EVALUATION OF THE KNOWLEDGE ATTITUDE AND PRACTICE OF KOGI STATE COMMUNITY PHARMACISTS IN THE MANAGEMENT OF HYPERTENSION

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BENIN CITY

NOVEMBER, 2025.

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A DISSERTATION SUBMITTED TO THE DEPARTMENT OF CLINICAL PHARMACY, FACULTY OF PHARMACY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DOCTOR OF PHARMACY (PHARM. D) OF THE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA.

NOVEMBER, 2025.

CERTIFICATION

This is to certify that this project work titled “Evaluation Of The Knowledge Attitude And Practice Of Kogi State Community Pharmacists In The Management Of Hypertension” was carried out by DUROJAIYE ROYALSEED from the Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin City, done in partial fulfillment of the requirement for the award of Bachelor of Pharmacy and Doctor of Pharmacy degree of the University of Benin, Benin City.

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DUROJAIYE ROYALSEED Date

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PROF. (MRS) S.F USIFOH Date

(Project Supervisor)

…….. ……..

DR M.I OSARENMWINDA Date

(Head of Department)

DEDICATION

This work is dedicated first and foremost to God Almighty, for His infinite guidance, mercy, and provision, which sustained me through every stage of this research.

I also dedicate this project, with all my love, to my family. Your unwavering support, constant encouragement, and steadfast love have been my foundation throughout this entire academic journey. Your belief in me has been my greatest motivation.

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ABSTRACT

Hypertension is a leading cause of morbidity in Nigeria, and community pharmacists are positioned to bridge the documented "profoundly poor" self-care gap in Lokoja. This study evaluated the Knowledge, Attitude, and Practice (KAP) of Lokoja's community pharmacists regarding evidence-based hypertension management. A descriptive cross-sectional study was conducted using a validated KAP questionnaire, achieving an 88% participation rate (n=44) from the total population (N=50) of community pharmacists in Lokoja. Pharmacists demonstrated a highly positive attitude towards their role (WM=4.70) but perceived their pharmacies as unprepared for these services (WM=3.39). A critical knowledge deficit was identified: 75.8% were familiar with the outdated 2003 JNC 7 guideline, while only 27.3% knew the current 2017 ACC/AHA guideline. This correlated with poor knowledge of current Stage 1 (59.1%) and Stage 2 (54.5%) hypertension definitions. Practice was clearly divided, with high engagement in passive counseling (e.g., "Medication Counseling," 86.4% "Always") but low engagement in systematic, long-term care (e.g., "Documentation," WM=3.48; "Patient follow-up," WM=4.02). A significant knowledge-practice gap exists among Lokoja's pharmacists, driven not by poor attitude but by outdated guideline knowledge and environmental barriers. Mandated CPD on current guidelines and implementation of structured in-pharmacy systems are recommended..

ACKNOWLEDGEMENTS

My deepest gratitude goes to God Almighty for His infinite grace, guidance, and provision, which saw me through the challenges of this research and my entire academic programme.

I wish to express my sincere and profound appreciation to my project supervisor, PROF. (MRS) S.F USIFOH. I am grateful for the invaluable opportunity to work under her esteemed guidance. Her meticulous supervision, insightful corrections, and expert direction were instrumental in the successful completion of this work.

My special thanks go to my uncle, for his unwavering support and encouragement throughout the course of this project.

Finally, I am deeply grateful to my wonderful family. Your constant prayers, support, unconditional love, and enduring patience provided the strength and comfort I needed to see this work through to the end.

CHAPTER ONE

INTRODUCTION

1.1 Background Of The Study

Hypertension, or high blood pressure, remains a pervasive global health challenge, affecting an estimated 1.28 billion adults aged 30-79 (Menon et al., 2024). It stands as a primary risk factor for catastrophic cardiovascular events, including heart attacks, strokes, and kidney disease. The core of the crisis lies not in its prevalence, but in its management; globally, only 21% of individuals with hypertension have their condition under adequate control (Menon et al., 2024).

In Nigeria, this global challenge is amplified. Hypertension is a leading cause of morbidity and mortality (Akinlua et al., 2015), with prevalence in some urban areas reported to be as high as 51.6% (Ukoha-Kalu et al., 2020). This burden is exacerbated by low rates of awareness, treatment, and control (Akinlua et al., 2015), as well as poor patient adherence to medication and lifestyle modifications (Nelissen et al., 2019; Ukoha-Kalu et al., 2020).

Amidst this challenge, community pharmacists are a strategic and highly accessible healthcare resource. They are often the first, and sometimes only, point of contact with the health system for many Nigerians, valued for their accessibility and frequent patient interactions (Ihekoronye et al., 2022; Osemene & Erhun, 2018). However, this potential is largely untapped. community pharmacists in Nigeria often operate in "silos," disconnected from the formal primary healthcare (PHC) architecture, which creates a significant barrier to the coordinated, continuous care required for chronic diseases like hypertension (Ihekoronye et al., 2022).

1.2 Literature Review

This review evaluates the existing literature to synthesize what is known about the knowledge, attitude, and practice (KAP) of community pharmacists in hypertension management.

1.2.1 Conceptual Framework: KAP and Pharmaceutical Care

This study is based on the Knowledge, Attitude, and Practice (KAP) model. This model posits that knowledge is the foundation for establishing beliefs and attitudes, which in turn shape behaviour and practice. In the context of pharmacy, this framework is essential for understanding the gap between what pharmacists *know* (e.g., clinical guidelines) and what they *do* (e.g., routine patient counselling and screening).

The practice element is evaluated through the lens of "pharmaceutical care." This is defined by the International Pharmaceutical Federation (FIP) as the focussed outcome-oriented pharmacy practice that requires the pharmacist to work in collaboration with the individual and other healthcare providers to promote health, prevent disease, and ensure the rational use of medicine (International Pharmaceutical Federation [FIP], 2025). In Nigeria, however, studies suggest this remains largely a "theoretical concept" (Abdulwahab et al., 2022), with practice often limited by systemic barriers rather than a lack of knowledge or willingness.

1.2.2 Review of Empirical Studies (Local - Lokoja)

While no studies were found that directly assess the Knowledge, Attitude, and Practice (KAP) of community pharmacists in Lokoja, recent literature from the city

provides a critical, two-part context: a documented crisis in patient self-care and proven evidence of pharmacist effectiveness when an intervention is applied.

The Patient Practice Gap in Lokoja

The most compelling justification for this line of inquiry comes from studies on hypertensive patients in Lokoja itself. A 2020 cross-sectional study at the Kogi State Specialist Hospital in Lokoja assessed the KAP of hypertensive patients toward their own condition. The study found that while patients had an "acceptable" level of knowledge and attitude, their self-care practices were "profoundly poor" (Ukoha-Kalu et al., 2020). An alarmingly low 1.3% of the 308 patients surveyed were found to have good self-care practices (Ukoha-Kalu et al., 2020).

A related 2021 study, also in Lokoja, reinforced this finding, reporting that while 61.4% of hypertensive patients adhered to their medication, adherence to lifestyle modification was virtually non-existent: 99.1% did not adhere to low-salt diets and 100% did not adhere to physical activity recommendations (Ukoha-Kalu et al., 2021a). This documented failure in patient self-management creates an urgent need to evaluate the healthcare professionals most positioned to intervene: community pharmacists.

Contrasting Evidence: Poor Routine Practice vs. High Intervention Potential

The limited data on pharmacists in Lokoja presents a striking contrast. On one hand, a 2021 study of hospital pharmacists at the Federal Medical Centre Lokoja (FMCL) and Kogi State Specialist Hospital (KSSH) found "poor knowledge" of cardiovascular disease (CVD) risk factor cut-offs and "poor practice" of primary prevention activities (Aghoja et al., 2021).

On the other hand, intervention studies from Lokoja prove that pharmacists are highly effective when empowered with a structured program. A 2022 randomized controlled trial conducted in community pharmacies in Lokoja and Abuja found that a pharmacist-led educational intervention significantly improved medication adherence among hypertensive patients (Ayogu et al., 2022). Similarly, a 2021 intervention study at the Federal Medical Centre Lokoja demonstrated that pharmacist-led education significantly enhanced self-management behaviors (medication adherence, physical activity, and weight management) among hypertensive-diabetic patients (Ukoha-Kalu et al., 2021b).

This juxtaposition defines the Lokoja-specific research gap: we know Lokoja patients have poor practice, and local hospital pharmacists also show poor routine practice. Yet, we also have definitive evidence that pharmacist-led interventions are highly effective in the very same city. What remains unknown is the baseline KAP of Lokoja's community pharmacists—the frontline providers who are the key to bridging this gap.

1.2.3 Review of Empirical Studies (National / Regional)

Nationally, studies consistently show that Nigerian community pharmacists are both knowledgeable and willing to take on expanded roles, but they are hindered in translating this potential into routine practice.

Knowledge and Attitude: High Potential

Studies from across Nigeria confirm that community pharmacists generally possess strong foundational knowledge and a positive professional attitude toward public health. A 2018 cross-sectional study of 168 community pharmacists in Lagos

concluded that they had a "very good knowledge level" of CVD risk factors, with 91.7% scoring above 70% on the assessment. An average of 95.5% correctly identified hypertension as a major risk factor (Amadi et al., 2018). This finding of good knowledge is supported by other literature reviews (Motlohi et al., 2024).

A 2015 study of 40 community pharmacists in Enugu found they displayed an overwhelmingly "positive attitude" towards public health practice. They agreed with statements affirming their competence and the importance of screening for chronic diseases like hypertension (Offu et al., 2015). This positive disposition is a recurring theme, with one 2017 study in Enugu finding 81% of pharmacists were "strongly willing" to adopt pharmaceutical care (Ogbonna et al., 2017).

Practice: The National Dissonance

Despite this high knowledge and positive attitude, the actual practice of hypertension management and broader public health services is frequently reported as suboptimal, revealing a significant "knowledge-attitude-practice gap." The same Lagos study that found "very good knowledge" also found that only 48.2% of pharmacists engaged in good primary prevention practices (Amadi et al., 2018). Similarly, the Enugu study that documented a "positive attitude" concluded that the overall level of practice was "not satisfactory" (Offu et al., 2015).

A 2018 national survey of 130 community pharmacists clarified this gap: pharmacists' involvement was highest in traditional, passive roles like patient counseling (4.93/5) and advising on "maintenance of normal blood pressure" (4.88/5), while involvement in proactive, structured interventions was lower (Osemene & Erhun, 2018). This consistent pattern—where knowledge is high but practice lags—strongly suggests that

the primary bottlenecks are not a lack of information or willingness, but systemic and environmental barriers.

1.2.4 Review of Empirical Studies (International)

The gap seen in Nigeria is illuminated by international studies, which confirm both the effectiveness of pharmacist interventions and the complex, context-specific nature of KAP deficits.

Global Evidence for Pharmacist-Led Care

The value of pharmacist involvement in hypertension is not theoretical; it is a globally validated, evidence-based strategy. A recent systematic review and meta-analysis of 95 randomized controlled trials (involving 31,168 participants) provided definitive evidence. It found that pharmacist-led interventions—which most commonly include patient education (88% of studies) and feedback to physicians (49%)—result in clinically significant reductions in blood pressure, with a mean decrease of 5.3 mmHg in systolic blood pressure (SBP) and 2.3 mmHg in diastolic blood pressure (DBP) compared to usual care (Gastens et al., 2025). The impact was greatest when interventions were collaborative and conducted in outpatient clinics (Gastens et al., 2025).

International KAP Benchmarks

International KAP studies show that the specific gap between "knowing" and "doing" varies by location. In the United Arab Emirates (UAE), a 2024 study of 114 community pharmacists found a situation similar to Nigeria's: 70% demonstrated good knowledge, but this did not translate to practice. Only 46% had a positive

attitude and 51% reported good counseling practices (Menon et al., 2024). In China, a 2022 study of 108 community pharmacists showed the reverse: pharmacists held a "positive attitude" but had weaker knowledge (only 15.7% rated it "very good"). Consequently, their practice was limited, with over 30% reporting they "rarely or never" implemented patient education programs (Liu et al., 2022).

These studies underscore that the barriers to optimal practice are not uniform and must be assessed at a local level.

1.2.5 Systemic Barriers to Optimal Practice in Nigeria

The literature robustly explains why the national knowledge-practice gap exists. The implementation of patient-centered pharmaceutical care is constrained by three main categories of barriers:

Environmental and Resource Constraints: Pharmacists are hindered by their. Their immediate practice environment. The most frequently cited barriers include inadequate training (96%), lack of pharmacists' time (94.6%), insufficient personnel (92.3%), and a lack of private space for confidential patient counseling (82.3%) (Osemene & Erhun, 2018).

Interprofessional and Systemic Barriers: The most significant hurdle is the systemic isolation of community pharmacy. Pharmacists are often not integrated into the formal Primary Healthcare (PHC) system, operating as "silos" (Ihekoronye et al., 2022). This leads to poor interprofessional collaboration (cited as a barrier by 66.6% in one study), no established referral pathways, and no access to patient medication or clinical records from other

providers, making comprehensive management impossible (Ogbonna et al., 2017; Osemene et al., 2022).

Economic Disincentives and Ethical Dilemmas: The prevailing business model for community pharmacy in Nigeria is product-based (i.e., sales) with no remuneration mechanism for providing cognitive services like counseling or disease management (Ogbonna et al., 2017). This creates a conflict, as pharmacists face managerial pressure to meet sales targets (a driver of unethical practice for 70.3%) and intense competition from cheaper, informal drug vendors (Osemene et al., 2025; Nelissen et al., 2019).

1.3 Justification (Statement of the Problem) and Summary of Literature Gap

This review of literature reveals a clear and compelling narrative. Globally, pharmacist-led care is a proven strategy for hypertension control (Gastens et al., 2025). Nationally, Nigerian pharmacists are knowledgeable and willing (Amadi et al., 2018; Offu et al., 2015) but are prevented from translating this into practice by profound systemic, economic, and resource barriers (Ihekoronye et al., 2022; Ogbonna et al., 2017).

Locally, in Lokoja, this narrative becomes acutely focused. The city faces a documented public health failure, with patients demonstrating "profoundly poor" self-care practices (Ukoha-Kalu et al., 2020). Simultaneously, local intervention trials have definitively proven that pharmacist-led education in Lokoja's pharmacies *works* to improve patient adherence and self-management (Ayogu et al., 2022; Ukoha-Kalu et al., 2021b).

The critical piece missing is the link between the national problem and the local solution. No recent study evaluates the baseline Knowledge, Attitude, and Practice of Lokoja's **community pharmacists**. Understanding their specific knowledge gaps, professional attitudes, and, most importantly, the local barriers they face is the essential first step to designing an effective, evidence-based strategy to empower them. Such a study is necessary to move from knowing "what works" (i.e., interventions) to understanding "what is" (i.e., the current reality) and, ultimately, to bridging the deadly gap in hypertension care in Lokoja.

1.4 Aim and Objectives

1.4.1 Main Aim

The main aim of this study is to evaluate the knowledge, attitude, and practice (KAP) of community pharmacists in the management of hypertension in Lokoja, Kogi State.

1.4.2 Specific Objectives

The specific objectives of this study are:

1. To assess the level of knowledge of community pharmacists in Lokoja regarding the current guidelines for hypertension management.
2. To determine the attitude of community pharmacists in Lokoja towards their professional role and responsibilities in the management of hypertension.
3. To evaluate the current self-reported practice of community pharmacists in Lokoja concerning hypertension management services (e.g., screening, patient counselling, monitoring, and referral).

4. To describe the extent to which community pharmacists in Kogi State develop and implement individualized pharmaceutical care plans for patients with hypertension.
5. To assess the availability of resources and infrastructure within community pharmacies in Kogi State that are necessary for effective hypertension management.

CHAPTER TWO

METHODOLOGY

2.1 Study Setting

This study was conducted in Lokoja, Kogi State. As the state capital, Lokoja serves as a central hub for commerce and healthcare and has a diverse healthcare landscape, including hospitals, community pharmacies, and healthcare centers. Pharmacists practicing in community pharmacies within the state were targeted for this study as they are primary points of contact for patients accessing healthcare.

2.2 Study Design

The study employed a descriptive cross-sectional study design. A self-structured questionnaire was administered to community pharmacists to assess their knowledge, attitudes, and practices in the management of hypertension. This design was deemed appropriate for achieving the study's objectives as it allows for the efficient collection of data on knowledge, attitudes, and practices simultaneously, providing a 'snapshot' of the current situation among the target population.

2.3 Study Population

The study population included all licensed pharmacists practicing in community pharmacies within Lokoja. This population is critical as they are often the most accessible healthcare providers for patients managing chronic conditions like hypertension.

2.4 Inclusion Criteria

Pharmacists practicing in community pharmacies in Lokoja.

Willingness to participate in the study by providing informed consent.

Must be a licensed pharmacist.

2.5 Exclusion Criteria

Pharmacists practicing in hospital settings (e.g., Federal Medical Centre, Kogi State Specialist Hospital).

Pharmacists practicing in community pharmacies located outside of the Lokoja metropolis.

Pharmacists who were unwilling to provide consent or complete the survey questionnaire.

2.6 Sampling Technique and Sample Size

Convenience Sampling was employed for this study. This non-probability method was selected for its practicality in recruiting all eligible pharmacists who were available and willing to participate during the study period, a feasible approach given the small and defined total population.

The sample size for this study was calculated using the formula for a finite population:

$$\textbf{Sample size(n)} = \frac{N}{1+N^2}$$

The total population (N) of community pharmacists in Lokoja, according to the Association of Community Pharmacists of Nigeria (ACPN) database 2025, was 50.

Where:

n = Required sample size

N = Total population

e = Error margin at specified confidence level, using confidence level of 95% and percentage error of 5% (0.05)

Therefore:

$$\mathbf{n} = \frac{50}{1 + 50(0.05)^2}$$

n = 44 partticipants..

A minimum sample size of 44 participants was targeted.

2.7 Data Collection Tool

A structured questionnaire was used as the primary data collection tool. The questionnaire was developed based on the study objectives.

The instrument was divided into four main sections:

1. Section A: Demographic Details: Collected information on participants' age, gender, marital status, religion, years of experience, and qualification.
2. Section B: Knowledge: Contained 18 questions assessing pharmacists' knowledge of hypertension guidelines, risk factors, complications, and treatment.
3. Section C: Attitude: Contained 6 questions using a Likert scale to assess pharmacists' professional attitudes and beliefs towards their role in hypertension management.

4. Section D: Practice: Contained 18 questions assessing the frequency and scope of pharmacists' routine practices related to hypertension care, such as screening, counseling, and adherence monitoring.

2.8 Validity of the study instrument

A pilot test was conducted using 20 questionnaires to evaluate the reliability of the study instrument. The questionnaire reliability test revealed an acceptable level of internal consistency after calculating Cronbach's Alpha coefficient based on the answers of 20 randomly selected community pharmacists. The reliability coefficients for the sections were: knowledge (Cronbach's Alpha = 0.796), attitudes (Cronbach's Alpha = 0.703), and practice (Cronbach's Alpha=0.866). All Cronbach's Alpha values comfortably exceeded the 0.70 threshold, which is widely accepted as indicating good internal consistency and reliability for the instrument's sections.

Hence the study instrument was deemed reliable. The researcher's supervisor from the Department of Clinical Pharmacy, Faculty of Pharmacy, University of Benin evaluated the study instrument's content validity. Her comments and recommendations were taken into consideration to guarantee the instrument's applicability, readability, reliability, and capacity to precisely capture the needed information.

2.9 Ethics Committee Approval

Ethical approval for this study was obtained from the Ethics Committee of the Faculty of Pharmacy, University of Benin, to ensure adherence to ethical standards in research involving human participants. Informed consent was sought from all participants, emphasizing voluntary participation, confidentiality, and the right to withdraw from

the study at any time without consequences. Digital consent was obtained from each participant before they could access the questionnaire.

Special attention was given to protecting the privacy and anonymity of participants throughout the data collection and analysis process. All data were anonymized to protect participant privacy, and data were stored on a password-protected computer accessible only to the researcher.

2.10 Data Collection Procedure

Printed questionnaires were administered in person to community pharmacists in Lokoja who met the study's inclusion criteria. Participants were enrolled based on their accessibility and willingness to participate at their practice locations at the time of the researcher's visit.

2.11 Method of Data Analysis

Data collected from the survey were analyzed using statistical software, specifically SPSS (Statistical Package for the Social Sciences). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Specifically, frequencies and percentages were used for categorical data (like demographic variables and practice questions), while means and standard deviations were used for knowledge scores and Likert scale attitude responses.

Inferential statistics, such as chi-square tests, was conducted to identify relationships between pharmacists' knowledge, attitude, and their level of involvement in hypertension management. These statistics were planned to explore potential associations between demographic variables (e.g., years of experience, qualification)

and the KAP scores. A significance level of $p < 0.05$ was considered statistically significant.

CHAPTER THREE

RESULTS

TABLE 1

DEMOGRAPHICS OF RESPONDENTS
n = 44

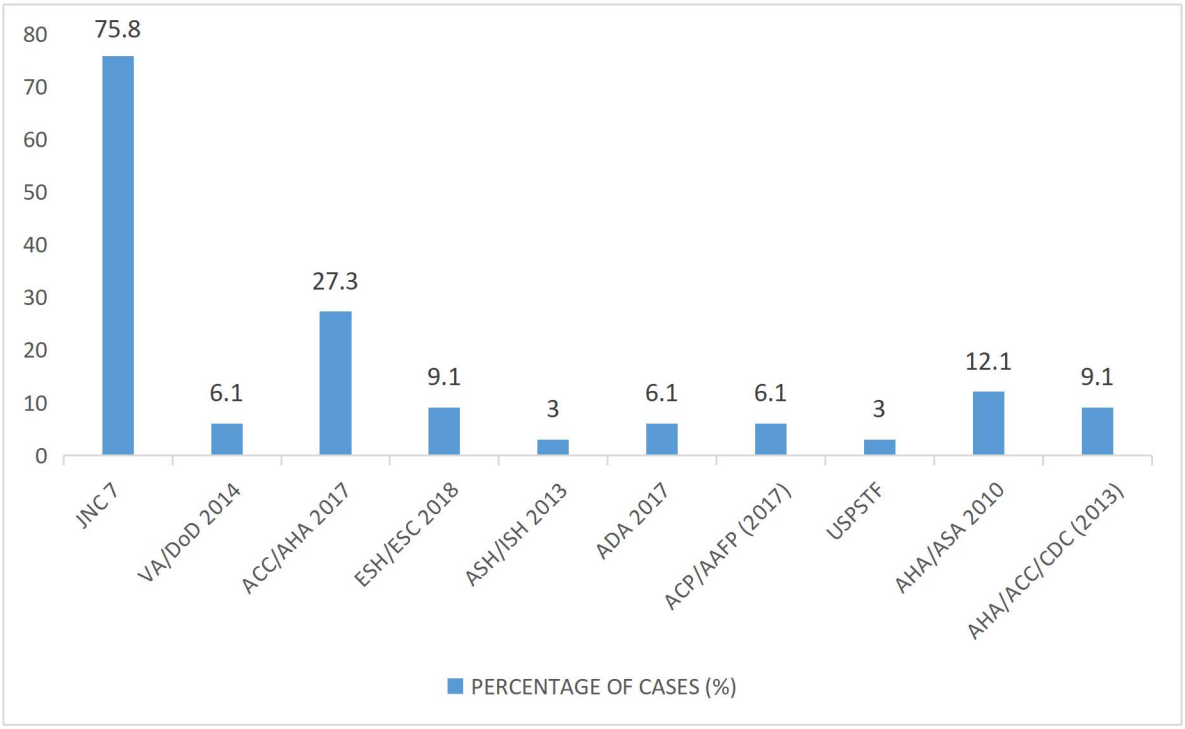
Variables		Frequency	Percentage
Gender	Male	25	56.8
	Female	19	43.2
Age	<20	-	-
	21-29	10	22.7
	30-39	18	40.9
	40-49	9	20.5
	50-59	4	9.1
	60-69	3	6.8
	70>	-	-
Religion	Christain	35	79.5
	Muslim	9	20.5
	Traditional	-	-
Marital Status	Single	11	25.0
	Married	31	70.5
	Divorced	2	4.5
Qualification	B.Pharm	37	84.1
	PharmD	3	6.8
	M.sc/M.Pharm	3	6.8
	Ph.D	1	2.3
Years of Experience	<5years	8	18.2
	6-10	14	31.8
	11-15	13	29.5
	16-20	2	4.5
	>20	7	15.9
Number of Patients per day	<20	14	31.8
	20-49	16	36.4
	50-79	10	22.7
	80>	4	9.1

From Table 1;

A total of 44 community pharmacists participated in the study. The respondents were predominantly male (56.8%) and Christians (79.5%). The majority of the pharmacists were married (70.5%). The most common age bracket was 30-39 years (40.9%), with the vast majority of the sample (84.1%) aged between 21 and 49 years.

Professionally, the cohort was characterized by a high prevalence of B.Pharm degree holders (84.1%). Experience levels were concentrated in the mid-career range, with most pharmacists having 6-10 years (31.8%) or 11-15 years (29.5%) of practice. Regarding daily workflow, the most frequently reported patient load was 20-49 patients per day (36.4%).

FIGURE 1



FAMILIARITY WITH HYPERTENSION GUIDELINES

This bar graph evaluates the pharmacists' familiarity with various hypertension guidelines. The results demonstrate a dominant familiarity with the JNC 7 guideline, which was cited by 75.8% of the participants who responded to this question.

A substantial gap exists between the JNC 7 and the next most-recognized guideline, the ACC/AHA 2017, which was familiar to 27.3% of respondents.

Familiarity with all other guidelines was significantly lower. The ESH/ESC 2018 guideline was known by 9.1% , while recognition for others, such as the AHA/ASA 2010 (12.1%) , ASH/ISH 2013 (3.0%) , and ADA 2017 (6.1%), was minimal.

TABLE 2

n = 44

Variables	Yes	No
Stage 1	26 (59.1%)	18 (40.9%)
Stage 2	24 (54.5%)	20 (45.5%)
Hypertensive Crisis	27 (61.4%)	17 (38.6)
Hypertention Diagnosis	36 (81.8)	8 (18.2)
Hypertension Co-morbidity	39 (88.6)	5 (11.4)
White coat Hypertension	25 (56.8)	19 (43.2)
Hypertension with Diabetes target Bp	32 (72.7)	12 (27.3)
Chronic hypertension in pregnancy	29 (65.9)	15 (34.1)
Hypertension complications	44 (100)	-
Risk Factors for Hypertension	43 (97.7)	1 (2.3)

Proportion Of Pharmacists Having Knowledge About Hypertension And Management

Yes = Proportion of Pharmacists with knowledge on Hypertension management

No = Proportion of Pharmacists without knowledge on Hypertension management

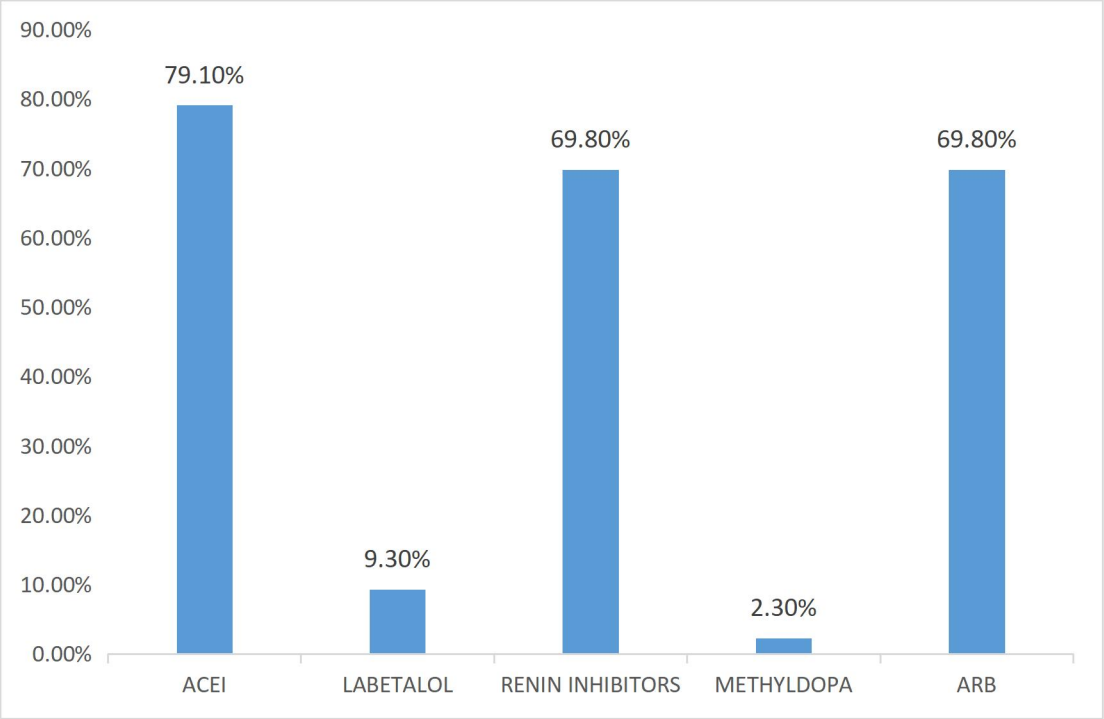
Table 2 details the proportion of the 44 pharmacists who demonstrated knowledge across ten specific areas of hypertension and its management .

The findings show that fundamental knowledge is very high. All participants (100%) were knowledgeable about hypertension complications , and nearly all (97.7%) understood its risk factors . Strong knowledge was also evident in the areas of hypertension co-morbidity (88.6%) and hypertension diagnosis (81.8%) .

Regarding specific clinical scenarios and definitions, a majority of pharmacists demonstrated knowledge. This includes awareness of the target blood pressure for patients with diabetes (72.7%) , chronic hypertension in pregnancy (65.9%) , and hypertensive crisis (61.4%) .

The knowledge areas with the lowest proportions, though still representing a majority of the respondents, were Stage 1 hypertension (59.1%) , white coat hypertension (56.8%) , and Stage 2 hypertension (54.5%) .

FIGURE 2



Pharmacists Knowledge on Hypertensive Drugs Contraindicated in Pregnancy

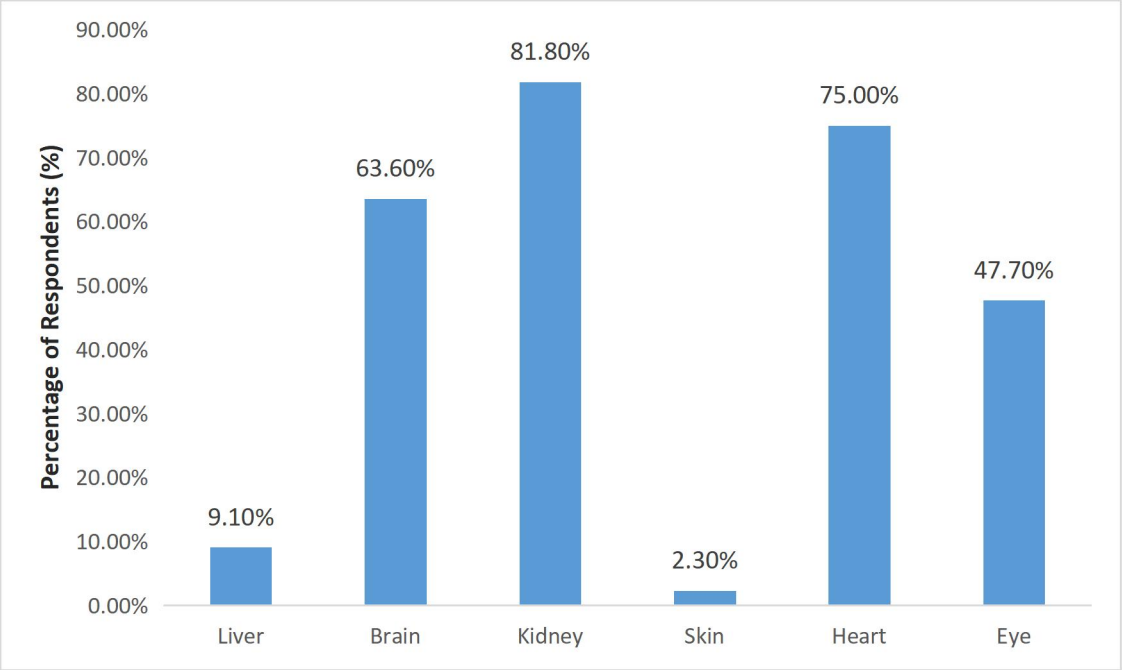
From the bar chart;

Figure 2 illustrates the percentage of pharmacists who identified specific antihypertensive drug classes as being contraindicated during pregnancy.

The results indicate that a majority of pharmacists correctly identified the major teratogenic (agents that can cause birth defects) drug classes. The most frequently identified contraindicated drug was ACEIs (Angiotensin-Converting Enzyme Inhibitors), with 79.10% of respondents correctly flagging them. This was followed by Renin Inhibitors and ARBs (Angiotensin II Receptor Blockers), both of which were correctly identified as contraindicated by 69.80% of the pharmacists.

Conversely, the figure also highlights some confusion regarding drugs that are considered safe and are first-line choices for managing hypertension in pregnancy. A notable minority of pharmacists incorrectly identified Labetalol (9.30%) and Methyldopa (2.30%) as being contraindicated.

FIGURE 3



Pharmacists Knowledge On Primary Target Organs Affected By Uncontrolled Hypertension

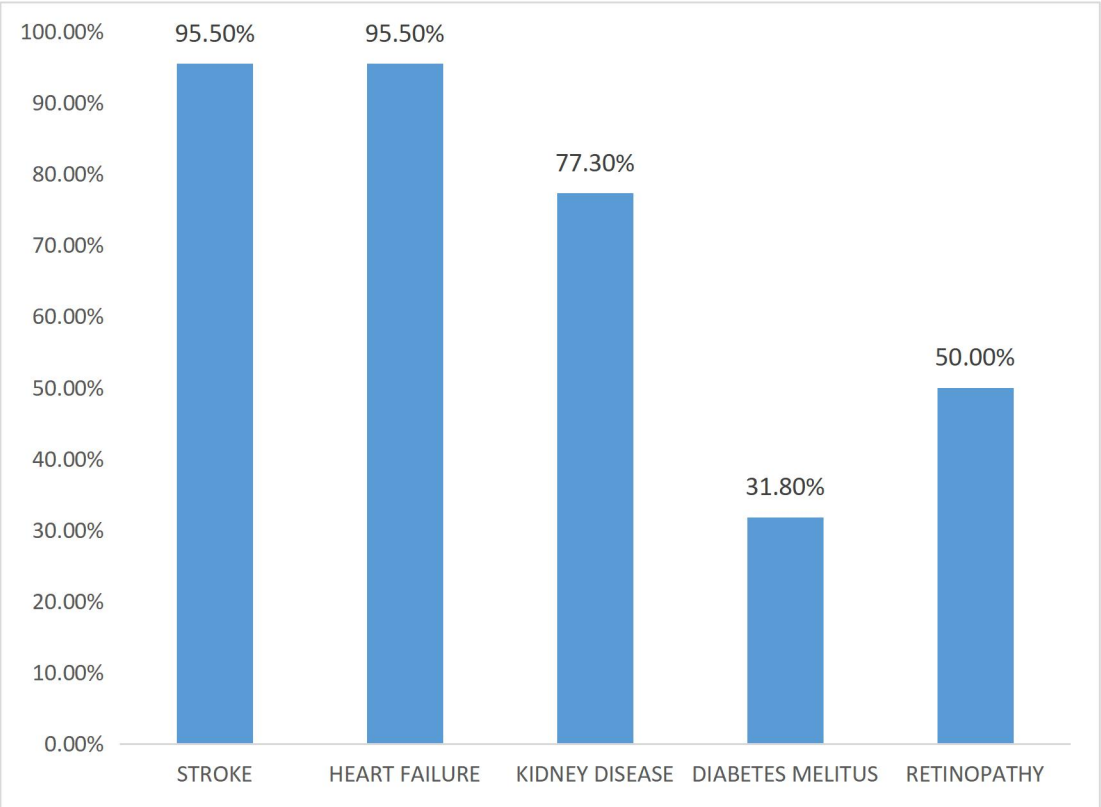
Figure 3 illustrates the pharmacists' knowledge of the primary target organs affected by uncontrolled hypertension. The findings show a strong awareness of the major cardiovascular and renal complications.

The kidney was the most frequently identified target organ, cited by 81.80% of respondents. This was followed by the heart (75.00%) and the brain (63.60%), both of which were recognized by a majority of the pharmacists.

Knowledge was less complete regarding the eye, which was identified as a target organ by slightly less than half of the participants (47.70%).

Very few respondents incorrectly identified non-target organs, with only 9.10% citing the liver and 2.30% citing the skin.

FIGURE 4



Pharmacists Knowledge on complications of uncontrolled Hypertension

Summary of Knowledge on Hypertension Complications (Figure 4)

Figure 3 illustrates the pharmacists' awareness of specific complications resulting from uncontrolled hypertension.

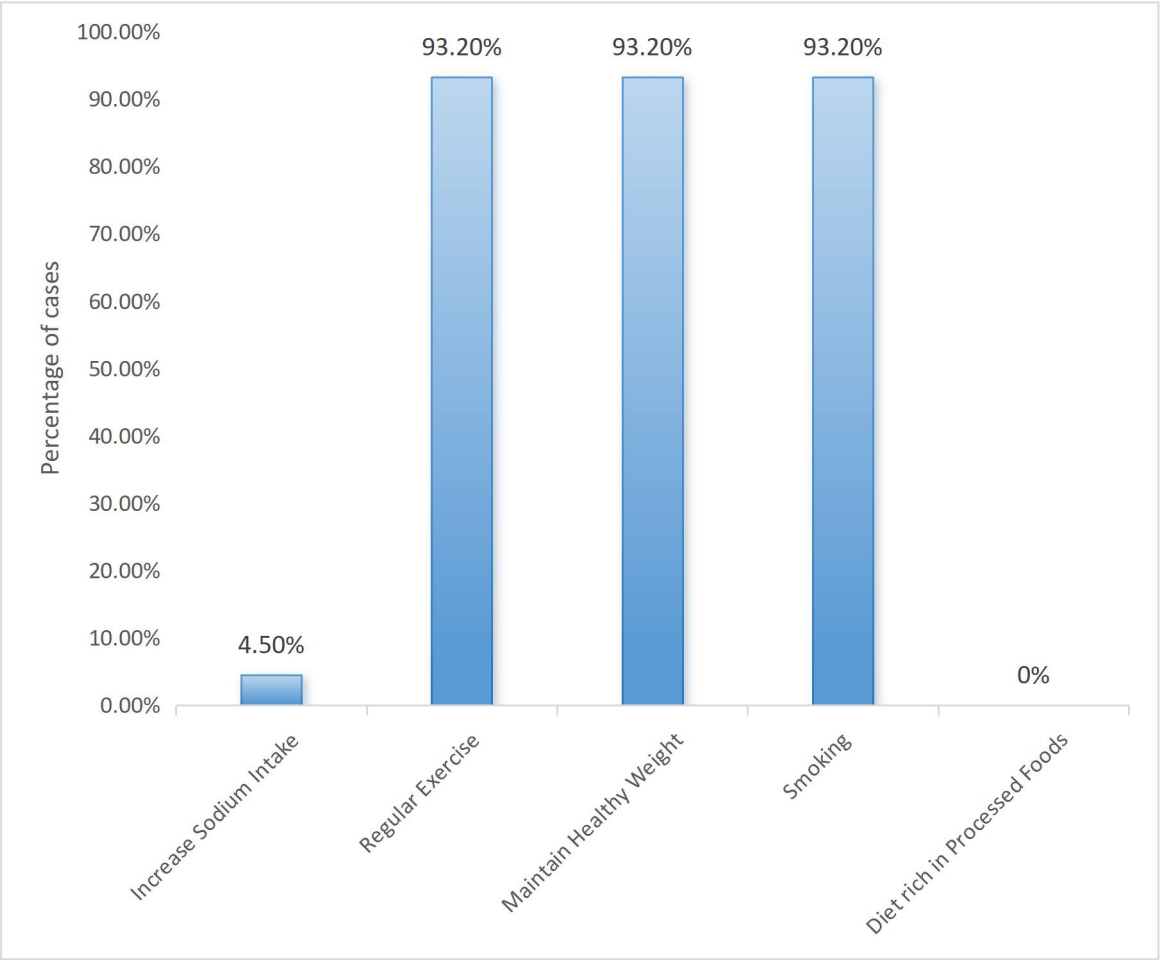
The findings show a near-universal understanding of the primary cardiovascular and cerebrovascular risks. Majority of respondents (95.50%) correctly identified both Stroke and Heart Failure as major complications.

Strong knowledge was also evident regarding renal impact, with Kidney Disease being recognized by 77.30% of the pharmacists.

Awareness of ocular complications was moderate, as exactly half (50.00%) of the participants identified Retinopathy.

A notable finding is that 31.80% of respondents also listed Diabetes Mellitus. This suggests a potential conflation of co-morbidities with complications, as diabetes is a major risk factor and co-existing condition rather than a direct complication caused by hypertension.

FIGURE 5



Pharmacists Knowledge on Livestyle Changes for Hypertensive Patients

Figure 5 illustrates the pharmacists' knowledge of non-pharmacological lifestyle modifications recommended for hypertensive patients.

The findings indicate a very high and uniform understanding of the primary lifestyle interventions. An identical majority of respondents (93.20%) correctly identified Regular Exercise, Maintaining Healthy Weight, and Smoking (implying cessation) as key factors.

The figure also shows that incorrect recommendations were minimal. Only 4.50% of pharmacists incorrectly identified "Increase sodium intake" as a beneficial change (when the recommendation is to decrease it).

Furthermore, no respondents (0%) endorsed a "Diet rich in Processed Foods," demonstrating a complete and correct understanding that this is a harmful practice to be avoided.

TABLE 3

n = 44

Items	SA (%)	A (%)	N (%)	D (%)	S.D (%)	W.M	S. Dev	Decision
Perceived role in management	34 (77.3)	8 (18.2)	1 (2.3)	-	1 (2.3)	4.68	0.740	High Perception
Provision of advice and support	34 (77.3)	9 (20.5)	-	-	1 (2.3)	4.70	0.701	High Perception
Counseling patients on lifestyle modifications	33 (75)	10 (22.7)	-	-	1 (2.3)	4.68	0.708	High Perception
Inquiring about patients understanding	30 (68.2)	12 (27.3)	1 (2.3)	-	1 (2.3)	4.59	0.757	High Perception
Willingness to spend time counseling	22 (50)	21 (47.7)	-	-	1 (2.3)	4.43	0.728	High Perception
Perception of Pharmacy Preparedness	14 (31.8)	18 (40.9)	8 (18.2)	3 (6.8)	1 (2.3)	3.39	0.998	Low Perception

Attitude Of Community Pharmacist In The Management Of Hypertension

Note:

Strongly Disagree [SD]

Disagree [D]

Neutral [N]

Agree [A]

Strongly Agree [SA],

W.M = **Weighted Mean**

S.Dev = Standard Deviation

Total Weighted Mean : 26.47/6 = 4.412

In this study, my decisions were made using the perceptions of the respondents. To do this, I used the Total weighted average value. To calculate this, I summed up the Mean values for the items, then divided by the total number of the items.

The results indicate a positive overall attitude among community pharmacists regarding their role in hypertension management. There is a high perception of their professional responsibilities, including the importance of providing advice, counseling on lifestyle, ensuring patient understanding, and a willingness to dedicate time to these activities.

However, there is a significant disconnect between this positive attitude and the perceived readiness of their work environment. The finding of "Low Perception" for "Perception of Pharmacy Preparedness" suggests that while pharmacists are willing, they believe their pharmacies are not well-equipped to adequately provide these hypertension management services. This could point to limitations in resources, staffing, private counseling space, or necessary equipment.

TABLE 4

S/N	Items	Always (%)	Often (%)	Sometimes (%)	Rarely (%)	Never (%)	W. M	S. Dev	Decision
1	Patient screening	21 (47.7)	14 (31.8)	9 (20.5)	-	-	4.27	0.788	High Perception
2	Blood pressure checks	33 (75.0)	9 (20.5)	1 (2.3)	1 (2.3)	-	4.68	0.639	High Perception
3	Medication Counseling	38 (86.4)	4 (9.1)	2 (4.5)	-	-	4.82	0.495	High Perception
4	Side effect education	25 (56.8)	15 (34.1)	4 (9.1)	-	-	4.48	0.664	High Perception
5	Lifestyle advice	32 (72.7)	10 (22.7)	2 (4.5)	-	-	4.68	0.561	High Perception
6	Physician referral	20 (45.5)	9 (20.5)	8 (18.2)	4 (9.1)	3 (6.8)	3.89	1.280	Low Perception
7	Adherence Counseling	33 (75.0)	7 (15.9)	4 (9.1)	-	-	4.66	0.645	High Perception
8	Missed dose management	12 (27.3)	26 (59.1)	4 (9.1)	2 (4.5)	-	4.09	0.741	Low Perception
9	Development of care plans	17 (38.6)	14 (31.8)	8 (18.2)	4 (9.1)	1 (2.3)	3.98	1.080	Low Perception
10	Care plan review	13 (29.5)	17 (38.6)	9 (20.5)	4 (9.1)	1 (2.3)	3.84	1.033	Low Perception
11	Barrier identification	27 (61.4)	14 (31.8)	3 (6.8)	-	-	4.55	0.627	High Perception
12	Patient follow up	10 (22.7)	26 (59.1)	6 (13.6)	2 (4.5)	-	4.02	0.740	Low Perception
13	Providing information materials	7 (15.9)	5 (11.4)	17 (38.6)	9 (20.5)	6 (13.6)	2.95	1.238	Low Perception
14	Documentation	11 (25.0)	12 (27.3)	10 (22.7)	9 (20.5)	2 (4.5)	3.48	1.210	Low Perception

Practice Of Community Pharmacist In The Management Of Hypertension

Note: N = 44, Strongly Disagree [SD] Disagree [D] Neutral [N] Agree [A] Strongly Agree [SA]

W.M = Weighted Mean

S.Dev = Standard Deviation

Total Weighted Mean : 58.39/14 = 4.172

In this study, my decisions were made using the perceptions of the respondents. To do this, I used the Total weighted average value. To calculate this, I summed up the Mean values for the items, then divided by the total number of the items.

From the table above, pharmacists report **high engagement** in core communication and initial assessment activities. These include:

1. Asking patients about a hypertension diagnosis.
2. Offering blood pressure checks.
3. Counseling on correct medication use, side effects, and the importance of adherence.
4. Believing they have a role in addressing adherence barriers.

However, the data reveals significant "**Low Perception**" gaps in crucial areas of ongoing, systematic management. Pharmacists report **low engagement** in:

1. Referral to physicians (potentially for uncontrolled or new cases).
2. Discussing strategies for missed doses.
3. Developing, reviewing, or updating individualized care plans.
4. Following up with patients to monitor progress.
5. Providing supplementary information materials.
6. Documenting their interventions.

This suggests that while pharmacists are actively counseling and screening, the implementation of structured, long-term patient care and follow-up is not common practice. Activities requiring formal processes, like care plan development and documentation, are performed infrequently.

TABLE 5

S/N	Variables	Yes (%)	No (%)
1	Do you have access to current guidelines for hypertension management in your pharmacy?	34 (77.3)	10 (22.7)
2	Does your pharmacy have a functioning blood pressure monitoring device available for use by customers?	42 (95.5)	2 (4.5)
3	Is there a designated private area in your pharmacy where you can counsel patients on their health conditions, including hypertension?	43 (97.7)	1 (2.3)
4	Do you have patient education materials (e.g., leaflets, posters) on hypertension available in your pharmacy?	31 (70.5)	13 (29.5)

Availability Of Tools For Management Of Patients

Summary of Availability of Tools for Patient Management (Table 5)

This table assesses the availability of essential tools and resources for hypertension management within the 44 participating community pharmacies.

The findings indicate a very high availability of physical infrastructure for patient care. A majority of pharmacists reported having a designated private area for counseling (97.7%) and a functioning blood pressure monitoring device (95.5%).

The availability of informational resources, while still high, was slightly lower. A majority of pharmacists reported having access to current hypertension guidelines (77.3%) and patient education materials like leaflets or posters (70.5%).

Conversely, 22.7% of pharmacists lacked access to current guidelines, and 29.5% did not have patient education materials available.

TABLE 6

VARIABLES		Stage 1		Stage 2		Hypertensive crisis		Total	
		Yes	No	Yes	No	Yes	No	Yes	No
YEARS OF EXPERIENCE	<10	14	8	13	9	16	6	43	23
	11-20	9	6	8	7	8	7	25	20
	>20 Years	3	4	3	4	3	4	9	12
	P-value	0.648		0.7828		0.2869		0.1826	
QUALIFICATION	B.Pharm	21	16	18	19	24	13	63	48
	Higher Education	5	2	6	1	3	4	14	7
	P-value	0.6817		0.1056		0.4021		0.3983	
AGE	<40	17	11	16	12	18	10	51	33
	40-49	5	4	4	5	5	4	14	13
	>50	4	3	4	3	4	3	12	9
	P-value	>0.99		0.9062		0.9080		0.7142	

Association Of Demographics And Knowledge Of Pharmacists

The table analyzes the association between pharmacist demographics (Years of Experience, Qualification, and Age) and their knowledge of hypertension management.

The key finding is that no statistically significant association was found between any demographic variable and the pharmacists' knowledge levels2. This is demonstrated by all p-values being considerably higher than the 0.05 significance threshold.

For instance, when looking at Total knowledge, the p-values were 0.1826 for Years of Experience, 0.3983 for Qualification, and 0.7142 for Age. All other p-values for the specific knowledge categories (Stage 1, Stage 2, and Hypertensive crisis) were also non-significant, with some being very high (e.g., $p > 0.99$ for Age and Stage 1 knowledge).

CHAPTER FOUR

DISCUSSION

4.1 Overview

This chapter discusses the key findings from the study, interpreting their significance within the broader context of existing literature. The discussion focuses on the demographic characteristics of the participants, followed by a detailed analysis of their knowledge, attitude, and practice (KAP) regarding hypertension management. The implications of these findings for pharmacy practice and public health policy are also examined.

4.2 Demographic Characteristics of Respondents

A total of 44 community pharmacists from Lokoja participated in this study. The demographic data from Table 1 reveals a cohort that is predominantly male (56.8%), Christian (79.5%), and married (70.5%). The dominant age group was 30-39 years (40.9%). In terms of daily workflow, the most common patient load reported was 20-49 patients per day (36.4%), suggesting a moderately busy practice environment for most respondents.

Professionally, the sample was characterized by a high prevalence of B.Pharm holders (84.1%) and experienced, mid-career pharmacists. The largest groups had 6-10 years (31.8%) or 11-15 years (29.5%) of experience. This indicates the findings do not merely reflect the knowledge of recent graduates but rather that of established practitioners.

A critical finding from this study, as shown in the demographic association table (Chapter 3), was the lack of any statistically significant association ($p > 0.05$) between these demographic variables (age, years of experience, qualification) and the pharmacists' knowledge of hypertension stages. This is a crucial finding, as it implies that the significant knowledge gaps identified in this study, such as the poor familiarity with current guidelines, are systemic. These gaps cannot be attributed to inexperience or a lack of advanced (e.g., Pharm.D, M.Pharm) qualifications, but rather suggest a universal, cohort-wide need for continuous professional development.

4.3 Discussion of Knowledge, Attitude and Practice

4.3.1 Assessing the knowledge of community pharmacists regarding hypertension management.

This study reveals a stark and concerning gap between this general knowledge and specific, actionable clinical guideline knowledge. The most striking finding (Figure 1) was the dominant familiarity with the outdated JNC 7 guideline (75.8% familiarity). In sharp contrast, the current guideline that re-defined hypertension stages, the 2017 ACC/AHA guideline, was familiar to only 27.3% of respondents. This heavy reliance on a guideline published in 2003 is a serious concern, suggesting that the pharmacists' knowledge base is not being updated in line with global standards.

This guideline gap directly explains the knowledge deficits seen in Table 2. The areas with the lowest knowledge scores were the definitions of Stage 1 hypertension (59.1%) and Stage 2 hypertension (54.5%). These definitions were a cornerstone of the 2017 ACC/AHA update; pharmacists are likely scoring poorly because they are applying definitions from JNC 7, which are no longer the standard of care. This specific gap in

guideline knowledge has been observed internationally. This contrasts with findings from Liu et al. (2022) in China, who found positive attitudes but weaker foundational knowledge, reinforcing that knowledge gaps are context-specific.

Further specific knowledge deficits were noted. In Figure 4, 31.8% of pharmacists incorrectly identified Diabetes Mellitus as a complication of hypertension, rather than a co-morbidity and major risk factor. This suggests a conflation between conditions that commonly occur together and a direct causal relationship. Additionally, while knowledge of teratogenic drugs (ACEIs, ARBs) was high (Figure 1), a concerning minority incorrectly flagged first-line safe drugs like Labetalol (9.30%) and Methyldopa (2.30%) as contraindicated in pregnancy. This misinformation could lead to inappropriate counselling and the avoidable risk of withholding necessary treatment.

The finding that all demographic factors (years of experience, age, qualification) had no statistically significant association ($p > 0.05$) with knowledge of hypertension stages (see demographic association table) implies that the knowledge gap is universal across the responding cohort and is not isolated to older or less-qualified pharmacists. This suggests the problem is not a failure of foundational training (B.Pharm vs. Pharm.D) but a systemic failure of continuous professional development (CPD).

Explanation and Implications:

The implications of these knowledge gaps are profound. The reliance on JNC 7 means that pharmacists may be using outdated blood pressure targets (e.g., <140/90 mmHg) instead of the <130/80 mmHg target for most patients recommended by the 2017

ACC/AHA guidelines. This could result in pharmacists failing to identify patients who require intervention or providing incorrect counselling on BP goals.

The study reveals that: Lokoja's community pharmacists do not have universally poor knowledge; rather, they have specific, high-stakes gaps in an otherwise strong foundational knowledge base. This deficit is especially dangerous in the context of Lokoja, where patients have been documented to have "profoundly poor" self-care practices (Ukoha-Kalu et al., 2020). Patients depend on pharmacists for guidance, but if that guidance is based on 20-year-old guidelines, the advice will be suboptimal and may fail to prevent the very complications (stroke, heart failure) that the pharmacists are well aware of.

4.3.2 Evaluating the attitude of community pharmacists towards their professional role in managing hypertension.

The findings on the attitude of Lokoja's community pharmacists (Table 3) are arguably the most critical of this study, as they reveal a high-potential workforce that is constrained by its environment. The pharmacists demonstrated an overwhelmingly positive attitude and high perception of their professional responsibilities. The weighted mean scores were exceptionally high for items related to their perceived role (4.68), providing advice and support (4.70), counseling on lifestyle (4.68), and willingness to spend time counseling (4.43).

This positive disposition is a consistent finding in national literature. It mirrors the findings of Offu et al. (2015) in Enugu, who reported an "overwhelmingly 'positive

attitude'" toward public health, and Ogbonna et al. (2017), who found 81% of pharmacists were "strongly willing" to adopt pharmaceutical care. This confirms that the pharmacists in Lokoja, like their colleagues nationally, are motivated and see patient-centred care as a core part of their professional identity.

However, this positive attitude was directly contradicted by the one negative finding in this section: the "Low Perception" score for "Perception of Pharmacy Preparedness" (W.M 3.39). This finding is the lynchpin that connects the study's objectives. It suggests a significant dissonance: pharmacists want to provide comprehensive care, but they perceive their immediate work environment as being ill-equipped or unsupportive of these activities.

This perceived lack of preparedness is likely the local manifestation of the systemic barriers identified in the literature, such as a lack of time (94.6%), insufficient personnel (92.3%), and a lack of private space (82.3%) reported by Osemene & Erhun (2018). It may also reflect the lack of a remuneration model for cognitive services, as noted by Ogbonna et al. (2017), which disincentivizes the allocation of resources beyond dispensing.

The implication is that the barrier to better hypertension management in Lokoja is not a lack of pharmacist motivation or willingness, but a failure of the current pharmacy practice model to provide the necessary resources, time, and structured systems. The pharmacists are willing, but the environment is weak. This leads directly to the gaps identified in the next section on clinical practice.

4.3.3 Assessing the current practice of community pharmacists in the management of hypertension.

The findings from Table 4 on self-reported practice vividly illustrate the "knowledge-practice gap" that is a central theme in Nigerian pharmaceutical care literature. The results show a clear separation between passive, transactional services and proactive, systematic management.

Pharmacists report high engagement in core communication and initial assessment activities. These high-frequency practices align with the "passive roles" and traditional counseling duties identified by Osemene & Erhun (2018). These include:

Medication Counseling (86.4% "Always")

Adherence Counseling (75.0% "Always")

Lifestyle advice (72.7% "Always")

Offering blood pressure checks (75.0% "Always")

Believing they have a role in addressing adherence barriers (WM 4.55)

However, the data reveals significant "Low Perception" gaps in crucial areas of ongoing, systematic management. Pharmacists report low engagement in all areas related to structured, long-term pharmaceutical care. These critical gaps include:

Providing information materials (WM 2.95)

Documentation of interventions (WM 3.48)

Care plan review (WM 3.84)

Referral to physicians (WM 3.89)

Development of individualized care plans (WM 3.98)

Patient follow-up (WM 4.02)

Discussing strategies for missed doses (WM 4.09)

This suggests that while pharmacists are actively counseling and screening, the implementation of structured, long-term patient care and follow-up is not common practice. Activities requiring formal processes, like care plan development and documentation, are performed infrequently.

This finding—that pharmacists are knowledgeable and willing, yet their practice remains suboptimal—is the classic definition of the knowledge-practice gap. It directly mirrors the findings of Amadi et al. (2018) in Lagos, who found "very good knowledge" but concluded that only 48.2% of pharmacists engaged in good primary prevention practices. Similarly, Offu et al. (2015) in Enugu found a "positive attitude" but concluded that the overall practice level was "not satisfactory."

The "why" for this practice gap is clearly explained by the findings from the other objectives and the literature. The low frequency of "Providing information materials" (WM 2.95) is explained by Table 6, which shows that 29.5% of pharmacies do not even have these materials available. The infrequent practice of documentation and care plan development is explained by the "Low Perception of Pharmacy Preparedness" (Table 4, WM 3.39) and the systemic barriers identified by Osemene & Erhun (2018), such as lack of time and personnel, and the lack of remuneration for cognitive services noted by Ogbonna et al. (2017).

Furthermore, the low score for "Physician referral" (WM 3.89) is a direct reflection of the systemic isolation of community pharmacy. As Ihekoronye et al. (2022) noted,

pharmacists often operate in "silos," disconnected from the formal Primary Healthcare (PHC) architecture, with no established referral pathways.

The implications of this finding are clear and profound. This study suggests that community pharmacy practice in Lokoja is largely reactive and episodic, failing to provide the continuous, structured follow-up required to manage a chronic disease like hypertension. This gap in pharmacist practice is the likely link to the "profoundly poor" patient self-care practices documented in Lokoja by Ukoha-Kalu et al. (2020).

4.4 Implications of the Study

The findings of this study have clear and direct implications for health policy, pharmacy practice, and public health in Lokoja.

Policy Implications: The most significant finding is the universal, experience-independent knowledge gap regarding current hypertension guidelines (i.e., the 2017 ACC/AHA guideline). This suggests a systemic failure of continuing professional development (CPD) to disseminate new standards of care. Therefore, the Pharmaceutical Council of Nigeria (PCN) and the Association of Community Pharmacists of Nigeria (ACPN) should urgently mandate and provide accessible, low-cost CPD modules focused on the current 2017 ACC/AHA guidelines to update the entire cohort of practicing pharmacists. Furthermore, the identified practice gaps (e.g., poor physician referral, lack of care plans) underscore the need for formal health system policies that integrate community pharmacists into the Primary Healthcare (PHC) framework, as advocated by Ihekoronye et al. (2022), to move them from isolated "silos" to integrated team members.

Practical Implications: At the practice level, this study reveals a key contradiction: 97.7% of pharmacies have a designated private area (Table 6), yet pharmacists report a "Low Perception of Pharmacy Preparedness" (Table 4). This implies that the barrier is not simply a lack of space, but a lack of systems, time, and structured workflow. Pharmacy owners and superintendents must invest in implementing simple, non-burdensome documentation protocols and structured follow-up reminders for hypertensive patients. The finding that 29.5% of pharmacies lack basic patient education materials (Table 6) highlights a simple, low-cost, and immediate practical step that can be taken to help bridge the practice gap.

CHAPTER FIVE

CONCLUSION

This study successfully evaluated the knowledge, attitude, and practice (KAP) of community pharmacists in Lokoja regarding hypertension management. The findings reveal a motivated and willing workforce with a strong positive attitude towards their professional responsibilities. Pharmacists also possess good foundational knowledge of hypertension complications, risk factors, and lifestyle modifications.

However, this potential is severely undermined by two critical gaps. First, there is a significant and universal knowledge deficit concerning the current 2017 ACC/AHA guidelines, with most pharmacists still reliant on the outdated JNC 7 guidelines. Second, a profound "practice gap" exists. Pharmacists excel at passive, dispensing-related counseling but infrequently perform structured, long-term care activities such as documentation, patient follow-up, or care plan development.

The study concludes that this KAP gap is not due to a lack of motivation but is a direct consequence of systemic barriers, including a perceived lack of pharmacy preparedness, an absence of established referral pathways, and a systemic failure of continuing professional development to disseminate current standards of care. Addressing this gap is essential to empowering pharmacists to bridge the documented "profoundly poor" self-care practices among hypertensive patients in Lokoja.

5.1 LIMITATIONS OF THE STUDY

Despite its strengths, this study has several limitations. The primary limitation is the small absolute sample size (n=44). While this represents a high percentage of the Lokoja population, the small number limits the statistical power of the analysis and the generalizability of these findings to other cities or states with larger pharmacist populations.

Secondly, the study relies on self-reported data for practice and attitude. This introduces a potential for social desirability bias, where pharmacists may have reported practices and attitudes they believe to be professionally ideal rather than what occurs in daily reality.

Lastly, the cross-sectional design provides only a static "snapshot" of the situation. It cannot establish causality (e.g., does low preparedness cause poor practice, or does poor practice lead to a perception of low preparedness?) or track changes over time.

5.2 RECOMMENDATIONS

Based on the implications of this study, the following actionable recommendations are proposed:

1. **For Professional Bodies (PCN and ACPN):**

- ✓ Urgent Guideline Training: Mandate and deploy immediate, low-cost Continuing Professional Development (CPD) modules focused specifically on the 2017 ACC/AHA hypertension guidelines to close the universal knowledge gap.
- ✓ Promote Health System Integration: Advocate at the state level for the formal integration of community pharmacists into the Primary Healthcare (PHC)

framework, creating formal referral pathways and collaborative practice agreements with local clinics and hospitals.

2. **For Pharmacy Owners and Superintendent Pharmacists:**

- ✓ Implement Structured Systems: Move beyond simply "having" a counseling area to implementing simple, non-burdensome systems for practice, such as standardized patient follow-up reminder logs and basic documentation forms for hypertensive patients.
- ✓ Stock Essential Patient Resources: Immediately address the identified resource gap by stocking and actively providing low-cost, easy-to-read patient education leaflets on hypertension, salt reduction, and medication adherence. This is a low-cost, high-impact intervention.

3. **For Future Research:**

- ✓ Design and Test Interventions: A prospective, randomized controlled trial should be conducted in Lokoja to test the effectiveness of an intervention package (guideline training + structured follow-up tools) on both pharmacist practice and patient health outcomes.
- ✓ Conduct Qualitative Inquiry: A qualitative study is needed to deeply understand the "Low Perception of Pharmacy Preparedness" and identify the specific barriers (e.g., time, staffing, remuneration) that prevent willing pharmacists from performing advanced care.

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APPENDIX

QUESTIONNAIRE

EVALUATION OF THE KNOWLEDGE, ATTITUDE AND PRACTICE OF COMMUNITY PHARMACIST IN THE MANAGEMENT OF HYPERTENSION

Instructions: Please tick as Appropriate

1. Gender: [ ] Male [ ] Female

2. Age: [ ] < 20 [ ] 21-29 [ ] 30-39 [ ] 40-49 [ ] 50-59 [ ] 60-69 [ ] 70 and above

3. Marital status: [ ] Single [ ] Married [ ] Divorced [ ] Widowed [ ] Separated

4. Religion: [ ] Christian [ ] Muslim [ ] Traditional religion

5. Qualification: [ ] B.Pharm [ ] Pharm.D [ ] M.sc/M. Pharm [ ] Ph.D

6. Years of experience [ ] < 5 years [ ] 6-10 years [ ] 11-15 years [ ] 16-20 [ ] >20 years

7. What is the average number of patients you attend to per day?

8. [ ] Less than 20 [ ] 20-49 [ ] 50-79 [ ] 80 and above

TICK AS APPROPRIATE

9. Which of the following recent guidelines are you familair with? (*tick all that apply*)

[ ] JNC 7 [ ] VA/DoD (2014 [ ] ACC/AHA 2017 [ ] ESH/ESC 2018 [ ] ASH/ISH 2013 [ ] ADA 2017 [ ] ACP/AAFP (2017) [ ] USPSTF [ ] ACOG 2015 [ ] AHA/ASA (2010) [ ] AHA/ACC/CDC (2013)

10. Which of the following blood pressure reading is considered as a Stage 1 Hypertension: [ ] 132/87mmHg [ ] 125/79mmHg [ ] 142/105mmHg [ ] 162/90mmHg [ ] 151/95mmHg

11. Which of the following blood pressure reading is not considered as a Stage 2 Hypertension: [ ] 143/95mmHg [ ] 155/79mmHg [ ] 165/98mmHg [ ] 152/86mmHg [ ] 138/86mmHg

12. Hypertensive crisis are clinical situations where BP values are greater than? [ ] 140/90mmHg [ ] 150/95mmHg [ ] 180/120mmHg [ ] 170/110mmHg [ ] 160/100mmHg

13. Which of the following drug classes is recommended as first-line treatment for hypertensive patients ? (*Select all that apply*) [ ] Beta-blockers (BB) [ ] Calcium Channel Blockers (CCB's) [ ] Angiotensin-Converting Enzyme Inhibitors (ACEI's) [ ] Thiazide Diuretics

14. Which of the following drugs can be used along side Lisinopril in Hypertensive patients (*Tick all that apply*): [ ]Amlodipine [ ]Losartan [ ]Indapamide [ ]Atenolol [ ] Aliskiren [ ] Captopril

15. How should a diagnosis of hypertension typically be confirmed after an initial elevated office reading? [ ] Start medication immediately. [ ] Take a single follow-up reading in one week. [ ] Average multiple readings taken at two or more separate visits. [ ] Rely solely on the patient's reported home blood pressure readings.

16. Which of the following is a common co-morbidity associated with hypertension? [ ] Hypotension [ ] Gout [ ] Diabetes [ ] Cataract

17. A patient's blood pressure readings in your pharmacy is elevated, but they report normal readings at home. What is the most likely explanation? [ ] The patient is not taking their medication correctly. [ ] The patient has irregular hypertension. [ ] The patient has white coat hypertension. [ ] The patient's home blood pressure monitor is faulty

18. Is the target blood pressure for a patient with diabetes and hypertension generally the same as for a patient without diabetes? [ ] Yes [ ] No

19. Chronic hypertension in pregnancy is SBP ≥140 mm Hg or DBP ≥90 mm Hg with proteinuria that develops >20 weeks' gestation [ ] Yes [ ] No

20. Which of the following is following drugs is contraindicated in pregnant women (*tick all that apply*) [ ] ACEI [ ] Labetalol [ ] Renin Inhibitors [ ] Methyldopa [ ] ARB

21. Are you aware of the complications of Hypertension? [ ] Yes [ ] No

22. Which of the following are primary target organs commonly affected by uncontrolled hypertension?" (*Select all that apply)* [ ] Liver [ ] Brain [ ] Kidneys [ ] Skin [ ] Heart [ ] Eye

23. Uncontrolled hypertension can lead to which of the following complications? *(Select all that apply)* [ ] Stroke [ ] Heart failure [ ] Kidney disease [ ] Diabetes mellitus [ ] Retinopathy

24. Is blood pressure monitoring in individuals diagnosed with hypertension recommended only when they feel unwell? [ ] Yes [ ] No

25. Do you know the risk factors for hypertension? [ ] Yes [ ] No

26. A patient with elevated blood pressure asks you for advice on lifestyle changes. Which of the following recommendations are appropriate? *(Select all that apply)* [ ] Increase sodium intake [ ] Engage in regular physical activity [ ] Maintain a healthy weight [ ] Smoking cessation [ ] Follow a diet rich in processed foods

Please indicate your level of agreement with the following statements

KEY: Strongly Disagree [SD] Disagree [D] Neutral [N] Agree [A] Strongly Agree [SA]

S/N	QUESTIONS	**SD**	**D**	**N**	**A**	**SA**
26	As a community pharmacist, I have an important role to play in the management of hypertension.					
27	I feel confident in my ability to provide advice and support to patients with hypertension.					
28	I am confident in my ability to counsel patients on lifestyle modifications for managing hypertension.					
29	It is my responsibility to actively inquire about patients understanding of their hypertension medications.					
30	I am willing to spend more time counseling patients about their hypertension.					
31	Community pharmacies are well-equipped to provide hypertension management services.					

Please indicate how frequently you perform the following activities in your daily practice when interacting with patients with Hypertension

KEY (1 = **NEVER,** 2 = **RARELY,** 3 = **SOMETIMES,** 4 = **OFTEN,** 5 = **ALWAYS)**

	QUESTIONS	**1**	**2**	**3**	**4**	**5**
32	Do you routinely ask patients if they have been diagnosed with hypertension?					
33	Do you offer blood pressure checks to customers who request it or appear to be at risk?					
34	Do you provide counseling to patients on how to correctly take their anti-hypertensive medications?					

35	Do you educate patients about potential side effects and drug interactions of their hypertension medications?					
36	Do you advise patients on lifestyle modifications (diet, exercise, etc.) for managing hypertension?					
37	I refer patients with uncontrolled or newly suspected hypertension to a physician?					
38	Do you routinely counsel patients on the importance of adhering to their anti-hypertensive medications?					
39	How often do you discuss strategies for managing missed doses with your hypertensive patients?					
40	Do you routinely develop individualized pharmaceutical care plans for patients with hypertension?					
41	How often do you review and update pharmaceutical care plans for your hypertensive patients?					
42	Do you believe you have a role in identifying and addressing barriers to medication adherence in hypertensive patients?					
43	How often do you follow up with patients to check on their blood pressure control and medication adherence?					
44	Do you provide patients with information materials (leaflets, brochures) on hypertension?					
45	Do you document any interventions or advice provided to patients regarding their hypertension?					

S/N	QUESTIONS	YES	NO
46	Do you have access to current guidelines for hypertension management in your pharmacy?		
47	Does your pharmacy have a functioning blood pressure monitoring device available for use by customers?		
48	Is there a designated private area in your pharmacy where you can counsel patients on their health conditions, including hypertension?		
49	Do you have patient education materials (e.g., leaflets, posters) on hypertension available in your pharmacy?		

Thank you for taking the time to complete this questionnaire.