EVALUATION OF THE COST BURDEN OF HYPERTENSION TREATMENT IN A SECONDARY HEALTH FACILITY IN BENIN CITY: A CASE STUDY OF FAITH MEDIPLEX HOSPITAL

BY

EMEFIELE ONYEKA

PHA1808366

SUPERVISED BY

PROF. MRS STELLA USIFOH

DEPARTMENT OF CLINICAL PHARMACY

FACULTY OF PHARMACY UNIVERSITY OF BENIN

BENIN CITY

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CERTIFICATION

This is to certify that this project work was carried out by **EMEFIELE ONYEKA** with matriculation number **PHA1808366** in the Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin-City, in partial fulfillment of the requirements for the award of Doctor of Pharmacy (Pharm.D) degree.

_____ _____

Emefiele Onyeka DATE

(PROJECT STUDENT)

_____ _____ PROF. MRS STELLA USIFOH

DATE

(PROJECT SUPERVISOR)

_____ _____

DR. MI OSARENMWINDA DATE (HEAD OF DEPARTMENT)

DEDICATION

This project work is dedicated to God Almighty for His guidance, mercies, direction and provision throughout the course of this study and to my family for their love, support, and encouragement throughout this academic journey. And also to my friends, I really appreciate it.

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ABSTRACT

Background:

Hypertension is a major public health concern in Nigeria, and the financial demands of its long-term management often limit patients' ability to sustain effective treatment. The chronic nature of the condition requires ongoing medication, regular clinic visits, and laboratory monitoring—costs that can impose significant financial strain on individuals and households.

Objective:

This study evaluated the cost burden of hypertension treatment among adult hypertensive patients attending Faith Mediplex Hospital, a secondary healthcare facility in Benin City.

Methods:

A descriptive cross-sectional design was adopted. Data were collected from adult hypertensive patients using a structured questionnaire that captured information on direct medical costs, indirect costs, health insurance use, and financial coping strategies. Descriptive and inferential analyses were conducted to assess cost patterns and their implications for treatment adherence.

Results:

A large proportion of respondents spent a significant share of their income on antihypertensive medications, consultations, and laboratory investigations. Many patients reported delaying or skipping treatment due to financial constraints. Although some respondents were enrolled in health insurance schemes, only a minority experienced a marked reduction in out-of-pocket expenses. Financial hardship was more pronounced among uninsured patients and those with lower monthly income.

Conclusion:

Hypertension management poses a substantial economic burden on patients at Faith Mediplex Hospital, with direct and indirect costs negatively affecting treatment adherence and continuity of care. Enhanced access to affordable medications, expanded and strengthened health insurance coverage, and targeted financial support systems are essential for reducing this burden and improving treatment outcomes.

Keywords: Hypertension, Cost burden, Treatment adherence, Out-of-pocket expenditure, Health insurance, Faith Mediplex Hospital

CHAPTER ONE

1.1 INTRODUCTION

BACKGROUND OF THE STUDY

Hypertension, commonly referred to as high blood pressure, is a long-term medical disorder marked by a persistent rise in arterial blood pressure. It is one of the most widespread non-communicable diseases globally and a major contributor to cardiovascular illnesses and deaths. According to the World Health Organization (WHO), about 1.28 billion adults worldwide are affected, with the majority living in low- and middle-income countries. Because hypertension often progresses without clear symptoms, it is known as a "silent killer," as significant damage to organs such as the heart, kidneys, brain, and eyes may occur before signs become apparent.

Across Africa, and in Nigeria particularly, hypertension prevalence has steadily grown. Studies estimate that between 28% and 38% of Nigerian adults live with hypertension (Akinlua et al., 2015; Adeloye et al., 2016), though rates vary by region, socioeconomic status, and age. Rising prevalence is linked to rapid urbanization, unhealthy dietary habits, stress, sedentary lifestyles, obesity, and increasing life expectancy. Despite this high burden, many people are unaware of their condition, and even among those diagnosed, blood pressure control is still poor (Ogunlana et al., 2020).

Managing hypertension typically involves lifelong medication, routine check-ups, laboratory monitoring, and lifestyle adjustments. These requirements generate recurring expenses that can become significant, especially in countries where healthcare depends heavily on out-of-pocket payments (Adesanya & Chima, 2019).

In Nigeria, more than 70% of total health spending is from out-of-pocket payments (World Bank, 2020), leaving individuals and families responsible for the continuous cost of treating chronic conditions. Although the National Health Insurance Scheme (NHIS) was introduced in

2005 to improve access and reduce catastrophic health spending, coverage remains limited and is mostly available to formal sector workers (Federal Ministry of Health, 2020).

Hypertension creates a multi-dimensional economic burden. Patients face ongoing costs related to medications, consultations, investigations, and transportation. Households may experience reduced income, lost productivity, or increased dependency. At the national level, poor hypertension control contributes to rising healthcare costs, reduced workforce productivity, and premature deaths (Tobe-Gaius et al., 2021).

Faith Mediplex Hospital, a private secondary health facility in Benin City, provides care to many hypertensive patients. Like most private hospitals, treatment is paid for directly by patients, making long-term hypertension management financially challenging. The high level of out-of-pocket expenditure can lead to treatment non-adherence or complete discontinuation of care (Adejoh, 2017).

Despite the widespread recognition of the economic challenges associated with chronic diseases in Nigeria, there is still limited research on the actual costs borne by patients in private hospital settings. This study therefore examines the financial burden of hypertension treatment at Faith Mediplex Hospital and how these costs influence adherence and overall patient well-being. The results will offer insights that can guide policy, strengthen healthcare planning, and support efforts toward universal health coverage.

1.2 STATEMENT OF THE PROBLEM

Hypertension remains a major cause of illness and premature death in Nigeria, yet many citizens struggle to access or maintain adequate treatment due to the financial requirements of care. Long-term management involves medication, regular medical reviews, and lifestyle adjustments, all of which require continuous spending (Adesanya & Chima, 2019).

Because more than 70% of healthcare spending in Nigeria is paid directly by households (World Bank, 2020), hypertensive patients face substantial ongoing costs for medications, consultations, and laboratory investigations. These expenses often exceed the financial capacity of low- and middle-income earners. As a result, some patients skip doses, reduce medication, or avoid clinic visits entirely—behaviors that worsen blood pressure control and increase the likelihood of complications such as stroke, heart failure, and kidney disease (Tobe-Gaius et al., 2021).

Although NHIS was introduced to limit catastrophic health spending, its reach is still limited, especially among those working in the informal sector (Federal Ministry of Health, 2020). Consequently, most hypertensive patients in private hospitals continue to bear the full cost of their treatment.

At Faith Mediplex Hospital, many patients experience financial challenges, yet the extent of this burden has not been quantified. There is also limited understanding of how financial strain affects adherence to treatment and clinic attendance. Existing research on hypertension in Nigeria has largely focused on clinical aspects, while the economic dimension especially in private facilities remains under-examined.

This lack of data creates a gap in healthcare planning and policy development. Without accurate information on patient-level costs and the effects on treatment behavior, interventions may fail to address the real challenges faced by hypertensive patients.

This study therefore seeks to fill this gap by analyzing the direct and indirect costs of hypertension treatment at Faith Mediplex Hospital and examining how these costs influence patients' adherence and financial well-being.

1.3 RESEARCH AIM

To assess the direct and indirect cost burden associated with hypertension treatment among patients attending Faith Mediplex Hospital, Benin City.

1.4 RESEARCH OBJECTIVES

1. To identify the common direct medical costs (consultation, laboratory tests and medications) incurred by hypertensive patients at Faith Mediplex Hospital.
2. To assess the indirect costs (transportation, lost income, caregivers' cost) associated with hypertension management.
3. To determine the proportion of hypertensive patients experiencing financial hardship due to treatment costs.
4. To evaluate the influence of cost burden on medication adherence and clinic attendance.
5. To examine the role of health insurance in reducing the cost burden of hypertension care.

1.5 RESEARCH QUESTIONS

1. What are the main direct and indirect costs involved in treating hypertension at Faith Mediplex Hospital?
2. To what extent do patients face financial hardship from managing hypertension?
3. How does the cost of treatment affect patients' adherence to medication and clinic visits?
4. What are patients' views on the cost of managing hypertension, and how does this affect their treatment behaviour?

5. Does having health insurance help reduce the cost burden of hypertension care?

1.6 SIGNIFICANCE OF THE STUDY

This study holds significance at multiple levels, spanning clinical practice, healthcare systems, policymaking, research, and patient experience.

At the **clinical level**, it provides healthcare providers with insight into the financial challenges faced by hypertensive patients. This awareness can promote more empathetic, patient-centered care, encouraging providers to recommend treatment plans that are both medically appropriate and financially sustainable.

At the **health systems level**, the study's findings can inform the planning and management of hypertension services within private healthcare settings. By identifying major cost drivers, hospital administrators may explore opportunities to streamline service delivery, reduce unnecessary expenses, and advocate for the integration of more inclusive health insurance coverage models.

From a **policy perspective**, this research contributes evidence to support reforms aimed at expanding health insurance coverage, implementing subsidized drug schemes, and introducing innovative financing models for chronic disease care. It aligns with national efforts to reduce catastrophic health expenditure and strengthen financial protection for individuals managing long-term conditions.

Within the **research and academic community**, the study fills a critical knowledge gap by drawing attention to the economic dimension of hypertension management an area often underexplored compared to its clinical and epidemiological aspects. It provides locally relevant, data-driven insight into the intersection of non-communicable disease care and healthcare financing in Nigeria.

Finally, for **patients and their families**, the study gives voice to the lived realities of managing a chronic illness under financial pressure. By documenting these experiences, it contributes to building a more equitable, compassionate, and responsive healthcare system one that acknowledges not just disease, but the economic hardship that often accompanies it.

1.7 LITERATURE REVIEW

Hypertension is among the most prevalent chronic non-communicable diseases worldwide and a major contributor to cardiovascular complications. In Nigeria, its prevalence continues to rise across both rural and urban populations. Effective management requires continuous medication, routine monitoring, and long-term lifestyle modification, all of which contribute to significant healthcare costs.

Although numerous studies have examined the clinical management of hypertension, fewer have focused on the financial demands of long-term treatment particularly within private healthcare facilities. The economic burden includes direct medical costs such as drug purchases, consultations, and laboratory tests, as well as indirect costs like transportation and loss of income. These financial pressures influence medication adherence and overall treatment outcomes.

In countries like Nigeria where most healthcare expenses are paid out of pocket, chronic diseases like hypertension often impose severe financial strain on patients. Several studies have shown that many households face serious hardship due to the continual costs associated with hypertension management. Limited health insurance coverage further compounds the problem.

Existing evidence highlights the significant role of medication and clinic visits in overall treatment expenditure. Inability to afford these costs is linked to poor adherence and uncontrolled blood pressure. However, gaps remain in understanding the financial realities of hypertensive patients in private hospitals such as Faith Mediplex. This study contributes to

filling that gap by assessing the direct and indirect costs of care and examining how financial pressure affects patient behavior.

1.8 OVERVIEW OF HYPERTENSION

Hypertension, commonly known as high blood pressure, is a persistent elevation in the pressure of blood against the arterial walls. It is defined by the World Health Organization (WHO) as a systolic blood pressure ≥140 mmHg and/or a diastolic pressure ≥90 mmHg, based on at least two readings taken on different occasions. It is often referred to as a "silent killer" because it may present without symptoms while progressively damaging vital organs such as the heart, kidneys, and brain.

The condition can be categorized into two types: primary (essential) hypertension, which has no identifiable cause and accounts for over 90% of cases; and secondary hypertension, which results from an underlying medical condition such as renal disease or hormonal disorders. Risk factors include genetic predisposition, obesity, sedentary lifestyle, excessive salt intake, stress, alcohol consumption, and advancing age. More recently, environmental and socioeconomic stressors have also been linked to hypertension development.

The pharmacological management of hypertension involves classes of medications such as diuretics, ACE inhibitors, beta-blockers, calcium channel blockers, and angiotensin receptor blockers. However, optimal treatment often requires a combination of drugs along with lifestyle modifications. Despite the availability of effective medications, treatment outcomes are frequently compromised by factors such as poor adherence, limited access, and high treatment costs especially in Nigeria's private healthcare sector.

1.9 EPIDERMIOLOGY OF HYPERTENSION

Global Context

Hypertension is one of the most widespread non-communicable diseases worldwide. WHO (2023) estimates that over 1.28 billion adults between 30 and 79 years live with the condition, with most residing in low- and middle-income countries. In sub-Saharan Africa, the condition has reached alarming levels due to lifestyle changes, urbanization, and limitations within health systems. While high-income countries have made notable progress in detection and treatment, many LMICs still struggle with limited access to affordable care and insufficient public health awareness.

Nigerian Context

In Nigeria, hypertension prevalence is estimated to range from 28% to 45% in various studies, with higher rates observed in urban centers. It is now one of the leading causes of outpatient visits nationally. Despite its high prevalence, awareness, treatment, and control remain low. The 2018 NDHS reported that only about one-third of hypertensive adults know their status. Major barriers include inadequate awareness, cultural beliefs, and the high cost of diagnosis and long-term management. The financial burden is particularly high in private healthcare facilities where patients pay for most services out of pocket.

1.10 COST OF ILLNESS FRAMEWORK

The cost of illness (COI) framework is a commonly used approach for evaluating the economic impact of diseases, especially chronic conditions like hypertension. It encompasses direct medical expenses such as medications, consultations, and diagnostic tests as well as indirect costs including transportation, productivity losses, and caregiver time. Intangible costs, such as reduced quality of life, also form part of the overall burden though they are harder to measure.

Applying this framework helps illustrate the comprehensive financial implications of hypertension. In Nigeria, studies have shown that direct medical expenses constitute the largest share of costs, particularly because most patients pay for care out of pocket. Private hospitals

like Faith Mediplex often have higher service costs, further increasing patient expenditure. Identifying the major cost components can help inform policy and guide interventions aimed at reducing patient burden.

1.11 ECONOMIC BURDEN OF HYPERTENSION

Hypertension imposes significant financial pressure on individuals, households, and the broader health system. Because it requires lifelong treatment and continuous monitoring, the economic impact accumulates over time. In Nigeria, patients commonly spend between 5% and 25% of their monthly income on hypertension care, which exceeds the WHO's benchmark for catastrophic health expenditure.

Patients in private hospitals often face higher costs due to service fees, diagnostic tests, and drug prices. As a result, many individuals must choose between essential daily needs and consistent medical treatment. Indirect costs including lost work hours, transportation expenses, and reduced productivity further worsen financial strain.

1.12 HEALTH FINANCING AND INSURANCE LANDSCAPE IN NIGERIA

Nigeria's health financing landscape is dominated by out-of-pocket spending, which accounts for over 70% of total health expenditure (World Bank, 2022). Public funding and insurance coverage remain inadequate. Although the National Health Insurance Scheme (NHIS), now the National Health Insurance Authority (NHIA), was created to improve financial protection, its coverage remains limited. Many hypertensive patients, especially those in the informal sector, are uninsured and must pay for treatment entirely on their own.

Private hospitals like Faith Mediplex operate on a fee-for-service basis, making continuous hypertension care financially challenging for many patients. Strengthening health insurance

systems and improving enrollment are essential steps toward easing the burden on hypertensive patients.

1.13 IMPACT OF COST BURDEN ON ADHERENCE AND OUTCOMES

Treatment cost is a major determinant of medication adherence in chronic diseases. Several studies have established a strong link between high out-of-pocket expenses and poor adherence to hypertension medication. When patients cannot afford drugs or follow-up visits, they may skip doses, reduce medication, or discontinue treatment, increasing their risk of complications.

Hypertension is often asymptomatic, which makes adherence even more difficult. Without immediate symptoms, patients may prioritize other financial needs. This highlights the importance of reducing treatment costs and strengthening support systems to ensure better blood pressure control.

1.14 EMPIRICAL STUDIES ON COST BURDEN OF HYPERTENSION

Several studies have explored the cost of hypertension management in Nigeria and similar settings. For instance, Okoro et al. (2019) reported that drug costs make up the majority of treatment expenses in private hospitals in Enugu. Research in Ilorin by Olayemi and Akande (2020) found that many hypertensive patients experience catastrophic health expenditure due to frequent clinic visits and costly medications. These studies highlight the heavy financial burden faced by hypertensive patients, particularly in private healthcare environments.

However, research focusing specifically on private secondary hospitals remains limited. This study contributes to closing that gap by assessing cost burdens at Faith Mediplex Hospital.

1.15 GAPS IN THE LITERATURE

While the literature provides valuable insights into the clinical and economic dimensions of hypertension, several gaps remain. Firstly, there is limited data specific to private healthcare

settings in Nigeria, where a large proportion of the population now seeks care due to perceived quality advantages. Secondly, most studies focus on direct medical costs without fully exploring indirect and intangible costs borne by patients and caregivers.

Thirdly, few studies incorporate patient-level perspectives on how cost influences adherence and health-seeking behavior, particularly in faith-based or semi-private institutions like Faith Mediplex. Lastly, there is a paucity of studies that examine the relationship between income levels, cost burden, and treatment outcomes in a comprehensive manner.

This study seeks to fill these gaps by employing a patient-centered approach to understanding the real cost implications of hypertension treatment in a private hospital context.

1.16 SUMMARY OF LITERATURE REVIEW

This chapter has explored the key themes and scholarly findings relevant to the study of hypertension's cost burden. The literature confirms that hypertension is both widespread and under-controlled in Nigeria, with high treatment costs posing a major barrier to care particularly in private healthcare settings. The cost of managing hypertension includes not only direct medical expenses but also indirect and intangible costs that have far-reaching implications for patient outcomes and household welfare.

The review identified important gaps in the literature particularly around cost burden in private hospitals and the behavioral responses of patients to financial pressure. The chapter concludes that a focused study at Faith Mediplex Hospital will offer valuable insights into the real-world challenges facing hypertensive patients, thereby contributing to both academic understanding and practical policy development.

CHAPTER TWO

RESEARCH METHODOLOGY

2.1 Introduction

This chapter describes the methods and procedures used in the study titled *"Evaluation of Cost Burdens of Hypertension Treatment in a Secondary Health Facility in Benin City: A Case Study of Faith Mediplex Hospital."*

It outlines the research design, study area, study population, sampling technique, sample size, research instrument, data collection methods, data analysis, validity, reliability, and ethical considerations.

The methods adopted were carefully planned to ensure that the findings particularly those related to cost distribution, financial hardship, and health insurance coverage accurately represent the real experiences of hypertensive patients receiving care at Faith Mediplex Hospital

2.2 RESEARCH DESIGN

The study adopted a **descriptive cross-sectional design**. This design was chosen because it allows for the collection of quantitative data from respondents at a single point in time, making it ideal for assessing current patterns of hypertension treatment costs and associated financial burdens.

It also enabled me to describe relationships between socio-demographic characteristics and outcomes such as treatment cost, health insurance coverage, and financial hardship, as later analyzed in Chapter Four using descriptive and regression statistics.

2.3 STUDY AREA

The study was conducted at **Faith Mediplex Hospital**, located along Airport Road in Benin City, Edo State. Faith Mediplex is a well-recognized secondary health facility that provides both

outpatient and inpatient services across several specialties, including Internal Medicine, Surgery, Obstetrics and Gynaecology, and Pharmacy.

The hospital has a dedicated outpatient clinic for chronic conditions such as hypertension and diabetes. It was selected for this study because it reflects the structure of many private urban hospitals in Nigeria, where hypertensive patients largely bear treatment costs out of pocket. The hospital's organized record system and patient flow also made it suitable for structured data collection and reliable analysis.

2.4 STUDY POPULATION

The study population consisted of **adult hypertensive patients aged 18 years and above** attending the outpatient clinic of Faith Mediplex Hospital during the study period. Both male and female patients who had been clinically diagnosed with hypertension and had received treatment for at least three months were included in the study.

This population corresponds directly to the respondents analyzed in Chapter Four, where demographic distributions such as age, gender, marital status, and occupation were examined alongside treatment cost and insurance variables.

2.5 INCLUSION AND EXCLUSION CRITERIA

Inclusion Criteria:

- Adult patients (≥18 years) diagnosed with hypertension.
- Patients who have received hypertension care at Faith Mediplex for at least **3 months**.
- Patients able and willing to give informed consent.

Exclusion Criteria:

- Patients with severe comorbidities requiring complex/high-cost treatment (e.g., renal failure, cancer).
- Patients on temporary or emergency hypertension treatment only.
- Patients who decline consent.

2.6 SAMPLE SIZE DETERMINATION

Cochran's Formula for Sample Size

For large populations:

$$n0=Z2\cdot p\cdot(1-p)e2n0=e2Z2\cdot p\cdot(1-p)$$

Where:

- n0n0 = sample size for an **infinite population**
- ZZ = Z-value corresponding to the desired confidence level (1.96 for 95%)
- pp = estimated proportion of the attribute in the population (if unknown, use 0.5 for maximum variability)
- ee = desired margin of error

Since your population is **finite** (N=200N=200), we adjust using:

$$n=n01+n0-1Nn=1+Nn0-1n0$$

Assumptions:

- Confidence level = 95% → Z=1.96Z=1.96
- Proportion = 0.5 (maximum variability)
- Margin of error = 5% → e=0.05e=0.05

$n_0 = 0.9604 \times 0.0025 = 384.16 \approx 384$

However, I surveyed a total of **248 hypertensive patients** attending the outpatient clinic during the study period.

All 248 questionnaires were properly filled, collated, cleaned, and analyzed using SPSS version 27.0.

The higher sample size strengthened the precision of the findings and the validity of the regression analyses presented in Chapter Three.

2.7 SAMPLING TECHNIQUE

A **convenience sampling technique** was employed for this study. Hypertensive patients attending the outpatient clinic at Faith Mediplex Hospital were approached in the waiting area while awaiting consultation. After explaining the study's objectives, those who met the inclusion criteria and consented were given questionnaires to complete. This method was adopted due to the flow of patients during clinic hours, where random selection through registers was not practical.

Although convenience sampling is a non-probability technique, it was suitable for the hospital context and the descriptive design of this research. The large number of respondents (248) and their varied demographic backgrounds helped improve the representativeness and general reliability of the results.

Convenience sampling was used because hypertensive patients attend the clinic at different times, making random sampling impractical; this method ensured that willing and eligible patients were captured during routine clinic flow.

2.8 RESEARCH INSTRUMENT

A structured questionnaire was developed to collect relevant data for the study. The instrument was subjected to a pilot study to assess its clarity and consistency. The reliability of the questionnaire was confirmed using Cronbach's alpha analysis, and necessary adjustments were made based on the pilot results to ensure that the tool was both valid and suitable for the study population at Faith Mediplex Hospital.

The questionnaire consisted of four sections:

- **Section A:** Socio-demographic information (age, sex, marital status, occupation, education level, monthly income).
- **Section B:** Direct medical costs (consultation, drug costs, laboratory investigations, and hospital admissions).
- **Section C:** Indirect costs (transport fares, days of work lost, borrowed money, and caregiver expenses).
- **Section D:** Health insurance coverage, medication adherence, and perceived financial burden.

Each section corresponded directly to the variables analyzed in Chapter Four, ensuring consistency between data collection and statistical interpretation.

2.9 VALIDITY AND RELIABILITY OF THE INSTRUMENT

To ensure **content validity**, the questionnaire was reviewed and approved by the project supervisor, whose professional feedback helped refine the question structure, eliminate ambiguity, and confirm alignment with the study objectives.

A **pilot test** was conducted among **15 hypertensive patients** at a private hospital in Benin City similar to the study site. The pilot data were analyzed to assess internal consistency, yielding a

Cronbach's Alpha coefficient of 0.82, which indicates high reliability and suitability of the questionnaire for the main study.

The pilot participants were not included in the final data collection, and minor adjustments were made to improve clarity before the instrument was administered at Faith Mediplex Hospital.

2.10 METHOD OF DATA COLLECTION

Data Collection Procedure

Data collection was carried out over a period of **seven weeks**, from **11th July to 29th August**, coinciding with patients' regular hypertension clinic appointment days at Faith Mediplex Hospital.

During each clinic session, hypertensive patients who met the inclusion criteria were approached in the waiting area while awaiting consultation. The purpose of the study was clearly explained, and informed consent was obtained before administering the questionnaire.

I had research assistance, each stationed in different wards of the outpatient unit and inpatient unit, to help distribute and retrieve the questionnaires. Their involvement ensured that patients were attended to promptly without disrupting normal hospital operations.

Each completed questionnaire was carefully cross-checked on the spot for completeness and consistency to minimize missing data. The collected data included socio-demographic details, direct medical expenses, indirect costs, and information on health insurance coverage all of which later formed the basis for the descriptive and regression analyses presented in Chapter Three.

2.11 METHOD OF DATA ANALYSIS

Collected data were coded and entered into the **Statistical Package for Social Sciences (SPSS) version 27.0** for analysis.

Descriptive statistics such as frequencies, percentages, and charts were used to summarize socio-demographic variables and cost components, as shown in Tables 3.1–3.3 and Figures 3.1–3.3.

Inferential statistics were performed using **multiple linear regression** to identify the relationships between independent variables (such as age, sex, education, marital status, and occupation) and dependent variables (treatment cost, financial hardship, and insurance ownership), as shown in Tables 3.4–3.6.

All tests were evaluated at a **significance level of $p < 0.05$**. The results directly addressed the study's objectives and provided quantitative evidence for the discussions in Chapter Three.

2.12 Ethical Considerations

Approval to conduct the study was obtained from the management of Faith Mediplex Hospital. All participants were informed about the purpose and scope of the study, assured of confidentiality, and made aware that participation was voluntary. Written informed consent was obtained before administration of the questionnaire.

No names or personal identifiers were recorded, and all collected data were treated with strict confidentiality and used solely for academic purposes.

2.13 Limitations of the Methodology

Possible limitations included recall bias, as some patients had to estimate monthly treatment costs or transport fares. To minimize this, respondents were encouraged to base their responses on recent clinic visits and average monthly expenses.

Additionally, since the study was conducted in a single health facility, the findings may not fully represent all hypertensive patients in Benin City. However, the large sample size of 248 respondents strengthened the internal validity and representativeness of the results.

2.14 Summary

This chapter detailed the methodology employed in evaluating the cost burden of hypertension treatment at Faith Mediplex Hospital.

The use of a descriptive cross-sectional design, **convenience** sampling, structured questionnaire, and sturdy statistical analysis ensured credible findings.

The subsequent chapter builds on this methodological foundation, presenting the data analysis and interpretation of results obtained from 248 hypertensive patients.

CHAPTER THREE

RESULTS

3.1 DATA ANALYSIS

The data were analyzed using SPSS version 27.0.

3.2 ANALYSIS

This section discusses the various descriptive results and inferential analysis and their corresponding charts.

3.3 RESULTS AND INTERPRETATIONS

3.3.1 DESCRIPTIVE STATISTICS

Table 3.1. Socio-Demographic Characteristics of Respondents

	VARIABLE	**FREQUENCY**	**PERCENTAGE**
AGE	30-39	22	8.9
	40-49	62	25.0
	50-59	84	33.9
	60 years and above	80	32.3
SEX	Male	129	52.7
	Female	116	47.3
MARITAL STATUS	Single	26	10.8
	Married	161	67.1
	Widowed	41	17.1
	Divorced	12	5.0
	Trader	68	29.7

OCCUPATION	Civil Servant	42	18.3
	Driver/Bike rider	18	7.9
	Artisan	42	18.3
	Retired	59	25.8
INCOME	Less than 10k	8	
	10k – 30k	48	
	31 – 50k	77	
	51k – 100k	50	
	Above 100k	58	
EDUCATION	No formal education	23	
	Primary	38	
	Secondary	88	
	Tertiary	96	

INTERPRETATION:

Table 3.1 presents the demographic breakdown of hypertensive patients at Faith Mediplex Hospital. Most respondents (33.9%) were between 50–59 years, showing that hypertension is most common in middle-aged adults. Slightly more than half (52.7%) were male, and the majority (67.1%) were married.

Occupationally, traders (29.7%) and retirees (25.8%) formed the largest groups, indicating that many respondents work in informal or post-employment sectors where steady income may be limited.

In terms of education, most had secondary (35.5%) or tertiary (38.7%) education, while income levels varied, with a good proportion earning between ₦31,000 and ₦50,000 monthly.

Overall, these findings show that hypertension treatment affects mainly middle-aged, economically active individuals who often rely on moderate or fixed incomes.

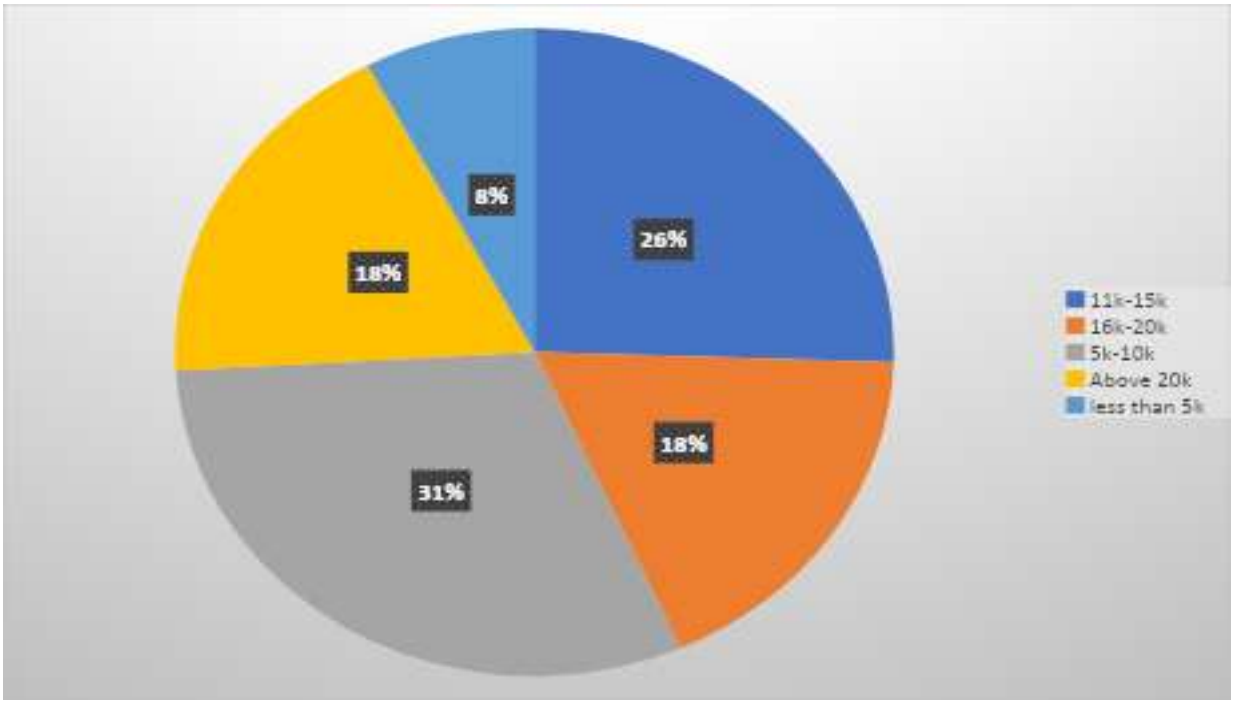

Figure 3.1 Monthly Cost of Hypertension Treatment Among Patients

INTERPRETATION

The pie chart illustrates the overall spending pattern of hypertensive patients at Faith Mediplex Hospital. It shows how patients are distributed across different monthly cost categories, giving a visual snapshot of treatment burden.

The chart shows that most hypertensive patients spend between ₦5.000 -₦10,000 followed by -₦11,000 -₦25,000 monthly on treatment, indicating a moderate to high financial load for the majority.

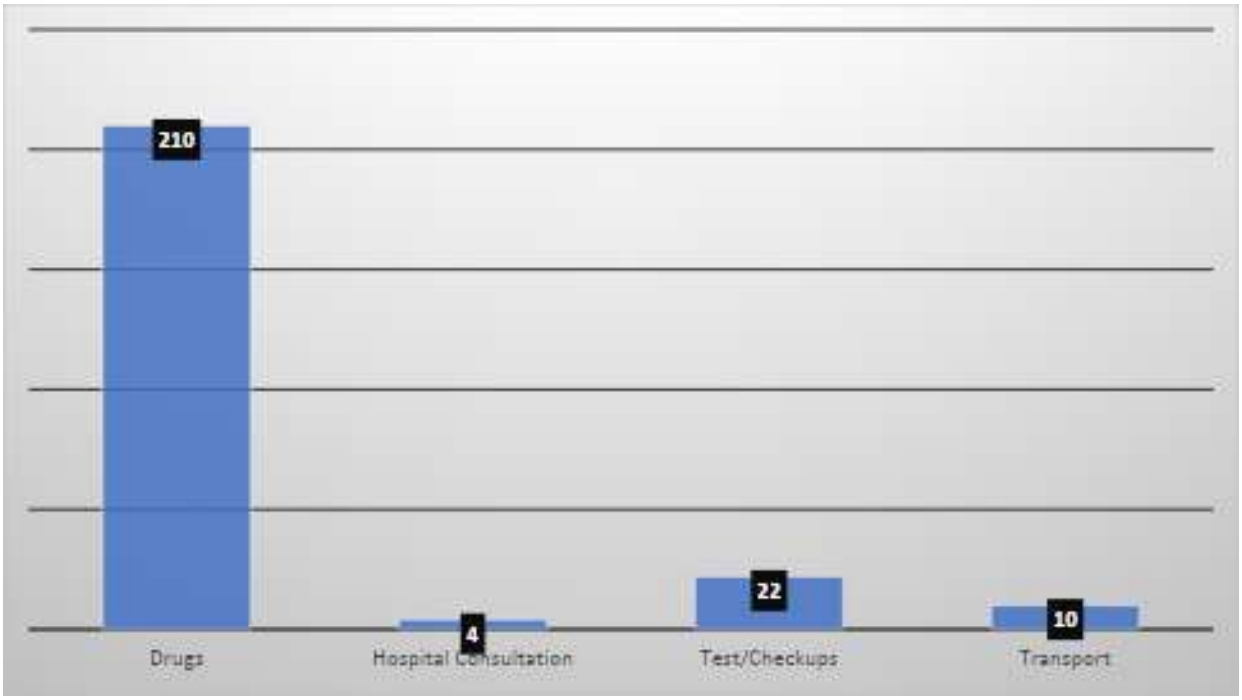

Figure 3.2 Which takes up the most money in your treatment

INTERPETATION

This Bar chart compares the major components of hypertension care such as drugs, consultation, and laboratory tests to show where patients' money goes most.

The result clearly indicates that drug costs take up the largest portion of total spending, followed by laboratory investigations, Transport and consultation

Table 3.2. Indirect Costs Associated with Hypertension Management

	VARIABLE	FREQUENCY	PERCENTAGE
TRANSPORT FARE	0-500	14	5.7
	500-1k	33	13.4
	1k-2k	81	32.9
	Above 2k	118	48.0
MISSED WORK/BUSINESS INCOME DUE TO TREATMENT	Yes	128	53.6
	No	111	46.4
BORROWED MONEY/DEPENDENT ON OTHERS	Yes	95	38.5
	No	151	61.1
OCCUPATION	Less than 2km	24	10.0
	2-5km	90	37.3
	6-10km	81	33.6
	More than 10km	46	19.1

INTERPRETATION

Table 3.2 highlights the hidden or indirect costs of managing hypertension. Nearly half of the respondents (48.0%) spend over ₦2,000 on transport per hospital visit, showing how location and distance contribute to treatment costs.

Over half (53.6%) reported missing work or business days due to treatment, and 38.5% had to borrow money or depend on others for financial support.

Most patients (37.3%) live within 2–5 km of the hospital, yet the combination of transport, missed income, and dependency suggests that hypertension management carries both financial and productivity burdens beyond direct medical expenses.

Table 3.3 Financial Burden and Health Insurance Coverage Among Respondents

	VARIABLE	FREQUENCY	PERCENTAGE
DO YOU STRUGGLE TO AFFORD HYPERTENSION CARE	Yes	120	49.0
	No	125	51.0
HAVE YOU DELAYED OR SKIPPED TREATMENT BECAUSE OF MONEY	Yes	141	
	No	105	
BORROWED MONEY/DEPENDENT ON OTHERS	Yes	95	38.5
	No	151	61.1
DOES YOUR INSURANCE COVER FULL TREATMENT COST	Yes	78	
	No	10	
HAS YOUR OUT-OF POCKET COST REDUCED SINCE JOINING INSURANCE	Yes	73	
	No	69	

INTERPRETATION

Table 3.3 examines patients' experiences of financial hardship and insurance support. Nearly half (49.0%) admitted struggling to afford care, and 57.3% had delayed or skipped treatment due to financial constraints.

Although 78 respondents indicated having health insurance, most said it does not fully cover treatment costs. Furthermore, nearly half (48.6%) reported that out-of-pocket costs had not reduced significantly even after joining insurance.

These results show that while some patients have limited insurance protection, out-of-pocket spending still dominates, keeping financial pressure high among hypertensive patients.

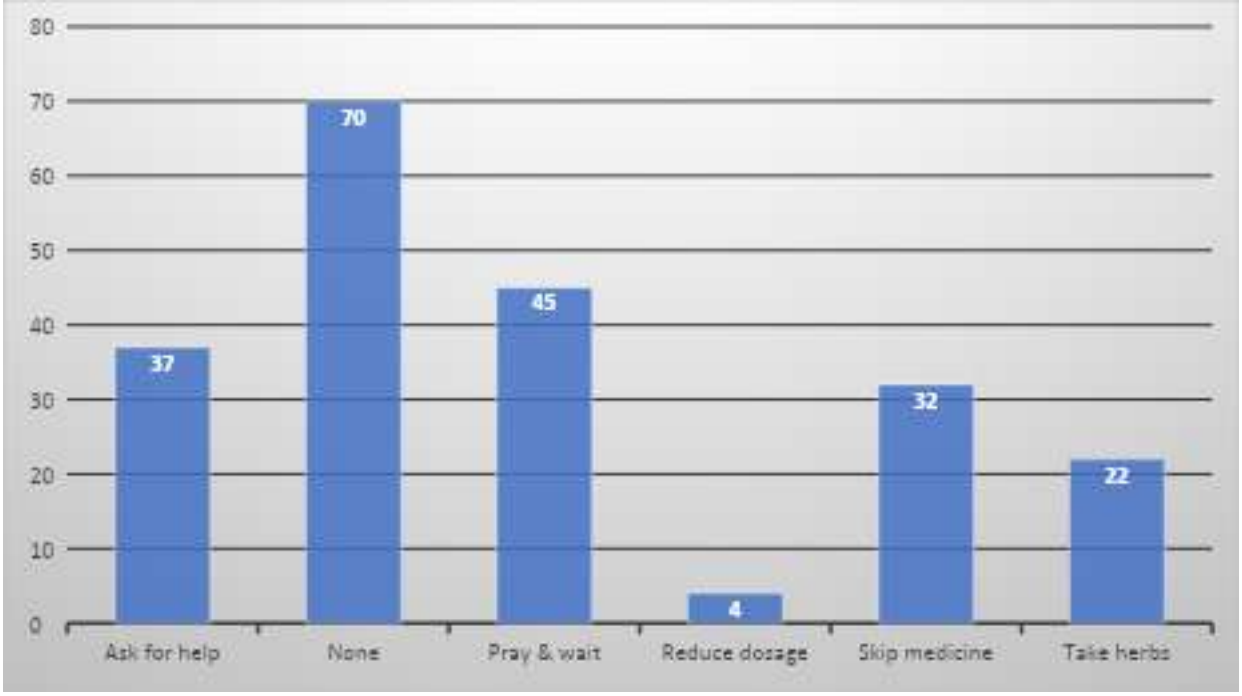

Figure 3.3 Alternative Treatment Options Used When Standard Care Is Unaffordable

INTERPRETATION

The Bar chart displays patients' preferred alternatives when standard medical treatment becomes unaffordable. It reveals that a small fraction resorted to herbal or traditional medicine, while the majority continued with hospital-based therapy despite the cost.

This pattern shows that although financial pressure exists, most patients still trust and depend on conventional treatment a positive indication of treatment adherence and awareness of proper hypertension management

3.4.1 INFERENTIAL STATISTICS

Table 3.4 Regression Analysis Showing Predictors of Health Insurance Ownership

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	2.322	.182		12.739	.000	1.962	2.681
	Age	-.098	.036	-.201	-2.737	.007	-.169	-.028
	Sex	.135	.064	.142	2.122	.035	.010	.261
	Marital status	.002	.048	.003	.051	.960	-.091	.096
	Occupation	.033	.021	.111	1.548	.123	-.009	.075
	Education	-.218	.031	-.431	-6.928	.000	-.280	-.156

a. Dependent Variable: Do you have health insurance

INTERPRETATION

The regression results show that **Age**, **Sex**, and **Education** significantly predict whether someone has health insurance. As **Age** increases, the likelihood of having health insurance **decreases** (B = -0.098, p = 0.007). **Sex** has a positive effect (B = 0.135, p = 0.035), suggesting one gender is more likely to have insurance than the other. **Education** also shows a strong negative relationship (B = -0.218, p = 0.000), indicating that lower education levels may be linked to reduced insurance coverage. **Marital status** and **Occupation** are not significant predictors (p > 0.05). Overall, demographic factors especially age, sex, and education play key roles in determining health insurance ownership.

Table 3.5. Regression Analysis Showing Predictors of Cost of Hypertension Treatment

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	.858	.458		1.872	.063	-.046	1.761
	Age	.146	.091	.117	1.609	.109	-.033	.325
	Sex	.035	.161	.015	.219	.827	-.282	.353
	Marital status	-.063	.121	-.035	-.518	.605	-.301	.176
	Occupation	.049	.054	.065	.916	.361	-.057	.156
	Education	.568	.079	.447	7.183	.000	.412	.724

a. Dependent Variable: How much spent on hypertension treatment

INTERPRETATION

The regression examined how patient demographics relate to the cost of hypertension treatment. Among the predictors, only Education showed a significant association (B = 0.568, p = 0.000). This means that patients with higher education levels tend to spend more on hypertension treatment. Age, Sex, Marital status, and Occupation were not significant (p > 0.05), suggesting they do not meaningfully influence treatment cost. The positive coefficient for education indicates a direct relationship—better-educated individuals may afford or seek higher-quality care. Overall, education is the main demographic factor linked to treatment spending.

Table 3.6. Regression Analysis Showing Predictors of Financial Hardship

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	.464	.184		2.523	.012	.101	.826
	Age	.136	.037	.264	3.718	.000	.064	.209
	Sex	-.004	.065	-.004	-.059	.953	-.132	.124
	Marital Status	-.047	.049	-.063	-.960	.338	-.142	.049
	Occupation	.018	.022	.058	.829	.408	-.025	.061
	Education	.227	.032	.433	7.145	.000	.165	.290

a. Dependent Variable: Do you struggle to what afford hypertension care

INTERPRETATION

The analysis explored how **demographic factors** relate to whether patients struggle to **afford hypertension care**. The results show that **Age** (B = 0.136, p = 0.000) and **Education** (B = 0.227, p = 0.000) significantly predict affordability struggles. This suggests that older and more educated individuals are **more likely** to report difficulty affording hypertension care. **Sex**, **Marital Status**, and **Occupation** were **not significant** (p > 0.05), indicating they have little influence on affordability. The positive coefficients for age and education imply these groups might face higher costs or have greater awareness of care needs. Overall, **Age and Education** are key demographic factors influencing patients' ability to afford hypertension treatment.

In summary, the findings indicate that hypertension treatment imposes a significant cost burden on patients at Faith Mediplex Hospital. Education and age emerged as major predictors influencing treatment cost and affordability, while insurance ownership was found to be unevenly distributed across demographic groups.

CHAPTER FOUR

4.1 Introduction

This chapter discusses and interprets the key findings presented in Chapter Four. The discussion links results to the study objectives and to the broader literature on cost burden of chronic disease care, highlights policy and practice implications, presents limitations of the study, and offers recommendations and suggestions for future research. The aim is to draw clear, evidence-based conclusions about the economic burden of hypertension treatment among patients attending Faith Mediplex Hospital and to provide practical steps that can reduce this burden.

DISCUSSION

This study assessed the cost burden of managing hypertension among patients at Faith Mediplex Hospital. The findings showed that most patients spent between ₦5,000 and ₦10,000 every month on treatment, with medicines taking up the highest part of this cost. This agrees with the work of Okoro et al. (2019), who also reported that antihypertensive drugs are the major cost in the management of hypertension, especially in private hospitals. Since hypertension requires lifelong treatment, the continuous purchase of drugs makes the financial burden steady and ongoing.

Apart from drug costs, the study also showed that patients experienced indirect expenses such as transport to the hospital and loss of income due to time spent attending clinic. Nearly half of the patients spent more than ₦2,000 on transport per visit, and many reported missing work or business. This is similar to the findings of Tobe-Gaius et al. (2021), who noted that indirect costs add to the overall burden of chronic illness management and can affect patients' economic stability.

The study found that about half of the respondents struggled to afford their treatment, and some had to borrow money or depend on others. More importantly, many patients admitted delaying

or skipping treatment because of cost. This shows that financial burden has a direct effect on adherence. This finding agrees with Adigun et al. (2021), who reported that high out-of-pocket spending is a major cause of poor medication adherence among hypertensive patients in Nigeria. When patients cannot afford their drugs consistently, blood pressure control becomes poor, increasing the risk of complications.

Although some patients had health insurance, most still spent out of pocket because the insurance did not cover all treatment costs. This supports the Federal Ministry of Health (2020) report which stated that health insurance coverage in Nigeria is still limited and often does not provide full protection against medical expenses. As a result, many patients continue to face financial stress.

Overall, the study shows that the cost burden of hypertension treatment at Faith Mediplex Hospital is significant. The cost affects patients' finances and influences their adherence to medication. Strengthening insurance coverage, improving access to affordable medications, and promoting the use of generic drugs may help reduce this burden and improve treatment outcomes.

4.2 How findings relate to existing literature

The findings of this study align with previous research conducted in Nigeria and other low- and middle-income countries (LMICs). Similar to earlier studies, this research found that medication constitutes the single largest component of chronic disease expenditure. Indirect costs such as transport fares and lost work days also meaningfully contribute to the overall economic burden of managing hypertension.

Furthermore, the study supports existing evidence that health insurance penetration remains low and often insufficient to fully protect patients from out-of-pocket payments. However, this study adds value by providing detailed insight into the size of these burdens within a **private**

secondary hospital context, an area less explored in local research. It also highlights the consistent influence of **education and age** in shaping treatment costs and financial hardship among hypertensive patients.

4.3 Policy and practical implications

The findings of this study reveal that the economic burden of hypertension management extends beyond direct medical costs, affecting patients' productivity, household welfare, and long-term adherence. These insights have several implications for health policy and clinical practice. Policymakers should prioritize the integration of chronic disease management into the National Health Insurance Authority (NHIA) benefit package, ensuring that essential antihypertensive medications and routine investigations are fully covered. At the hospital level, administrators can adopt cost transparency systems, promote bulk purchasing of generic drugs, and explore partnerships with community-based insurance schemes. Strengthening financial protection mechanisms will help reduce catastrophic spending, improve medication adherence, and ultimately contribute to national goals for Universal Health Coverage (UHC).

4.4 Limitations of the study

Although this study provides valuable insights into the cost burden of hypertension treatment at Faith Mediplex Hospital, several limitations should be acknowledged.

First, the use of a convenience sampling technique limits the generalizability of the findings beyond the clinic population and introduces the possibility of selection bias, as patients who attend the clinic regularly may differ from those who do not.

Second, being a single-facility study conducted in a private secondary hospital restricts the applicability of the results to other settings, particularly public or rural health facilities.

Third, cost and expenditure data were self-reported, which may be subject to recall bias. Respondents were therefore encouraged to base their responses on recent clinic visits and average monthly expenditures to minimize this limitation.

Fourth, minor variations in the direction of some regression coefficients were observed due to categorical coding, but these were reviewed and found not to affect the accuracy of the overall interpretations.

Finally, the cross-sectional design of the study limits the ability to infer causality or evaluate trends over time.

Despite these limitations, the relatively large sample size (n = 248) and the combination of descriptive and multivariable analyses enhance the internal validity and provide credible evidence that can inform local decision-making and future research.

CONCLUSION

This study examined the financial burden of hypertension treatment among patients at Faith Mediplex Hospital. Findings show that the cost of managing hypertension poses a significant challenge for many patients, largely due to recurring expenses associated with medications, consultations, laboratory tests, and transportation. These costs affect treatment adherence and the ability to maintain continuous care.

Although some patients had health insurance, coverage was often insufficient to eliminate out-of-pocket payments. Strengthening insurance coverage, improving access to affordable medications, and providing financial support systems can help reduce this burden and improve long-term treatment outcomes.

RECOMMENDATIONS

1. There should be improved access to affordable antihypertensive medications. Hospitals and pharmacies should increase the availability of quality generic antihypertensive drugs, as these are usually cheaper than branded options. Bulk purchase systems and partnerships with pharmaceutical suppliers can also help reduce prices. Making the cost of medicines more affordable would help reduce the financial pressure on patients.

2. Health insurance coverage should be expanded and strengthened to reduce out-of-pocket spending. Insurance providers should review their benefit packages to ensure that the full cost of routine medications and basic laboratory tests are covered for patients with hypertension. In addition, awareness campaigns should be carried out to encourage more patients to enroll in available insurance programs, especially those in lower income groups.

3. Public and private healthcare organizations should develop patient support programs aimed at reducing financial hardship. This may include drug subsidy schemes, installment payment arrangements, or targeted financial assistance for patients who are unemployed, elderly, or on low and fixed incomes. These forms of support would help prevent interruptions in treatment caused by lack of money.

4. Health workers should provide regular counseling on the importance of medication adherence and clinic attendance. Many patients stop treatment when they do not feel symptoms, which can be dangerous. Clear, consistent communication can help patients understand the long-term benefits of controlling their blood pressure and the risks of missing doses or delaying follow-up visits.

5. Community health education should be strengthened to improve public awareness of hypertension, its long-term effect, and the importance of continuous management. Religious organizations, market associations, and community leaders can be involved in promoting

routine check-ups and healthy lifestyle practices such as reduced salt intake, exercise, and weight control.

6. Further research should be conducted using larger sample sizes and at multiple health facilities to compare cost burdens across different healthcare settings. Such research may also examine the effectiveness of specific cost-reduction strategies, such as wider insurance coverage and drug subsidy programs, in improving adherence and clinical outcomes.

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APPENDIX

QUESTIONNAIRE FOR RESPONDENTS

Research Title:

Cost Burden of Hypertension Treatment Among Patients at Faith Mediplex Hospital, Benin City

Researcher: Onyeka Emefiele — Final Year Pharmacy Student, University of Benin

You are invited to take part in this research study. Your responses will be kept confidential and used only for academic purposes. Participation is voluntary, and you may choose not to continue at any time. No personal details will be collected.

Do you consent to participate in this study?

☐ Yes ☐ No

SECTION A: PERSONAL & BACKGROUND INFORMATION *(Q1–Q6)*

1. **Age Range:**

   ☐ Under 30 ☐ 30–39 ☐ 40–49 ☐ 50–59 ☐ 60 and above

2. **Sex:**

   ☐ Male ☐ Female

3. **Marital Status:**

   ☐ Single ☐ Married ☐ Widowed ☐ Divorced

4. **What do you do for a living?**

   ☐ Trader ☐ Civil Servant ☐ Driver/Bike rider ☐ Artisan ☐ Retired

5. **Monthly Income:**

   ☐ Less than ₦10k ☐ ₦10k–₦30k ☐ ₦31k–₦50k ☐ ₦51k–₦100k ☐ Above ₦100k

6. **Education Level:**

   ☐ No formal education ☐ Primary ☐ Secondary ☐ Tertiary

SECTION B: DIRECT TREATMENT COST *(Q7–Q10)*

7. **How much do you spend per month in total on hypertension treatment** (including drugs, tests, checkups, consultation & transport)?

   ☐ Less than ₦5k ☐ ₦5k–₦10k ☐ ₦11k–₦15k ☐ ₦16k–₦20k ☐ Above ₦20k

8. **Which of the following costs take up the most money in your treatment?** (You may tick more than one)

   ☐ Drugs ☐ Tests/Checkups ☐ Hospital Consultation ☐ Transport ☐ Others: _____

9. **When you are told to buy hypertension drugs, do you:**

   ☐ Buy all of them ☐ Buy only some ☐ Cannot afford any

10. **Has the cost of treatment ever made you:**

    ☐ Reduce dosage ☐ Delay refill ☐ Stop treatment ☐ None of the above

SECTION C: INDIRECT COSTS *(Q11–Q14)*

11. **How far is the hospital you go to for your hypertension care?**

    ☐ Less than 2km ☐ 2–5km ☐ 6–10km ☐ More than 10km

12. **How much do you spend on transport for each hospital visit (to and fro)?**

    ☐ ₦0–₦500 ☐ ₦501–₦1k ☐ ₦1,001–₦2k ☐ Above ₦2k

13. **Have you ever missed work, business, or income due to time spent seeking treatment?**

☐ Yes ☐ No

14. **Does your hypertension treatment affect your ability to work or earn money normally?**

☐ Yes ☐ No ☐ Not sure

SECTION D: FINANCIAL HARDSHIP EXPERIENCED *(Q15–Q18)*

15. Do you struggle to afford hypertension care at times?

☐ Yes ☐ No

16. Have you delayed or skipped treatment because of money?

☐ Never ☐ Sometimes ☐ Often ☐ Always

17. Have you borrowed money, sold property, or depended on others for treatment?

☐ Yes ☐ No

18. What do you do when you can't afford treatment? (Tick all that apply)

☐ Skip medicine ☐ Take herbs ☐ Pray & wait ☐ Ask for help ☐ Reduce dosage

SECTION E: INSURANCE & SUPPORT SYSTEMS *(Q19–Q23)*

19. Do you have health insurance?

☐ Yes ☐ No

20. If yes, which type?

☐ NHIS ☐ Private ☐ Company plan ☐ Not sure

21. Does your insurance cover full treatment cost?

☐ Yes ☐ Partially ☐ No

22. Has your out-of-pocket cost reduced since joining insurance?

☐ Yes, significantly ☐ Slightly ☐ No ☐ I don't have insurance

23. What do you think can help reduce the financial burden of treating hypertension?

_____

SECTION F: MEDICATION BEHAVIOR & ADHERENCE *(Q24–Q30)*

Instructions: Tick how often each statement applies to you.

Key: N = Never ST = Sometimes O = Often A = Always

#	Statement	N	ST	O	A
24	I forget to take my hypertension medicine.	☐	☐	☐	☐
25	I skip drugs when I feel fine or strong.	☐	☐	☐	☐
26	I stop taking my medicine when I feel better.	☐	☐	☐	☐
27	I stop my medicine	☐	☐	☐	☐

	when I experience side effects.				
28	I reduce or stretch my drugs to save cost.	☐	☐	☐	☐
29	I run out of medicine before my next refill.	☐	☐	☐	☐
30	I take my medicine at the correct time every day.	☐	☐	☐	☐