, classification of anti-hypertensive prescription on blood pressure control. It also considered the various steps in strategies towards self-care management towards control of blood pressure. To further substantiate the study, the theoretical framework utilized was Rosenstock's and Becker's Heath Belief Model in achieving this purpose.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter was discussed under the following subheadings: Research design, Research setting, Target population, Sample size, Sampling technique, Instrument for data collection, Validity of instruments, Reliability of instruments, Ethical consideration, Method of data collection and Method of data analysis.

3.1 Research Design

This study is aimed to assess the anti-hypertensive prescription pattern on blood pressure control among out-patients in University of Benin Teaching Hospital (UBTH), Benin city, Edo state. The descriptive non-experimental survey research design was adopted for this study because it helped the researcher to have an adequate information regarding the research problem.

3.2 Research Setting

This study was carried out among outpatients diagnosed with hypertension and are on anti-hypertensive prescription on blood pressure control in University of Benin Teaching Hospital (UBTH), Benin city, Edo state. The study included out-patients diagnosed with hypertension, who are currently receiving healthcare services at Consultant Outpatient Department (COPD) and General Practice Clinic (GPC) in University of Benin Teaching Hospital (UBTH), Benin city, Edo state.

Geographically, the University of Benin Teaching Hospital (UBTH) is a healthcare institution founded in 1973. It provides healthcare, teaching and research services. The hospital is situated along Ugbowo road in the heart of Benin city, Edo state. University of Benin Teaching Hospital (UBTH) is made up of various departments to render specialized care to patients with varied problems. It is in charge of curative healthcare and training of healthcare personnel. It provides

healthcare, teaching and research services. It comprises of various units such as medical, surgical and emergency units, outpatient departments/clinics, medical departments, Nursing service department, X-ray department, catering department, recreational therapy department e.t.c. It also has school of learning among which are; School of Nursing, School of Midwifery, School of Post Basic Nursing, School of Information and Health technology management e.t.c

3.3 Target Population

The populations for this study consisted of male and female out-patients diagnosed with hypertension who are currently receiving healthcare services at the University of Benin Teaching Hospital (UBTH), Benin city, Edo state. The target populations for this study consisted of 548 outpatients diagnosed with hypertension and are currently receiving healthcare services at the University of Benin Teaching Hospital (UBTH), Benin city, Edo state.

Table 3.1: UBTH 2025 Hypertensive Outpatients Health Records

S/N	Month	University of Benin Teaching Hospital
1.	September	98
2.	October	89
3.	November	86
4.	December	92
5.	January	96
6.	February	87
	Total	**548**

3.4 Sample Size

The sampling size is the numbers of subjects or participant required and to which the study findings was generalized. The size was estimated from a population of 548 respondents using Taro Yamane (1967) formula.

Where n = sample

N= population size

D= level of precision (confidence interval)

N= 548

D= 0.05

Thus;

$$N = \frac{548}{1+548(0.05)^2}$$

$$\frac{548}{1+ 548(0.0025)}$$

$$\frac{548}{1+1.37}$$

$$\frac{548}{2.37}$$

Therefore, n = 231

10% attrition = 23

Therefore, the minimum sample size is 254

3.5 Sampling Technique

The researcher used convenient sampling technique in selecting the respondent into the study at the University of Benin Teaching Hospital (UBTH), Benin city, Edo state. Convenient sampling technique is a non-probability method in which the researcher is at will to choose the most conveniently and economically available persons or objects as sample for the study, that

is, according to who is available in no particular order (Nikolopoulou, 2023). The researcher selects this method because the out-patients were not always all be available at the same time, therefore the instruments was distributed to the available outpatients diagnosed with hypertension receiving healthcare services at the University of Benin Teaching Hospital (UBTH), Benin city, Edo state. She selects whosoever was closest and easiest.

3.6 Instrument for Data Collection

Structured questionnaire was the instrument that was used for data collection for this study. The items were constructed in a close-ended form where the respondents had to tick appropriately the option that suits their best knowledge. The questionnaires were divided into section A, B, C, and D to address the research objectives under investigation. Likert scale and closed ended question format were used in constructing the instrument that was used for this study.

Section A: Contained demographic information of the respondents

Section B: Contained research data of the respondents' knowledge on anti-hypertensive prescription pattern on blood pressure control among out-patients.

Section C: Contained research data of the respondents' compliance to anti-hypertensive prescription on blood pressure control.

Section D: Contained research data of the respondents on factors that influences compliance to anti-hypertensive prescription on blood pressure control.

3.7 Validity of Instruments

Validity refers to how accurately a method measures what is intended to measure. If a research has high validity that means it produces results that correspond to real properties, characteristics, and variations in the physical or social world (Middleton, 2023). High validity

is one indicator that a measurement is valid. If a method is not reliable, it probably is not valid. Validity can be assessed by comparing the results to other relevant data or theory. Face and content validity were used for the study and the questionnaire that was adopted was properly organized, structured and simplified by the researcher under the guidance of the research supervisor and public health officers before it was distributed.

3.8 Reliability of Instruments

Reliability refers to how consistently a method measures something. If the same result can be consistently achieved by using the same methods under the same circumstances, the measurement is considered reliable (Middleton, 2023). A reliable instrument is one that can produce the same results when different versions of the same measurement scale is being compared (Middleton, 2023). A pilot study was carried out using split half method to test the reliability of the questions by administering same questionnaire to 20 out-patients diagnosed with hypertension and are receiving healthcare services at Edo Specialist Hospital, Benin city, Edo state. The data was collected, analysed using Chronbach Alpha. Using this method, a correlation coefficient of 0.78 was seen and this shows that the instrument is reliable.

3.9 Method of Data Collection

254 well-structured questionnaires containing questions relating to the research study were self-administered along with a research assistant to the sample survey at the University of Benin Teaching Hospital (UBTH), Benin city, Edo state. While responses (data) being filled out in the questionnaire were formally and immediately gathered as they were guarded on how to answer the questions. The researcher approached each outpatient diagnosed with hypertension, with information on the research, as well as the objectives of the study were also given. Those who were interested were approached and given the questionnaire with basic explanation of what was required of them. All respondents were assured of confidentiality and anonymity.

The researcher and/or the research assistant was also present during the process of the respondents answering the questionnaires, and the questionnaires was then retrieved from the respondents as soon as they indicated that they had completed them.

3.10 Method of Data Analysis

This study employ descriptive statistics using mean, standard deviation, frequency and percentage distribution, while Chi-square statistical analysis techniques was used to test the research hypotheses with the aid of the Statistical Package for Social Science (SPSS) version 28.0 for windows. The level of significance was set at $p<0.05$.

3.11 Ethical Consideration

The researcher is aware of the ethical and moral principles when it comes to the collection of information from respondents. Privacy which is one of the most important aspects of human rights was observed. Permission was sorted from the ethical clearance committee at the University of Benin Teaching Hospital (UBTH), Benin city, Edo state, before collection of data. The major ethical principles that were upheld during this study were:

1. **Autonomy:** The individuals were not forced into participating in the research project. The respondents were allowed to make decisions for themselves without duress.

2. **Maintenance of confidentiality:** Throughout this study, the researcher did not disclose personal details of the participants like name, phone number and address. Confidentiality were ensured by not divulging the information to others but giving access or control to just the supervisor and the statistician.

3. **Informed consent:** The researcher ensured that the participants have full knowledge of the study, purpose and procedures to be followed, the possible risks and benefits. The researcher also ensured that the participants gave their full consent before they took part in the study.

4. **Avoidance of plagiarism:** Studies that were used were properly referenced.

5. **Right to fair treatment:** All participants were treated fairly without discrimination.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the results of data collected from the respondents on the assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state. A total of 254 questionnaires were administered, and 251 were returned, representing a response rate of 98.8%. The data analysis was done using Statistical Package for Social Sciences (SPSS) version 28.0. The results are presented in tables according to the objectives of the study.

4.1 Socio-demographic Characteristics of Respondents

Table 4.1: Socio-demographic Characteristics of Respondents (n=251)

Variable	Category	Frequency	Percentage (%)
Gender	Male	109	43.4
	Female	142	56.6
Age (years)	<30	17	6.8
	30-39	38	15.1
	40-49	61	24.3
	50-59	71	28.3
	60 and above	64	25.5
Marital Status	Single	28	11.2
	Married	179	71.3
	Divorced	13	5.2
	Widowed	31	12.3
Educational Qualification	No formal education	19	7.6
	Primary	43	17.1
	Secondary	92	36.7

	Tertiary	97	38.6
Ethnicity	Bini	94	37.5
	Esan	67	26.7
	Hausa	10	4.0
	Igbo	32	12.7
	Yoruba	27	10.8
	Others	21	8.3
Employment Status	Employed	103	41.0
	Unemployed	35	14.0
	Retired	52	20.7
	Self-employed	61	24.3
Religion	Christian	198	78.9
	Muslim	41	16.3
	Traditionalist	7	2.8
	Others	5	2.0
Place of Residence	Rural	59	23.5
	Urban	147	58.6
	Semi-Urban	45	17.9
Duration of Hypertension	Less than 1 year	36	14.3
	1-5 years	107	42.6
	6-10 years	79	31.5
	More than 10 years	29	11.6
Comorbidities	Diabetes	86	34.3
	Heart disease	42	16.7
	Kidney disease	17	6.8
	Others	29	11.5
	None	77	30.7

Table 4.1 shows the socio-demographic characteristics of the respondents. Majority of the respondents were females (56.6%) while males constituted 43.4%. The age distribution shows that the majority of the respondents (28.3%) were between 50-59 years, followed by those 60 years and above (25.5%), and 40-49 years (24.3%). Most of the respondents were married (71.3%), with widowed (12.3%), single (11.2%), and divorced (5.2%) making up the remainder. Regarding educational qualifications, most respondents had tertiary education (38.6%), followed by secondary education (36.7%), primary education (17.1%), and no formal education (7.6%). The ethnic distribution showed that Bini constituted the majority (37.5%), followed by Esan (26.7%), Igbo (12.7%), Yoruba (10.8%), others (8.3%), and Hausa (4.0%). Most of the respondents were employed (41.0%), followed by self-employed (24.3%), retired (20.7%), and unemployed (14.0%). In terms of religion, Christians were the majority (78.9%), followed by Muslims (16.3%), traditionalists (2.8%), and others (2.0%). Most respondents resided in urban areas (58.6%), followed by rural areas (23.5%) and semi-urban areas (17.9%).

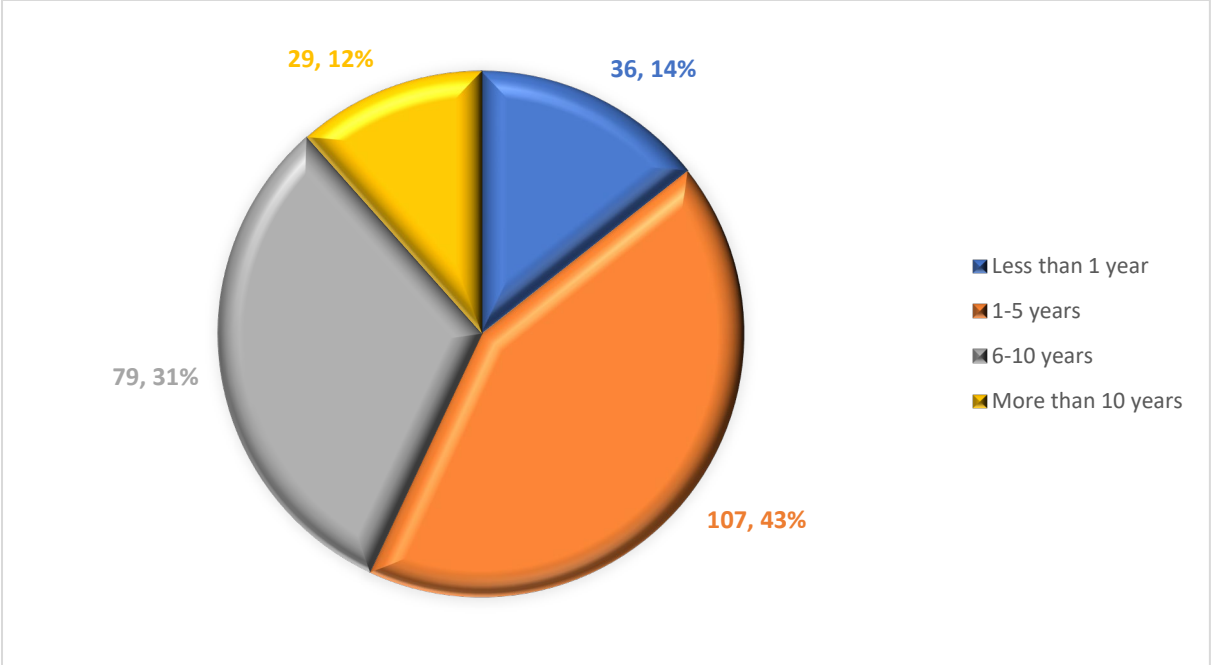

Figure 4.1: Duration of Hypertension

Figure 4.1 shows the duration of Hypertension. Most of the respondents had been diagnosed within 1-5 years (42.6%), followed by 6-10 years (31.5%), less than 1 year (14.3%), and more than 10 years (11.6%).

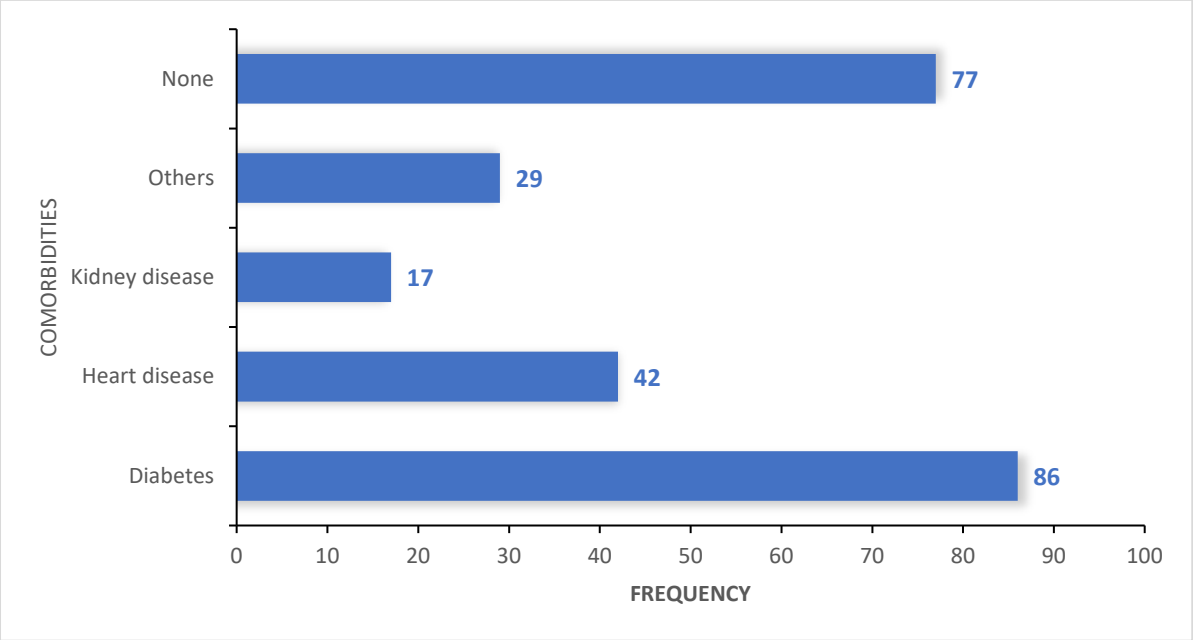

Figure 4.2: Comorbidity

Figure 4.2 shows the comorbidity. The most common comorbidity was diabetes (34.3%), followed by heart disease (16.7%), other conditions (11.5%), and kidney disease (6.8%), while 30.7% reported no comorbidities.

4.2 Knowledge on Anti-hypertensive Prescription Pattern on Blood Pressure Control

Table 4.2: Respondents' Knowledge on Anti-hypertensive Prescription Pattern (n=251)

Question	Correct	Incorrect
Knowledge about Thiazide diuretics	149(59.4)	102(40.6)
Knowledge about Calcium channel blockers	183(72.9)	68(27.1)
Knowledge about ACE inhibitors	157(62.5)	94(37.5)
Knowledge about Centrally acting agents	112(44.6)	139(55.4)
Knowledge about Beta blockers	144(57.4)	107(42.6)
Knowledge about Loop diuretics	119(47.4)	132(52.6)
Knowledge about Angiotensin receptor blockers	127(50.6)	124(49.4)

Knowledge about Aldosterone antagonists	98(39.0)	153(61.0)
Knowledge about Lipid lowering drugs	167(66.5)	84(33.5)
Knowledge about Direct vasodilators	106(42.2)	145(57.8)

Table 4.2 shows the respondents' knowledge regarding different anti-hypertensive medications. The highest level of knowledge was observed for calcium channel blockers (72.9%), followed by lipid-lowering drugs (66.5%), ACE inhibitors (62.5%), thiazide diuretics (59.4%), and beta blockers (57.4%). Knowledge about angiotensin receptor blockers was moderate at 50.6%. Lower levels of knowledge were observed for loop diuretics (47.4%), centrally acting agents (44.6%), direct vasodilators (42.2%), and aldosterone antagonists (39.0%). This indicates varying levels of awareness regarding different classes of anti-hypertensive medications among the respondents.

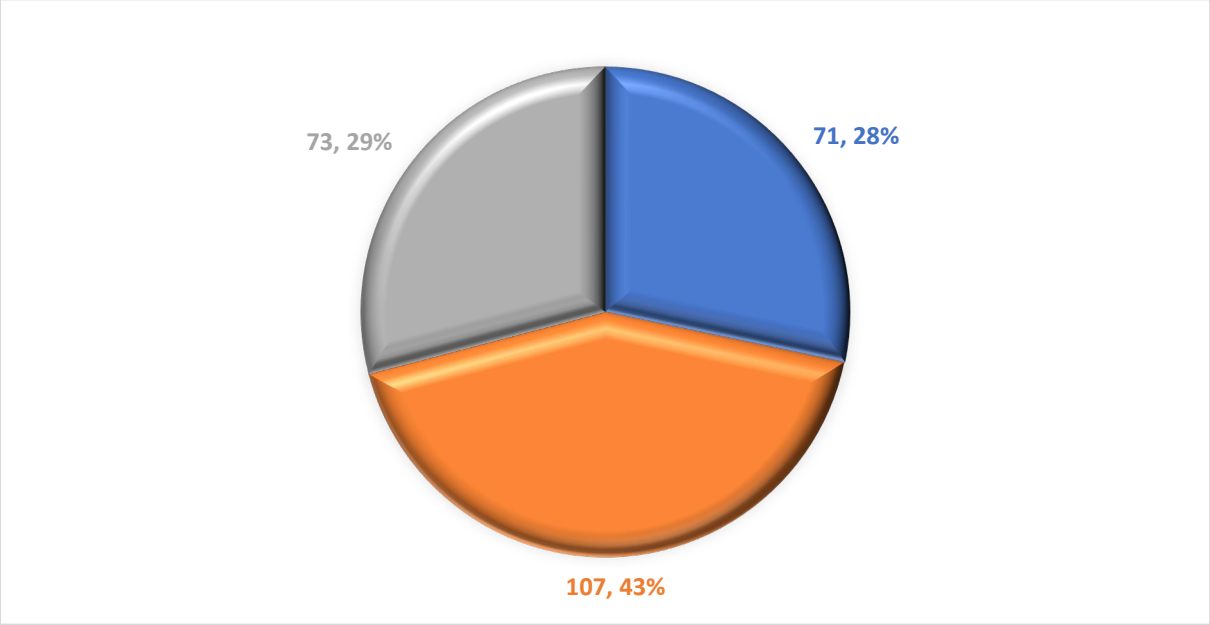

Figure 4.3: Overall Level of Knowledge on Anti-hypertensive Prescription Pattern (n=251)

Figure 4.3 presents the overall level of knowledge regarding anti-hypertensive prescription patterns among the respondents. The majority of the respondents (42.6%) had a fair level of knowledge, followed by those with poor knowledge (29.1%) and those with good knowledge (28.3%).

4.3 Level of Compliance to Anti-hypertensive Prescription on Blood Pressure Control

Table 4.3: Respondents' Compliance to Anti-hypertensive Prescription (n=251)

Statement	Always	Sometimes	Rarely	Never	Mean	Remark
Take antihypertensive medication as prescribed	102(40.6)	109(43.4)	33(13.1)	7(2.9)	3.22	High
Forget to take medication	19(7.6)	124(49.4)	89(35.5)	19(7.6)	2.43	Low
Experience side effects from medication	23(9.2)	126(50.2)	79(31.5)	23(9.2)	2.59	Moderate
Stop taking medication when feeling better	35(13.9)	97(38.6)	75(29.9)	44(17.5)	2.51	Moderate
Visit hospital regularly according to appointments	89(35.5)	112(44.6)	39(15.5)	11(4.4)	3.11	High
Have difficulty affording medication	56(22.3)	121(48.2)	53(21.1)	21(8.4)	2.84	Moderate
Receive counseling about hypertension from healthcare provider	87(34.7)	98(39.0)	43(17.1)	23(9.2)	2.99	Moderate
Understand importance of taking medication regularly	149(59.4)	72(28.7)	21(8.4)	9(3.6)	3.44	High
Use home blood pressure monitor before taking drugs	33(13.1)	79(31.5)	83(33.1)	56(22.3)	2.35	Low

Note: Mean rating: ≥3.25 = High, 2.50-3.24 = Moderate, <2.50 = Low

Table 4.3 illustrates the respondents' compliance with anti-hypertensive prescriptions. The highest mean score (3.44) was observed for understanding the importance of taking medication regularly, with 59.4% of respondents indicating they always understood this importance. This was followed by taking antihypertensive medication as prescribed (mean = 3.22), with 40.6% of respondents always taking their medication as prescribed and 43.4% sometimes doing so. Regular hospital visits according to appointments also scored high (mean = 3.11), with 35.5% always visiting and 44.6% sometimes visiting as scheduled. Moderate compliance was observed for receiving counseling from healthcare providers (mean = 2.99), difficulty affording

medication (mean = 2.84), experiencing side effects (mean = 2.59), and stopping medication when feeling better (mean = 2.51). Low compliance was observed for forgetting to take medication (mean = 2.43) and using home blood pressure monitors before taking drugs (mean = 2.35). Only 13.1% of respondents always used home blood pressure monitors, while 22.3% never used them.

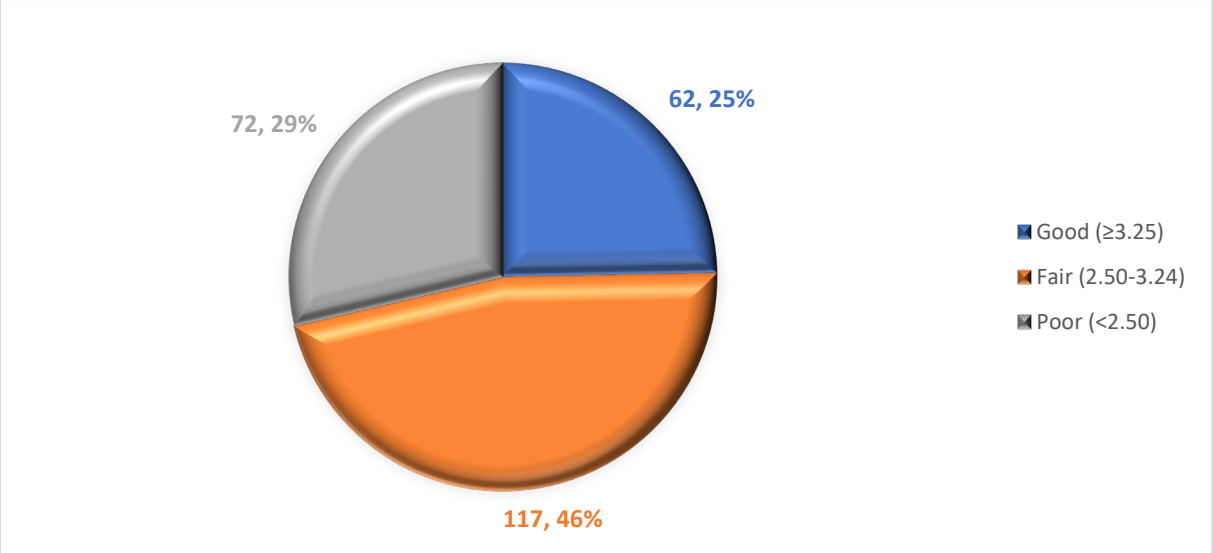

Figure 4.4: Overall Level of Compliance to Anti-hypertensive Prescription (n=251)

Figure 4.4 presents the overall compliance level of respondents to anti-hypertensive prescriptions. The majority of the respondents (46.6%) had a fair level of compliance, followed by those with poor compliance (28.7%) and those with good compliance (24.7%).

4.4 Factors Influencing Compliance to Anti-hypertensive Prescription on Blood Pressure Control

Table 4.4: Factors Influencing Compliance to Anti-hypertensive Prescription (n=251)

Factor	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Remark
Lack of information on various hypertensive prescriptions	71(28.3)	109(43.4)	52(20.7)	19(7.6)	2.92	High
Lack of management commitment in blood pressure control	56(22.3)	117(46.6)	62(24.7)	16(6.4)	2.85	High

Too many busy schedules	94(37.5)	97(38.6)	43(17.1)	17(6.8)	3.07	High
Too many medications	87(34.7)	102(40.6)	49(19.5)	13(5.2)	3.05	High
Concerns about long-term effects of antihypertensives	76(30.3)	114(45.4)	44(17.5)	17(6.8)	2.99	High
Side effects from antihypertensive medication	68(27.1)	129(51.4)	39(15.5)	15(6.0)	3.00	High
Financial constraints (cannot afford medication)	102(40.6)	94(37.5)	41(16.3)	14(5.6)	3.13	High
Lack of support by healthcare provider in making drug changes	58(23.1)	114(45.4)	59(23.5)	20(8.0)	2.84	High
Lack of commitment to maintaining regular hospital appointments	72(28.7)	111(44.2)	49(19.5)	19(7.6)	2.94	High
Poor blood pressure control even after taking antihypertensive drugs	61(24.3)	123(49.0)	49(19.5)	18(7.2)	2.90	High
Lack of information in understanding the nature of the disease	78(31.1)	113(45.0)	47(18.7)	13(5.2)	3.02	High

Note: Mean rating: ≥2.50 = High influence, <2.50 = Low influence

Table 4.4 presents the factors influencing compliance to anti-hypertensive prescriptions. All factors were found to have a high influence on compliance, with mean scores above 2.50. The most influential factor was financial constraints (mean = 3.13), with 40.6% of respondents strongly agreeing and 37.5% agreeing that they cannot afford medication. This was followed by busy schedules (mean = 3.07), too many medications (mean = 3.05), lack of information about the disease (mean = 3.02), and side effects from medication (mean = 3.00). Other highly influential factors included concerns about long-term effects (mean = 2.99), lack of commitment to hospital appointments (mean = 2.94), lack of information on prescriptions (mean = 2.92), poor blood pressure control despite medication (mean = 2.90), lack of management commitment (mean = 2.85), and lack of support from healthcare providers (mean = 2.84).

4.5 Hypothesis Testing

Hypothesis 1: There is no significant difference between sociodemographic data (age, gender, level of education) and knowledge of anti-hypertensive prescription on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

Table 4.5: Chi-Square Analysis of the Relationship between Age and Knowledge of Anti-hypertensive Prescription (n=251)

Age (years)	Level of Knowledge			χ^2	p-value
	Good	Fair	Poor		
<30	3 (17.6%)	6 (35.3%)	8 (47.1%)	14.943	0.047*
30-39	9 (23.7%)	15 (39.5%)	14 (36.8%)		
40-49	16 (26.2%)	29 (47.5%)	16 (26.2%)		
50-59	22 (31.0%)	32 (45.1%)	17 (23.9%)		
60 and above	21 (32.8%)	25 (39.1%)	18 (28.1%)		
Total	71 (28.3%)	107 (42.6%)	73 (29.1%)		

*Significant at $p<0.05$

Table 4.5 shows the relationship between age and knowledge of anti-hypertensive prescription. The chi-square analysis revealed a significant relationship ($\chi^2 = 14.943$, df = 8, $p = 0.047$). Respondents aged 50-59 years had the highest proportion of good knowledge (31.0%), followed by those 60 years and above (32.8%). Younger respondents (<30 years) had the highest proportion of poor knowledge (47.1%).

Table 4.6: Chi-Square Analysis of the Relationship between Gender and Knowledge of Anti-hypertensive Prescription (n=251)

Gender	Level of Knowledge			χ^2	p-value
	Good	Fair	Poor		
Male	33 (30.3%)	48 (44.0%)	28 (25.7%)	1.258	0.533
Female	38 (26.8%)	59 (41.5%)	45 (31.7%)		
Total	71 (28.3%)	107 (42.6%)	73 (29.1%)		

Table 4.6 presents the relationship between gender and knowledge of anti-hypertensive prescription. The chi-square analysis showed no significant relationship ($\chi^2 = 1.258$, df = 2, p = 0.533). Males had a slightly higher proportion of good knowledge (30.3%) compared to females (26.8%), while females had a higher proportion of poor knowledge (31.7%) compared to males (25.7%).

Table 4.7: Chi-Square Analysis of the Relationship between Educational Qualification and Knowledge of Anti-hypertensive Prescription (n=251)

Educational Qualification	Level of Knowledge			χ^2	p-value
	Good	Fair	Poor		
No formal education	2 (10.5%)	6 (31.6%)	11 (57.9%)	25.764	0.001*
Primary	8 (18.6%)	17 (39.5%)	18 (41.9%)		
Secondary	24 (26.1%)	43 (46.7%)	25 (27.2%)		
Tertiary	37 (38.1%)	41 (42.3%)	19 (19.6%)		
Total	71 (28.3%)	107 (42.6%)	73 (29.1%)		

*Significant at p<0.01

Table 4.7 shows the relationship between educational qualification and knowledge of anti-hypertensive prescription. The chi-square analysis revealed a significant relationship ($\chi^2 = 25.764$, df = 6, p = 0.001). Respondents with tertiary education had the highest proportion of good knowledge (38.1%), followed by those with secondary education (26.1%), primary education (18.6%), and no formal education (10.5%). Conversely, those with no formal education had the highest proportion of poor knowledge (57.9%).

Based on these results, Hypothesis 1 is partially rejected as significant differences were found between age and educational qualification and knowledge of anti-hypertensive prescription, while no significant difference was found for gender.

Hypothesis 2: There is no significant difference between the level of knowledge and compliance to anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state.

Table 4.8: Chi-Square Analysis of the Relationship between Knowledge and Compliance to Anti-hypertensive Prescription (n=251)

Level of Knowledge	Level of Compliance			χ^2	p-value
	Good	Fair	Poor		
Good	31 (43.7%)	29 (40.8%)	11 (15.5%)	27.984	0.000*
Fair	23 (21.5%)	58 (54.2%)	26 (24.3%)		
Poor	8 (11.0%)	30 (41.1%)	35 (47.9%)		
Total	62 (24.7%)	117 (46.6%)	72 (28.7%)		

*Significant at $p<0.001$

Table 4.8 presents the relationship between knowledge and compliance to anti-hypertensive prescription. The chi-square analysis revealed a significant relationship ($\chi^2 = 27.984$, df = 4, $p < 0.001$). Respondents with good knowledge had the highest proportion of good compliance (43.7%), followed by those with fair knowledge (21.5%) and poor knowledge (11.0%). Conversely, those with poor knowledge had the highest proportion of poor compliance (47.9%), followed by those with fair knowledge (24.3%) and good knowledge (15.5%).

Based on these results, Hypothesis 2 is rejected as there is a significant difference between the level of knowledge and compliance to anti-hypertensive prescription pattern on blood pressure control among out-patients.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

This chapter discusses the major findings of the research compared with the literature reviewed, the implication for nursing, summary, conclusion, recommendations and suggestions for further studies.

5.1. Discussion of Findings

The study investigated the assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state. A total of 254 questionnaires were administered, and 251 were returned, representing a response rate of 98.8%. From the demographic statistics, it was observed that majority of the respondents were females (56.6%) while males constituted 43.4%. The age distribution shows that the majority of the respondents (28.3%) were between 50-59 years, followed by those 60 years and above (25.5%), and 40-49 years (24.3%). Most of the respondents were married (71.3%), with widowed (12.3%), single (11.2%), and divorced (5.2%) making up the remainder. Regarding educational qualifications, most respondents had tertiary education (38.6%), followed by secondary education (36.7%), primary education (17.1%), and no formal education (7.6%). The ethnic distribution showed that Bini constituted the majority (37.5%), followed by Esan (26.7%), Igbo (12.7%), Yoruba (10.8%), others (8.3%), and Hausa (4.0%). Most of the respondents were employed (41.0%), followed by self-employed (24.3%), retired (20.7%), and unemployed (14.0%). In terms of religion, Christians were the majority (78.9%), followed by Muslims (16.3%), traditionalists (2.8%), and others (2.0%). Most respondents resided in urban areas (58.6%), followed by rural areas (23.5%) and semi-urban areas (17.9%).

5.1.1 Knowledge on anti-hypertensive prescription pattern on blood pressure control among out-patients

The findings revealed that the highest level of knowledge was observed for calcium channel blockers (72.9%), followed by lipid-lowering drugs (66.5%), ACE inhibitors (62.5%), thiazide diuretics (59.4%), and beta blockers (57.4%). Knowledge about angiotensin receptor blockers was moderate at 50.6%. Lower levels of knowledge were observed for loop diuretics (47.4%), centrally acting agents (44.6%), direct vasodilators (42.2%), and aldosterone antagonists (39.0%). This indicates varying levels of awareness regarding different classes of anti-hypertensive medications among the respondents. This then imply that the overall level of knowledge regarding anti-hypertensive prescription patterns among the respondents showed that the majority of the respondents (42.6%) had a fair level of knowledge, followed by those with poor knowledge (29.1%) and those with good knowledge (28.3%).

Similar finding consistent with this study was seen in a study carried out by Odili et al. (2020), to assess the prevalence, awareness, treatment and control of hypertension in Nigeria. Awareness was better (62.2% vs. 56.6%; P = 0.0272); treatment rate significantly higher (40.9 % vs. 30.8%) and control similar (14 vs. 10.8%) among urban compared to rural residents. Women were more aware of (63.3% vs. 52.8%); had similar treatment (36.7 vs. 34.3%) and control (33.9% vs. 35.5%) rates of hypertension compared to men.

Contrast to the findings from this study was seen in a study carried out by Busari et al. (2024), to describe the prescribing pattern and utilization of anti-hypertensive drugs and assess blood pressure control in a rural reference tertiary hospital in Nigeria. Thirty two (15.1%), 95 (44.8%), 67 (31.6%) and 18 (8.5%) patients were on mono-, dual-, triple- and quadruple therapy respectively. Diuretics (84.9%) and calcium channel blockers (56.6%) were the most

frequently used antihypertensive drugs. Blood pressure was controlled in only 45.3% of patients.

5.1.2 Compliance to anti-hypertensive prescription on blood pressure control among out-patients

The findings revealed that the highest mean score (3.44) was observed for understanding the importance of taking medication regularly, with 59.4% of respondents indicating they always understood this importance. This was followed by taking antihypertensive medication as prescribed, with 40.6% of respondents always taking their medication as prescribed and 43.4% sometimes doing so. Regular hospital visits according to appointments also scored high, with 35.5% always visiting and 44.6% sometimes visiting as scheduled. Moderate compliance was observed for receiving counseling from healthcare providers, difficulty affording medication, experiencing side effects, and stopping medication when feeling better. Low compliance was observed for forgetting to take medication and using home blood pressure monitors before taking drugs. Only 13.1% of respondents always used home blood pressure monitors, while 22.3% never used them. This then imply that the overall compliance level of respondents to anti-hypertensive prescriptions showed that the majority of the respondents (46.6%) had a fair level of compliance, followed by those with poor compliance (28.7%) and those with good compliance (24.7%).

Similar finding consistent with this study was seen in a study carried out by Ukoha-Kalu et al. (2021), to access the Hypertension self-care activities of hypertensive patients receiving care in a Secondary health care facility in Kogi state Nigeria. Their results from their study revealed that more than half of the patients under study 183 (61.4%) were adherent to the medication.

Contrast to the findings from this study was seen in a study carried out by Iloh et al. (2023), to describe medication adherence and BP control amongst adult Nigerians with primary

hypertension attending a primary care clinic of a tertiary hospital in a resource-poor environment in Eastern Nigeria. They further concluded that the rate of BP control amongst the study population was low, which may be connected with low medication adherence.

5.1.3 Factors that influences compliance to anti-hypertensive prescription on blood pressure control among out-patients

The findings revealed that the factors influencing compliance to anti-hypertensive prescriptions were found to have a high influence on compliance. The most influential factor was financial constraints, with 40.6% of respondents strongly agreeing and 37.5% agreeing that they cannot afford medication. This was followed by busy schedules, too many medications, lack of information about the disease, and side effects from medication. Other highly influential factors included concerns about long-term effects, lack of commitment to hospital appointments, lack of information on prescriptions, poor blood pressure control despite medication, lack of management commitment, and lack of support from healthcare providers.

Similar finding consistent with this study was seen in a study carried out by Osamor & Owumi (2021), on factors Associated with Treatment Compliance in Hypertension in Southwest Nigeria. Their findings revealed that factors associated with high self-reported compliance included: regular clinic attendance, not using non-Western prescription medication, and having social support from family members or friends who were concerned about the respondent's hypertension or who were helpful in reminding the respondent about taking medication. Beliefs about cause of hypertension were not associated with compliance.

Contrast to the findings from this study was seen in a study carried out by Pal et al. (2024), on the Prevalence of antihypertensive medication adherence and associated factors in India: A systematic review and meta-analysis. Twelve studies were included, involving a total of 3164 participants. The pooled rate of medication adherence to antihypertensive medications in India

was determined to be 15.8% (95% CI: 4.4; 43.4). The important factors associated with non-adherence included higher age, medication regimen complexity, low socioeconomic status, low education levels, uncontrolled blood pressure, and comorbidities.

5.2 Implication to Nursing

Nursing plays a critical role in the management of hypertension among outpatients, particularly in ensuring adherence to antihypertensive medications and promoting lifestyle modifications. Nurses can strengthen communication with patients to address barriers to adherence, such as lack of health insurance, awareness of treatment length, and possession of health insurance. Also, nurse-led telehealth interventions have been explored as a means to reduce blood pressure in hypertensive patients. These interventions can potentially lessen the burden on the healthcare system and promote a healthier population.

Additionally, in managing hypertensive patients, nurses should monitor blood pressure frequently and administer antihypertensive medications as prescribed. Interventions should be tailored to the patient's specific needs, considering factors such as the intensity of the intervention, the type of online resources used, and the patient's cultural and educational backgrounds. It is essential for nurses to educate patients about the importance of antihypertensive medications and the seriousness of hypertension. This education should cover the risks of non-adherence, such as the development of resistant hypertension, worsening of disease, increased service utilization, and healthcare cost escalation

Furthermore, the use of antihypertensive medications and the practices of nurses in Nigeria have implications for blood pressure control among outpatients. Improved education and training for nurses, along with better health education for patients, could enhance the effectiveness of hypertension management and improve BP control rates. Nursing interventions should be aimed at improving adherence to antihypertensive medications and promoting

lifestyle changes are crucial for effective blood pressure control among hypertensive outpatients. These interventions should be patient-centered and supported by ongoing education and communication between healthcare providers and patients.

5.3 Conclusion

This research has shed light on the assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility (University of Benin Teaching Hospital) in Edo state. The findings reveal a mixed landscape on the knowledge and compliance to anti-hypertensive prescription pattern on blood pressure control among out-patients. The study highlights the need for targeted health education interventions to address misconceptions, especially regarding the perceived effectiveness of anti-hypertensive prescription pattern on blood pressure control. Nursing professionals can play a crucial role in promoting healthy use anti-hypertensive prescription pattern on blood pressure control and creating a supportive environment for patients with hypertension to manage high blood pressure. Additionally, the study emphasizes the importance of incorporating comprehensive education on anti-hypertensive prescription pattern on blood pressure control into nursing curricula to equip future healthcare professionals with the knowledge and skills to address hypertensive and cardiovascular related morbidity and mortality-related issues. This study urges consideration of factors relating to adherence alongside other factors driving goal BP control. They further concluded that the cost per month is high and it is recommended that hypertension should be addressed as part of an integrated care program. Ingenious ways of healthcare financing also have to be promoted.

5.4 Summary

Hypertension is diagnosed if the blood pressure is elevated on at least three different blood pressure measurements taken on two or more office visits. Blood pressure is an indication of

the amount of work that the heart has to do to pump blood around the body. Hypertension is a major risk factor for cardiovascular events and mortality. Hypertension has been diagnosed if the systolic blood pressure is 140 mmHg or higher or if the diastolic blood pressure is 90 mmHg or higher. This research focused on the assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility (University of Benin Teaching Hospital) in Edo state. A total of 254 questionnaires were administered, and 251 were returned, representing a response rate of 98.8%, providing valuable insights on the assessment of anti-hypertensive prescription pattern on blood pressure control among out-patients. The study adopted descriptive design. A convenient sampling technique. The results showed that the overall level of knowledge regarding anti-hypertensive prescription patterns among the respondents showed that the majority of the respondents (42.6%) had a fair level of knowledge, followed by those with poor knowledge (29.1%) and those with good knowledge (28.3%). Also, the overall compliance level of respondents to anti-hypertensive prescriptions showed that the majority of the respondents (46.6%) had a fair level of compliance, followed by those with poor compliance (28.7%) and those with good compliance (24.7%). Furthermore, the findings revealed that the factors influencing compliance to anti-hypertensive prescriptions were found to have a high influence on compliance. The most influential factor was financial constraints, with 40.6% of respondents strongly agreeing and 37.5% agreeing that they cannot afford medication. This was followed by busy schedules, too many medications, lack of information about the disease, and side effects from medication. Other highly influential factors included concerns about long-term effects, lack of commitment to hospital appointments, lack of information on prescriptions, poor blood pressure control despite medication, lack of management commitment, and lack of support from healthcare providers.

5.5 Limitations of Study

The data collected relied on self-reporting through questionnaires, which could introduce response bias. Participants may provide answers they believe are socially desirable rather than their true opinions or behaviors. Lack of availability of funds was also a limitation.

5.6 Recommendations

Based on the research findings and their implications, the following recommendations are made:

1. Improved use of antihypertensive medications on blood pressure control among outpatients should include regular pre-clinic counselling provided by nurses, which has been shown to contribute to better blood pressure control in patients attending hypertension clinics.
2. Adherence to recommended guidelines for antihypertensive medication prescription is crucial. The most commonly prescribed antihypertensive medications in Nigeria include thiazide diuretics, calcium channel blockers (CCBs), and angiotensin-converting enzyme inhibitors (ACEIs), which align with the Eight Joint National Committee Guidelines on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 8). This should be encourage on medications guidelines among hypertensive patients and its prescription patterns.
3. Patient forgetfulness is a significant factor in non-adherence to antihypertensive medications, especially among older adults. Interventions such as reminders from family members or the clinical team, use of pill boxes, special pill packaging, and home blood pressure monitoring can help manage hypertension effectively
4. Financial and access barriers, including the affordability of medication, also contribute to poor medication adherence. Recommendations should include free or subsidized medication, health insurance, and tax exemptions to improve treatment adherence
5. Counseling alone or combined with patient training has been shown to improve blood

pressure control in some studies Encouraging adherence to medication and addressing multiple cardiovascular risk factors are essential steps towards better blood pressure control among hypertensive patients.

5.7 Suggestion for Further Study

It would be worthwhile to conduct further research to monitor changes in knowledge and compliance over time. This will broaden the overall understanding of anti-hypertensive prescription pattern on blood pressure control. Further studies should be performed with consistent respondents' selection. While outside the scope of this study, more data is needed to determine the knowledge and compliance to anti-hypertensive prescription pattern on blood pressure control and factors that may influence its compliance. Also there is need for evaluation of the effectiveness of implemented interventions and adjust strategies accordingly to address emerging trends and challenges.

REFERENCES

Agarwal R, Bills JE, Hecht TJ., Role of home blood pressure monitoring in overcoming therapeutic inertia and improving hypertension control: a systematic review and meta-analysis. Hypertension 2021;57:29-38.

American Heart Association [Internet]. Dallas (TX): American Heart Association Inc.; c2020. High Blood Pressure and African Americans; Available from: https://www.heart.org/en/health-topics/high-blood-pressure/why-high-blood-pressure-is-a-silent-killer/high-blood-pressure-and-african-americans

Armstrong D, Matangi M, Brouillard D, Myers MG. Automated office blood pressure - being alone and not location is what matters most. Blood Press Monit. 2020 Aug;20(4):204-8.

Aronow WS, Lee NH, Sales FF., Prevalence of postural hypotension in elderly patients in a long-term health care facility. Am J Cardiol 2023;62:336.

Black, J. M., & Hawks, J. H. (2020). Medical-surgical nursing: Clinical management for positive outcomes (7th ed.). St. Louis, Mo: Elsevier Saunders.

Bosworth, H. B., Olsen, M. K., Dudley, T., Orr, M., Neary, A., Harrelson, M., (2022). The take control of your blood pressure (TCYB): Study design and methodology. Contemporary Clinical Trials, 28, 33-47.

Chen, Y., Litvak, P. F., Howe, G. R, Parvez, F., & Ahsen, H. (2021). Nutritional influence on risk of high blood pressure in Bangladesh: A population-based cross-sectional study. American Journal of Clinical Nutrition, 84, 1224-1232.

Chockalingam, A. (2023). World hypertension day and global awareness. Canadian Journal Cardiology, 24, 441-444.

Chung, M. L., Moser, D. K., Lennie, T. A., Carter, L. W., Bentley, B., Trupp, R., (2021). Gender differences in adherence to the sodium-restricted diet in patients with heart failure. Journal of Cardiac Failure, 12, 628-634.

Deaton, C. (2020). Outcome measurement: self-management in heart failure. Journal of Cardiac Nursing, 14, 116-118.

Dunphy, L. M., & Winland-Brown, J. E. (2021). Primary care: The art and science of advanced practice nursing. Philadelphia: F.A. Davis Company.

Esler, M. (2020). The sympathetic system and hypertension. American Journal of Hypertension, 13, 99–105.

Gallagher, R., Donoghue, J., Chenoweth, L., & Stein-Parbury, J. (2023). Self-management in older patients with chronic disease. International Journal of Nursing, 14, 373-382.

Hadley, M. B., Blum, L. S., Mujaddid, s., Parveen, S., Nuremowla, S., Haque, M. E., (2021). Why Bangladeshi nurses avoid „nursing“: Social and structural factors on hospital wards in Bangladesh. Social Science and Medicine, 64, 1166-1177.

K/DOQI Clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification kidney disease outcome quality initiative. (2022). American Journal of Kidney Disease, 39, S1-S266, (Suppl2)

Kaplan, N. M. (2022). Kaplan's clinical hypertension (8th ed.). Philadelphia: Lippincott Williams & Wilkins.

Kolbe, J. (2022). The influence of socioeconomic and psychological factors on patient adherence to self-management strategies. Disease Management Health Outcomes, 10, 551-570.

Lee, J. E., Han, H., Song, H., Kim, J., Kim, K. B., Ryu, J. P., (2020). Correlates of self-care behaviors for managing hypertension among Korean Americans: A questionnaire survey. International Journal of Nursing Studies, 47, 411-417.

Lin, C., Anderson, R. M., Chang, C., Hagerty, B. M., & Cherry, L. (2023). Development and testing of the diabetes self-management instrument: A confirmatory analysis. Research in Nursing & Health, 31, 370-380.

Mühlbauer V, Dallmeier D, Brefka S, Bollig C, Voigt-Radloff S, Denkinger M. The Pharmacological Treatment of Arterial Hypertension in Frail, Older Patients—a Systematic Review. Dtsch Arztebl Int. 2024 Jan 18;116(3):23-30.

Naik, A. D., Kallen, M. A., Walder, A., & Street, R. L. (2023). Improving hypertension control in diabetes mellitus: The effects of collaborative and proactive health communication. Journal of the American Heart Association, 117, 1361-1368.

Ong, K. L., Cheung, B. M. Y., Man, Y. B., Lau, C. P., Lam, K. S. L. (2022). Prevalence, awareness, treatment, and control of hypertension among United States adults 1999-2004. Journal of American Heart Association, 49, 69-75.

Parati G, Stergiou GS, Asmar R., European Society of Hypertension practice guidelines for home blood pressure monitoring. J Hum Hypertens 2020;24:779-85.

Riegel, B., & Carlson, B. (2022). Facilitators and barriers to heart failure self-care. Patient Education and Counselling, 46, 287-295.

Schneider, R. H., Staggers, F., Alexander, C. N., Sheppard, W., Rainforth, M., Kondwani, K., (2020). A randomized controlled trial of stress reduction for hypertension in older African Americans. American Heart Association, 26, 820-827.

Spence JD. Pseudo-hypertension in the elderly: still hazy, after all these years. J Hum Hypertens 2022;11:621-3.

Vischer AS, Burkard T. Principles of Blood Pressure Measurement - Current Techniques, Office vs Ambulatory Blood Pressure Measurement. Adv Exp Med Biol. 2022;956:85-96.

Wang S, Wu H, Zhang Q., Impact of baseline prehypertension on cardiovascular events and all-cause mortality in the general population: a meta-analysis of prospective cohort studies. Int J Cardiol 2023;168:4857-60.

Weijman, I., Ros, W. J. G., Rutten, G. E. H. M., Schaufeli, W. B., Schabracq, M. J., & Winnubst, J. A. M. (2024). The role of work-related and personal factors in diabetes self-management. Patient Education and Counseling, 59, 87-96.

Williamson JD, Supiano MA, Applegate WB., Intensive vs Standard Blood Pressure Control and Cardiovascular Disease Outcomes in Adults Aged ≥75 Years: A Randomized Clinical Trial. JAMA 2021;315:2673-82.

World Health Organization (2022). Community health system profile Bangladesh, from World Health Organization:< http://www.Searo,who.int/EN/Section313/Section1515-6124htm.>

APPENDIX

FACULTY OF NURSING SCIENCE

UNIVERSITY OF BENIN, BENIN CITY

Dear Respondent,

QUESTIONNAIRE

I am Ekpeti Sandra; a 500L student in the above name institution. I am carrying out a research study on the topic: **"assessment of knowledge and compliance to anti-hypertensive prescription pattern on blood pressure control among out-patients in a tertiary healthcare facility in Edo state".** Kindly assist me by indicating your opinion where necessary. This study is strictly for academic purpose and you are hereby assured that all information supplied will be treated in a strictly confidential manner.

Thank you.

Yours faithfully,

Ekpeti Sandra

SECTION A: DEMOGRAPHIC DATA

1. Gender: (a) Male [ ] (b) Female [ ]
2. Age: (a) <30years [ ] (b) 30-39 years [ ] (c) 40-49 years [ ] (d) 50-59 years [ ] (e) 60 years & above [ ]
3. Marital status: (a) Single [ ] (b) Married [ ] (c) Divorced [ ] (d) Widowed [ ]
4. Highest Educational Qualification: (a) No formal education [ ] (b) Primary [ ] (c) Secondary [ ] (d) Tertiary [ ]
5. Ethnicity: (a) Bini [ ] (b) Esan [ ] (c) Hausa [ ] (d) Igbo [ ] (e) Yoruba [ ] (f) Others (specify) _____

6. Employment status: (a) Employed [ ] (b) Unemployed [ ] (c) Retired [ ] (d) Self-employed [ ]
7. Religion: (a) Christian [ ] (b) Muslim [ ] (c) Traditionalist [ ] (d) Others (specify) _____
8. Place of Residence: (a) Rural [ ] (b) Urban [ ] (c) Semi Urban [ ]
9. How long have you been diagnosed with Hypertension ? (a) Less than 1 year [ ] (b) 1-5 years [ ] (c) 6-10 years [ ] (d) More than 10 years [ ]
10. Comorbidities: (a) Diabetes [ ] (b) Heart disease [ ] (c) Kidney disease [ ] (d) Others (specify) _____

SECTION B: KNOWLEDGE ON ANTI-HYPERTENSIVE PRESCRIPTION PATTERN ON BLOOD PRESSURE CONTROL

Instruction: Select all that apply by ticking (√) either of the following in the column

Classes of antihypertensives prescribed ?

11. Thiazide diuretics ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
12. Calcium channel blocker (Nifedipine Amlodipine Felodipine) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
13. Angiotensin converting enzymes inhibitors (Lisinopril, Captopril, Enalapril, Ramipril) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
14. Centrally acting agents (Methylolopa) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
15. Beta blockers (Propranolol, Atenolol) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
16. Loop diuretics (furosemide) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
17. Angiotensin receptors blockers (Losartan) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
18. Aldesterone antagonist (Spironolactone) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
19. Lipid lowering drugs (Statins) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]
20. Direct vasodilator (Hydralazine) ? (a) Yes [ ] (b) No [ ] (c) Don't Know [ ]

SECTION C: LEVEL OF COMPLIANCE TO ANTI-HYPERTENSIVE PRESCRIPTION ON BLOOD PRESSURE CONTROL

Instruction: Please indicate your choice in the section C by ticking (√) either of the following in the column; Always (A), Sometimes (S), Rarely (R), Never (N)

S/N	Questions	Always	Sometimes	Rarely	Never
21	Do you take your antihypertensive medication as prescribed ?				
22	How often do you forget to take your medication ?				
23	Do you experience any side effects from your medication ?				
24	Do you stop taking your medication when you feel better ?				
25	I visit hospital regularly according to doctor's appointments for examination or treatment of hypertension.				
26	Do you have difficulty affording your medication ?				
27	Do you receive counseling about hypertension and medication from your healthcare provider ?				
28	Do you understand the importance of taking your medication regularly ?				
29	Do you use a home blood pressure monitor before taking your antihypertensive drugs ?				

SECTION D: FACTORS THAT INFLUENCES COMPLIANCE TO ANTI-HYPERTENSIVE PRESCRIPTION ON BLOOD PRESSURE CONTROL

Instruction: Please indicate your choice in the section D by ticking (√) either of the following in the column; Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

S/N	Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
30	Lack of information on various hypertensive prescription				
31	Lack of commitment on the part of management in blood pressure control				
32	Too many busy schedules				
33	Too many medications				
34	Concerns about the long-term effects on use of antihypertensive				
35	Side effects from your antihypertensive medication				
36	Financial constraints (cannot afford medication)				
37	Lack of support by your healthcare provider in making drugs changes				
38	Lack of commitment on the part of maintaining regular hospital appointment in diabetes control				
39	Poor blood pressure control even after taking antihypertensive drugs				
40	Lack of information in understanding the nature of the disease				