KNOWLEDGE ON THE CAUSES, CONSEQUENCES AND CONTROL OF HYPERTENSION AMONG CLIENTS ATTENDING MEDICAL OUTPATIENT DEPARTMENT KWARA STATE TEACHING HOSPITAL, ILORIN, KWARA STATE.

BY

AGBOOLA ADEBOLA FELIX

AT

THOMAS ADEWUMI UNIVERSITY, OKO-IRESE, KWARA STATE.

AUGUST, 2025

KNOWLEDGE ON THE CAUSES, CONSEQUENCES AND CONTROL OF HYPERTENSION AMONG CLIENTS ATTENDING MEDICAL OUTPATIENT DEPARTMENT KWARA STATE TEACHING HOSPITAL, ILORIN, KWARA STATE.

BY

AGBOOLA ADEBOLA FELIX
20/05NSS013

AT

THOMAS ADEWUMI UNIVERSITY, OKO-IRESE KWARA STATE.

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD BACHELORS OF NURSING SCIENCES DEGREE

AUGUST, 2025

Declaration

This is to declare that this research project titled **Knowledge on the Causes, Consequences and Control of Hypertension Among Clients Attending Medical Outpatient Department Kwara State Teaching Hospital, Ilorin, Kwara State** was carried out by **Agboola Adebola Felix** is solely the result of my work except were acknowledged from other person(s) work or resources.

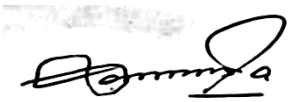
Matriculation Number: 20/05NSS013

In the Faculty of Nursing Science, Thomas Adewumi University Oko-Irese Kwara State.

Signature :  **Date: 7/08/2025**

Certification

This is to certify that this research project was carried out by **Agboola Adebola Felix** with **MATRICULATION NUMBER: 20/05NSS013** has been examined and approved for the award of **Bachelors of Nursing Science degree**.

Signature:  Date: 13/10/2025

Name: **Kolapo K.S (MR)**

(**Project Supervisor)**

Signature:  Date: 13/10/2025

Name: **Dr. Aina M.A (MRS)**

(Dean, Faculty of Nursing Sciences)

Signature: 

Name: Prof. Adelani Tijani Date: 7/8/2025

(Chief Examiner)

ABSTRACT

Hypertension is a serious worldwide health concern particularly in developing countries. The purpose of this study is to determine how well-informed patients at Kwara State Teaching Hospital, Ilorin's Medical Outpatient Department (MOPD) were about the causes, effects, and management of hypertension. 153 respondents were chosen at random to participate in the descriptive survey approach. An organized questionnaire containing information on hypertension, preventive strategies, and the influence of socioeconomic factors on the management of hypertension was used to gather data. The findings showed that although all respondents had heard of hypertension, there were significant gaps in their knowledge, especially when it came to the role that diet and exercise play in managing the illness. Socioeconomic status also affected the management of hypertension, with those in lower socioeconomic status being more vulnerable to problems. The research emphasizes the necessity of enhancing hypertension education and expanding healthcare accessibility. In conclusion, raising public awareness of hypertension is essential to lowering its prevalence and the difficulties that come with it, particularly with relation to preventive and lifestyle modifications. It is advised that these topics be the subject of public health campaigns and that medical professionals prioritize patient education when speaking with patients.

Keywords: awareness, socioeconomic factors, prevention, control, lifestyle, and hypertension

Dedication

I dedicate this project to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. I also dedicate this work to my parents for supporting me all the way and their support has made sure that I give it all it takes to finish that which I have started. Thank you. My love for you all can never be quantified. God bless you.

Acknowledgement

I wish to express my deepest gratitude to Almighty God for giving me the strength, wisdom, and determination to complete this research.

My heartfelt appreciation goes to my project supervisor, Mr. K.S. Kolapo for his invaluable guidance, mentorship, and constructive feedback throughout the research process.

I would also like to appreciate my able and intelligent lecturers, Dr Aina M.A, the dean of the faculty, Mr Kolapo K.S, Mrs Olubiyi. J.I my able level adviser, Mrs Aina. V.O, Mrs Omotosho D.O, and Dr Fashiku E.A for their moral support and encouragement throughout, may God be with you all. I would like to appreciate my friends Bello Joy and well-wishers for the support I received toward the completion of the project.

I am also thankful to the management and staff of Kwara State Teaching Hospital, Ilorin, for their cooperation and the patients who participated in this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The term “blood pressure” (BP) was coined over 300 years ago by the British Reverend Stephen Hales, who first measured it; yet our understanding of the pathogenesis, consequences, and treatments of hypertension had remained greatly limited and inadequate until only the past four decades. Moreover, despite improvements in the prevention of hypertension and control of BP in patients with hypertension, the condition remains a “silent killer” of major public health significance globally, because these improvements have not always been tangibly extended from the individual patient to the entire population. (Jones et al, 2019)

Hypertension, a chronic cardiovascular non-communicable disease (NCD) also known as arterial blood pressure, is a major public health menace and a major cause of premature death globally, particularly in developing countries. It is the force that a person’s blood exerts against the walls of their blood vessels. This pressure depends on the resistance of the blood vessels and how hard the heart has to work (WHO, 2020).

Globally, an estimated 1.28 billion adults aged 30–79 years are living with hypertension, two-thirds of whom are in low- and middle-income countries (World Health Organization, 2021). The condition contributes to an estimated 10 million deaths annually, making it a leading risk factor for cardiovascular diseases and strokes (Yusuf et al., 2020). Research has shown that, although treatments and interventions exist, many individuals remain undiagnosed or inadequately controlled, leading to unnecessary complications and deaths (Wang & Wang, 2020).

In Nigeria, hypertension has been identified as a major cause of death and a contributor to the country's growing burden of non-communicable diseases (NCDs) (Anwar et al., 2018). According to the World Health Organization (2021), NCDs, including hypertension, account for about 71% of global deaths, with the majority of these deaths occurring in low- and middle-income countries like Nigeria. The rising prevalence of hypertension in Nigeria is driven by factors such as urbanization, lifestyle changes, and inadequate awareness of the causes and management of the condition (Kadiri, 2018).

World Health Organization (WHO, 2021) estimates that Non-Communicable Diseases (NCDs) accounts for about 71% of global death. It estimates that approximately 700 million persons live with untreated hypertension.

Previous research suggests that hypertension awareness is heterogeneous and depends on factors such as age, gender, and educational level (Tadesse et al., 2018). For instance, older adults and those with lower educational attainment are more likely to have limited knowledge about hypertension and its health implications. These individuals are also less likely to seek regular healthcare services or adhere to prescribed treatments, exacerbating the problem (Centers for Disease Control and Prevention, 2019).

Wang and Wang (2020) predicted that by 2030, mortality could increase to 75.26%. Statistics shows that approximately 1.28 billion adults aged 30-79 years are diagnosed with hypertension globally and two-thirds of person living in low- and middle-income countries of the world, including Nigeria.

Globally, hypertension is recognized as a major risk factor for cardiovascular diseases and stroke. Hypertension also contributes to just over one-fifth of the population attributable fraction of cardiovascular diseases, and the leading risk factor for more than 10 million deaths and 218 million disability-adjusted life-years worldwide (Yusuf et al.,

2020). Over the years, the increase in hypertension prevalence is greater in men than in women. However, after the onset of menopause, there is a flip with a rapid increase in the prevalence of hypertension in women compared to men. (Ramirez, 2018)

A study published in BMC Public Health (2023) suggests that by 2040, the highest prevalence of hypertension was in countries such as Chad and Pakistan, with significant increases also expected in countries like Trinidad and Tobago and Uganda, and Nigeria.

1.2 Statement of the Problem

Hypertension, commonly known as high blood pressure, represents a significant and growing public health issue especially in globally. Despite extensive research and public health efforts, a substantial proportion of the global population remains inadequately informed about the causes, consequences, and management of hypertension. This knowledge gap contributes to the persistently high prevalence and inadequate control of the condition, thereby increasing the risk of severe cardiovascular diseases and other health complications.

Research indicates a significant proportion of hypertensive individuals remain unaware of their condition, leading to underdiagnosis and inadequate control. A study found that about 28.2% of individuals were aware they had hypertension, while 15.3% were unaware, resulting in a notable underdiagnosis rate. The researcher observed poor awareness of hypertension its causes and control are factors that lead to high morbidity and mortality of the disease therefore interested in studying the topic.

This research aims to determine the level of knowledge on the causes, consequences and control of hypertension among clients attending Medical Outpatient Department (MOPD) of kwara State Teaching Hospital, Ilorin, Kwara state.

1.3 Objectives of the Study

General objective

To assess the Knowledge and awareness on the causes, consequences and control of hypertension among clients attending Medical Outpatient Department (MOPD) of Kwara State Teaching Hospital, Ilorin, Kwara state.

Specific Objectives

The specific objectives of this study are to;

1. Assess the perceived knowledge of hypertension among 153 clients attending the Medical Outpatient Department (MOPD) of Kwara State Teaching Hospital, Ilorin, Kwara State, by the end of the research period.
2. Analyze and document findings regarding the causes and management of hypertension among clients attending the MOPD at Kwara State Teaching Hospital, Ilorin, Kwara State.
3. Evaluate the perceived attitudes toward the management of hypertension among 153 clients at the MOPD of Kwara State Teaching Hospital, Ilorin, Kwara State, using a structured questionnaire**.**

1.4. Research Questions

1. What is the level of knowledge of clients regarding causes of hypertension?

2. How aware are individuals of the potential health consequences associated with uncontrolled hypertension?

3. What is the prevalence of hypertension awareness and control among clients (age, gender, socioeconomic status)?

1.5. Significance of the Study

1. This study aims to identify the level of awareness of clients on the causes and control of hypertension.
2. Enhance the knowledge of medical personnel and clients causes and control of hypertension.
3. The results of the study will broaden and significantly improve the knowledge of the populace on hypertension.
4. This study will help reduce morbidity and mortality as a result of consequences of hypertension.
5. Raise awareness about hypertension among the general public and healthcare providers. This can lead to better recognition of hypertension.

1.6. Research Hypothesis

A hypothesis is a tentative explanation for a phenomenon that can be tested through research. For this study, here are some possible hypotheses:

1. H0: There is no significant association between the age of patient and the cause of hypertension.

H1: There is significant association between the age of patient and the cause of hypertension

2. H0: There is no significant association between the socio-economic status of a patient and the causes consequences of Hypertension

H1: There is significant association between the socio-economic statuss of a patient and the causes and consequences of Hypertension.

1.7 Scope of study

This study was carried out in Kwara State Teaching Hospital, Ilorin, Kwara state. Ilorin, Kwara State, to evaluate the Knowledge and awareness on the causes, consequences and control of hypertension among clients attending Medical Outpatient Department (MOPD).

1.8. Operational definition of terms

Hypertension: otherwise known as high blood pressure; where the blood pressure is greater than 140/90mmHg among clients attending Medical Outpatient Department (MOPD) of Kwara State Teaching Hospital, Ilorin, Kwara state, Ilorin.

Awareness: Being in the knowing of something. It is the understanding of knowledge or circumstances, facts, or states of affairs of clients attending Medical Outpatient Department (MOPD) of Kwara State Teaching Hospital, Ilorin, Kwara state., Ilorin.

Consequences: The results or repercussions of a situation or an action as it affects clients attending Medical Outpatient Department (MOPD) of Kwara State Teaching Hospital, Ilorin, Kwara state., Ilorin.

Client: A client is a person whose blood pressure is higher than 140/90mmHg and is currently attending medical out-patient department of kwara State Teaching Hospital, Ilorin, Kwara state., Ilorin

Lifestyle: The way a person lives, including their habits, behaviors, and daily activities.

Modification: Modification means making a change or alteration to something to make it work better.

Anxiety: It is the generalized pervasive fear of unknown that dominates or interfere the individual's daily activities and/or life.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0. Introduction

This chapter reviews the studies that have been conducted by different researchers. It includes the conceptual review, theoretical review and empirical review.

Hypertension has emerged as a significant health issue, indicating an anticipation for broader public understanding of its origins and outcomes. Since hypertension has grown to be a significant health issue one would think that everyone is aware of its causes and effects issue.

2.1 Conceptual review

The conceptual framework for this study on hypertension illustrates the relationship between various demographic, behavioral, and healthcare-related factors. It demonstrates how these factors affect the control and management of hypertension among patients attending the Medical Outpatient Department (MOPD). This framework helps us understand how knowledge, awareness, and lifestyle factors contribute to managing hypertension and, ultimately, impact health outcomes.

Definition of Hypertension

The term used for defining elevated blood pressure is hypertension. Blood pressure is a function of the pressure the blood exerts on the artery walls, when the heart pumps blood through the body. Blood pressure is strongest as it exits the heart through the aorta and slowly diminishes as it reaches smaller and smaller blood vessels. The blood moves from the heart through arteries with enough energy to transfer the fluid through the blood vessels to reach each organ. Blood flows into the veins that lead to the heart, supported by muscle contraction and gravity (Ogedegbe, 2019).

López et al. (2019) defined Primary hypertension as high blood pressure that does not have a secondary cause and is thought to result from a combination of genetic predisposition and environmental factors.

Secondary hypertension is defined as high blood pressure secondary to another condition, including endocrine, renal, or cardiovascular diseases (Mancia et al., 2022).

In contrast, secondary hypertension results from an identifiable cause, like presence of underlying kidney disease, coarctation (narrowing) of the aorta, metabolic disorders, or specific enzyme deficiencies.

The exact reason for most cases of hypertension can't be pinpointed. It is known to be muti-factorial in nature. A range of factors including modifiable (body weight, salt intake, smoking, diet, exercise) and non-modifiable (age, genetics, ethnicity, sex) risk factors may increase a person's risk of developing hypertension. (Claire-giles, 2021; Arnett et al., 2019).

Influence of Age on Hypertension

According to the World Health Organization (WHO), people over 65 years old are more likely to experience hypertension than younger adults. The CDC also highlight that a person's likelihood of developing hypertension increases as they age**.** Li et al., (2024) stated that hypertension is one of the most common chronic diseases in older people, and the prevalence is on the rise as the global population ages. Frailty is an age-related geriatric syndrome, characterized by decreased physiological reserves of multiple organs and systems and increased sensitivity to stressors, which increases the risk of falls, hospitalization, fractures, and mortality in older people. In older people, frailty and hypertension often coexist.

Leszczak., Czenczek-Lewandowska, (2024) in their study of prevalance of hypertension among older adults discovered that the age distribution of subjects was majorly from 60 and 85 age group. According to a national population-based survey carried out between 2009 and 2010, the age-adjusted prevalence of hypertension was 43% in the adult population, (50% in men and 37% in women) (Menéndez et al., 2019).

Influence of Genetics and Family History

Genetics are likely to contribute to an individual's risk of developing high blood pressure, cardiovascular disease, and other conditions that relate to hypertension, according to the CDC. However, individuals with a family history of hypertension may also be exposed to similar environmental or lifestyle-related risk factors for the condition. For example, people may eat similar diets to other members of their family, and children may develop similar exercise habits to their parents. Levy et al., (2019) A family history of hypertension increases the risk of developing the condition. Genetic factors can influence blood pressure regulation and how the body responds to various environmental factors.

Currently the trend of hypertension as much as 90 percent is influenced by genetic factors so that if there are 10 people suffering from hypertension, 9 of them are caused by genetic and environmental factors that increase the risk of hypertension. Hypertension tends to be inherited from family members. Someone who has a family that has hypertension history the risk of hypertension will increase twice as much as people who have no hypertension history from their family (Ari, 2019)

Influence of Education on Hypertension

Maksimova-Zh & Maksimov-Dmitri (2020) study examines the prevalence of hypertension in a working-age population, focusing on the influence of gender and education levels. The study found that hypertension was more prevalent in men and among individuals with lower educational attainment. While the overall awareness of hypertension was relatively high, men were significantly less aware of their condition and less likely to be receiving treatment. Furthermore, individuals with higher

education levels had significantly higher rates of hypertension awareness, treatment efficacy, and control.

Influence of Ethnicity on Hypertension

Vibhu Parcha et al (2019) who carried out a survey on the distribution of Hypertension among young Americans. He proceeded to say that Among 12,206 young American adults, non-Hispanic blacks had the highest prevalence of hypertension from 2005-2008 through 2013-2016. Among Mexican Americans, the prevalence of hypertension rose from 8.7% in 2005-2008 to 13.2% in 2013-2016. Hypertension prevalence remained stable in non-Hispanic whites and non-Hispanic blacks. A significant increase in the rates of awareness, treatment, and control of hypertension were noted among Mexican Americans. The rates of awareness, treatment, and control of hypertension remained stable among non-Hispanic whites and non-Hispanic blacks. Despite higher rates of awareness and treatment of hypertension during 2013-2016 period, hypertension control remained sub-optimal among all racial/ethnic groups. He concluded by saying that One in every five non-Hispanic young American blacks has hypertension and the burden is rapidly increasing in Mexican Americans.

Influence of Lifestyle on Hypertension

Lifestyle refers to the way a person lives, including their habits, behaviors, and daily activities. In this context of this study refers to diet, exercise, smoking and alcohol consumption. Concerning diet, high consumption of fatty foods, and salt places an individual at greater risk of developing hypertension. According to NIH (2024) Eating unhealthy foods often, especially foods that are high in salt and low in potassium. Some

people, including Black people, older adults, and people who have chronic kidney disease, diabetes, or metabolic syndrome, are more sensitive to salt in their diet.

Mozaffarian., et al. (2021) Consuming too much sodium is a major risk factor for hypertension. Sodium causes the body to retain water, which increases blood volume and, consequently, blood pressure. Regular physical activity helps maintain a healthy weight and reduces blood pressure by improving heart health and the elasticity of blood vessels. Aerobic exercises like walking, jogging, and swimming are particularly effective. (WHO 2020).

In a study conducted by Jesús Díaz-Gutiérrez (2019) to assess the association between a healthy-lifestyle score and the incidence of hypertension. Participants with more healthy lifestyle factors were slightly younger, more likely to be female, tended to have a lower BMI, lower alcohol intake, lower percentage of binge drinking, higher levels of physical activity and a greater adherence to the Mediterranean dietary pattern. Moreover, they had a lower proportion of cardiovascular risk factors (dyslipidemia and smoking), lower sodium intake. He stated that the influence of lifestyle on the risk of hypertension is profound. Adopting a healthy diet, engaging in regular physical activity, limiting alcohol intake, avoiding tobacco, managing stress, and maintaining a healthy weight are critical strategies for preventing and managing hypertension.

Prasetyo et al., 2019 Likewise, maintaining a desirable BMI essentially promotes better health. On hypertension specifically, unregulated weight imposes a greater risk of hypertension irrespective of one's lifestyle. Therefore, individuals having blood pressure above the normal BMI range are observed to have a 2.49 times elevated risk of hypertension compared to those having normal blood pressure. However,

underweight individuals equally share the chance of having hypertension 0.58 times more compared to those with normal weight and blood pressure.

Social-economic influence on Hypertension

Socioeconomic factors significantly influence the prevalence and management of hypertension. These factors encompass a range of social and economic conditions, including income, education, employment, and access to healthcare, which collectively impact lifestyle choices, stress levels, and overall health. According to Heo., et al. (2020) who carried out a study on the Socioeconomic Status and Hypertension Prevalence found that there is a significant association between low income and higher prevalence of hypertension. Individuals with lower income were less likely to have access to healthy foods and healthcare, contributing to higher hypertension rates.

Schnall & Landsbergis, (2019) conducted a study on Job Strain and Cardiovascular Disease, this study highlighted the impact of job strain on hypertension. High job stress and job insecurity were significantly associated with increased hypertension risk due to unhealthy coping mechanisms and elevated stress levels.

Clinical Manifestation of Hypertension

According to WHO (2023) Hypertension is rarely accompanied by symptoms. Half of all people with hypertension are unaware that they have it. Hypertension is usually identified as part of health screening or when seeking healthcare for an unrelated problem. Some people with high blood pressure report headaches, as well as lightheadedness, vertigo, tinnitus (buzzing or hissing in the ears), altered vision or fainting episodes. These symptoms, however, might be related to associated anxiety rather than the high blood pressure itself.

Long-standing untreated hypertension can cause organ damage with signs such as changes in the optic fundus seen by ophthalmoscopy. The severity of hypertensive retinopathy correlates roughly with the duration or the severity of the hypertension. Other hypertension-caused organ damage include chronic kidney disease and thickening of the heart muscle.

MANAGEMENT OF HYPERTENSION

The goal is to reduce the patient's blood pressure in order to reduce the pressure on the arteries and arterioles, thereby preventing, reducing, or reversing the progression of arteriosclerosis. Buelt et al., (2021) said that hypertension can be managed by the consumption of a healthy diet, engaging in regular physical activities, and refraining from tobacco products. On the other hand, recommended modifications in lifestyle such as reduced salt consumption, stress management, weight management, smoking cessation, and the moderation of alcohol with good diets are considered to be beneficial to combat hypertension and related complications.

Timsina et al., (2023) Regular intake of fruits and vegetables lowers blood pressure in the short term. Long-term studies regarding this are scarce. One cohort study used data from a nurses' health survey investigated in three stages during a time of 10 years with supplementation of fruits such as apples or grapes, apples or pears, strawberries, blueberries, avocado, spinach, broccoli, cauliflower, carrot, etc. Thereby indicating such long-term intake of mentioned fruits could reduce the risk of hypertension.

Timsina et al., (2023) opined that Among various other supplements to reduce hypertension, salt intake has a vital role in regulating blood pressure. Reduction in salt consumption below 5gms per declines cardiovascular morbidity and mortality rate and enhance pharmacological therapies' outcome.

Day & Rudd, (2019) Similarly, consumption of alcohol (14 g of pure alcohol) also reduces the risk of ischemic heart disease. However long-term consumption of alcoholic beverages in moderate to high amount increases the risk of hypertension, cardiac arrhythmia, cardiomyopathy, and heart failure.

Muscogiuri et al., (2022) stated that Individuals with obesity are at higher risk of obesity-related disorders like hypertension, dyslipidemia, type 2 diabetes mellitus, cardiovascular disease, and several cancers. the Mediterranean diet has benefits in controlling obesity.

Ilmaskal, (2023) studied the effectiveness of Tara exercise with senior hypertensive people. The mean systolic blood pressure after the period of exercise was 17,500, and the mean diastolic blood pressure before and after was 13,929. Tara's exercise is highly beneficial physical and recreational therapy, as determined by p-value = 0.000 (p0.05)

Pescatello et al., (2019) Studies suggested that physical activity reduces not only cardiovascular disease but the risk of progression of heart disease in adults. Blood pressure magnitude can differ significantly based on the state of the human body (such as physically active or resting period). Categorically, pre-hypertensive individuals are benefited more from exercise compared to individuals having normal blood pressure. Whereas, the magnitude of blood pressure response doesn't significantly vary in individuals with normal blood pressure.

Abdurakhman et al., (2022) stated that in elderly people, hypertension usually occurs because cell structure and function change with advancing age affecting health and disease. Exercise namely hypertension exercise done daily for about 30–120 min helps to reduce the risk of hypertension. hence there is a significant role of exercise in the management of hypertension in elderly individuals.

Herawati et al., (2023), Meanwhile, slow breathing exercises can be used as an alternate, non-pharmacological therapy for individuals with raised blood pressure. This review indicated that regular breathing exercise reduces systolic blood pressure by 4–54.22 mmHg and diastolic blood pressure by 3–17 mmHg.

On the other hand, recommended diet systems such as DASH, play a crucial role in hypertension management. The study suggests that the dietary approach to stop hypertension (DASH) diet can control blood pressure as successfully as some antihypertensive medications (Strilchuk et al., 2020). As pharmacological management of hypertension comes with certain side effects, one of the most important and valuable ways to enhance public health outcomes is through dietary intervention. This is crucial in hypertension management (Chang et al., 2021). Regardless of ongoing anti-hypertensive medications, individuals with a risk of developing arterial hypertension or a hypertensive individual should be advised to adhere to a healthy diet focusing on optimizing body weight (Strilchuk et al., 2020). Awareness of dietary impacts on health has slowly been enhanced over the past few decades. Several studies have noted substantial effects of nutritional components on metabolic activities and pathological processes in humans. Because of its contribution to the state of health and its favorable impact on quality of life, the Mediterranean diet has gained widespread recognition as a model of "good eating" (Tuttolomondo et al., 2019).

Diet is a major concern from the perspective of health and the reduction of hypertension as revealed in various scientific literature. However, a deeper understanding and acquiring a specific diet system to mitigate hypertension through dietary management are essential. A multidimensional study that incorporates the individual role of different factors along with diet is hence essential.

Preventive Measures against Hypertension

Prevention and control of hypertension can be achieved by application of targeted and/or population-based strategies. The targeted approach is the traditional strategy used in health care practice and seeks to achieve a clinically important reduction in BP for individuals at the upper end of the BP distribution. The targeted approach is used in the management of patients with hypertension, but the same approach is well-proven as an effective strategy for prevention of hypertension in those at high risk of developing hypertension

According to WHO guidelines 2020 Preventing hypertension involves strategies across different levels of prevention: primary, secondary, and tertiary. Each level focuses on specific activities aimed at reducing the incidence, progression, and complications of hypertension.

Level of prevention	Activities	
Primary prevention		
	Healthy Diet	DASH Diet: Promote the Dietary Approaches to Stop Hypertension (DASH) diet, rich in fruits, vegetables, whole grains, and low-fat dairy, with reduced sodium intake.
	Regular Physical Activity	Encourage at least 150 minutes of moderate-

		intensity aerobic exercise per week
	Alcohol Moderation	Limit alcohol intake to no more than one drink per day for women and two drinks per day for men.
	Smoking Cessation	Implement smoking cessation programs and policies to reduce smoking prevalence
Secondary Prevention		
	Regular Blood Pressure Monitoring	Encourage regular blood pressure checks, especially for high-risk individuals
	Screening Programs	Implement community-based screening programs to identify individuals with elevated blood pressure early.
	Pharmacological Interventions	Use of antihypertensive medications in individuals with pre-hypertension or early-stage hypertension to

		prevent progression.
	Patient Education and Support	Provide education on the importance of medication adherence, lifestyle modifications, and self-monitoring.

Knowledge of Hypertension

In the year 1998, awareness among 50-59 aged adults' prevalence rate is about 69.4%. But in 2011, the awareness rate was approximately 82.3%. The gradual increase in awareness rate is the outcome of health education programs, regular campaigns, health literacy among people to avoid Premature exposure to disease in general. Individuals having type 1 diabetes are more prevalent to hypertension than the non-diabetic ones (Preetha et al., 2020). The prevalence is contradictory to awareness (i.e., Females are more aware than male).

Mohamed et al., (2018) This study is centered towards analyzing the knowledge of complications of hypertension among adults.

Brown, E and Smith., (2020) The study revealed that while there was a high level of awareness about hypertension among the low-income urban population, the treatment and control rates were lower due to barriers such as cost of medication and access to healthcare services.

Ogedegbe, and Pickering, (2023) study assessed hypertension knowledge, awareness, and lifestyle practices among Nigerian adults. It found that while awareness of

hypertension was relatively high, there was a significant gap in understanding hypertension's risk factors and management strategies. The study recommended more comprehensive public health education and community-based interventions.

Adeniyi, and Balogun, (2019) explored the knowledge, attitudes, and practices related to hypertension among adults in Ibadan. The study found a high level of awareness but noted a lack of detailed knowledge about hypertension management and prevention practices.

Consequences of Hypertension

Hypertension, or high blood pressure, is a significant global health issue with numerous severe consequences. According to the World Health Organization (WHO), hypertension is a major risk factor for various cardiovascular and non-cardiovascular diseases. According to World Health Organization (2022) The WHO Global Status Report highlighted that hypertension is responsible for nearly half of all cardiovascular disease deaths. It projects that the number of deaths due to hypertension-related diseases is expected to rise due to the increasing prevalence of hypertension and the aging population. The report anticipates that cardiovascular disease, largely driven by hypertension, will remain the leading cause of death globally. The number of deaths from cardiovascular diseases is projected to increase from 17.9 million in 2019 to 24.5 million by 2030.

Hypertension, or high blood pressure, has both immediate and prolonged impacts on health. These effects can range from cardiovascular events like heart disease and stroke to chronic conditions such as kidney failure.

Daugherty and Lishner., (2021) study demonstrated that patients with uncontrolled hypertension are at a significantly higher risk of developing ACS. Specifically, the odds

of experiencing a heart attack increase by 50% in individuals with hypertension compared to those with normal blood pressure. The study also highlighted that timely and effective management of hypertension can reduce the risk of acute coronary syndrome through the use of anti-hypertensive medications and lifestyle modifications. Over time, hypertension can cause severe heart conditions that lead to heart failure, affecting daily functioning and requiring ongoing management.

Xu and Zhang., (2021) Long-term follow-up indicated that hypertension increases the risk of recurrent strokes and hemorrhagic strokes. The study found that patients with hypertension who had a prior stroke had a 40% higher risk of experiencing another stroke over a five-year period. Chronic hypertension contributes to ongoing risk for further cerebrovascular events, which can lead to persistent neurological deficits and long-term healthcare needs.

Renal failure which could be acute or chronic occurs within days or weeks as a result of hypertension. persistent high blood pressure can cause arteries around the kidneys to narrow, weaken, or harden. These damaged arteries are less efficient at delivering blood to the kidney tissue, impairing kidney function over time (NIDDK, 2021).

Hypertensive retinopathy is a condition where the blood vessels in the retina are damaged due to chronic high blood pressure (hypertension). This damage can affect vision and, in severe cases, lead to blindness. National Eye Institute (2023).

2.2. Empirical Review

Recent studies have deepened our understanding of the genetic underpinnings of hypertension. A study by Baliunas et al. (2020) identified new genetic variants associated with hypertension risk through genome-wide association studies (GWAS).

Their research revealed that specific single nucleotide polymorphisms (SNPs) in genes such as ACE2 and AGT are linked to increased blood pressure (Baliunas et al., 2020).

Zhang et al. (2021) conducted a comprehensive genome-wide association study (GWAS) and identified novel genetic loci associated with hypertension. They discovered that variants in genes like SLC12A3 and ATP2B1 are significantly linked to increased systolic and diastolic blood pressure. Specifically, the SLC12A3 gene encodes a protein that is part of the sodium-chloride cotransporter in the kidney, influencing sodium balance and blood pressure. The study highlighted that individual carrying certain genetic variants had a higher risk of developing hypertension, thus providing insight into the biological mechanisms underlying the condition (Zhang et al., 2021).

Lifestyle factors such as diet, physical activity, and smoking are well-documented contributors to hypertension. Niu et al. (2022) conducted a systematic review and meta-analysis to assess the impact of dietary sodium intake on hypertension. Their analysis revealed that high sodium consumption is strongly correlated with increased blood pressure levels. They found that individuals who consumed more than 3,500 mg of sodium per day had a higher prevalence of hypertension compared to those with lower sodium intake. Reducing dietary sodium by just 1,000 mg per day was associated with a significant decrease in both systolic and diastolic blood pressure, emphasizing the role of dietary modifications in hypertension management (Niu et al., 2022).

Faulkner et al. (2021) reviewed the effects of physical activity on blood pressure among individuals with hypertension. They found that regular physical exercise, such as aerobic activities (e.g., brisk walking, cycling), leads to significant reductions in blood pressure. The review indicated that engaging in at least 150 minutes of moderate-

intensity exercise per week resulted in an average reduction of 5-10 mmHg in systolic blood pressure and 2-5 mmHg in diastolic blood pressure. The study underscored the importance of physical activity as a non-pharmacological intervention for managing hypertension (Faulkner et al., 2021).

Research has increasingly focused on how environmental and socioeconomic factors contribute to hypertension. Kearney et al. (2020) explored the relationship between socioeconomic status and hypertension. Their study found that individuals from lower socioeconomic backgrounds were more likely to have hypertension. Factors such as limited access to healthcare, higher levels of stress, and unhealthy dietary practices were identified as contributing to higher hypertension rates among these populations. The study suggested that improving access to healthcare services and increasing health literacy could help mitigate these risks (Kearney et al., 2020).

Hypertension is a significant risk factor for various cardiovascular diseases. Hsu et al. (2022) conducted a longitudinal study that assessed the long-term cardiovascular outcomes associated with hypertension. The study demonstrated that untreated or poorly managed hypertension leads to a higher incidence of heart disease and stroke. Specifically, the researchers observed that hypertensive individuals had a 50% increased risk of myocardial infarction and a 60% increased risk of stroke compared to normotensive individuals. The findings highlight the critical need for early detection and effective management of hypertension to prevent serious cardiovascular events (Hsu et al., 2022).

Hypertension is a well-established risk factor for chronic kidney disease. Alper et al. (2023) explored how hypertension accelerates the progression of CKD. Their study found that sustained high blood pressure is associated with faster progression of kidney

damage, which can lead to end-stage renal disease (ESRD). Specifically, the study highlighted that patient with hypertension had a 30% higher risk of developing CKD compared to those with controlled blood pressure. The researchers also emphasized the importance of blood pressure management in preventing CKD progression (Alper et al., 2023).

Recent studies link hypertension to cognitive decline and dementia. Wang et al. (2021) conducted a longitudinal study to examine the effects of untreated hypertension on cognitive function. The study revealed that individuals with untreated hypertension experienced a more rapid decline in cognitive abilities compared to those with well-managed blood pressure. The researchers found that high blood pressure was associated with increased risks of cognitive impairment and dementia, particularly in older adults. This study underscores the importance of managing hypertension to preserve cognitive health (Wang et al., 2021).

Medications are central to the management of hypertension. Eckel et al. (2021) reviewed the effectiveness of various antihypertensive medications, including Angiotensin Converting Enzymes (ACE) inhibitors, ARBs (Angiotensin Receptor Blockers), and beta-blockers. The study found that ACE inhibitors, such as lisinopril, and ARBs, such as losartan, are effective in reducing blood pressure and protecting against end-organ damage. For example, lisinopril was associated with a 10-15 mmHg reduction in systolic blood pressure and a 5-10 mmHg reduction in diastolic blood pressure. The review also highlighted that combination therapies could be more effective for individuals with resistant hypertension (Eckel et al., 2021).

Lifestyle changes are recommended for hypertension management. Sacks et al. (2020) evaluated the effectiveness of the Dietary Approaches to Stop Hypertension (DASH)

diet. The study showed that adherence to the DASH diet, which emphasizes fruits, vegetables, whole grains, and low-fat dairy products, resulted in significant reductions in blood pressure. Participants following the DASH diet experienced an average decrease of 8-14 mmHg in systolic blood pressure and 4-8 mmHg in diastolic blood pressure. The study concluded that dietary changes can be a powerful tool for managing hypertension (Sacks et al., 2020).

Ogundele et al. (2023) assessed public awareness of hypertension and identified significant knowledge gaps. Their study revealed that while many individuals recognized hypertension as a health condition, there was widespread misunderstanding about its risks, symptoms, and management strategies. For example, many participants did not understand the link between hypertension and cardiovascular diseases, and there was a lack of awareness about the importance of regular blood pressure monitoring (Ogundele et al., 2023).

Gaps in the Literature

Despite significant progress, there remain several gaps in hypertension research.

Under-exploration of Environmental and Socio-economic Factors: While genetic and lifestyle factors are well-documented, there is less research focusing on how environmental and socio-economic factors specifically influence hypertension management and outcomes. Future research needs to explore how aspects such as urbanization, environmental pollution, and economic disparities contribute to

hypertension (Kearney et al., 2020). New Digital Health Technologies: There is a need for more studies evaluating the effectiveness of new digital health technologies, such as hypertension management apps and online health platforms, in improving hypertension outcomes and patient engagement (Kim et al., 2024).

Longitudinal Studies: There is a demand for long-term studies that track the effectiveness of hypertension interventions over extended periods to assess their impact on health outcomes like cardiovascular events and cognitive decline (Wang et al., 2021).

2.3. Theoretical Review

A theoretical review involves the systematic evaluation of existing theories and models to understand their applicability, relevance, and limitations within a specific research context (Snyder, 2019). A theoretical review integrates and critiques existing theories to provide a deeper understanding of the theoretical underpinnings of a research topic and identify future research directions (Paul., & Criado, 2020).

The Health Belief Model (HBM) provides a useful theoretical framework for analyzing these factors. This model, developed in the 1950s by social psychologists Hochbaum, Rosenstock, and Kegels, is grounded in the theory that a person's health-related behavior depends on their perceptions of the risks and benefits associated with that behavior. The model identifies several key variables that influence health-related decision-making.

1. Perceived Susceptibility: This refers to an individual’s belief about the likelihood of contracting a health problem or experiencing a health issue. Individuals with hypertension or those at risk (due to genetics, lifestyle, or existing conditions) may believe they are susceptible to complications of uncontrolled hypertension, such as heart disease or stroke. For instance, if a person is aware that high blood pressure runs

in their family, they might be more likely to adhere to recommended treatments and lifestyle changes.

2. Perceived Severity: This involves an individual's belief about the seriousness of a health problem and its consequences. The perceived severity in the context of hypertension involves understanding the serious complications of untreated high blood pressure, such as cardiovascular diseases, kidney damage, or stroke. If patients perceive hypertension as a severe and life-threatening condition, they are more likely to follow medical advice and adopt preventive measures.

3. Perceived Benefits: This refers to an individual's belief in the effectiveness of taking a specific health action to reduce risk or severity. For hypertension, perceived benefits could include the belief that taking anti-hypertensive medication as prescribed, making dietary changes, and increasing physical activity will effectively control blood pressure and prevent complications. Patients who understand and believe in the benefits of these actions are more likely to engage in these health behaviors.

4. Perceived Barriers: This involves an individual's evaluation of the obstacles to taking a health action. Common barriers to managing hypertension might include the cost of medication, side effects, the complexity of medication regimens, or the inconvenience of lifestyle changes. Overcoming these barriers might involve education on managing side effects, financial assistance programs, or strategies to simplify medication routines.

5. Cues to Action: These are triggers that prompt individuals to take health actions. Cues to action for hypertension management might include experiencing symptoms of high blood pressure, receiving a reminder from a healthcare provider, or educational campaigns in the media about the dangers of high blood pressure.

6. Self-Efficacy: This is the confidence in one's ability to successfully perform the recommended health behaviors. In managing hypertension, self-efficacy was the confidence a person has in their ability to take medications correctly, follow a healthy diet, or incorporate exercise into their routine. Increasing self-efficacy might involve support groups, counseling, or educational sessions to build confidence in managing one's health.

The Health Belief Model provides a robust framework for understanding and influencing health behaviors related to hypertension. By addressing the perceived susceptibility, severity, benefits, and barriers of managing hypertension, as well as leveraging cues to action and boosting self-efficacy, healthcare professionals can develop effective interventions to improve patient outcomes. This model's application in hypertension management emphasizes a comprehensive approach that combines education, support, and practical solutions to foster better health behaviors.

Relevance of the study

The model values the individual's perception. Each person's unique perception of a specific thing or disease condition is considered. This theoretical framework is well-suited for the study as it underlines the significance of understanding hypertension and its consequences, leading respondents to view hypertension as a serious yet preventable disease. This, in turn, prompts them to take positive actions to mitigate its complications.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0. Introduction

This chapter describes the method and procedures used to carry out the study on the knowledge and awareness of the causes, consequences, and control of hypertension among clients attending the Medical Outpatient Department (MOPD) of the Kwara State Teaching Hospital, Ilorin, Kwara state (KWASUTH).

3.1. Research Design

This study is a non-experimental, descriptive survey aimed at understanding the Knowledge and awareness on the causes, consequences and control of hypertension among clients attending Medical Outpatient Department (MOPD) of Kwara State Teaching Hospital, Ilorin, Kwara state.

3.2 Research Setting

Kwara State Teaching Hospital is a major public healthcare institution located in Ilorin, the capital city of Kwara State, Nigeria. It serves as a key facility for providing medical care to city residents and surrounding regions. The hospital is known for offering a range of healthcare services, from emergency care to specialized treatments. Kwara State Teaching Hospital has been a prominent healthcare facility in Kwara State for many years. It has a long history of serving the community and providing essential medical services. The hospital's legacy is rooted in its commitment to public health and medical excellence. KWASUTH offers a variety of medical services and facilities, including Emergency Services, Outpatient Services, Inpatient Services, Specialized Departments, Pediatrics, Surgery, Laboratory Services, Radiology, Pharmacy Services, and Public Health Programs.

3.3. Target Population

The target population for this study are all hypertensive patients attending the follow up clinic at the Medical Outpatient Department of Kwara State Teaching Hospital, Ilorin, Kwara state.

3.4. Sampling

The sample size is determined using Taro Yamane statistical formula. Considering the total population of clients under this study, the sample size is calculated to ensure sufficient statistical power for the study.

Using a target population of 248 clients, the sample size will be calculated using this formula;

n = (N/ (1 + N(e^2)))

Where:

n = sample size

N = population size (248)

e = desired level of precision (margin of error, 0.05)

Plugging in the values:

n = (248/ (1 + 248(0.05) ^2))

n = (248/ (1 + 248 (0.0025)))

n = (248/ (1 + 0.62)

n = (248 / 1.62)

n = 153.086

n ≈ 153

Therefore, using the Taro Yamane formula, a sample size of 153 would be used for this study, subjects who will be selected through random sampling technique from those who attends the clinic.

3.5. Sampling Techniques

The study used simple random sampling to select participants from clients attending the Medical Outpatient Department (MOPD) at Kwara State Teaching Hospital.

The study adopted a non-experimental descriptive survey design to assess the knowledge of hypertension causes, consequences, and control among the selected clients.

Inclusion criterium

- Participants included in the study were Hypertensive clients attending follow-up visits at the MOPD of Kwara State Teaching Hospital.
- Clients who were available and willing to participate during the data collection period.
- Clients aged 20 years and above.

Exclusion criterium

- Non-hypertensive patients
- Hypertensive clients who are not willing to be a respondense
- Clients bellow the age of 20

3.6. Research Instrument

The research study is a self-structured questionnaire consisting of 24 items organized into four sections: A, B, C, and D. Section A gathered demographic data of the respondents, while Section B focused on their knowledge of the causes, consequences, and control of hypertension. Section C assessed the respondent's knowledge of the prevention and control of hypertension, and Section D examined the consequences of hypertension. For illiterate respondents, verbal explanation was provided to ensure that they could correctly fill out the questionnaire.

3.7. Validity of Instrument

Content and face validity was utilized. The structured questionnaire underwent thorough scrutiny by the project supervisor, who made constructive modifications and amendments before administering it to the respondents.

3.8. Reliability of Instrument

The instrument's reliability was assessed using the test-retest method. Participants were selected and given questionnaires, which was administered again to the same group for data collection and correlation.

3.9. Method of Data Collection

An introductory letter was obtained from the school authority and given to the Head of the Medical Outpatient Department at the Kwara State Teaching Hospital, Ilorin, Kwara state to facilitate cooperation from research assistants and respondents. The respondents were assured that all the information they provided was treated confidentially, and they were given adequate time to answer each question appropriately.

3.10. Method of Data Analysis

The data gathered was organized and analyzed using simple percentages and frequencies, which was represented in tables and figures such as pie charts, and bar charts. The demographic data was organized and analyzed using descriptive statistics, while hypotheses was analyzed using inferential statistics, specifically chi-square with the use of SPSS version 25.

3.11. Ethical Consideration

Ethical approval was obtained from the ethical committee at Kwara State Teaching Hospital, Ilorin, with an introductory letter from Thomas Adewumi University Faculty of Nursing Science, which served as legal backing for my research, conducted mainly for academic purposes. I was granted permission to distribute questionnaires to clients with hypertension. All gathered information was treated confidentially, and no names or personal identification was required.

CHAPTER FOUR

PRESENTATION OF DATA ANALYSIS

4.0 Introduction

This chapter contains the presentation of data collated and analyzed from the questionnaires administered on Knowledge of Respondents on the Causes, Consequences and Control of Hypertension at Medical Outpatient Department Kwara State Teaching Hospital, Ilorin, Kwara State.

Section a: Demographic data

Table 4.1 showing frequency distribution of the respondents by Demographic data

Age (Years)	Frequency	Percentage (%)
20–29	39	25%
30–39	24	16%
40–49	57	37%
50 and above	33	22%
Total	**153**	**100%**

Gender	Frequency	Percentage (%)
Female	63	39.2%
Male	90	60.8%
Total	**153**	**100%**

Religion	Frequency	Percentage (%)
Christianity	48	31.3%
Islam	45	29.4%
Others	60	39.2%
Total	**153**	**100%**

Marital Status	Frequency	Percentage (%)
Single	30	19.6%
Married	42	27.4%
Separated	45	29.4%
Divorced	36	23.5%
Total	**153**	**100%**

Education Level	Frequency	Percentage (%)
Non-formal	27	17.6%
Primary	42	27.4%
Secondary	33	21.5%
Tertiary	51	33.3%
Total	**153**	**100%**

Occupation	Frequency	Percentage (%)
Employed	54	35.2%
Unemployed	51	33.3%
Others	48	31.5%
Total	**153**	**100%**

Table 4.1 above shows that the majority of the respondents, 57 (37%), are within the 40–49 years age bracket, while the least number of respondents, 24 (16%), are within the 30–39 years age group. Also, most of the respondents, 90 (60.8%), are males, while the remaining 63 (39.2%) are females. Regarding religion, 48 (31.3%) of the respondents identified as Christians, 45 (29.4%) identified as Muslims, while 60 (39.2%) identified with other religions. In terms of marital status, a higher number of the respondents, 45 (29.4%), are separated, 42 (27.4%) are married, 36 (23.5%) are divorced, while 30 (19.6%) are single. Furthermore, most of the respondents, 51

(33.3%), have tertiary education, while 27 (17.6%) have non-formal education. Lastly, majority of the respondents, 54 (35.2%), are employed, 51 (33.3%) are unemployed, and 48 (31.5%) indicated other types of occupation.

Section B:

Knowledge on the causes, consequences and control of hypertension

Table 4.2: Showing frequency distribution of respondent on whether they have heard of hypertension before

Response	Frequency	Percentage
Yes	153	100%
No	0	0%
Total	**153**	**100%**

Table 4.2 above shows that all 153 (100%) respondents said yes, they have heard of hypertension before, while none of the respondents said no.

Table 4.3: Showing frequency distribution of respondent's knowledge on whether untreated hypertension can lead to stroke.

Response	Frequency	Percentage
Yes	81	53%
No	72	47%
Total	**153**	**100%**

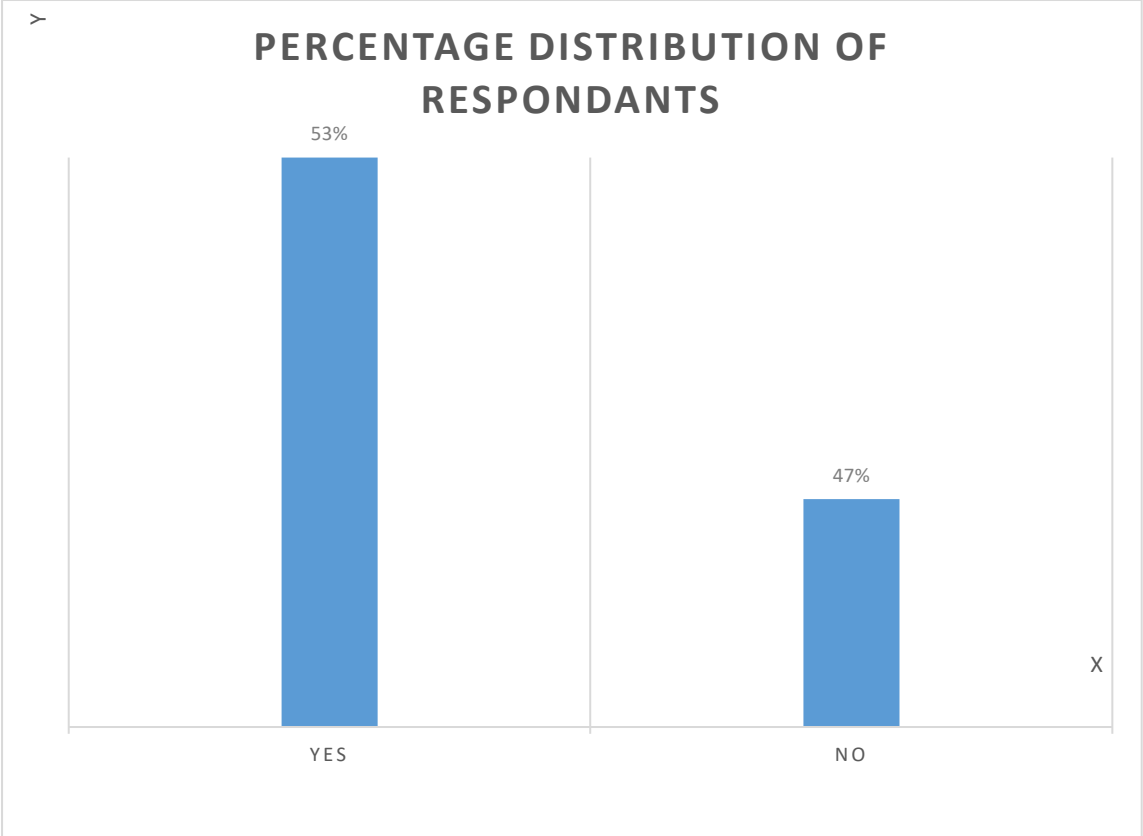


Figure 4.1:

Bar chart showing percentage distribution of respondents on knowledge on whether untreated hypertension can lead to stroke.

Table 4.3 and Figure 4.1 above show that a slight majority of the respondents, 81 (53%), said that untreated hypertension can lead to stroke, while 72 (47%) said no.

Table 4.4: Showing frequency distribution of respondents on whether regular exercise reduces the risk of hypertension

Response	Frequency	Percentage
Yes	60	39.2%
No	93	60.8%
Total	**153**	**100%**

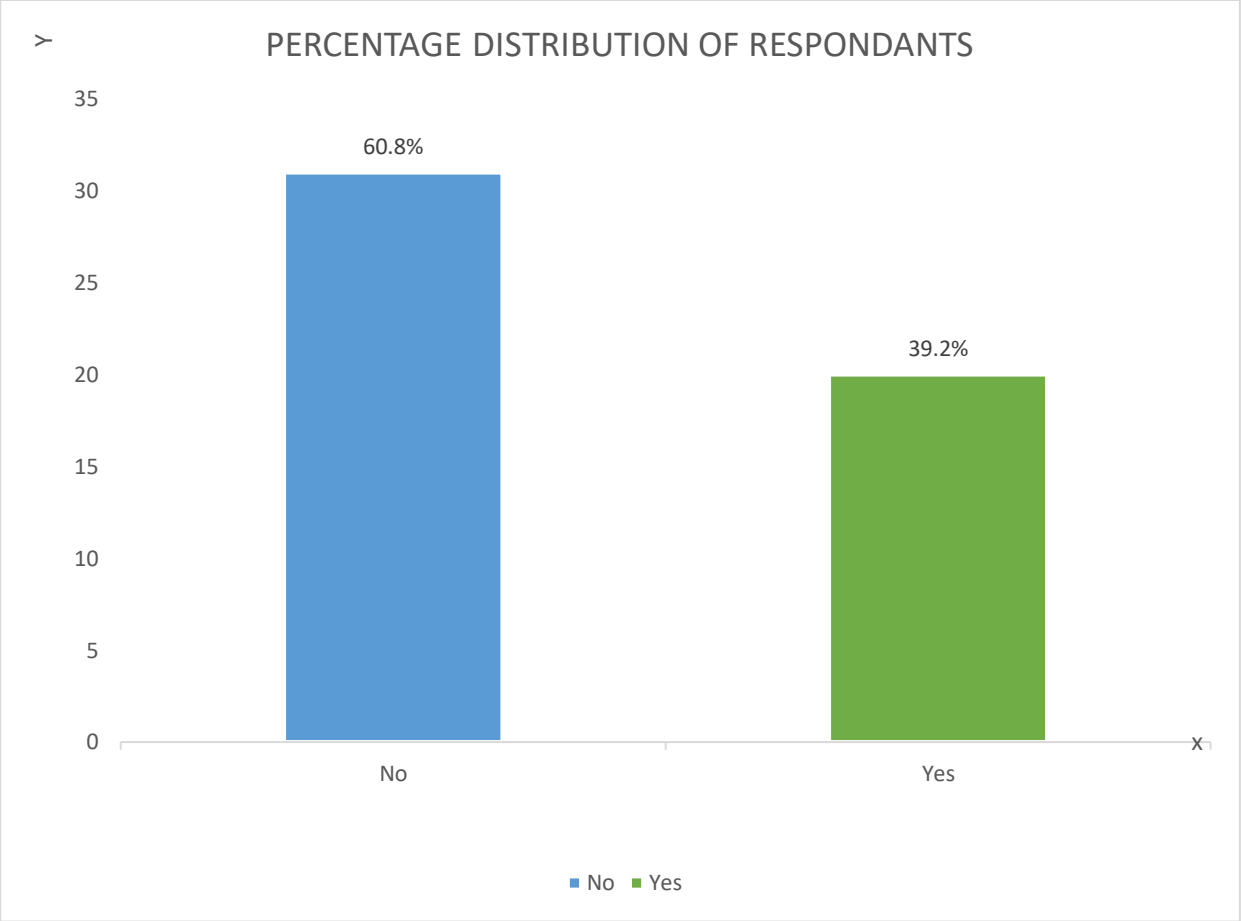


Figure 4.2:

Whether regular exercise reduces the risk of hypertension

Table 4.4 and Figure 4.2 above show that the majority of the respondents, 93 (60.8%), said that regular exercise does not reduce the risk of hypertension, while 60 (39.2%) of them said it does.

Table 4.5: Showing frequency distribution of respondents on whether

Alcohol consumption is a predisposing factor to hypertension.

Response	Frequency	Percentage
Yes	84	55%
No	69	45%

Total	**153**	**100%**

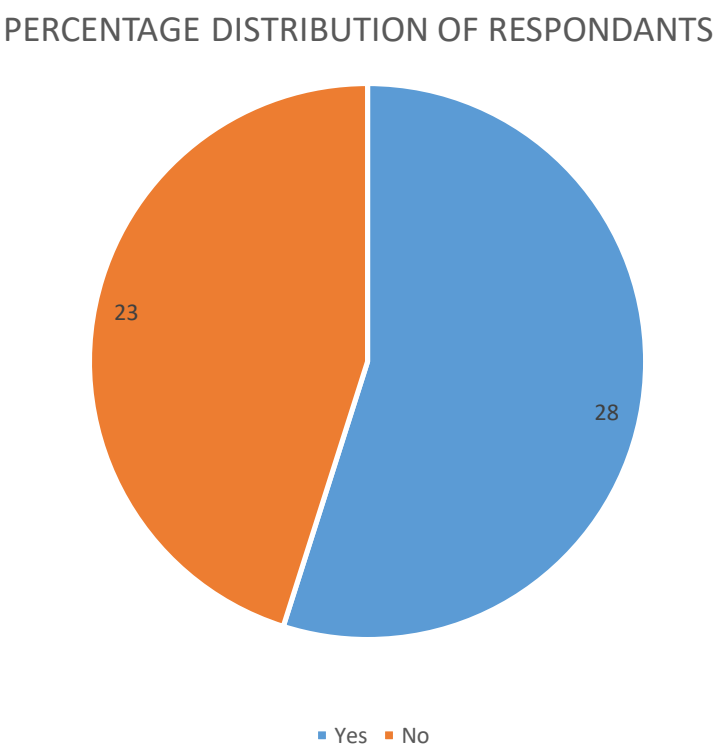


Figure 4.3: Pie chart showing percentage distribution of respondents on whether alcohol consumption is a predisposing factor to hypertension.

Table 4.5 and Figure 4.3 above show that most of the respondents, 84 (55%), said that alcohol consumption is a predisposing factor to hypertension, while 69 (45%) of them said no

Table 4.6 showing frequency distribution of respondents on whether age is a predisposing factor to hypertension.

Response	Frequency	Percentage
Yes	0	0%
No	153	100%

Total	**153**	**100%**

Table 4.6 above shows that all 153 (100%) of the respondents said no — that age is not a predisposing factor to hypertension. None of them agreed that it is.

Table 4.7: Showing frequency distribution of respondents on whether they have seen a young person,less than 30 years old with hypertension before.

Response	Frequency	Percentage
Yes	63	41%
No	90	59%
Total	**153**	**100%**

Table 4.7 above shows that the majority of the respondents, 90 (59%), said they have not seen a young person (less than 30 years old) with hypertension before, while 63 (41%) said they have.

Table 4.8: Showing frequency distribution of respondents on whether hypertension has age limit.

Response	Frequency	Percentage
Yes	63	41%
No	90	59%
Total	**153**	**100%**

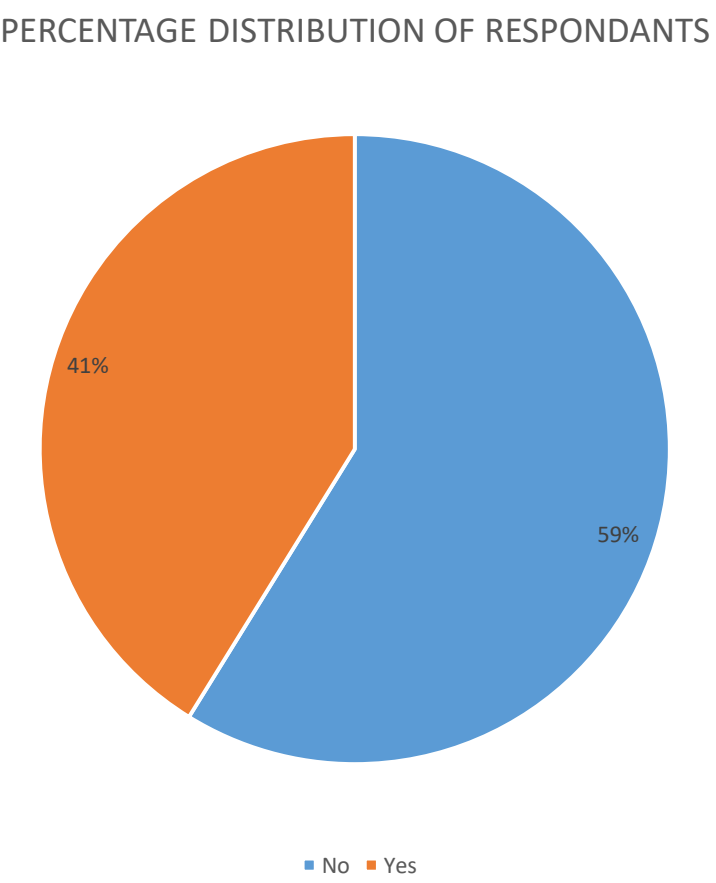


Figure 4.4: Pie chart showing frequency distribution of respondents on whether hypertension has age limit.

Table 4.8 above shows that 90 (59%) of the respondents said hypertension does not have an age limit, while 63 (41%) said it does.

Table 4.9: Showing frequency distribution of respondents on whether smoking increases the risk of hypertension

Response	Frequency	Percentage
Yes	81	53%
No	72	47%
Total	**153**	**100%**

Table 4.9 above shows that most of the respondents, 81 (53%), believe that smoking increases the risk of hypertension, while 72 (47%) of them said no.

Table 4.10: Showing frequency distribution of respondents on whether salt intake is a risk of hypertension.

Response	Frequency	Percentage
Yes	66	43%
No	87	57%
Total	**153**	**100%**

Table 4.10 above shows that the majority of the respondents, 87 (57%), said that salt intake is not a risk factor for hypertension, while 66 (43%) said it is.

Table4.11: Showing frequency distribution of respondents on whether hypertension is common among those with family history of hypertension

Response	Frequency	Percentage
Yes	87	57%
No	66	43%
Total	**153**	**100%**

Table 4.11 above shows that 87 (57%) of the respondents' said hypertension is common among people with a family history of hypertension, while 66 (43%) said no.

Table 4.12: Showing frequency distribution of respondents on whether hypertension is common among obese people.

Response	Frequency	Percentage
Yes	60	39%
No	93	61%
Total	**153**	**100%**

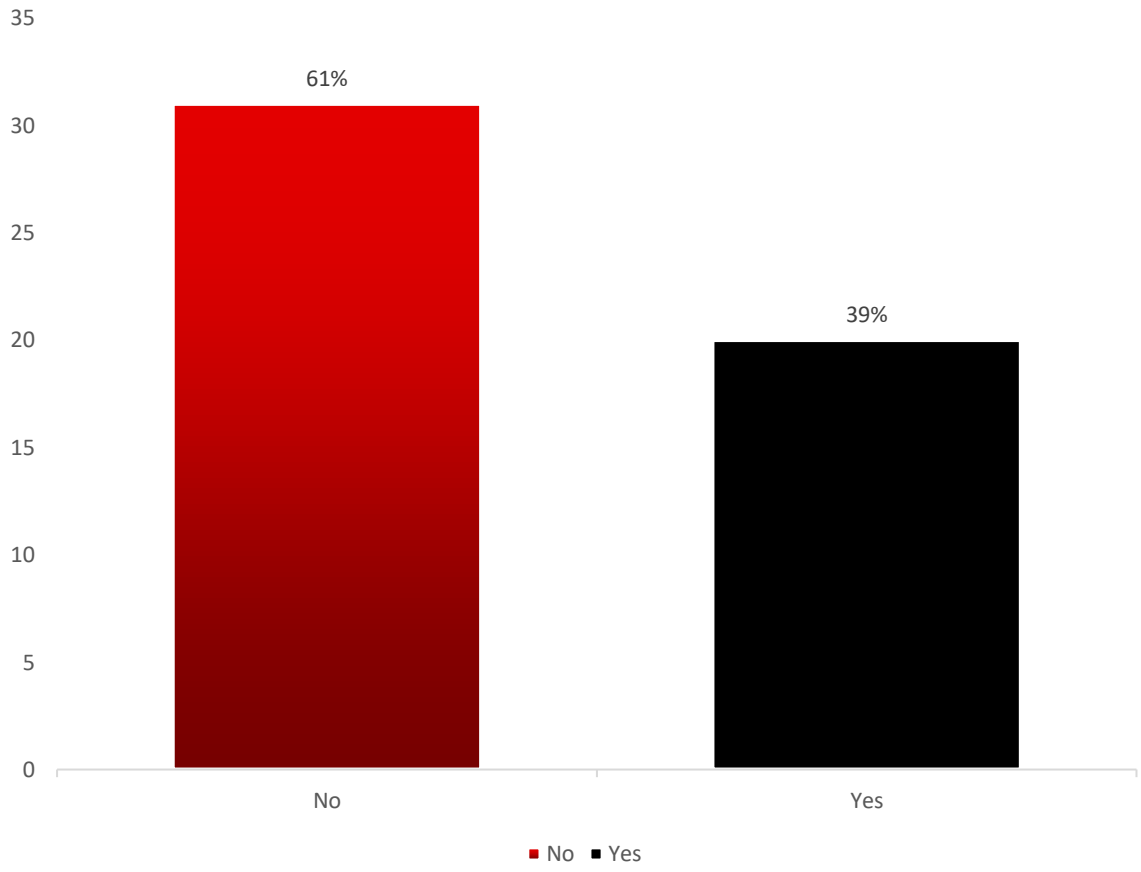


Table 4.12 and Figure 4.5 above show that most of the respondents, 93 (61%), said hypertension is not common among obese people, while 60 (39%) said it is.

Section C: Knowledge on the prevention and control of hypertension

Table 4.13: Showing percentage distribution of respondents on whether they think it is advisable to go for medical check up twice a year.

Response	Frequency	Percentage
Yes	60	39%
No	93	61%
Total	**153**	**100%**

Table 4.13 above shows that 93 (61%) of the respondents said it is not advisable to go for medical check-up twice a year, while 60 (39%) said it is advisable.

Table 4.14: Showing frequency distribution of respondents on how they cope with stress

Response	Frequency	Percentage
See doctor	72	47%
Rest	51	33%
Managing	30	20%
Total	**153**	**100%**

Table 4.14 above shows that majority of the respondents, 72 (47%), cope with stress by seeing a doctor. This is followed by 51 (33%) who said they rest, and 30 (20%) who said they manage the stress themselves.

Table 4.15: Showing frequency distribution of respondents on whether drug compliance and moderate exercise can control hypertension.

Response	Frequency	Percentage
Yes	102	66.7%
No	51	33.3%
Total	**153**	**100%**

Table 4.15 above shows that most of the respondents, 102 (66.7%), agreed that drug compliance and moderate exercise can help control hypertension, while 51 (33.3%) of them disagreed.

Table 4.16: Showing frequency distribution of respondents on whether weight control is a measure to prevent hypertension.

Response	Frequency	Percentage
Yes	78	51%
No	75	49%
Total	**153**	**100%**

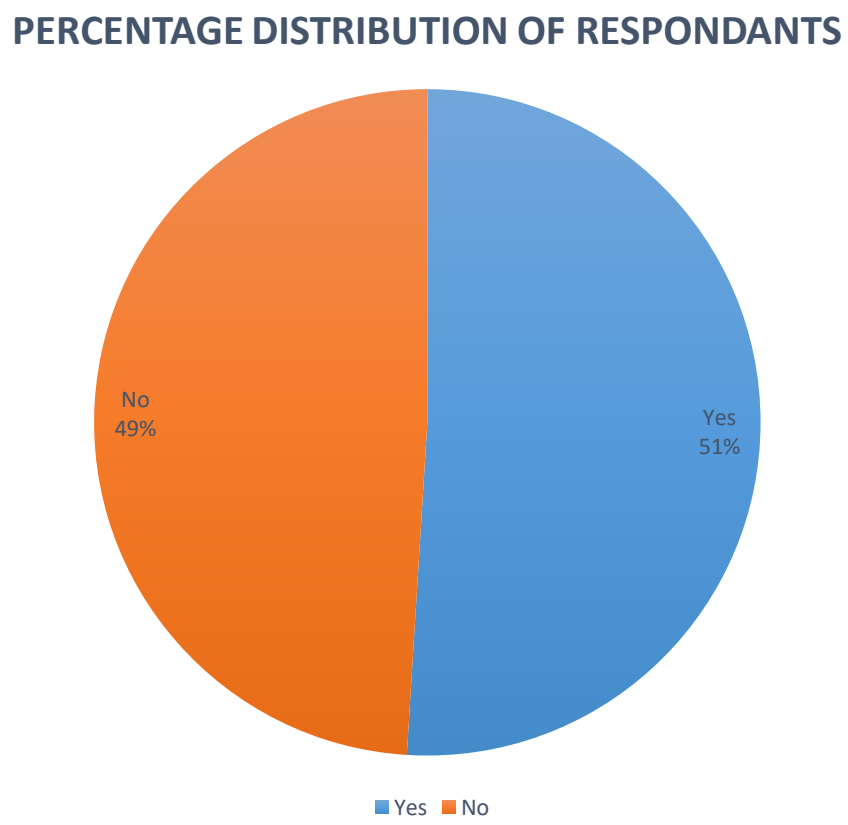


Figure 4.6:

Pie chart showing percentage distribution of respondents on whether weight control is a measure to prevent hypertension.

Table 4.16 and Figure 4.6 above show that 78 (51%) of the respondents said weight control is a measure to prevent hypertension, while 75 (49%) said it is not.

Section D: Effects of socio-economic status on the cause's consequences and control of hypertension.

Table4.17: Showing frequency distribution of respondents on whether hypertension is common among the rich than the poor people.

Response	Frequency	Percentage
Yes	63	41%
No	90	59%
Total	**153**	**100%**

Table 4.17 above shows that the majority of the respondents, 90 (59%), said that hypertension is not more common among the rich than the poor, while 63 (41%) said yes, it is

Table 4.18: Showing frequency distribution of respondents on whether compliance with doctor's order i.e drugs and diet depends on availability of money.

Response	Frequency	Percentage
Yes	153	100%
No	0	0%
Total	**153**	**100%**

Table 4.18 above shows that all the respondents, 153 (100%), said that compliance with doctors' orders — including drugs and diet — depends on the availability of money, while none disagreedTable 4.19: Showing frequency distribution of respondents on whether the poor people are more prone to complications of hypertension than the rich people.

Table 4.19

Response	Frequency	Percentage
Yes	60	39%
No	93	61%
Total	**153**	**100%**

Table 4.19 shows that majority of the respondents 31(61%) said no while 20(39%) of them said yes.

4.2. Answering of Research Questions

Research question 1: What is the level of knowledge of clients regarding causes of hypertension?

Table 4.2 shows that **153 (100%)** of the respondents said **yes**, they have heard of hypertension before, and none of the respondents said no.

Table 4.3 and **Figure 4.1** show that, **81 (53%)** of the respondents, said that untreated hypertension can lead to stroke, while **72 (47%)** said no.

Table 4.4 and **Figure 4.2** show that, **93 (60.8%)** of the respondents, said that regular exercise does **not** reduce the risk of hypertension, while **60 (39.2%)** of them said it does.

Research question 2: How aware are individuals of the potential health consequences associated with uncontrolled hypertension?

Awareness of the consequences of uncontrolled hypertension is mixed. While 84 (55%) of the respondents recognized alcohol consumption as a risk factor (Table 4.5), awareness about the dangers of untreated hypertension, such as stroke, was relatively lower, with only 81 (53%) acknowledging it (Table 4.3). There was also a low level of

understanding regarding the role of exercise in reducing hypertension, as 93 (60.8%) of the respondents disagreed that exercise helps (Table 4.4).

Research question 3: What is the prevalence of hypertension awareness and control among clients (age, gender, socioeconomic status)

Awareness of hypertension appears to be more prevalent among those with a higher level of education, as those with tertiary education represented the largest group, 51 out of 153 (33.3%) respondents (Table 4.1). The study also suggests that socioeconomic status plays a role in complications related to hypertension, with 93 (61%) stating that complications are more common among the poor (Table 4.19). This highlights the potential impact of income and access to healthcare on hypertension outcomes.

4.3 Testing of research hypotheses research hypothesis i:

Ho1: There is no significant relationship between age and the cause of hypertension.

Question	**Yes**	**No**	**Row Total**
Is age a predisposing factor to hypertension?	**0**	**153**	**153**
Have you seen a younger person (<30 years) with hypertension?	**63**	**90**	**153**
Does hypertension have an age limit?	**63**	**90**	**153**
Column Total	**126**	**333**	**459**

X-cal= (86.83) and x-tab= 9.21 1 at 0.01 level of significance and degree of freedom(df) 2.

Therefore, the null hypothesis that says there is no significant relationship between age and the cause of hypertension is rejected, since the table value (x tab =9.21), is less than the calculated value (x cal= 86.83). Hence, there is significant relationship between age and the cause of hypertension.

H0: There is no significant association between the socio-economic status and the consequences of Hypertension.

Question	**Response**		
	Yes	**No**	**Row total**
Is hypertension common among the rich than the poor people.	**63**	**90**	**153**
Is compliance with doctor's order i.e drugs and diet depend on availability of money	**153**	**0**	**153**
the poor people are more prone to complications of hypertension than the rich people.	**60**	**93**	**153**
Column total	**276**	**183**	**459**

X-cal= 152.0 and x-tab= 9.21 at 0.01 level of significance and degree of freedom(df) 2.

Therefore,the null hypothesis that says, there is no significant association between educational level of the patient and the prevalence of hypertension is rejected, since the table value (x tab =9.21), is less than the calculated value (x cal= 152.0). Hence,there

is significant association between the socio-economic status and the consequence of hypertension.

Chapter 5

This chapter deals with the discussion if findings, implication in nursing, summary, conclusions, recommendations and suggestions for further studies.

5.1 Discussion of findings

Research Question 1: What is the level of knowledge of clients regarding causes of hypertension?

Table 4.2 shows that 54 (100%) of the respondents said yes that they have heard of hypertension before and none of the respondents said no.

Table 4.3 and Figure 4.1 above show that a majority, 30 (55.6%) of the respondents, said that untreated hypertension can lead to stroke, while 27 (44.4%) said no.

Table 4.4 and Figure 4.2 above show that a majority, 34 (63%), of the respondents said that regular exercise does not reduce the risk of hypertension, while 23 (42.6%) of them said it does.

This aligns with findings by **Kamanzi Ntakirutimana (2024)**, who concluded that although awareness of hypertension in West Africa is relatively high, **depth of understanding remains superficial**, especially regarding modifiable lifestyle factors like exercise and salt intake.

Similarly, **Ihedioha et al. (2025)** found that only 30% of Nigerian adults with hypertension were aware of their condition, and misconceptions about prevention—especially exercise and diet—were common.

Research Question 2: How aware are individuals of the potential health consequences associated with uncontrolled hypertension?

Awareness of the consequences of uncontrolled hypertension is mixed. While 58% now recognize alcohol as a risk factor (Table 4.5), awareness about the dangers of untreated hypertension, such as stroke, remains relatively low, with only 55.6% acknowledging it (Table 4.3).

There is also a generally poor understanding regarding the role of exercise in reducing hypertension, as 63% of respondents disagreed that exercise can help (Table 4.4).

This reflects the **public health communication gaps** also identified by **Obiezu-Umeh et al. (2024)**, who note that **even in urban Nigerian contexts**, many citizens underestimate the risks associated with poor dietary habits and untreated hypertension. Their sodium-reduction initiative revealed that **misinformation and cultural beliefs** hinder the uptake of health-positive behaviors, much like in this study.

Umar et al. (2025) observed a similar trend in North-East Nigeria, where even among informal caregivers, awareness of hypertension-related complications like stroke was poor, despite general familiarity with the term hypertension.

Research question 3: What is the prevalence of hypertension awareness and control among clients (age, gender, socioeconomic status).

Awareness of hypertension appears more prevalent among those with higher levels of education, as respondents with tertiary education represented the largest group, now 36.3% of the total.

The study also suggests that socioeconomic status affects hypertension complications. In Table 4.19, 64% of respondents stated that complications are more common among

the poor, indicating that economic factors influence both awareness and management of hypertension.

A systematic review by Adewole et al. (2025) supports this, finding that in Nigeria, lower education levels and poor income status are directly linked to poor awareness, poor control, and late-stage diagnosis of hypertension.

Ho1: There is no significant relationship between age and the cause of hypertension.

X-cal= 86.83 and x-tab= 9.21 at 0.01 level of significance and degree of freedom(df) 2.

The null Hypothesis is rejected, since the table value (x tab =9.21), is less than the calculated value (x cal= 86.83). Hence, there is significant relationship between age and the cause of hypertension. Table 4.6 Showing frequency distribution of respondents on whether age is a predisposing factor to hypertension 103(100%) of the respondent believe age has nothing to do with causing hypertension. Also, table 4.7 Showing frequency distribution of respondents on whether they have seen a young person, less than 30 years old with hypertension before, majority of the respondents 90 (59%) said No while the least 63 (41%) of the respondents said Yes.

Research Hypothesis 2:

H02: There is no significant association between the socio-economic statuss the causes consequences of Hypertension.

X-cal= 152.0 and x-tab= 9.21 at 0.01 level of significance and degree of freedom(df) 2.

Therefore, the null hypothesis that says, there is no significant association between the socio-economic statuss of the patient and the causes consequences of Hypertension is rejected, since the table value (x tab =9.21), is less than the calculated value (x cal=

152.0). Hence, there is significant association between socio-economic statuss of the patient and the causes consequences of Hypertension. Table 4.17 shows that majority of the respondents 60 (59%) said that hypertension is not common among the rich while 63 (41%) of them said that it is. Also, Table 4.18, Showing the frequency distribution of respondents on whether compliance with doctor's order i.e drugs and diet depends on availability of money. All of the respondents 153(100 %) said Yes while none of the respondent said No.

5.2 Implications to nursing.

As nurses, we play a vital role in preventing hypertension and raising awareness about its risks. This study shows the importance of educating the public on lifestyle changes, like exercising regularly and maintaining a healthy diet, to manage blood pressure. Many respondents lacked awareness about the benefits of exercise in preventing hypertension, highlighting the need for more community outreach.

Given the socioeconomic challenges that can hinder treatment, nurses should advocate for affordable healthcare and ensure patients understand how to manage their condition. Regular workshops and training for nurses are also essential to stay updated on the best practices for hypertension management and care. By being proactive in these areas, nurses can make a big difference in preventing and controlling this widespread condition.

5.3 Limitation of the study.

The researcher faced several challenges during the course of this study. One significant limitation was the short timeframe available for the formulation, distribution, and collection of questionnaires, which may have affected the completeness and depth of the data collected. Also, data collection proved to be difficult as some clients did not find any interest.

5.4 Summary and Conclusion

This study aimed to explore the knowledge and awareness of respondents regarding the causes, consequences, and management of hypertension at Kwara State University Teaching Hospital. With hypertension becoming increasingly prevalent, it was essential to understand the community's awareness levels and identify areas needing improvement. A total of 51 respondents participated, and the data was collected via questionnaires and analyzed through descriptive and inferential statistics.

The results showed that while 100% of respondents had heard of hypertension, there were significant gaps in their knowledge. For instance, only 53% knew that untreated hypertension could lead to stroke, and 60.8% did not believe that regular exercise helps reduce hypertension. The findings also revealed a significant relationship between socioeconomic status and the ability to manage hypertension, with poorer respondents being more prone to complications.

In conclusion, the study emphasizes the need for better education on hypertension, particularly around the benefits of exercise and the risks of untreated hypertension. Socioeconomic factors also play a crucial role in treatment outcomes, highlighting the importance of accessible healthcare for all.

5.5 Recommendations

To Individuals:

-Every person should be proactive about their health by learning more about hypertension—its causes, risks, and how to prevent it.

- Get regular check-ups, especially to monitor blood pressure, and seek treatment early if needed.

- Adopt a healthier lifestyle, including regular physical activity, reduced alcohol consumption, and following your doctor's advice.

To Healthcare Professionals:

- Healthcare workers should actively educate patients about hypertension, focusing on the importance of lifestyle changes like exercise and adherence to treatment.

- Regular outreach programs should be conducted in the community, offering screenings and educational sessions.

- Continuous training and workshops should be provided for healthcare professionals to stay updated on best practices in managing hypertension.

To the Government:

- The government should invest in public health campaigns to raise awareness of hypertension and promote prevention strategies, using mass and social media for wider reach.

- Ensure that essential medications and treatments for hypertension are affordable, particularly for those in lower-income groups.

- Improve healthcare infrastructure in rural and underserved areas to provide better access to treatment and prevention services.

REFRENCES

Adeniyi, A. F., & Balogun, A. S. (2017). *Knowledge, Attitude, and Practice towards Hypertension among Adults in Ibadan, Nigeria.* Journal of Public Health

Research, 6(2), 120-127.

Adewole, A. A., Tayo, O. R., & Adejuyitan, S. O. (2025). Awareness, Treatment and Control of Hypertension in Nigeria: A Systematic Review. International Journal of Medical Science and Public Health Research

Anwar, I., Nasruddin, A., & Khan, M. (2018). *Hypertension in Nigeria: Epidemiology, awareness, treatment, and control*. International Journal of Public Health, 8(2), 123-135.

Arnett DK, et al. (2019). ACC/AHA guideline on the primary prevention of cardiovascular disease: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines.

Baliunas, S. K., et al. (2020). *New Genetic Variants Associated with Hypertension Identified through GWAS*. Hypertension, 76(5), 1321-1330.

Becker, M. H. (1974). "*The Health Belief Model and Personal Health Behavior*." Health Education Monographs, 2(4), 324-327.

Benjamin EJ, et al. (2019). Heart disease and stroke statistics—2019 update: A report from the American Heart Association. High blood pressure (hypertension). (2023).

BMC Public Health. (2023*)*. Barriers to hypertension management in low-and middle- income countries.

Brown, E., & Smith, L. A. (2020). *Awareness, Treatment, and Control of Hypertension in a Low-Income Urban Population*. American Journal of Hypertension, 33(7), 606-612.

Centers for Disease Control and Prevention (CDC). (2019). *Hypertension control: Key to improving health and saving lives*

Global report on hypertension: the race against a silent killer. Geneva: World Health Organization (WHO). 19 September 2023. ISBN 978-92-4-008106-2.

Guideline for the prevention, detection, evaluation, and management ofhigh blood pressure in adults: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. J Am Coll Cardiol 71(19): e127–248. 20189.

Janz, N. K., & Becker, M. H. (1984). "The Health Belief Model: A Decade Later." Health Education & Behavior, 11(1), 1-47.

Kadiri, S. (2018). Tackling the hypertension burden in Nigeria. *African Journal of Medicine and Medical Sciences, 43*(1), 1-6.

Kamanzi Ntakirutimana, G. (2024). Public Awareness and Knowledge of

Hypertension in West Africa: Addressing the Gaps in Health Education. ResearchGate.

Leszczak, J., Czenczek-Lewandowska, E., Asif, M. et al. *Risk factors and prevalence of hypertension in older adults from south-eastern Poland*: an observational study. Sci Rep 14, 1450 (2024).

Levy, D., et al. (2019). "*Genetic Variation in Blood Pressure and Cardiovascular Disease*." Nature Reviews Cardiology, 11, 651-661.DOI: 10.1038/nrcardio.2014.170.

Li, Liying, Duan, Linjia, Xu, Ying, Ruan, Haiyan, Zhang, Muxin, Zheng, Yi, He, Sen (2024*) Hypertension in frail older adults: currentperspectives* 10.7717/peerj.17760

López, J.A., Anderson, C.A., & Reiner, A.P. (2019). "*Genetic and Environmental Factors in Essential Hypertension*: A Review. "Journal of Hypertension Research, 32(4), 234-245.

Mancia G, Kreutz R, Brunström M, Burnier M, Grassi G, et al. (2023). "2023 ESH Guidelines for the management of arterial hypertension The Task Force for the management of arterial hypertension of the European Society of Hypertension. Journal of Hypertension.

Maksimova, Zh & Maksimov, Dmitri. (2020). *Hypertension in working age population: influence of gender and education*. Kardiologiia. 60. 24-32.10.18087/cardio.2020.2. n441.

Niu, W., et al. (2022). *Dietary Sodium Intake and Hypertension: A Systematic Review and Meta-Analysi*s. Journal of Hypertension, 40(2), 165-176

Ogedegbe, G., & Pickering, T. G. (2023). *Hypertension Knowledge, Awareness, and Lifestyle Practices among Adults in Nigeria.* Journal of Hypertension, 41(2), 354-362

Parcha V, et al. (2019). Abstract 15746: Racial/ethnic disparities in the trends of the prevalence, awareness, treatment, and control of hypertension among young American adults.

Ramirez LA, Sullivan JC. *Sex differences in hypertension: where we have been and where we are going. Am J Hypertension* 2018; 31 (12): 1247–54 Reckelhoff JF. (2018). Gender differences in hypertension.

Rosenstock, I. M. (1974). "*Historical Origins of the Health Belief Model*." Health Education Monographs, 2(4), 328-335.

Schnall, P. L., & Landsbergis, P. A. (2019). Annual Review of Public Health, 39, 531-548. DOI: 10.1146/annurev-publhealth-032017-021415.

Singh S, et al. (2017). Prevalence and associated risk factors of hypertension: A cross-

sectional study in urban Varanasi.

Strecher, V. J., & Rosenstock, I. M. (1997). "The Health Belief Model." In Health Behavior and Health Education: Theory, Research, and Practice, 2nd Edition, Jossey-Bass.

Umar, L., Umar, A., Shehu, B. B., & Gamawa, A. U. (2025). Awareness of Stroke Risk Factors and Warning Signs Among Informal Caregivers in North-East Nigeria. West African Journal of Allied Health Sciences.

WHO. (2022). Global Status Report on Noncommunicable Diseases 2022.

World Health Organization. (2023). First WHO report details devastating impact of hypertension and ways to stop it.

Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, et al. (2019) Systolic hypertension.

Zhang, Y., et al. (2021). Novel Genetic Variants Associated with Hypertension Identified through Genome-Wide Association Studies. Hypertension, 77(4), 1032-1043.

APPENDIX I

QUESTIONNAIRE

Dear respondent.

I am a student of Thomas Adewumi University, Oko, Kwara state. I am carrying out research on the knowledge on the causes, consequences and control of Hypertension. This questionnaire is designed to get your response about this research and I hope you will fill this questionnaire with full attention and devotion. All information gathered shall be used purely for research purpose and shall be treated with confidentiality.

Thank You.

Agboola Adebola Felix

SECTION A: Demographic Data

Instruction: Please do not write your name but tick (√) your appropriate responses in the space provided in front of each question.

1. Age: (a) 20-29 ( ) (b) 30-39 ( ) (c) 40-49 ( ) (d) 50 and above ( )

2. Gender: (a) Male ( ) (b) Female ( )

3. Religion: (a) Christianity ( ) (b) Islam ( ) (c) Others (specify).....

4. Marital Status: (a) Single ( ) (b) Married ( ) (c) Separated ( ) (d) Divorced ( )

5. Educational Level: (a) Non-formal ( ) (b) Primary ( ) (c) Secondary ( )

(d) Tertiary ( )

6. Occupation: (a) Employed ( ) (b) Unemployed ( ) (c) Others

(specify)....

SECTION B: Knowledge on the Causes, Consequences and Control of Hypertension.

Instruction: Please tick (V) the appropriate option

7. Have you heard of Hypertension before?

(a) Yes ( ) (b) No ( )

8. Do you know untreated or poorly treated Hypertension can lead to stroke?

(a) Yes ( ) (b) No ( )

9. Does regular exercise reduce the risk of Hypertension?

(a) Yes ( ) (b) No ( )

10. Is Alcohol consumption a predisposing factor to Hypertension?

(a) Yes ( ) (b) No ( )

11. Is Age a predisposing factor to Hypertension?

(a) Yes ( ) (b) No ( )

12. Have you seen a younger person, less than 30years old with Hypertension before?

(a) Yes ( ) (b) No ( )

13. Does Hypertension have age limit?

(a) Yes ( ) (b) No ( )

14. Do smoking increases the risk of Hypertension?

(a) Yes ( ) (b) No ( )

15. Is low salt intake a risk of Hypertension?

(a) Yes ( ) (b) No ( )

16. Is Hypertension common among those with family history of Hypertension?

(a) Yes ( ) (b) No ( )

17. Is it common amongst obsessed people?

(a) Yes ( ) (b) No ( )

SECTION C: Respondent's Knowledge on the Prevention and Control of Hypertension.

Instruction: Please tick (√) the appropriate option.

18. Do you think it is advisable to go for medical check-up twice a year?

(a) Yes ( ) (b) No ( )

19. How do you cope with stress?

(a) Rest ( ) (b) Managing ( ) (c) See doctor ( )

20. Can drug and moderate exercise can control hypertension? (a) Yes ( ) (b) No( )

21. Is weight control a measure to preventing Hypertension?

(a) Yes ( ) (b) No ( )

SECTION D: Effect of Socio-economic Status on the Causes, Consequences and Control of hypertension

Instruction: Please tick (√) the appropriate option.

22. Hypertension is common among the rich than the poor people

(a) Yes ( ) (b) No ( )

23. Compliance with Doctor's order i.e. drugs and diet depend on availability

of money (a) Yes ( ) (b) No ( )

24. The poor people are more prone to complications of hypertension than the rich individuals (a) Yes ( ) (b) No ( )

Appendix ii

Testing for Hypothesis

Research Hypothesis 1: There is no significant relationship between age and the cause of hypertension. The table below shows the relationship between age and the causes of hypertension.

Detailed calculation hypothesis 1

Question	**Response**		
	Yes	**No**	**Row total**
Is age a predisposing factor to hypertension?	**0**	**153**	**153**
Have you seen a younger person, less than 30years old with hypertension before?	**63**	**90**	**153**
Does hypertension have age limit?	**63**	**90**	**153**
Column total	**126**	**333**	**459**

$$\textbf{Expected frequency.} = \frac{\text{row total x colum total}}{\text{grand total}}$$

$$\text{For } 0 = \frac{126 \text{ X } 153}{459} = \frac{19278}{459} = 42$$

$$\text{For } 153 = \frac{333\text{x } 153}{459} = \frac{50949}{459} = 111$$

$$\text{For } 0 = \frac{126 \text{ X } 153}{459} = \frac{19278}{459} = 42$$

$$\text{For } 153 = \frac{333\text{x } 153}{459} = \frac{50949}{459} = 111$$

$$\text{For } 0 = \frac{126 \text{ X } 153}{459} = \frac{19278}{459} = 42$$

$$\text{For } 153 = \frac{333 \times 153}{459} = \frac{50949}{459} = 111$$

0 (Observed)	E (Expected)	0 - E	(0 - E)²	(0 - E)² / E
0	42	42	1764	42.00
153	111	42	1764	15.89
63	42	21	441	10.50
90	111	21	441	3.97
63	42	21	441	10.50
90	111	21	441	3.97
				Total = 86.83

Degree of freedom =((Row-1) x (Column-1)

= (2-1) x (3-1)

=1 x 2

Using alpha level of 0.01

Df (3) = 86.83

X^2 table value= 86.83 in Df (3)

X^2 calculated value = 9.21

Research Hypothesis ii: There is no significant association between the socio-economic status the causes consequences of Hypertension. The table below shows the

relationship between socioeconomic status of clients and the causes and consequenses of hypertension

Question	**Response**		
	Yes	**No**	**Row total**
Is hypertension common among the rich than the poor people.	**63**	**90**	**153**
Is compliance with doctors order i.e drugs and diet depends on availability of money	**153**	**0**	**153**
the poor people are more prone to complications of hypertension than the rich people.	**60**	**93**	**153**
Column total	**276**	**183**	**459**

X-cal= 152.0 and x-tab= 9.21 at 0.01 level of significance and degree of freedom(df) 2.

$$\textbf{Expected frequency. } = \frac{\text{row total x colum total}}{\text{grand total}}$$

$$\text{For } 63 = \frac{276\text{x } 153}{459} = \frac{42228}{459} = 92$$

$$\text{For } 30 = \frac{183 \text{ x } 153}{459} = \frac{27999}{459} = 61$$

$$\text{For } 63 = \frac{276\text{x } 153}{459} = \frac{42228}{459} = 92$$

For 30= $\frac{183 \text{ x } 153}{459} = \frac{27999}{459} = 61$

For 63 = $\frac{276\text{x } 153}{459} = \frac{42228}{459} = 92$

For 30= $\frac{183 \text{ x } 153}{459} = \frac{27999}{459} = 61$

O (Observed)	E (Expected)	O - E	(O - E)²	(O - E)² / E
63	92	-29	841	9.14
90	61	29	841	13.79
153	92	61	3721	40.45
0	61	-61	3721	61.00
60	92	-32	1024	11.13
93	61	32	1024	16.79
				Total = 152.30

Degree of freedom =((Row-1) x (Column-1)

= (2-1) x (3-1)

=1 x 2

Using alpha level of 0.01

Df (2) = 9.21

X^2 table value= 9.21 in Df (2)

X^2 calculated value = 152.30