KNOWLEDGE AND PRACTICE OF NURSES TOWARDS EARLY DETECTION OF HYPERTENSION IN OUTPATIENT DEPARTMENTS OF SELECTED HEALTH CENTER IVS IN CENTRAL UGANDA

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Declaration

I Kagasa veronica, hereby declare that the research report titled "Knowledge and Practice of Nurses towards Early Detection of Hypertension in Out-Patient Department of Health Center IVs in Central Uganda" is my original work and has not been submitted to this university or any other institution for the award of a Master's degree or any other academic qualification. I have diligently acknowledged the contributions of previous researchers through proper citation and referencing. Every effort has been made to ensure that all sources of information are accurately cited.

Signature: _____ **Date:** 16th/12/2024

Supervision Confirmation

This research report has been conducted under my supervision. I confirm that it is ready for submission to Uganda Christian University for consideration.

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Senior Lecturer, Uganda Christian University

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Signature: _____ **Date:** 17th/12/2024

Dedication

I dedicate this research to my family, especially my beloved husband, for his unwavering support throughout my academic journey, materially, morally, and spiritually. I also extend my heartfelt gratitude to my children, whose patience and understanding were remarkable, particularly when I had to prioritize my studies over attending school visitations. Your love and encouragement have been my greatest motivation.

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List of Abbreviations/Acronyms

ART: Anti-Retroviral Therapy

CVDs: Cardiovascular Diseases

CVI: Content Validity Index

EHRs: Electronic Health Records

HCIVs: Health Center IVs

NCDs: Non-Communicable Diseases

NICU: Neonatal Intensive Care Unit

OPD: Outpatient Department

SPSS: Statistical Package for the Social Sciences

WHO: World Health Organization

Abstract

Background: Hypertension is a major contributor to severe health complications, including heart attacks, kidney damage, and strokes. Globally, 46% of adults are unaware of their condition, reflecting a significant gap in early detection. In Uganda, inadequate training and limited knowledge among nurses in outpatient departments (OPDs) further exacerbate the burden of hypertension-related complications. This study aimed to assess the knowledge and practices of nurses in the OPDs of HCIVs in Central Uganda.

Methods: A cross-sectional quantitative descriptive study was employed to assess the knowledge and practices of nurses in the OPDs of HCIVs in Central Uganda. Census Sampling was used to include 53 nurses. Data were collected using a structured questionnaire and analyzed with SPSS (Version 23).

Results: Most nurses (64.2%) demonstrated high knowledge towards early detection of Hypertension. The nurses had good practices like routine blood pressure screenings, lifestyle counseling, and monitoring patients' blood pressure. However, significant gaps were observed, with 58.49% of nurses exhibiting suboptimal practices in critical areas such as blood pressure measurement and patient counselling.

Conclusion: There is need for ongoing educational programs to enhance nurses' knowledge of hypertension detection. They require attending practical training in calibrating blood pressure devices. Government should increase resources for maintaining and calibrating equipment to ensure effective and early detection of Hypertension.

Keywords: Hypertension, Nurses, Central Uganda.

Chapter One: Introduction

"Hypertension, also known as high blood pressure, is a significant global contributor to premature mortality and morbidity in the adult population (Mills, 2020). Often referred to as the silent killer, a major Non-Communicable Disease, as it progresses without noticeable symptoms, leading many individuals to overlook its presence and forgo seeking care (Hanna et al. 2019)."

Early detection is vital to reducing the prevalence of hypertension. Nurses, as frontline healthcare workers, play a pivotal role in this process (Schmidt, 2020). Through timely monitoring of patients 'blood pressure during healthcare visits, nurses contribute significantly to the early detection of hypertension. This proactive approach helps mitigate the risks of complications like heart failure, kidney disease, and stroke associated with undiagnosed hypertension (Krishna, 2023).

In Uganda, the government establishes health units and trains nurses to identify patients with high blood pressure and refer them for hypertension care (Green, 2020). Despite this, a significant knowledge gap persists among nurses at Health Center IVs. This study examined nurses' knowledge and practices in early detection of Hypertension in Out-Patient Health Center IVs in Central Uganda

Background

Hypertension is a critical global health issue, affecting over 1.28 billion adults aged 30–79 years, with nearly half undiagnosed and 46% unaware of their condition (WHO, 2021). This widespread lack of awareness contributes to 7.8 million deaths annually and accounts for 3.7% of the global disability burden. Defined as a systolic blood pressure of

≥120 mmHg and a diastolic pressure of ≥80 mmHg, hypertension is a major risk factor for cardiovascular diseases, driven by factors such as genetic predisposition, obesity, unhealthy diets, physical inactivity, and stress (Himmelfarb, 2017; WHO, 2021).

In Sub-Saharan Africa, hypertension poses significant public health challenges. Approximately 20.6% of adults aged 45 years remain undiagnosed, with an estimated 10–20 million individuals living with undetected hypertension (Mohanty, 2021; Guwatudde, 2015). The region faces unique obstacles, including inadequate healthcare infrastructure, limited awareness, and the increasing adoption of Western dietary patterns rich in red meat, fats, and processed foods.

Uganda faces significant healthcare challenges, with hypertension being one of the major health concerns. The prevalence of hypertension in Uganda ranges from 22.5% to 30.5% (Katende, 2014). By 2015, the national prevalence reached 26.4%, with Wakiso district reporting a higher rate of 34.3% (Stephens, 2022). Despite these figures, an alarming 70% of adults aged 18–69 had never undergone blood pressure screening by 2014 (Stephens, 2022). This under diagnosis reflects systemic challenges such as sedentary lifestyles, dietary transitions, and inadequate healthcare infrastructure (Mudie, 2019).

Hypertension has severe consequences in Uganda, including increased risk of heart failure, kidney failure, and stroke. Heart failure is a common complication of hypertension, with a prevalence of 17.4% among hypertensive patients (Mayega, R. W., et al., 2017). Hypertension is also a significant predictor of heart failure in Uganda, with an odds ratio of 3.4 (Kalyesubula, R., et al., 2018). Similarly, hypertension is a major risk factor for stroke, with 73.5% of stroke patients in Uganda having hypertension (Mwambu, T., et al., 2019).

Kidney failure is also linked to hypertension, with approximately 60% of patients with kidney disease having hypertension (Okpechi, I. G., et al., 2018).

The burden of hypertension-related complications in Uganda is substantial, leading to poor patient outcomes, increased healthcare costs, and a significant burden on the healthcare system (Ssekasanvu, E., et al., 2020). Gaps in nurses' knowledge and practices can exacerbate these problems. Nurses play a crucial role in addressing this challenge through routine blood pressure monitoring, patient education, and early referrals (Almomani, 2022; Carey et al., 2018). However, Ugandan nurses face numerous barriers, including insufficient training, high workloads, and limited confidence in applying hypertension guidelines (Montany, 2021; Vendathan, 2016).

The scarcity of studies in central Uganda focusing on nurses' knowledge and practices regarding early detection of hypertension further compounds this issue. This knowledge and skills gap perpetuates undiagnosed hypertension. Against this backdrop, the current study aims to examine the knowledge and practices of nurses regarding the early detection of hypertension in the selected outpatient departments of Health Center IVs in Central Uganda. The findings will provide insights into gaps and opportunities for strengthening early detection of hypertension and improving health outcomes.

Problem Statement

Hypertension poses a significant public health challenge in Uganda contributing to severe health complications such as heart attacks, kidney failure, and strokes. Notably, 17.4% of hypertensive patient's experience heart failure, while 60% of patients with kidney disease and 73.5%of stroke patients are hypertensive.

These gaps have far – reaching consequences, including poor patient outcomes, increase healthcare costs, and a substantial burden on the healthcare system. Furthermore, deficiency in nurses' knowledge and practice exacerbate these challenges, resulting in poor blood pressure control, delayed diagnosis and treatment, and low adherence to treatment and lifestyle modifications.

In Uganda, despite government efforts to establish health units and train nurses, those at Health Center IVs in Central Uganda remain insufficiently trained, exhibit inconsistent practices, and demonstrate limited confidence in applying hypertension guidelines. This inadequacy significantly hinders effective early detection of hypertension.

The consequences of these gaps are significant. Hypertension-related complications contribute to poor patient outcomes, increased healthcare costs, and a substantial burden on the healthcare system. Moreover, deficiencies in nurses' knowledge and practices exacerbate these challenges, leading to poor blood pressure control, delayed diagnosis and treatment, and low adherence to treatment and lifestyle modifications.

This study investigates the knowledge and practices of nurses in outpatient departments of health centers in Central Uganda regarding the early detection of hypertension. Addressing these gaps aims to enhance early detection efforts, improve the quality of care for patients, and ultimately reduce the burden of hypertension in Uganda.

Purpose of the Study

The study aimed to describe the knowledge and practices of nurses towards early detection of hypertension in the outpatient department of Health Center IVs in Central Uganda.

Research Question

What is the knowledge of nurses towards early detection of hypertension in the selected outpatient department of Health Center IVs in Central Uganda?

What is the practice of nurses towards early detection of hypertension in the selected outpatient department of Health Center IVs in Central Uganda?

Specific Objectives

To evaluate the knowledge of nurses regarding the early detection of hypertension in the selected outpatient departments of Health Center IVs in Central Uganda.

To assess the practices of nurses regarding the early detection of hypertension in the selected outpatient departments of Health Center IVs in Central Uganda.

Significance of the Study

The study's findings are crucial for nurses working in outpatient departments, as they are often the first point of contact for patients seeking healthcare services. By recognizing the early signs and symptoms of hypertension, nurses can implement timely interventions, such as blood pressure monitoring, lifestyle modifications, and medication management.

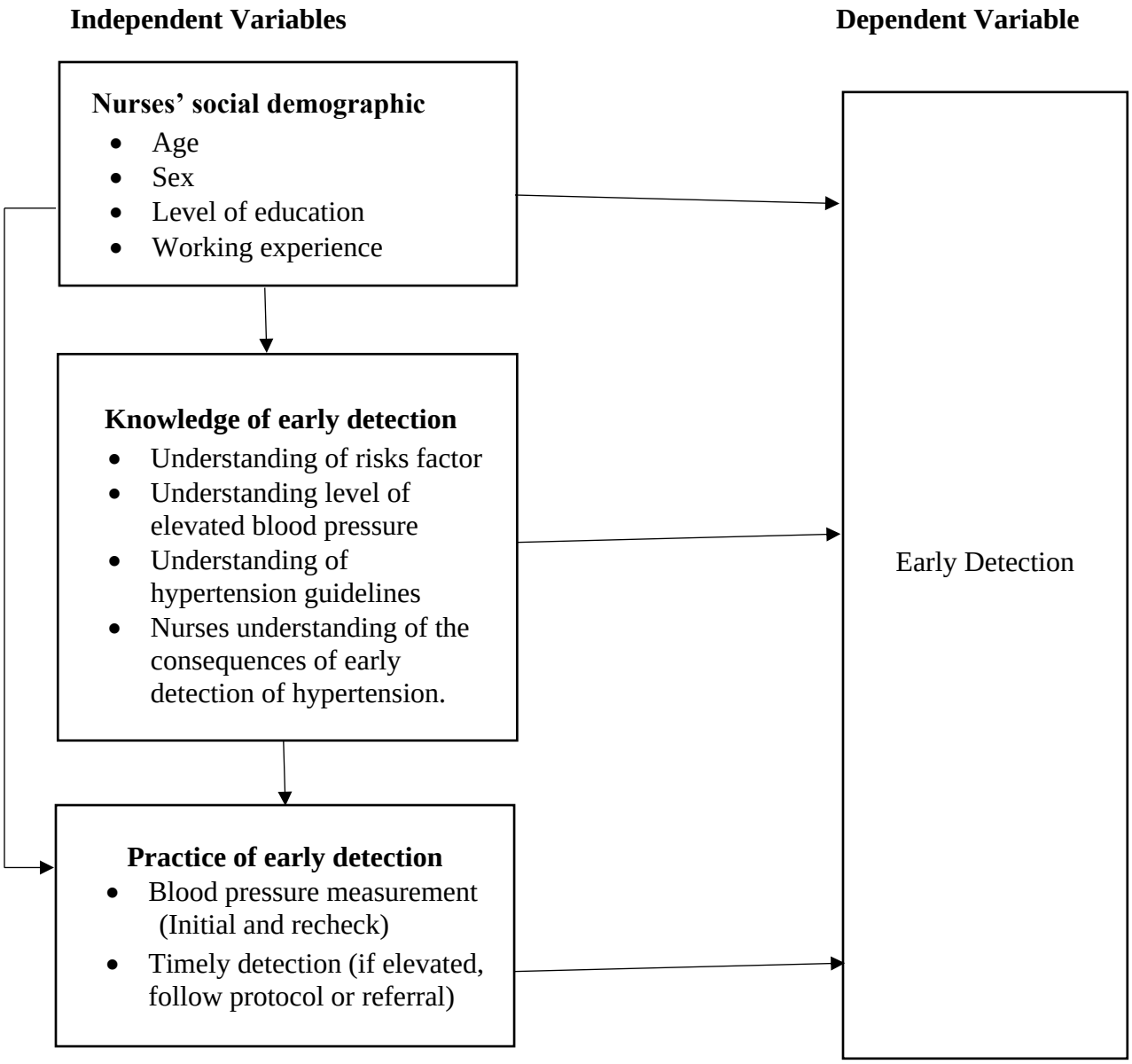
This proactive approach not only prevents the progression of hypertension to severe complications such as heart disease, stroke, or kidney failure, but also improves patient outcomes and overall quality of life. Additionally, the study holds significant for policymakers by contributing to the development of evidence -based policies that promote preventive care and address the growing burden non-communicable diseases (NCDs), including hypertension. Policy initiatives that prioritize hypertension screening programs, allocate resources for training healthcare workers, and ensure the availability of essential diagnostic tools and medications are integral to the effective management of hypertension at the primary care level.

This study also highlights the importance of raising awareness about hypertension, its risk factors, and the benefits of regular blood pressure monitoring. By advocating for education programs targeted at both healthcare providers and patients, the study enhances knowledge, attitudes, and behaviors related to hypertension management. Such initiatives empower individuals and communities to take control of their health, leading to better management of hypertension and informed decision-making about health behaviors.

On a broader scale, the study contributes to global nursing practices and public health strategies by emphasizing the critical role of nurses in the early detection and management of hypertension. The findings can inform training programs and policy formulation beyond the immediate study area, fostering a more proactive and preventive approach to hypertension management worldwide.

Conceptual Framework

Figure 1: Conceptual Framework/Map



Relationship among Components of the Frame work

This study employed a conceptual framework to illustrate how nurses' socio-demographic characteristics-such as age, gender, education, and experience-influenced their knowledge and practices related to the early detection of hypertension. The assumption was that

these factors directly shaped nurses' actions, ultimately enhancing hypertension screening and identification.

Nurses' Social Demographics and Early Detection of Hypertension

Age, gender, education level, and work experience all played roles in shaping nurses' capacity for early hypertension detection. Older nurses and those with longer experience generally demonstrated better practice due to accumulated clinical exposure (Polinard et al., 2022; Awoke et al., 2020). Younger nurses, although more updated on recent guidelines, sometimes lacked the practical judgment that experience brought.

Gender also influenced practice. Studies found that female nurses often demonstrated better hypertension management, which may have been due to stronger communication and interpersonal skills (Awoke et al., 2020; Kazimi, 2024).

Educational level was a key factor. Nurses with bachelor's degrees tended to apply evidence-based practices more consistently and demonstrated better hypertension detection skills than diploma holders (Olowookere et al., 2018; Ghodsi, 2022).

Overall, nurses' work experience was associated with improved clinical decision-making, allowing for more accurate identification of hypertension symptoms and timely responses (Mash et al., 2019; Karnik, 2023).

Nurses' Knowledge and Early Detection of Hypertension

Nurses' knowledge of hypertension risk factors and guidelines enabled them to identify high-risk individuals early. A solid grasp of normal vs. elevated blood pressure readings helped prevent missed diagnoses (Sambah, 2023; Maves, 2024). Familiarity with current clinical

protocols and early intervention benefits-such as reducing stroke or heart attack risks-motivated nurses to prioritize hypertension screening (Alharbi, 2024; Hannan, 2022).

Nurses' Practice and Early Detection of Hypertension

Routine blood pressure assessments improved nurses' observational skills and diagnostic accuracy. Accurate readings and timely follow-up helped prevent complications (Todkar, 2021; Arima, 2018). Nurses who followed referral protocols ensured patients received further evaluation and care as needed (Karnik, 2023). However, neglecting regular measurement could lead to missed diagnoses and increased risk of cardiovascular diseases (Talle, 2022; Majumdar, 2020).

Early Detection of Hypertension

Effective early detection required knowledge of risk factors, guideline adherence, and proper use of tools. Nurses who integrated screening protocols into routine care improved diagnosis rates (Iso, 2024; Schmidt, 2020). Training and adequate staffing supported regular monitoring, but barriers such as outdated knowledge, improper equipment use, and limited follow-up compromised early detection efforts, particularly in resource-limited settings (Hamrahian, 2020; Mohanty, 2022).

Operational Definitions of Key Concepts

Hypertension

Hypertension was operationally defined according to World Health Organization (WHO) clinical thresholds-as a systolic blood pressure (SBP) of 140 mmHg or higher or a diastolic blood pressure (DBP) of 90 mmHg or higher. Although the study did not involve

direct measurement of patients' blood pressure, nurses were assessed on their knowledge of this diagnostic criterion as part of evaluating their capacity for early detection (Himmelfarb, 2016).

Early Detection

Early detection referred to the identification of individuals with elevated blood pressure before they exhibit overt symptoms or develop serious complications. In operational terms, this meant routine screening practices conducted by nurses, such as checking blood pressure during every adult outpatient visit or identifying risk indicators that might warrant proactive assessment.

Knowledge of Nurses towards the Early Detection of Hypertension

The knowledge of nurses toward early detection of hypertension was measured using a structured 16-item questionnaire. The items tested their awareness of risk factors (e.g., age, obesity, family history), blood pressure thresholds, asymptomatic presentation, and national screening guidelines. Each correct response was scored as one point, with total knowledge scores classified into three categories: poor knowledge (0–7 points), fair knowledge (8–11 points), and good knowledge (12–16 points).

Practice of Nurses towards the Early Detection of Hypertension

Nurses' practice regarding early detection was assessed using a self-administered questionnaire that captured their self-reported behaviour. This included whether they routinely screened patients for hypertension, used correct BP measurement procedures, rechecked high readings for confirmation, and referred patients for follow-up. A nurse was

considered to have adequate practice if they reported performing at least three out of four of these core actions.

Nurse

A nurse is an individual who has completed a comprehensive nursing education program and is duly authorized by a relevant regulatory body to provide nursing care. Nurses utilize their expertise to offer compassionate, patient-centered care, promote health, prevent illness, and execute therapeutic interventions (Babaei, 2022).

Health Center IVs

Finally, Health Centre IVs were defined as public-sector health facilities within Uganda's health system that offer a combination of outpatient services, minor inpatient care, emergency response, and community outreach. In this study, eight Health Centre IVs were purposively selected from within Wakiso District based on accessibility, staffing levels, and operational OPD services.

Summary

This chapter introduces the study, providing the background that outlines the extent of hypertension disease and the challenge of early detection of Hypertension. It presents the research problem statement, the research purpose, the research question, the study objectives, significance of the study and the guiding conceptual framework. Chapter two describes a comprehensive review of the existing literature pertaining to the knowledge and practices of nurses in the early detection of hypertension. Chapter three describes the proposed research methodology to be used in this study.

Chapter Two: Literature Review

This chapter reviews the literature related to the knowledge and practices of nurses regarding the early detection of hypertension. It is organized around three main topics: the global burden of hypertension, the role of nurses in hypertension detection, and the knowledge and practices of nurses concerning the early detection of hypertension, both globally and within Uganda. The review emphasizes the context of Health Center IVs in Central Uganda, which is the focus of this study.

The Global Burden of Hypertension

Globally, hypertension remains a major public health challenge. The World Health Organization (2021) highlighted hypertension as one of the leading risk factors contributing to disease burden, particularly in South Asia, where it is responsible for 57% of all strokes and 24% of coronary heart disease (CHD) morbidity and mortality in India. Hypertension affects approximately 1.28 billion adults aged 30–79 years (Mensah, 2024).

Alarmingly, less than half of individuals with hypertension are diagnosed, and 46% of adults globally remain unaware of their condition (World Health Organization, 2021). This underdiagnosis is often due to insufficient screening, which is particularly problematic for nurses who play a critical role in early detection. Studies, such as those by Musiguzi et al. (2018), suggest that diagnoses typically occur at later stages, after complications like stroke or heart attack have set in, reinforcing the need for enhanced early screening efforts.

In Sub-Saharan Africa, hypertension presents a similar public health issue, compounded by unique regional challenges. With a prevalence estimated at 30%, Sub-Saharan Africa faces both increasing rates of hypertension and a lack of awareness, leading

to a significant health burden, particularly in older populations. A study by Tiruneh (2020) found that 44% of individuals aged 60 and older were affected by hypertension, yet the region remains under-researched compared to other parts of the world, underscoring the need for nursing practices and early detection strategies tailored to these regional challenges.

Countries like India have made strides in public health campaigns aimed at improving hypertension detection and treatment. However, a study by Mohanty (2021) revealed that 20.6% of adults aged 45 and older in India remain undiagnosed, despite efforts to increase awareness. This highlights the importance of nursing involvement in both detection and management, an aspect that also applies to Health Center IVs in Uganda.

The Local Burden of Hypertension

In Uganda, the situation mirrors many regional challenges but is further complicated by specific local factors. A national survey conducted in 2014 revealed that 70% of adults aged 18 to 69 had never had their blood pressure measured (Stephens, 2021), revealing a substantial gap in hypertension awareness and early detection. The prevalence of hypertension in Uganda is estimated to be between 22.5% and 30.5%, yet detection and management rates remain significantly lower (Katende, 2014). This underscores the necessity for improved screening mechanisms and better healthcare worker training, particularly in rural and underserved areas.

Uganda's health system faces significant resource constraints that hinder effective healthcare delivery (Green, 2020). These challenges, such as limited access to antihypertensive medications and insufficient healthcare worker training, mean that hypertension is often left undiagnosed until it results in severe complications (Musiguzi et

al., 2018). Despite these well-documented barriers, a critical gap in the literature remains regarding how these issues specifically affect healthcare delivery at Health Center IVs. This study aims to address that gap by focusing on the specific practices and knowledge of nurses working in these settings.

The global and local contexts highlight the significant challenges that exist in the early detection of hypertension, particularly in low-resource settings like Uganda. While global studies have identified the problem of under diagnosis, there remains a need for more detailed research into the role of nurses in early detection at the local level, especially in Health Center IVs. By investigating the knowledge and practices of nurses in these settings, this study contributed to filling this gap in the literature, ultimately supporting the improvement of hypertension detection and management in Uganda.

Role of Nurses in Hypertension Detection

Hypertension remains a major public health challenge globally, contributing significantly to the prevalence of cardiovascular diseases and other chronic conditions. Nurses play an essential role in early detection and management of hypertension, especially in resource-limited settings like Uganda. This section explores the knowledge and practices of nurses towards the early detection of hypertension in the outpatient department of Health Center IVs in Central Uganda.

Nurses are often the first point of contact for patients, and their role in conducting regular blood pressure screenings is critical to early detection. Nurses' knowledge of hypertension and its risk factors is fundamental to identifying individuals at risk. Research highlights that many individuals with hypertension remain unaware of their condition due to

the absence of symptoms (Rahimi, 2022). By conducting routine blood pressure measurements, nurses identify individuals who may need further assessment and referral for treatment (Nsiah, 2019). However, the knowledge gap among nurses regarding hypertension detection is a concern. Inadequate training and limited access to up-to-date information on hypertension management can impact nurses' ability to effectively detect and manage the condition, especially in resource-constrained environments like Uganda.

In Uganda, where hypertension rates are rising, nurses' role in early detection is even more critical. Nurses working in rural communities, where healthcare access is limited, often conduct screening services during health center visits or through outreach programs. These initiatives help identify individuals who may otherwise remain untreated, thus improving early detection rates (Schmidt, 2020). However, barriers such as lack of resources, time constraints, and inadequate training can impede nurses' ability to effectively screen and refer patients. These barriers must be addressed to improve the knowledge and practices of nurses in detecting hypertension early.

Once hypertension is detected, nurses are responsible for educating patients about the condition, its risks, and the importance of lifestyle changes and medication adherence. Nurses help patients understand the significance of lifestyle modifications, such as reducing salt intake, engaging in physical activity, and managing weight, which are crucial for controlling blood pressure (Sakima, 2019). However, there is a need to assess the practices of nurses in Uganda regarding patient education and follow-up. Studies show that patient education by nurses can lead to better adherence to treatment regimens and improved health outcomes (Chimberengwa, 2020). Yet, due to limited resources and time, nurses may

struggle to provide comprehensive education and follow-up care, which affects the overall effectiveness of their practices.

Nurses also emphasize the importance of medication adherence in managing hypertension. In rural Uganda, where access to healthcare may be limited, nurses teach patients how to monitor their blood pressure at home, enabling them to manage their condition outside the clinical setting (Aletta, 2023). However, nurses' knowledge of hypertension treatment protocols and their practices around medication adherence may be inconsistent, especially in areas where access to medication is limited or inconsistent.

In addition to direct patient care, nurses are involved in community outreach programs to raise awareness about hypertension prevention. Through health fairs and education campaigns, nurses promote healthy lifestyle choices and the importance of regular blood pressure checks (Schmidt, 2020). These outreach activities are vital for improving public awareness and early detection of hypertension in under-served communities. However, systemic barriers, such as inadequate funding and lack of resources, hinder the sustainability and effectiveness of these programs.

Despite the essential role that nurses play in hypertension care, several barriers hinder their ability to effectively detect and manage hypertension. The lack of time, resources, and specialized training are significant challenges. Nurses are often overwhelmed with multiple tasks, which limits the time available for thorough assessments and follow-ups (Musiguzi et al., 2018). Moreover, the lack of adequate training in specialized aspects of hypertension management, such as medication management, can affect the quality of care provided (Carey, 2018). These barriers highlight the need for improved training, better resource

allocation, and enhanced support for nurses to improve their knowledge and practices in hypertension detection.

In Uganda, where the burden of hypertension is substantial, research gaps remain in understanding how nurses' knowledge and practices directly impact patient outcomes in rural settings. While nurses' involvement in early detection is well-established globally, limited research has been conducted on the effectiveness of nursing interventions in improving hypertension outcomes in Uganda, particularly in rural and underserved areas. This study aims to fill these gaps by examining the knowledge and practices of nurses in early hypertension detection in Uganda and exploring how these factors can be enhanced to improve patient outcomes.

Knowledge of Nurses towards Early detection of Hypertension

Hypertension remains a significant public health challenge, and nurses play a crucial role in its early detection and management. However, studies from various regions highlight a concerning gap in the knowledge of nurses regarding hypertension, particularly in early detection. For example, a study at a district hospital in Rwanda (Mbarushimana, 2017) found that 57.14% of nurses demonstrated a poor level of knowledge in managing hypertension, emphasizing a critical deficiency in the knowledge required for effective care. Similar knowledge gaps have been observed in other settings.

A cross-sectional study of 150 senior staff nurses at Sylhet MAG Osmani Medical College in Bangladesh revealed mixed insights into their understanding of hypertension. However, these studies primarily focused on general knowledge rather than examining healthcare settings like Health Center IVs, which this study specifically addressed.

In Ghana, research by Fitzgerald and Hurst (2017) found that 49.33% of nurses correctly identified key risk factors for hypertension, such as genetic predisposition, diabetes, smoking, kidney disease, obesity, physical inactivity, and excessive salt intake. Similarly, a study in Bangladesh (Akter & Hadi-Suhag, 2020) identified risk factors for secondary hypertension, but only 23.33% of nurses recognized anxiety, excessive salt intake, and substance abuse as contributors. These findings indicate that while nurses are aware of some major risk factors, there are notable gaps in their comprehensive understanding, which could impact clinical practice. These gaps are especially concerning in Uganda, where hypertension remains poorly managed despite its high prevalence.

The 2014 national non-communicable disease survey in Uganda highlighted alarming statistics: 70% of participants aged 18-69 had never had their blood pressure measured, and only 13% of individuals with a greater than 30% 10-year risk of developing cardiovascular disease (CVD) received treatment or counseling. Stephens (2021) noted that this low awareness is compounded by workforce shortages, inadequate nurse knowledge, and limited access to affordable medications.

The Ugandan healthcare system is also burdened by a shortage of healthcare professionals, with only 1.2 physicians and 13.1 nurses per 10,000 people, most of whom are concentrated in urban areas. These resource constraints, combined with insufficient training and confidence among nurses, severely hinder the effective management of non-communicable diseases, including hypertension. Green (2020) emphasized that despite the rising prevalence of hypertension in Uganda, clinical management remains sub-optimal. However, these issues have been largely anecdotal and inadequately explored, underscoring the need for this study to provide a systematic understanding of the problem.

While existing research (e.g., Fitzgerald & Hurst, 2017) has addressed factors contributing to poor hypertension control, there is a lack of studies focused on nurses' specific approaches to hypertension detection in Health Center IVs. Furthermore, the role of nurses in private healthcare settings, where a significant portion of healthcare services are provided, remains largely unstudied. This gap in research highlights the urgent need for targeted educational initiatives and training programs aimed at improving nurses' competencies in managing hypertension. This study sought to fill these gaps by examining the knowledge of nurses in the early detection and management of hypertension in Health Center IVs in Uganda.

Practice of Nurses towards Early detection of Hypertension

Nurses play a central role in the early detection of hypertension in many healthcare settings, yet their practices vary widely. A study by Roubsanthisuk et al. (2017) involving 907 nurses revealed that traditionally trained nurses exhibited a marked terminal digit preference, with over 99% of systolic and diastolic blood pressure measurements ending in zero. This practice can lead to inaccurate readings, which may affect patient care. In contrast, measurements taken by well-trained nurses and automatic devices showed better accuracy, with around 60% of measurements showing a difference of ≤ 5 mmHg between the trained nurses and digital devices for both systolic and diastolic readings. This highlights the critical importance of proper training in blood pressure measurement, as even small discrepancies can lead to misdiagnosis and inadequate management of hypertension.

Similarly, Musiguzi et al. (2018) reported that traditionally trained nurses in Uganda tended to overestimate blood pressure, with a noticeable underestimation of systolic blood

pressure, particularly in patients with moderate to severe hypertension. This underestimation is concerning, as it could result in delayed treatment and potentially lead to adverse outcomes for individuals with more severe forms of hypertension. These findings highlight the need for improved training and standardization in blood pressure measurement practices, which are essential for the early detection and management of hypertension.

A study by Gyamfi et al. (2017) in Ghana assessed the impact of training on nurses' practices in hypertension management. The study found a significant improvement in both the knowledge and practices of nurses following the intervention, with the percentage of nurses scoring 80% or more on the hypertension practice test rising from 26.9% to 95.7%. The intervention also improved nurses' interpersonal skills and patient education practices, critical components of hypertension management. These results suggest that targeted training programs can significantly enhance nurses' ability to detect and manage hypertension. However, it remains unclear whether similar training programs have been implemented in Uganda's government health facilities, creating a gap that this study sought to address.

In Uganda, a retrospective analysis by Majumdar et al. (2022) on hypertension screening and control at a major private hospital in Kampala found that 72.1% of patients had at least one blood pressure measurement, but only 18.3% of patients with hypertension achieved control after receiving medication at least once. This indicates significant gaps in hypertension management despite screening efforts. The findings suggest that while screening is being implemented, the control of hypertension remains suboptimal. This highlights the need for better practices, especially in public healthcare settings, and creates a

critical research gap that this study aimed to fill, particularly by focusing on government health facilities in Central Uganda.

Research Gaps

The existing literature highlights several critical gaps in the knowledge and practices of nurses regarding the early detection of hypertension, particularly in resource-limited settings such as Uganda. Many studies have explored the general knowledge of nurses about hypertension, but there remains a lack of research specifically focused on the knowledge and practices of nurses working in outpatient departments of Health Center IVs in Uganda (Mbarushimana, 2017; Akter & Hadi-Suhag, 2020). Furthermore, while global studies have identified knowledge gaps in hypertension management, particularly in low-resource settings, there is limited exploration of how these gaps impact the practical application of early detection methods (Fitzgerald & Hurst, 2017; Gyamfi et al., 2017).

In Uganda, studies have indicated that while many nurses possess some knowledge of hypertension, their ability to implement this knowledge effectively in clinical settings remains suboptimal. For example, research conducted in Rwanda and Bangladesh found significant knowledge gaps regarding key risk factors and hypertension management, but did not specifically address the practices of nurses in early detection (Mbarushimana, 2017; Akter & Hadi-Suhag, 2020). Additionally, there is a lack of targeted studies examining how systemic factors such as limited resources, workforce shortages, and inadequate training contribute to the gap between knowledge and practice in the detection of hypertension (Green, 2020; Stephens, 2021).

This study directly addresses these research gaps by focusing on the knowledge and practices of nurses in Health Center IVs in Central Uganda. It provides a systematic analysis of the factors contributing to inadequate hypertension detection, including training deficiencies, resource limitations, and systemic challenges. By focusing on the specific context of Health Center IVs, this study contributes valuable insights into the unique challenges faced by nurses in these settings and offers recommendations for improving both knowledge and practice in hypertension detection and management.

Summary

In this chapter, the literature review has been presented. It begins by examining the global burden of hypertension, nurses' roles in hypertension detection, knowledge of nurses towards early detection of Hypertension, and practices of nurses towards early detection of Hypertension. This chapter concludes with an analysis of nurses, current knowledge and practices, identifying gaps regarding nurses' overall knowledge and practices concerning early detection of Hypertension in outpatient departments of health center IVs in Central Uganda.

Chapter Three: Methodology

This chapter provides a comprehensive description of the methodology employed in this study. It outlines the research design, study setting, and study population, including the sample size and selection criteria. The chapter details the sampling techniques and procedures used, as well as the collection methods and instruments implemented to gather information. Additionally, it presents the data analysis plan, explaining how the collected data were processed and analyzed to address the research objectives. Ethical considerations are also discussed, highlighting the measures taken to ensure the integrity and ethical conduct of the study throughout the data collection process.

Study Design

This study employed a cross-sectional, quantitative -descriptive design, well-suited for assessing the knowledge and practices of nurses regarding the early detection of hypertension. This design was selected as it allows for assessing nurses' knowledge and practices at a specific point in time, providing a snapshot of current practices. As Jangland (2018) emphasizes, this design allows for the evaluation of a diverse group of nurses at a single point in time, providing a comprehensive snapshot of the nursing workforce. It is both efficient and cost-effective, making it a practical alternative to more resource – intensive longitudinal studies.

This approach is particularly valuable for generating timely insights into the nursing profession, which is essential for addressing urgent healthcare challenges and implementing strategies for improved healthcare delivery (Himmelfarb, 2016). By focusing on numerical data, the study enhances the ability to identify early warning signs of hypertension and

evaluate nurses' knowledge and practices in outpatient settings. Carey (2018) highlighted that numerical data provides an objective and quantifiable foundation for assessing healthcare practices, leading to more accurate analyses. A sample of nurses was selected from Health Center IVs in central Uganda. Data were collected at a specific point in time to assess the nurses 'knowledge and practices related to early detection of Hypertension. This cross -sectional design, as supported by Jangland (2018), facilitates a clear understanding to current healthcare practices without requiring prolonged observation. The design's focus on numerical data ensures objective insights, supporting the development of effective strategies for improving healthcare delivery.

Study Setting

The study was conducted in the outpatient departments of five Health Center IVs located in Central Uganda, specifically in Mukono, Kampala, and Wakiso districts. Central Uganda was selected because it has one of the highest burdens of non-communicable diseases in the country, including hypertension, due to its urbanization, lifestyle changes, and high patient turnover in public health facilities (MOH, 2021). These settings thus provided a relevant context for investigating knowledge and practices related to early hypertension detection.

The selected Health Center IVs were Kisenyi, Kawaala, Wakiso, Kojja, and Kasangati Health Centers, which were chosen to represent a diverse range of outpatient departments in Central Uganda. These health centers were chosen due to their location within the target study area, and their accessibility and proximity to the targeted population, which facilitated efficient data collection and enhanced participant engagement (Nasrullah,

2020). My familiarity with the research settings facilitated rapport-building with participants, ultimately enhancing high-quality data.

The number of nurses and patient loads at each facility varied, reflecting differences in healthcare delivery and resource availability. Kisenyi Health Center IV operates 7 days a week, with 4 nurses working daily and attending to approximately 750-1000 patients per week. Wakiso Health Center IV, also operating 7 days a week, has 2 nurses working daily and sees around 1050 patients weekly. Kojja Health Center IV operates daily with 2 nurses and serves 400 patients per week. Kawaala Health Center IV operates 7 days a week with 5 nurses working daily and seeing about 1000 patients weekly. Kasangati Health Center IV operates similarly, with 4 nurses working daily and attending to 750-1000 patients per week. These centers were selected for their representativeness of outpatient departments in Central Uganda, where hypertension detection and management are critical yet often under-explored.

Also, nurses in these centers were chosen for their comprehensive understanding of the local healthcare context, which significantly contributed to the analysis of early detection practices for hypertension (Chukwuma, 2023). Their experience and insights proved invaluable in identifying potential areas for improvement in hypertension detection and management.

Study Population`

The study population comprised of nurses who were working in outpatient departments and those who had previously rotated through for at least two months of experience, acquired relevant skills, and were now working in other areas of the healthcare

system (Krishna, 2023). This inclusive approach ensured a comprehensive sampling strategy by capturing both active outpatient nurses and those with prior rotation experience, thereby addressing the study's objectives of evaluating knowledge and practices in early hypertension detection.

Including nurses actively engaged in outpatient care facilitated the collection of real-time insights into hypertension screening practices, reflecting current challenges and opportunities in routine patient management (Longhini, 2023). Additionally, the inclusion of nurses with prior outpatient experience broadened the scope of the study by drawing on their diverse clinical exposure. These nurses, having navigated various healthcare scenarios, contributed a wealth of perspectives that enriched the understanding of hypertension detection practices across different contexts (Al-Agba, 2020).

The sample design aimed to represent the broader nursing workforce in Uganda, focusing on Health Center IVs, which are critical points of care in resource-limited settings. However, there are potential limitations in generalizing the findings beyond the selected facilities in Central Uganda. Variations in healthcare infrastructure, patient demographics, and resource availability across regions may influence the applicability of the results. To mitigate these limitations, the study selected facilities that serve diverse populations and included nurses with varying levels of experience and responsibilities. This ensured a balanced and representative sample, while acknowledging that regional differences may still affect generalizability.

Sample Determination

Sample

The study sample size was calculated using the Krejcie & Morgan (1970) formula as shown below:

$$n = \frac{X^2 NP(1-p)}{d^2 (N-1) + X^2 P(1-P)}$$

Where; n = required sample size. X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841). N = the population size. For this study, the expected population size was 60 nurses from Health Centre IVs in Central Uganda.

P = the population proportion (assumed to be 0.50 since this would provide the maximum Sample size).

d = the degree of accuracy expressed as a proportion (0.05).

Therefore,

$$n = \frac{3.841 \times 60 \times 0.5 \times (1-0.5)}{0.05^2 \times (60-1) + 3.841 \times 0.5 \times (1-0.5)}$$

$$n = \frac{3.841 \times 60 \times 0.25}{0.0025 \times 59 + 3.841 \times 0.25}$$

$$n = \frac{3.841 \times 60 \times 0.25}{0.1475 + 0.96025}$$

$$n = \frac{3.841 \times 60 \times 0.25}{1.10775}$$

$$n = \frac{3.841 \times 15}{1.10775}$$

$$n = \frac{58.215}{1.10775}$$

$$n = 52.60$$

According to Krejcie & Morgan's (1970) formula, 53 participants were the minimum desired number for this study however. All available and willing nurses were invited to participate in the study. Including all eligible nurses might have limited biases and allowed for some generalization among the nurses in health center IVs in Central Uganda. This is because study results are directly influenced by the sample size. Extremely smaller samples undermine study's external and internal consistence whereas extremely larger samples present practical challenges (Faber, & Fonseca, 2014).

Sampling Design

For the selection of the Health Centre IVs, purposive sampling was employed, based on their active involvement in outpatient services, record accessibility, and geographic feasibility within the study timeline. This non-probability selection of facilities, although necessary, may have introduced selection bias and limited the external validity of the study.

This study employed a census sampling approach for the study participants, including all 53 eligible nurses working in the selected outpatient departments of Health Center IVs in Central Uganda, as well as those from other wards who had previously rotated through outpatient care. Census sampling was chosen to minimize selection bias by ensuring that every eligible participant within the defined population was included, thus providing a

comprehensive understanding of nurses' knowledge and practices related to the early detection of hypertension (Mujere, 2016).

One significant advantage of census sampling is its ability to maximize the accuracy and inclusivity of findings. By capturing diverse perspectives across the entire population, this method ensures that no voices are excluded. This was particularly important for this study, as it sought to evaluate knowledge and practices uniformly across the nursing workforce in these specific settings.

However, census sampling also has its trade-offs. The relatively small sample size of 53 nurses, although representative of Health Center IVs in Central Uganda, may limit the generalizability of the findings to other regions or healthcare facilities with different contexts and conditions. Additionally, the resource-intensive nature of census sampling posed logistical challenges, including the risk of non-response or participation bias. These challenges were mitigated through careful planning, such as scheduling data collection at times convenient for participants, providing clear communication about the study's importance, and ensuring confidentiality to encourage participation. Follow-ups were conducted to address any initial hesitations or scheduling conflicts, achieving a high response rate and reducing the likelihood of bias.

Despite these limitations, the use of census sampling was justified for this study. It aligned with the study's objectives of obtaining a thorough and representative evaluation of nurses' knowledge and practices regarding hypertension detection. This approach provided valuable insights into the specific population of nurses in Health Center IVs in Central Uganda.

Inclusion Criteria

Eligible participants included those who were currently working in the outpatient department, as well as those who had previously rotated through the outpatient department and were currently working in other departments (Chellam, 2023).

Exclusion Criteria

Nurses with less than two months of work experience were excluded from the study, as they may not have had sufficient exposure for the investigation (Chatziefstratiou, 2021).

Data Collection Procedure

The data collection process followed a structured, step-by-step procedure to ensure consistency and reliability across all selected Health Center IVs. The following steps were observed:

Step 1: Selection of Facilities

Five Health Center IVs in Central Uganda were purposively selected based on their outpatient department activity, patient volume, geographical accessibility, and representativeness of urban and peri-urban settings. These included Kisenyi, Kawaala, Wakiso, Kojja, and Kasangati Health Center IVs. The selection ensured diversity in service delivery contexts and was guided by facility-level data on nurse staffing and patient flow relevant to hypertension screening.

Step 2: Ethical Clearance and Institutional Permission

Before data collection, ethical approval was obtained from the Uganda Christian University Research Ethics Committee. Introductory and approval letters were submitted to the Kampala Capital City Authority (KCCA), Mukono District Local Government, and Wakiso District Health Office. Facility-level approval was then sought by delivering letters to each of the five selected Health Center IVs. These letters formally requested permission to carry out the study and outlined the study's objectives.

Step 3: Recruitment of Participants

Within each health facility, the nursing supervisor or officer-in-charge facilitated the introduction of the researcher to the outpatient department staff. During staff briefings or scheduled nursing meetings, the researcher introduced the study, explained its purpose and procedures, and distributed participant information sheets. Nurses who met the inclusion criteria (i.e., currently working in the OPD or had rotated there within the past 6 months) and were willing to participate were invited to sign informed consent forms (Appendix A). Participation was voluntary, and nurses were assured of confidentiality.

Step 4: Data Collection Procedure

Data were collected over two consecutive days at each health facility. The researcher personally administered structured, self-administered questionnaires (Appendix B) in designated private rooms within the facility. Morning and afternoon sessions were arranged to accommodate both day and night-shift nurses. Participants were given sufficient time to complete the questionnaires privately, without interruptions from clinical duties.

Step 5: Assessment of Practice

Nurses' practices related to the early detection of hypertension were assessed through self-reported responses in the structured questionnaire. These included questions on frequency of blood pressure screening, adherence to guidelines, use of calibrated devices, and follow-up protocols. No direct observation of practice was conducted due to logistical constraints and ethical considerations.

Step 6: Data Handling and Storage

After completing the questionnaire, each participant placed their responses in a sealed envelope, which was collected by the researcher on-site. All completed forms were transported in a secure folder and stored in a locked cabinet accessible only to the researcher. Data were later entered into a pre-designed codebook for analysis. Confidentiality and data protection procedures were rigorously followed throughout the process.

Step 7: Quality Control Measures

To minimize non-response and incomplete data, the researcher remained available during data collection hours to clarify any questions. The private, distraction-free environment and flexible scheduling helped reduce response fatigue and encouraged accurate completion. the analysis accounted for potential intra-facility correlation (i.e., clustering). Responses from nurses within the same facility may be more alike due to shared work environments, supervision, and policies. To adjust for this, the analysis employed robust standard errors clustered at the facility level. This method corrects standard errors to reflect the clustered nature of the data, ensuring more accurate statistical inference.

Data Collection Tools

Section A: Demographic Characteristics of Participants

Section A of the questionnaire consisted of eight questions designed to gather socio-demographic data from the participating nurses. These questions explored aspects such as age, gender, education level, years of nursing experience, employment status, and prior training in early detection of hypertension. The demographic questions were carefully crafted to provide a comprehensive understanding of the participants' background, which was essential for contextualizing the study's findings. The data obtained allowed for an exploration of potential correlations between socio-demographic factors and the proficiency of nurses in the early detection of hypertension, enhancing the understanding of how these factors might influence nurses' ability to detect hypertension effectively. Examples of questions in this section include, "What is your highest level of education?" and "How many years of healthcare experience do you have?"

Section B: Knowledge about Hypertension Early Detection

Section B comprised 21 multiple-choice questions aimed at assessing the nurses' knowledge regarding the early detection of hypertension. These questions covered a range of key topics, including blood pressure thresholds, screening guidelines, and patient education practices. Each correct answer earned one point, and the participant's knowledge score was calculated by dividing their total score by 21 and converting it to a percentage. A score below 50% was categorized as limited knowledge. This section directly aligned with the study's objective of evaluating the nurses' knowledge on hypertension detection. Key questions included, "What is elevated blood pressure?" and "What should nurses know about collaboration with healthcare teams for hypertension detection?" These questions

were designed to assess the depth and accuracy of nurses' knowledge regarding hypertension, including the thresholds for elevated blood pressure and the importance of interdisciplinary collaboration in hypertension detection.

Section C: Nurses' Practices in Early Detection of Hypertension

Section C consisted of 13 Likert-scale questions focusing on assessing nurses' practices related to the early detection of hypertension. These questions explored the frequency of practices such as routine blood pressure screenings, patient education, and adherence to hypertension detection protocols. The response options ranged from "never" to "always," and the results were used to evaluate the nurses' adherence to best practices in hypertension detection. Each participant's responses were analyzed by calculating the mean score, and the sentiment scores were derived by multiplying the number of responses for each sentiment level by the total number of participants. A score of 3 or above indicated satisfactory practices, while a score below 3 suggested areas for improvement. Key questions in this section included, "I conduct routine blood pressure screenings" and "I collaborate with the healthcare team to ensure comprehensive care for patients requiring referrals." This section was aligned with the study's objective of assessing how well nurses applied their knowledge in practice, focusing on their adherence to recommended hypertension detection practices.

Feedback from the Pilot Study

The questionnaire underwent a pilot study to assess its clarity, relevance, and comprehensiveness. Feedback from the pilot study led to several key revisions, including the rewording of certain questions in Section B for clarity, particularly those related to the

definition of elevated blood pressure and the criteria for determining blood pressure categories. Additionally, some of the Likert-scale response options in Section C were refined to ensure they accurately reflected the range of practices observed in the field.

The pilot study also provided valuable insights, leading to the inclusion of additional questions in Section A to capture more detailed demographic information, such as specific years of experience in healthcare and the type of training received in hypertension detection. These revisions ensured that the final version of the questionnaire was both valid and reliable, better aligned with the study's objectives, and capable of providing a comprehensive assessment of nurses' knowledge and practices regarding the early detection of hypertension.

Pilot Plan

A pilot study was conducted with a small sample of Pilot approximately ten nurses. Who shared similar characteristics with the targeted sample and worked at other health centers within the same region. The questionnaire was pretested to determine the time participants took to complete it, identify parts that were difficult for participants to read or understand, and identify any questions that participants found objectionable or offensive (Polit & Beck, 2017).

The analysis of the pilot study involved examining the participants 'responses to the questions. This helped determine if the questions were clear and easy to understand, and whether the participants could complete the questionnaire within the expected time frame. In additionally, feedback was gathered from the nurses participating in the pilot study regarding areas where more clarifications or adjustments were needed in the questionnaire.

The questionnaire was completed within 25 minutes, and all questions were clear to the participants.

The results of the pilot study were entered into SPSS to formulate my codebook and test the performance of the questionnaire in SPSS. The findings from pilot study were shared with the supervisors for approve of any necessary adjustments to the data collection tool before conducting the full study.

Validity and Reliability

Validity

Validity was critical in the development of the questionnaire, ensuring that the questions accurately measured the constructs they intended to assess. This was essential for drawing meaningful and reliable conclusions from the study. Without validity, the questionnaire could fail to effectively capture the intended constructs, leading to unreliable or misleading results. Validity is crucial for stakeholders, such as researchers, policymakers, and practitioners, who rely on accurate data to make informed decisions (Polit & Beck, 2017). Ensuring validity not only enhanced the trustworthiness of the results but also strengthened the credibility of the research findings, making them valuable for advancing knowledge in the field (Nardi, 2018).

To assess the content validity, a Content Validity Index (CVI) was calculated. This process involved enumerating relevant items in the questionnaire and dividing the number of relevant items by the total number of items. A pilot test with 10 nurses, who were not part of the study sample, was conducted using a 43-item questionnaire. In this pilot study, 420 items were assessed, with 55 deemed irrelevant. The CVI was calculated as follows:

CVI=Relevant Items = 420 – 55 =365

Total Items=365 / 420=0.87

This CVI of 0.87 exceeds the recommended threshold of 0.70, confirming the questionnaire's content validity. The feedback from the pilot study helped identify gaps, leading to necessary modifications in the instrument. This ensured that the questions were directly aligned with the research objectives and accurately measured the constructs of interest.

Additionally, construct validity was ensured through expert evaluations and factor analysis, confirming that the questionnaire measured the intended constructs of knowledge and practice related to hypertension detection. Face validity was also addressed by having experts review the questionnaire to ensure that it appeared to measure the intended concepts in a straightforward manner.

Overall, validity ensured that the questionnaire accurately captured the key areas of interest in the study, reducing the potential for bias and increasing the overall quality of the data collected (Carolus, 2023). Moreover, it optimized resources by ensuring that the data collected was valuable and reliable, minimizing the need for rework or further data collection due to invalid results. Validity evaluations were essential in ensuring that the questionnaire adequately covered all relevant aspects of hypertension detection, as recommended by Kilama et al. (2023).

Reliability

Reliability is a crucial benchmark for evaluating the effectiveness of a quantitative measure, ensuring that the instrument provides consistent results when administered multiple times under similar conditions (Polit & Beck, 2017). To assess the reliability of the questionnaire, Cronbach's Alpha was used, which measures the internal consistency of multi-item variables.

A pilot study involving 10 nurses was conducted to test the reliability of the instrument. The Cronbach's Alpha coefficients for each section were calculated using SPSS, and the results were as follows:

Table 1: *Reliability indices for the questionnaire*

Variable	**No. of items**	**Cronbach Alpha Coefficient**
Knowledge of early detection	10	0.78
Practice of early detection	10	0.82

These Cronbach's Alpha coefficients are above the recommended threshold of 0.70, indicating that the questionnaire exhibits good internal consistency and is reliable for data collection (Bujang et al., 2018). The pilot study allowed for testing the precision of the survey questions and methodology, ensuring that the instrument was effective for the main study. By conducting this pilot study and calculating Cronbach's Alpha, the research ensured that the final instrument was consistent, reliable, and suitable for measuring the knowledge and practices of nurses regarding the early detection of hypertension.

Data Analysis

In this study, a comprehensive approach was undertaken to ensure accurate data management and analysis. Firstly, a codebook was meticulously crafted to organize the data variables, labels, and properties. This codebook served as a reference guide for data entry, ensuring consistency and accuracy. Data entry into the codebook occurred daily basis as information was collected from the study participants, maintaining a continuous and systematic record of the gathered data (Frietag, 2018).

Following the establishment of the codebook, the software utilized for analysis underwent thorough scrutiny to anticipate and address any potential issues that may arise during the analytical phase. Once the software was verified, the data stored in the codebook was exported to SPSS (version 23) for in-depth analysis, leveraging its robust analytical capabilities. The analysis commenced with a focus on demographics, employing descriptive statistics such as mean, standard deviation, frequencies, and percentages. Descriptive statistics were used to summarize the data, while relationships between variables were analyzed using the Pearson chi-square test. A univariate analysis of demographic characteristics was conducted, and the results were meticulously presented in tables for comprehensive understanding.

The next step involved analyzing the knowledge scores of the participants. Individual responses were entered into the software based on the established code book, facilitating the calculation of overall scores in both percentage and category breakdowns (Schwartz, 2022). Group scores were scrutinized to identify the mean percentage and category distribution. The Pearson chi-square test was then applied to explore potential associations between demographics and knowledge of nurses towards early detection of hypertension (Gun, 2024). This test was specifically chosen to examine the relationships

between categorical variables such as prior training and knowledge levels, as well as between demographic characteristics (e.g., education level, years of experience) and knowledge or practice outcomes.

Similarly, practice scores were subjected to rigorous analysis. Individual responses were entered and computed to derive mean scores, both overall and by category. The distribution of scores across categories was carefully examined to assess the significance of each item. The Pearson chi-square test was also used to explore the associations between practice-related variables and early detection of hypertension among nurses. This statistical test provided valuable insights into the efficacy of current practices and allowed for the identification of any significant relationships between nurses' practices and demographic factors.

Ethical Considerations

Ethical considerations were paramount in ensuring the well-being and rights of participants in this study. As a researcher, I was committed to upholding ethical principles throughout the research process. Informed consent was a foundational element, ensuring that every participant comprehended the study's purpose, procedures, risks, and benefits before agreeing to participate. Detailed and transparent information was provided to participants during the recruitment process, ensuring they could make an informed decision. Written consent was obtained from all participants to confirm their voluntary involvement.

Confidentiality and anonymity were key aspects of the ethical approach. Confidentiality was maintained by employing coding and anonymization techniques, where participants were assigned identification numbers rather than using names. This ensured that

the data could not be traced back to individual participants. Access to identifiable information was restricted to authorized personnel only. All data collected was used exclusively for the purposes of this study and was securely stored in compliance with ethical guidelines.

To further safeguard anonymity, the research procedures were explained to participants before they took part, and their informed consent was obtained. Participants were assured that their responses would be kept confidential and that no personal identifiers would be included in the research results. The use of identification codes (e.g., A, B) ensured that responses could not be easily linked to individual participants by a third party.

Non-maleficence guided my commitment to ensuring the safety and well-being of participants. Efforts were made to minimize any potential harm, discomfort, or risks associated with participation. This included framing questions in a sensitive manner and ensuring that participation was voluntary. The study was designed in a way that minimized risks, and participants were informed that they could withdraw from the study at any time without any negative consequences.

Respect for autonomy and cultural norms was central to the study. I respected the autonomy of participants by ensuring they were free to make decisions regarding their involvement in the study. Cultural sensitivity was also a priority, and care was taken to ensure that the study was conducted in a culturally appropriate manner. This included respecting participants' backgrounds and ensuring that the questions posed were culturally relevant and non-invasive.

Data security was a key focus throughout the study. I adhered to all relevant ethical guidelines and regulations concerning data management. Stringent security measures, including password protection and encrypted storage, were employed to ensure the data was protected from unauthorized access. Data was only accessed and analyzed by trained research personnel.

Additionally, I ensured that all research assistants involved in the study were fully trained on ethical considerations and understood the importance of maintaining confidentiality, ensuring voluntary participation, and upholding participant rights. Participants were reassured that their involvement would not adversely affect them in any way and that their information would remain confidential.

The study was conducted with fairness and equity in mind. Efforts were made to ensure the equitable distribution of benefits and burdens, ensuring that all participants were treated with respect and dignity. Inclusivity was emphasized, and the benefits of the study, including the potential to improve hypertension detection practices among nurses, were communicated clearly.

Benefits

The benefits of the study included contributing valuable insights into hypertension detection practices, which could ultimately improve patient care and health outcomes. By identifying gaps in knowledge and practices, this study has the potential to inform future training and interventions for healthcare professionals.

Risks

Potential risks included breaches of confidentiality, discomfort, or embarrassment from answering sensitive questions. These risks were minimized by employing strict confidentiality protocols, ensuring voluntary participation, and carefully wording questions to avoid discomfort.

Social or Cultural Issues

Cultural sensitivity was a priority throughout the study. Efforts were made to ensure that the study was conducted in a culturally appropriate manner, respecting participants' cultural norms and values, which helped foster a respectful and inclusive environment.

Conflict of Interest

There were no conflicts of interest in this study. The research was self-sponsored and conducted as part of the requirements for the completion of a Master's Degree in Nursing Science at Uganda Christian University. The study was undertaken with full transparency and with the goal of advancing knowledge in the field of hypertension detection.

Limitations

This study has several limitations that may influence the interpretation and generalizability of its findings. First, the sample size was relatively small, consisting of only fifty-three nurses from selected Health Center IVs in Central Uganda. This limited number may not fully capture the diversity and complexity of the broader nursing workforce in Uganda, thus limiting the external validity of the study. Furthermore, the study setting was restricted to Health Center IVs, a specific level within Uganda's healthcare system.

Therefore, the findings may not be applicable to higher-level facilities such as district hospitals or lower-level units like Health Center IIIs, where staffing structures, patient volumes, and hypertension management practices may differ.

Additionally, the facilities were selected using non-probability sampling, which may have introduced selection bias. This limitation affects the representativeness of the results and weakens their general applicability to all Health Center IVs across the country. The geographic scope of the study-limited to Central Uganda-also restricts the relevance of findings to other regions, which may differ in healthcare infrastructure, resource allocation, training opportunities, or patient demographics.

Another key limitation lies in the reliance on self-reported data collected through structured questionnaires. This method may be prone to social desirability bias, where respondents provide answers, they believe are expected or acceptable rather than reflecting their actual knowledge or practices. In addition, the study did not include direct observation or objective assessment of clinical practices, which limits the ability to validate self-reported data.

Another notable limitation of this study was the inclusion of nurses from different departments—such as Anti-Retroviral Therapy (ART), Neonatal Intensive Care Unit (NICU), and Outpatient Departments (OPD)—without stratified analysis. These departments vary significantly in their roles and exposure to hypertension cases. Mixing responses from nurses with different levels of involvement in hypertension detection may have introduced bias, reducing the precision of the findings.

Summary

The research methodology outlined in chapter three includes key sections such as study design, population, study setting, sampling, selection criteria, and data collection steps. Furthermore, the chapter contains information about the questionnaire, validity and reliability measures, data analysis, and ethical implications.

Chapter Four: Presentation of Results

This chapter discusses the findings of the data collected about participants' demographics characteristics, their knowledge and practices regarding the early detection of hypertension. As soon as data was collected, it was entered into SPSS (version 23) for analysis. Each section in the questionnaire was analyzed separately looking at the performance of the participants on each question. The study utilized questionnaires targeting both current outpatient department nurses and those with previous rotation experience at selected Health Center IVs in Central Uganda, totaling to a sample size of 53.

Demographic characteristics of respondents

The participants of this study comprised fifty-three nurses from selected Health Center IVs in Central Uganda, and their demographic and professional characteristics are presented in Table 1 below. The dominant age group was 19–29 years, comprising 54.7% of the sample (95% CI: 40.9–67.9), reflecting a predominantly young workforce. This age distribution suggests that many of the nurses may have limited professional experience, potentially impacting their ability to effectively manage hypertension cases.

In terms of gender distribution, the respondents were predominantly female (58.5%) (95% CI: 44.5–71.3). This gender imbalance is typical of the nursing profession in Uganda and may influence workplace dynamics and the implementation of hypertension management practices.

Most respondents (64.1%) worked in the Outpatient Department (95% CI: 50.0–76.2), the primary focus of this study. This high concentration of respondents in outpatient care aligns with the study's emphasis on early hypertension detection and management.

Other departments included Maternal Child Health (20.8%) (95% CI: 11.7–34.2), Anti-Retroviral Therapy Clinic (5.7%) (95% CI: 0.9–14.5), Neonatal Intensive Care Unit (1.9%) (95% CI: 0.2–12.9), and other departments such as general or unspecified units (9.4%) (95% CI: 3.9–21.3).

Educational qualifications among respondents varied, with 47.2% holding an Enrollment Certificate in Nursing (95% CI: 32.1–59.1), representing the minimum professional training required for the role in Uganda. Additionally, 30.2% had a Diploma in Nursing (95% CI: 20.6–46.2), while 22.6% held a Bachelor's Degree (95% CI: 13.1–36.3), reflecting a blend of foundational and advanced training. This educational distribution may influence nurses' competency in handling complex conditions such as hypertension.

Work experience data revealed that 47.2% of respondents had 1–5 years of professional experience. (95% CI: 13.1 – 36.3). Specialized training in hypertension management was reported by 49.1% of respondents (95% CI: 35.6–62.7), while 50.9% (95% CI: 37.3–64.4) had not received such training. Among those trained, half (50.0%) had completed their training within the last 1–5 years, with 42.4% receiving training less than a year prior. However, training sources varied, with 34.6% (95% CI: 19.3 – 54.6) of respondents receiving hypertension management training during formal education.

Table 2: *Demographic Characteristics of Nurses Participating in Early Hypertension Detection Study (N = 53)*

Demographic Characteristics	**Frequency(f)**	**Percentage (%)**	**95% C.I**

Age (years)			
19-29	29	54.7	40.9 – 67.9
30-39	13	24.5	14.5 – 38.3
40-49	7	13.2	6.3 – 25.7
50-59	4	7.6	2.8 – 19.0
Gender			
Male	22	41.5	28.7 – 55.5
Female	31	58.5	44.5 – 71.3
Department			
Out-patient department	34	64.1	50.0 – 76.2
Maternal Child-Health (MCH)	10	18.9	11.7 – 34.2
Anti-Retroviral Therapy Clinic	3	5.7	0.9 – 14.5
Neonatal Intensive Care Unit	1	1.9	0.2 – 12.9
Others	5	9.4	3.9 – 21.3
Highest level of education			
Enrollment Certificate in Nursing	25	47.2	32.1 – 59.1
Diploma in Nursing	16	30.2	20.6 – 46.2
Bachelor’s Degree	12	22.6	13.1 – 36.3
Years of experience in healthcare			
1–5 years	12	22.6	13.1 – 36.3
6–10 years	28	52.8	39.1 – 66.2
11–15 years	4	7.5	2.8 – 18.9
16–20 years	4	7.5	2.8 – 18.9

Above 20 years	5	9.4	3.9 – 21.3
Training on Hypertension Diagnosis			
No	27	50.9	37.3 – 64.4
Yes	26	49.1	35.6 – 62.7
Period spent in the above training			
Less than 1 year	11	42.4	24.9 – 61.6
1–5 years	13	50.0	31.6 – 68.4
6–10 years	1	3.8	0.5 – 23.5
Above 20 years	1	3.8	0.5 – 23.5
Training Source			
Training School	9	34.6	19.3 – 54.6
Workshop	5	19.3	8.5 – 38.0
Health Unit CMEs	9	34.6	19.3 – 54.6
On-site Mentorship	3	11.5	3.1 – 30.4

Source: *Primary data*

Knowledge of nurses about early detection of hypertension in the selected outpatient department of Health Center IVs in Central Uganda

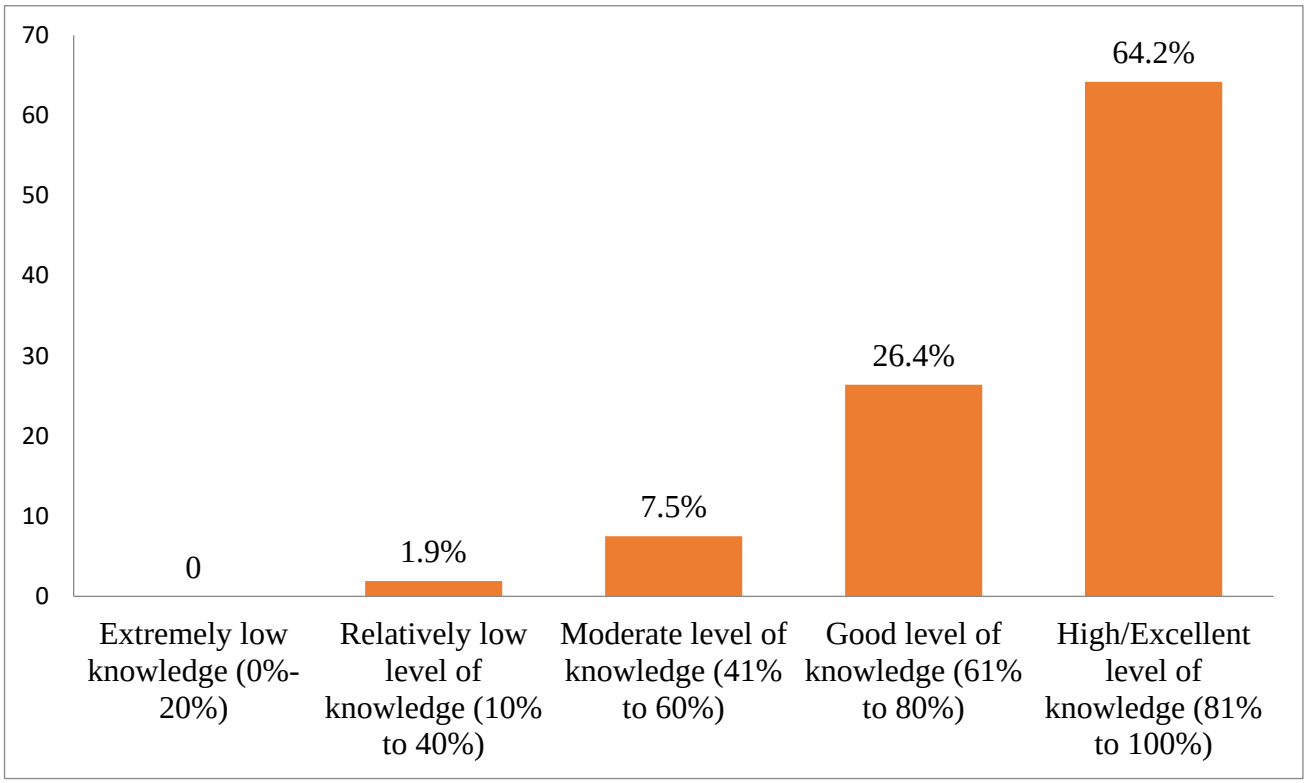
Figure 2 summarizes respondents' responses on the knowledge of nurses about early detection of hypertension in the selected outpatient department of Health Center IVs in Central Uganda using raw scores and percentage scores of the 21 questions on this objective from the 53 respondents as shown in Appendix F. The comparison of nurses' knowledge about early detection of hypertension in Central Uganda revealed notable variations. Majority, 64.2% of the respondents, scored between 81% and 100%, categorizing them as

having high or excellent knowledge. This indicates that most nurses demonstrated a strong understanding of early hypertension detection. Additionally, 26.4% of the participants scored between 61% and 80%, reflecting a good level of knowledge. Together, these two categories suggest that nearly 90% of the nurses possessed at least good knowledge on the subject.

Conversely, only 7.5% of respondents scored between 41% and 60%, falling into the moderate knowledge category. Notably, 1.9% of the nurses exhibited a relatively low level of knowledge, with scores ranging from 10% to 40%. No participants were categorized as having extremely low knowledge (0%-20%). These findings highlight that while the majority of nurses were well-versed in hypertension detection, there remains a small subset with knowledge gaps that may require targeted training and education initiatives.

Figure 2: Comparison of Knowledge of Nurses about Early detection of hypertension

in Central Uganda



Source: *Primary data*

Specific Knowledge about Early detection of Hypertension

The performance on specific questions of Early detection of hypertension section describes how each participant performed in questions specific to Early detection of Hypertension, as reflected in Appendix G. The performance on specific questions assessing knowledge about early detection of hypertension highlights participants' strengths and weaknesses, as reflected in Appendix G. Participants demonstrated excellent knowledge in several areas, including identifying elevated blood pressure (96.3% correct responses), understanding factors determining blood pressure (92.4% correct), and recognizing blood pressure screenings for individuals (94.3% correct). The highest score was observed in identifying primary risk factors associated with early detection, where all participants

(100%) answered correctly. Other strong areas included understanding patient education (90.6% correct) and lifestyle factors contributing to hypertension risk (98.1% correct). These findings indicate that most nurses were well-versed in foundational and policy-related aspects of hypertension management.

However, areas of weakness were also evident. Poor knowledge was observed in identifying lifestyle factors related to hypertension risk (49.1% correct) and in the early identification of hypertension (69.8% correct). Notably, only 35.8% of participants correctly answered questions on screening and assessing patients, and understanding the consequences of early detection, highlighting significant gaps in practical application. Similarly, only 54.7% demonstrated knowledge about the principles of early detection.

Relationships Between Demographic Characteristics and Knowledge of Nurses About Early Detection of Hypertension

The influence of various demographic characteristics on nurses' knowledge levels about hypertension was analyzed using chi-square tests. Significant associations were found between knowledge levels and factors such as age, gender, department, highest level of education, years of experience in healthcare, and training on hypertension diagnosis.

For age, a significant association was observed between age groups and knowledge levels (Pearson chi2(6) = 42.516, p = 0.000). Nurses aged 19-29 years had a higher proportion of excellent knowledge (13 out of 29) compared to older age groups. In contrast, nurses in the 40-49 age group demonstrated a higher proportion of moderate knowledge (7 out of 7). This suggests that younger nurses were more knowledgeable about hypertension

detection, while older nurses may have needed further training or updates on current practices.

Regarding gender, the relationship between gender and knowledge levels was significant (Pearson chi2(2) = 10.094, p = 0.006). Female nurses had a larger proportion of good knowledge (20 out of 31) than male nurses, who tended to have more moderate knowledge (8 out of 22). This could indicate a gender-based difference in training access or engagement with professional development activities.

In terms of department, a significant association was found (Pearson chi2(8) = 42.891, p = 0.000). Nurses working in the Out-patient department exhibited the highest proportion of excellent knowledge (16 out of 34), while nurses in specialized departments, such as Anti-Retroviral Therapy and Neonatal Intensive Care, had lower knowledge levels. This finding suggests that the Out-patient department may offer more frequent training or exposure to hypertension detection.

For highest level of education, the chi-square test showed a significant relationship with knowledge levels (Pearson chi2(4) = 18.552, p = 0.001). Nurses with a Bachelor's Degree demonstrated the highest proportion of excellent knowledge (6 out of 12), while nurses with Enrollment Certificates had a higher proportion of moderate knowledge (11 out of 24). The results point to the importance of higher educational qualifications in enhancing knowledge about hypertension detection.

Years of experience in healthcare also influenced knowledge levels (Pearson chi2(8) = 17.053, p = 0.030). Nurses with 6-10 years of experience had a higher proportion of good knowledge (16 out of 28), while nurses with 1-5 years of experience had more

moderate knowledge levels (5 out of 12). This highlights the importance of practical experience in improving knowledge about hypertension.

Finally, training on hypertension diagnosis was a significant factor influencing knowledge levels (Pearson chi2(2) = 18.293, p = 0.000). Nurses who had received training on hypertension diagnosis showed a higher proportion of excellent knowledge (15 out of 26) compared to those who had not received training, who exhibited more moderate knowledge (10 out of 27). This underscores the critical role of targeted training in improving knowledge of hypertension detection.

Table 3: *Relationships Between Demographic Characteristics and Knowledge of Nurses towards Early Hypertension Detection Study*

Demographic Characteristic	**Response**	**Excellent Knowledge**	**Good Knowledge**	**Moderate Knowledge**	**Chi-Square**	**P-value**
Age	19-29 years	13	14	2	42.516	0.000
	30-39 years	2	11	0		
	40-49 years	0	0	7		
	50-59 years	2	0	2		
Gender	Female	8	20	3	10.094	0.006
	Male	9	5	8		

Department	Anti-Retroviral Therapy	0	0	2	42.891	0.000
	Maternal Child-Health	1	7	3		
	Neonatal Intensive Care	0	0	1		
	Others	0	0	5		
	Out-patient Department	16	18	0		
Highest Level of Education	Bachelor's Degree	6	6	0	18.552	0.001
	Diploma in Nursing	5	12	0		
	Enrollment Certificate	6	7	11		
Years of Experience in Healthcare	1-5 years	2	5	5	17.053	0.030

	6-10 years	7	16	5		
	11-15 years	4	0	0		
	16-20 years	3	1	0		
	Above 20 years	1	3	1		
Training on Hypertension Diagnosis	Yes	15	10	1	18.293	0.000
	No	2	15	10		

Practices of nurses towards early detection of hypertension in the selected outpatient department of Health Center IVs in Central Uganda

The practices section describes raw scores and categories for practice questions about early detection and management of hypertension. It also includes an analysis of participants' performance on each question. The practice scores of the participants for early hypertension detection by category are presented in Table 3. Individual raw scores for each practice question are detailed in Appendix H. About 3.77% of participants demonstrated good practice, while 37.74% exhibited poor practice. A significant proportion, 58.49%, were categorized as having very poor practice, indicating critical gaps in adherence to recommended guidelines for hypertension early detection.

Table 4: *Comparison of Practices of Nurses about Early detection of hypertension in Central Uganda (N = 53)*

Practices Level	Frequency (f)	Percent (%)
Good Practice (> 3.00)	2	3.77
Poor Practice (2-3)	20	37.74
Very Poor Practice (< 2)	31	58.49

Performance of Practice Questions

The performance of practice questions section describes analysis of each practice statement. When analyzing the performance of the participants on each practice statement, (Appendix I), participants reported excellent practice in several areas, particularly routine blood pressure screenings (mean score = 3.11), monitoring patients' blood pressure during health facility visits (mean score = 3.05), and adhering to the latest guidelines for hypertension detection and monitoring (mean score = 3.00). Counseling patients on lifestyle modifications was another strength, with 45.3% of participants strongly agreeing that they performed this practice (mean score = 3.15). Similarly, participants excelled in ensuring hypertensive patients received regular follow-ups and in collaborating with healthcare teams.

Despite these strengths, poor practices were observed in certain domains. For instance, the use of blood pressure devices before taking patient readings scored a mean of 2.74, indicating insufficient adherence. Identifying patients with elevated readings and those

with undiagnosed hypertension were other areas of concern, with mean scores of 2.87 and 2.94, respectively. Moreover, the care of hypertensive patients (mean score = 2.99) and identifying individuals already diagnosed with hypertension for regular follow-ups showed room for improvement. These findings suggest a need for targeted interventions to reinforce best practices, particularly in identifying and managing elevated readings and undiagnosed hypertension.

Relationships Between Demographic Characteristics and Practices of Nurses About Early Detection of Hypertension

The analysis of the relationship between demographic characteristics and practices related to the early detection of hypertension revealed interesting findings based on the chi-square tests for independence. The demographic factors examined included age, gender, department, highest level of education, years of experience in healthcare, and prior training in hypertension diagnosis. The results are summarized in the table below.

The chi-square test for the relationship between age groups and practices of nurses showed no significant association (Pearson chi2 = 10.417, p = 0.108). The distribution of practice levels across age groups was as follows: the majority of nurses in the 19-29 age group reported "very poor" practices (21 out of 29), which was similar to trends seen in other age groups, but no significant difference was found between the age groups regarding their practice levels.

The analysis of gender differences in practices revealed no significant relationship (Pearson chi2 = 0.081, p = 0.961). Both male and female nurses showed similar distributions across the practice levels, with a higher number of nurses reporting "very poor" practices

(18 females and 13 males), indicating a widespread issue with practice adherence across genders.

The chi-square test for the relationship between department and practices showed no significant association (Pearson chi2 = 14.328, p = 0.074). Nurses in the outpatient department had a higher number of "very poor" practices (20 out of 34), while nurses in departments like Maternal Child Health and Anti-Retroviral Therapy showed varying levels of practice, but no significant differences emerged across departments.

The highest level of education was found no significant relationship with the practices of nurses (Pearson chi2 = 9.554, p = 0.049). Nurses with a Bachelor's degree had a higher proportion of "good" practices (1 out of 12) compared to those with a diploma or certificate. Nurses with lower educational levels tended to report poorer practices, particularly those holding enrollment certificates, who predominantly exhibited "very poor" practices (15 out of 24).

The chi-square test for years of experience in healthcare revealed no significant relationship with practice levels (Pearson chi2 = 10.886, p = 0.208). The distribution of practices among different experience levels varied, but no clear trend emerged that could explain the differences.

Lastly, the analysis showed no significant relationship between training on hypertension diagnosis and practices (Pearson chi2 = 0.013, p = 0.993). Both groups, those with training and those without, exhibited similar practice patterns, with a high number of nurses reporting "very poor" practices, which highlights a possible gap in training effectiveness or other factors influencing practice behavior.

Table 5: *Relationships Between Demographic Characteristics and Practices of Nurses towards Early Hypertension Detection Study*

Demographic Characteristic	Response	Good Practice	Poor Practice	Very Poor Practice	Chi-Square	P-value
Age	19-29 years	1	7	21	10.417	0.108
	30-39 years	1	6	6		
	40-49 years	0	3	4		
	50-59 years	0	4	0		
Gender	Female	1	12	18	0.081	0.961
	Male	1	8	13		
Department	Anti-Retroviral Therapy	0	0	2	14.328	0.074
	Maternal Child-Health	0	2	9		
	Neonatal Intensive Care	0	1	0		
	Others	0	5	0		

	Out-patient Department	2	12	20		
Highest Level of Education	Bachelor's Degree	1	8	3	9.554	0.049
	Diploma in Nursing	1	3	13		
	Enrolment Certificate	0	9	15		
Years of Experience in Healthcare	1-5 years	0	3	9	10.886	0.208
	6-10 years	1	11	16		
	11-15 years	0	1	3		
	16-20 years	1	1	2		
	Above 20 years	0	4	1		
Training on Hypertension Diagnosis	Yes	1	10	15	0.013	0.993
	No	1	10	16		

Summary

Chapter four highlighted the findings on nurses' knowledge and practices regarding the early detection of hypertension in outpatient departments of Health Center IVs in Central Uganda. The majority of nurses demonstrated strong knowledge in key areas such as identifying hypertension risk factors, understanding blood pressure monitoring guidelines, and educating patients on lifestyle modifications. However, gaps were observed in applying practical skills, particularly in using blood pressure devices, identifying undiagnosed cases, and ensuring regular follow-ups for hypertensive patients. Chapter five was a discussion of findings, recommendations, and conclusion.

Chapter Five: Discussion, Summary, Conclusion and Recommendations

This chapter includes the discussion of findings in relation to the literature. It also summarizes all findings reported in chapter four according to questions of the study, draws conclusions, suggests recommendations and also proposes some areas for further study.

Knowledge of Nurses about Early Detection of Hypertension in the selected outpatient department of Health Center IVs in Central Uganda

This study sought to evaluate the knowledge of nurses regarding the early detection of hypertension in the selected outpatient departments of Health Center IVs in Central Uganda. The findings reveal a generally strong level of knowledge among nurses, particularly in understanding the basics of hypertension detection. However, significant gaps in the practical application of this knowledge were identified, which have important implications for nursing practice and patient care.

A substantial proportion of nurses demonstrated a solid understanding of core concepts related to hypertension detection, such as recognizing risk factors and conducting blood pressure screenings. These results align with previous studies that emphasize the importance of well-structured educational programs in enhancing healthcare providers' knowledge of hypertension management (Akter & Hadi Suhag, 2020). Nurses in the outpatient department, where hypertension detection is critical, showed higher levels of knowledge compared to those in other departments, highlighting the relevance of their work environment to their understanding.

Despite strong theoretical knowledge, there were notable gaps in the practical application of this knowledge, particularly in early hypertension identification and the

principles of its detection. While many nurses were aware of hypertension's risk factors, fewer demonstrated competence in areas such as lifestyle factor identification and patient screening. This discrepancy between knowledge and practice suggests that while nurses understand the importance of hypertension detection, translating this knowledge into routine clinical practice remains a challenge. As noted in previous research (Chatziefstratiou et al., 2021), knowledge gaps can persist even with adequate theoretical training, requiring further practical interventions to bridge this divide.

The study also explored how demographic characteristics influenced nurses' knowledge of early hypertension detection. Younger nurses, particularly those aged 19-29 years, exhibited higher knowledge levels. This finding aligns with Ekong et al. (2015), which suggested that younger healthcare professionals are more likely to stay updated with medical practices. In contrast, older nurses (40-49 years) demonstrated lower knowledge levels, indicating that ongoing professional development may be necessary to help them keep up with evolving best practices, as suggested by Amsalu et al. (2021).

Gender differences were also observed, with female nurses showing a higher level of knowledge. This could be attributed to better access to training opportunities or higher engagement in professional development activities, as noted by Ekong et al. (2015). These gender dynamics warrant further investigation, particularly regarding how they influence access to continuing education and career progression within nursing.

Educational qualifications were another key factor, with nurses holding a Bachelor’s Degree showing the highest levels of knowledge. This finding supports research by Okuonzi et al. (2023), which found that higher education is correlated with better

knowledge retention and application in healthcare settings. Nurses with diplomas or certificates had moderate knowledge, indicating that foundational education may not provide the depth required for complex topics like early hypertension detection.

The knowledge gaps identified in this study underscore the need for targeted training programs focusing on practical skills like patient screening, recognizing modifiable risk factors, and lifestyle counseling. While nurses in the study were knowledgeable about the theoretical aspects of hypertension detection, the practical application of this knowledge is essential for effective hypertension management in clinical settings. As highlighted by Hannan et al. (2022), nursing education should emphasize hands-on training to ensure that healthcare workers can apply their knowledge effectively.

The demographic trends observed-such as the higher knowledge levels among younger nurses and those with higher educational qualifications-suggest that training programs should be tailored to address the specific needs of different nurse groups. For instance, refresher training programs might be more beneficial for older nurses, while more in-depth, advanced training could be designed for those with certificates or diplomas.

From a broader public health perspective, improving nurses' practical skills in early hypertension detection is crucial for reducing hypertension-related complications in Uganda. Nurses play a pivotal role in managing chronic diseases like hypertension, and improving their knowledge and practical skills can have a direct impact on patient outcomes. The findings suggest that policymakers and healthcare administrators should prioritize continuous professional development programs that focus on both theoretical knowledge and practical application. Such efforts will help bridge the gap between

knowledge and practice, ultimately leading to better hypertension management and improved healthcare delivery in Uganda.

Practices of nurses towards early detection of hypertension in the selected outpatient department of Health Center IVs in Central Uganda

The second objective of this study was to describe the practices of nurses in the early detection of hypertension in outpatient departments at Health Center IVs in Central Uganda. The findings show that while nurses are strong in areas like routine blood pressure screenings and patient counseling, there are clear gaps in other important practices, especially when it comes to device calibration, identifying patients with elevated readings, and providing guidance for those with undiagnosed hypertension.

Nurses self-reported good practices in routine blood pressure screenings and providing lifestyle counseling, which aligns with findings from Akter and Suhag (2020) and Guirguis-Blake et al. (2021), who highlighted the importance of these practices in managing hypertension effectively. These aspects are likely emphasized in nurse training programs, leading to good performance in these areas. However, despite these positive outcomes, there are still notable gaps in essential practices, such as proper calibration of devices and timely patient referral, both of which are key to ensuring accurate diagnoses and effective treatment.

The study found that while nurses excelled in screenings and patient counseling, they struggled with areas like the calibration of blood pressure devices and identifying patients with elevated readings. This lack of proficiency could be due to limited hands-on training in these specific tasks. While theoretical knowledge is emphasized, there seems to

be insufficient practical training in calibration, patient referrals, and identifying undiagnosed hypertension. Musiguzi et al. (2018) pointed out similar systemic challenges in training healthcare workers in Uganda.

A particularly surprising finding was that over half of the nurses (58.49%) exhibited very poor practices in early hypertension detection, particularly in identifying and referring patients with elevated blood pressure readings. This anomaly may be attributed to a lack of ongoing professional development, inadequate clinical supervision, and insufficient support in implementing hypertension detection practices. This suggests that, despite nurses having foundational knowledge, the application of that knowledge is hindered by practical and systemic barriers.

Several factors contributed to the observed gaps in practices. Limited resources, such as inadequate blood pressure monitoring equipment, and high patient loads, likely hindered nurses' ability to perform thorough assessments. These findings are consistent with Malotle et al. (2017), who noted that even well-trained healthcare workers in resource-constrained settings struggle to implement best practices due to systemic challenges. Additionally, the age and experience of nurses played a role in their practical application of knowledge. Younger nurses, despite possessing better theoretical knowledge, faced challenges in applying it due to limited experience and resource constraints. Conversely, older nurses, despite their experience, faced challenges in applying modern practices, possibly due to outdated knowledge or a lack of refresher training.

The department in which nurses worked also influenced their practices. Nurses in the OPD, who had more exposure to hypertension-related cases, were more likely to adhere

to hypertension detection practices. This could be attributed to the higher frequency of training in the OPD and more direct patient encounters. In contrast, nurses in specialized departments, such as ART and NICU, had lower adherence to hypertension detection practices, possibly due to less exposure and a lack of specific training in these areas.

A significant barrier to improving practices was the lack of additional training after initial qualification. Many nurses had not received ongoing, targeted training in hypertension detection, which is essential for keeping up with current guidelines and best practices. Malotle et al. (2017) also emphasized that continuous professional development is crucial for ensuring that healthcare workers can apply up-to-date practices in their clinical work. Without regular training, nurses may struggle to implement the latest hypertension detection techniques, potentially leading to suboptimal care and missed diagnoses.

The findings underscore the urgent need for targeted interventions to address gaps in practice, particularly in device calibration, timely referral of patients with elevated readings, and guidance for individuals with undiagnosed hypertension. Strengthening practical training through workshops, simulations, and mentorship programs is essential to bridge divide between theoretical knowledge and its practical application. Furthermore, healthcare facilities should establish regular supervision and performance evaluations to promote adherence to best practices.

Enhanced training in device calibration, referral protocols, and the identification of undiagnosed hypertension is crucial to reducing missed diagnoses and improving patient outcomes. As Bera et al. (2023) highlight, integrating these practices into routine care is essential for effective hypertension management. Establishing a system of continuous

education and feedback would further ensure that nurses consistently apply these guidelines in daily practice.

In summary, while nurses in Central Uganda demonstrate strong practices in certain aspects of early hypertension detection, such as routine screenings and lifestyle counseling, significant gaps remain in key areas like device calibration and patient referral. Addressing these gaps through targeted training, ongoing professional development, and consistent support will enhance the quality of hypertension care and contribute to improved health outcomes for patients. The study highlights the importance of translating theoretical knowledge into consistent clinical practice through practical training and continuous professional development.

Limitations and Policy Implications

This study has several limitations that may influence the interpretation and generalizability of its findings. First, the sample size was relatively small, consisting of only fifty-three nurses from selected Health Center IVs in Central Uganda. This limited number may not fully capture the diversity and complexity of the broader nursing workforce in Uganda, thus limiting the external validity of the study. Furthermore, the study setting was restricted to Health Center IVs, a specific level within Uganda's healthcare system. Therefore, the findings may not be applicable to higher-level facilities such as district hospitals or lower-level units like Health Center IIIs, where staffing structures, patient volumes, and hypertension management practices may differ.

Additionally, the facilities were selected using non-probability sampling, which may have introduced selection bias. This limitation affects the representativeness of the

results and weakens their general applicability to all Health Center IVs across the country. The geographic scope of the study-imited to Central Uganda-also restricts the relevance of findings to other regions, which may differ in healthcare infrastructure, resource allocation, training opportunities, or patient demographics.

Another key limitation lies in the reliance on self-reported data collected through structured questionnaires. This method may be prone to social desirability bias, where respondents provide answers they believe are expected or acceptable rather than reflecting their actual knowledge or practices. In addition, the study did not include direct observation or objective assessment of clinical practices, which limits the ability to validate self-reported data.

Conclusion

In conclusion, this study aimed to describe the knowledge and practices of nurses towards early detection of hypertension in the selected outpatient departments of Health Center IVs in Central Uganda. The findings reveal that nurses possess a high level of knowledge, with 64.2% demonstrating excellent understanding of hypertension detection, and nearly 90% scoring at least in the good knowledge category. This highlights the success of educational initiatives in raising awareness. However, significant gaps were observed, with 58.49% of nurses exhibiting suboptimal practices in critical areas such as blood pressure measurement and patient counselling. These results underscore the urgent need for targeted training and mentorship programs to bridge the gap between knowledge and practice, ultimately enhancing hypertension detection and management in Uganda.

Recommendations

It is recommended that routine practical training sessions on hypertension detection be incorporated into continuing education programs for nurses. While nurses generally possess strong theoretical knowledge, significant gaps in practical skills such as blood pressure measurement and device calibration were identified. Hands-on training focused on the accurate use of blood pressure measurement devices and adherence to national hypertension management guidelines will equip nurses to improve their practical skills, ensuring better detection and management of hypertension in Uganda.

It is crucial to ensure that blood pressure devices are routinely calibrated to enhance the accuracy of hypertension detection. The study found that improper calibration could compromise the reliability of readings and lead to misdiagnosis. Health Center IVs should allocate resources for regular calibration and provide staff with training on the importance of calibration, which will lead to more accurate measurements and improve patient care.

There is a need to enhance nursing education on modifiable lifestyle factors that contribute to hypertension risk, such as diet, physical activity, and stress management. Nurses should receive more comprehensive training on these factors to better educate patients on lifestyle changes that can prevent and manage hypertension. By strengthening nurses' ability to discuss and promote lifestyle modifications, they can help reduce the hypertension burden in the community.

To ensure the consistent application of hypertension detection practices, mentorship programs should be implemented where senior nurses guide and supervise

junior nurses, particularly in areas like blood pressure measurement, device calibration, and patient counseling. Establishing a mentorship system will provide junior nurses with the support they need to improve their practical skills and ensure adherence to best practices in hypertension management.

Hypertension management should be formally integrated into the national nursing curriculum to ensure that all nurses are equipped with the necessary skills and knowledge for early detection and management. By advocating for policy changes that include comprehensive training on hypertension detection, lifestyle interventions, and device calibration, the quality of care provided by nurses across Uganda can be significantly improved.

To ensure successful implementation of these recommendations, it is essential to prioritize immediate training on hypertension detection and device calibration, followed by the integration of ongoing professional development programs. A national strategy should be developed to incorporate these practices into nurse education and workplace routines. Collaboration between healthcare administrators, nursing educators, and public health experts will be key to executing these plans and ensuring sustained improvements in hypertension management.

Study Relevance

The relevance of this study extends beyond the findings themselves, shedding light on broader healthcare challenges. It underscores the dual challenge of ensuring nurses have both the theoretical knowledge and practical skills necessary for effective hypertension detection. Although many nurses displayed a high level of knowledge in the study,

significant gaps in practical application were observed. Addressing these gaps through targeted training and resource allocation can have a substantial impact on reducing the prevalence of undiagnosed hypertension in Uganda.

This study also demonstrates the importance of continuous professional development for healthcare workers and highlights the need for ongoing investment in education and infrastructure to improve hypertension management. By addressing these issues, healthcare providers will be better positioned to provide more accurate diagnoses and implement effective prevention and treatment strategies, ultimately contributing to improved patient outcomes and a reduction in the healthcare burden caused by hypertension.

Areas for Further Research

Given the scope of this study, which explored the knowledge and practice of nurses towards early detection of hypertension in outpatient departments of Health Center IVs in Central Uganda, further research is recommended in the following areas:

Future research should investigate the long-term impact of educational interventions on nurses' knowledge and practices related to hypertension detection. Longitudinal studies comparing different training formats, such as hands-on workshops versus online learning modules, could help identify the most effective strategies for improving professional development and ensuring sustained improvements in hypertension management.

Research should focus on identifying the barriers that prevent nurses from consistently applying best practices in critical areas like equipment calibration and patient referrals. Understanding the systemic, organizational, and resource-related challenges can

guide the development of targeted interventions to improve these practices and ensure accurate hypertension detection.

Further studies should explore the impact of collaboration between different healthcare professionals (nurses, doctors, allied health workers) on the effectiveness of early hypertension detection and patient outcomes. Examining how teamwork and communication influence decision-making and care delivery could help shape policies and practices to foster more integrated healthcare teams.

Investigating the relationship between resource availability (e.g., maintenance of medical equipment, financial support) and the quality of hypertension management would provide valuable insights. Such studies could highlight the importance of resource allocation and advocate for improvements in healthcare infrastructure, ultimately contributing to better hypertension detection and patient care.

To assess the generalizability of the findings, similar studies should be conducted in different geographical regions or healthcare settings (e.g., Health Center IIIs, referral hospitals). This would help to determine if the challenges and practices identified in this study are consistent across different environments, thereby broadening the understanding of hypertension detection and management in various contexts.

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Appendices

Appendix A: Consent Form for Participants

Title of research study: Knowledge and Practice of Nurses towards Early Detection of Hypertension in Out-Patient Department of Health Center IVs in Central Uganda

Principle investigator, contact information and affiliation**:** I am Veronica Kagasa a student at Uganda Christian University, and I am conducting this study in partial fulfillment for the requirements for award of Master's Degree of Science in Nursing of Uganda Christian University, Mukono. Tel: +256772301986/+256701081235, email: veronicakagasa@gmail.com

Supervisors: My supervisors are: Dr. Karen Drake Tel; +1(763)242-5695 email address:drakar@bethel.edu, Dr. Grace Nakate Tel; +256-772439526; email address: gracentale@gmail.com and Dr. Ketty Holt email:ketty.m.holt@gmail.com

Introduction and purpose of study: Early detection of hypertension holds significant importance in mitigating its effects and enhancing patient outcomes. Despite this, in Uganda, hypertension prevalence rates are estimated between 22.5% to 30.5%, coupled with notably low detection rates (Katende, 2014). Remarkably, there remains a gap in research assessing the

knowledge and practices of nurses concerning early detection of Hypertension. Thus, this study aims to clarify the understanding and methodologies employed by nurses in the early detection of hypertension within the outpatient departments of Health Centre IVs in Central Uganda**.**

Description of the research: This study, employing a descriptive approach, aims to explore the knowledge and practices of nurses regarding the early detection of hypertension in the outpatient departments of Health Centre IVs in Central Uganda. Data collection will involve the utilization

of a structured questionnaire designed to gather information on participants' understanding and implementation of hypertension detection protocols.

Subject participation: You are being invited to take part in this study as a nurse working in HCIV, leveraging your valuable knowledge and experience in the early detection of hypertension. Your participation may involve completing a questionnaire, participating in interviews, or both, depending on your availability and preference. These contributions are crucial for gaining insights into the subject matter and advancing knowledge in the field.

Potential benefits: While there is no direct benefit to individuals participating in this study, the findings hold significant potential to benefit various stakeholders:

Nursing Profession: The study's results can offer valuable insights into the current knowledge and practices of nurses concerning the early detection of hypertension. This understanding can lead to improved training programs and guidelines for nurses, enhancing their ability to recognize hypertension early and initiate appropriate interventions. Given that nurses in outpatient departments often serve as the initial point of contact for patients, this knowledge can positively impact patient care outcomes.

Healthcare institutions: Early detection and management of hypertension can mitigate its progression to severe complications such as heart disease, stroke, or kidney failure. By implementing the findings of this study, healthcare institutions can develop strategies to enhance hypertension screening and management protocols, thereby improving patient outcomes and overall quality of care.

Policy implications:

Policy makers: The study findings can inform policy makers in developing policies aimed at promoting preventive care and addressing the burden of non-communicable diseases like hypertension. Policies that prioritize hypertension screening programs, allocate resources for healthcare worker training, and ensure the availability of essential diagnostic tools and medications are essential for effective hypertension management at the primary care level.

Education initiatives: Education and Awareness: The study can contribute to raising awareness about hypertension, its risk factors, and the importance of regular blood pressure monitoring. By empowering nurses and patients with knowledge about hypertension detection and control, education programs can lead to improved health outcomes at the community level. Educated patients are more likely to engage in proactive health management practices, leading to better overall health and reduced healthcare costs.

Potential risks and discomforts: There is no anticipated risk by participating in this study.

Reimbursement: Reimbursement: Participants will receive compensation for their time and commitment.

Confidentiality: Your privacy is of utmost importance to us. No personal information such as your address, contact details, or real names will not be needed. All data collected was assigned a code, ensuring that it cannot be traced back to you. Only the researcher, statistician, and, if necessary, the supervisor will have access to aggregated participant data. Additionally, all personally identifiable information was removed from the questionnaire to preserve confidentiality. The questionnaire was securely stored and accessed only by authorized personnel. Any information published was presented in aggregate form, ensuring anonymity for all

participants. After the completion of the study, all data was retained for a specified period according to institutional guidelines and was disposed of securely to maintain confidentiality.

Contact information for ethical concerns or to withdraw consent:) Contact information for ethical concerns or to withdraw consent: If you have any ethical concerns regarding this study or wish to withdraw your consent, please feel free to contact the Research Ethics Committee (RECs) at Uganda Christian University. They are available to address any questions or issues you may have regarding the ethical conduct of this research. MUGABI, H. (2008). The role of religiously affiliated universities in the provision of higher education in Uganda: A case study of Uganda Christian University (UCU) (Master's thesis).

Authorization statement: I have read this consent form and I agree to be a participant in this study. I have been given the opportunity to ask questions regarding the study, and I have received answers to my questions. I acknowledge that I am aware of what this study involves, that I am at least 18 years old, and that I have received a copy of this Informed Consent form.

Signature lines and dates for:

Name of the Participant..... Signature..... Date.....

Researcher..... Signature..... Date.....

Appendix B: Questionnaire

Section A: Demographic characteristics of participants

Instructions

This questionnaire is designed for assessing the knowledge and practices of nurses about early detection of hypertension. Please read each question carefully and select the best answer that reflects your knowledge and practices. Your responses was kept confidential and anonymous. Thank you for your time and participation.

Section A: Demographic information

1. **What is your age**? ..... (Years)

2. What is your gender?

a) Male

b) Female

3) Which department do you work in?

a) Out-patient department

b) Maternal Child Health (MCH)

c) Anti-Retroviral therapy clinic

d) Neonatal Intensive Care Unit

e) Other (please specify) …….

4) What is your highest level of education?

a) Enrolment Certificate in Nursing

b) Diploma in Nursing

c) Bachelor's Degree

d) Master's Degree or higher

5) How many years of experience do you have in healthcare? .....

6) Have you ever obtained training or certification in hypertension diagnosis and management?

a) No

b) Yes

If yes:

7) How long ago did you obtain the training in no. 6 above? ……..

8) Where did you attend the training from?

a) Training school

b) Workshop

c) Health Unit CMEs

d). On-site training (Mentorship) by health workers from the Central region

Section B: Knowledge about hypertension early detection

9) What is elevated blood pressure?

a) Systolic blood pressure of 120 mmHg or higher and diastolic blood pressure of 80 mmHg or greater.

b) Systolic blood pressure of 90 mmHg or higher and diastolic blood pressure of 60 mmHg or greater.

c) Systolic blood pressure of 140 mmHg or higher and diastolic blood pressure of 90 mmHg or greater.

d) Systolic blood pressure of 100 mmHg or higher and diastolic blood pressure of 70 mmHg or greater.

10) Which factors are considered in determining an individual's blood pressure category?

a) Age and gender.

b) Blood pressure readings.

c) Weight and height.

d) Dietary habits.

11) How many separate blood pressure readings should be taken on different occasions to confirm the elevated blood pressure?

a) One reading.

b) Two readings.

c) Three readings.

d) Four readings

12) What patient education should nurses not emphasize on during elevated blood pressure?

a) Importance of regular physical activity.

b) Significance of maintaining a balanced diet low in sodium and high in fruits and vegetables.

c) The necessity of regularly monitoring blood pressure at home.

d) Ignoring lifestyle changes and relying solely on medication.

13) What should nurses know about collaboration with healthcare team's in elevated blood pressure?

a) Working independently without consulting other healthcare professionals.

b) Engaging in interdisciplinary discussions to develop comprehensive care plans.

c) Avoiding communication with physicians and specialists.

d) Disregarding input from dietitians and pharmacists.

14) What is the threshold for early detection of prehypertension, according to current guidelines, is typically defined as blood pressure readings ranging?

a) 120/80mmHg

b)130/80mmHg

c) 140/90mmHg

d) 150/90mmHg

15) What should nurses know about the screening and assessment of patient's in the early detection of hypertension?

a) Only measuring blood pressure once during a visit.

b) Conducting screenings without considering patient history or risk factors.

c) Utilizing accurate blood pressure measurement techniques.

d) Relying solely on symptoms for diagnosis.

16) What potential health implications should nurses know about elevated blood pressure? Except

a) Increased risk of heart attack.

b) Higher likelihood of developing diabetes.

c) Elevated risk of kidney damage.

d) Greater susceptibility to stroke

17) Which of the following lifestyle modifications is recommended as a first –line approach for managing elevated blood pressure?

a) Increased sodium intake

b) Sedentary lifestyles

c) Smoking Cessation

d) High alcohol consumption

18) What blood pressure measurement techniques is not recommended according to the guidelines?

a) Using an appropriately sized cuff placed around the upper arm.

b) Ensuring the individual is seated with crossed legs during measurement.

c) Positioning the cuff at heart level.

d) Taking multiple readings with a brief interval between them.

19) According to guidelines, blood pressure screenings for individuals at risk of hypertension should typically be conducted:

a) Annually for individuals with normal blood pressure readings.

b) Biannually or quarterly for individuals with prehypertension.

c) Quarterly or monthly for individuals with hypertension or other cardiovascular\risk factors.

d) More frequently as determined by the nurses based on individual risk factors and health status.

20) What does the policy say about the use of guidelines by nurses for early detection hypertension?

a) Nurses should rely solely on their clinical judgment without referring to guidelines.

b) Nurses should update guidelines based on their personal experiences.

c) Nurses should adhere to evidence-based guidelines for accurate detection of hypertension.

d) Nurses should disregard guidelines as they may hinder patient care.

21) What are the primary risk factors associated with the early detection of hypertension?

a) Age and gender

b) Family history and genetics

c) Occupation and socioeconomic status

d) Blood type and cholesterol levels

22) Which lifestyle factors contribute to an increased risk of developing hypertension?

a) Regular exercise and balanced diet

b) Excessive alcohol consumption and tobacco use

c) Stress management and meditation practices

d) Adequate sleep and relaxation techniques

23) Which demographic group tends to have a higher risk of hypertension?

a) Young adults under 25

b) Older adults over 65

c) Adolescents between 13 and 18

d) Children under 10

24) Which medical conditions are commonly associated with an increased risk of developing hypertension?

a) Diabetes and obesity

b) Asthma and allergies

c) Arthritis and osteoporosis

d) Migraines and depression

25) Which lifestyle factor is commonly associated with a high risk of hypertension?

a) Sedentary lifestyle

b) High intake of fruits and vegetables

c) Regular exercise

d) Irregular sleep patterns

e) Systolic blood pressure < 160 mmHg and diastolic blood pressure < 100 mmHg

26) How does early identification of hypertension primarily lead to the following outcomes?

a) Prompt initiation of lifestyle modifications and interventions to prevent progression.

b) Reduced risk of cardiovascular events such as heart attack and stroke.

c) Improved management of comorbidities associated with hypertension.

d) Increased likelihood of medication adherence and better blood pressure control.

27) The following are consequences of early detection of hypertension except?"

a) Prompt initiation of lifestyle modifications and interventions to prevent progression.

b) Reduced risk of cardiovascular events such as heart attack and stroke.

c) Increased healthcare costs associated with monitoring and management.

d) Improved management of comorbidities associated with hypertension.

28) Which is not a complication of undetected hypertension?

a) Osteomyelitis

b) Vision problems

c) Peripheral artery disease (PAD)

d) Sexual dysfunction?

29) What is not a principle of nurses in early detection of hypertension?

a) Regular Blood Pressure Monitoring: Nurses often conduct routine blood pressure measurements during patient assessments to detect hypertension early.

b) Patient Education: Nurses provide education to patients about the importance of blood pressure management, lifestyle modifications, and medication adherence to prevent or control hypertension.

c) Screening and Risk Assessment: Nurses use standardized screening tools and perform risk assessments to identify individuals at risk for hypertension, such as those with a family history, obesity, or unhealthy lifestyle habits.

d) Providing Herbal Supplements: Nurses do not typically provide herbal supplements as a principle for early detection of hypertension. While some herbs may have potential benefits, they are not a standard practice for hypertension detection or management.

Section C: Nurses practice and early detection of hypertension

This section is dedicated to assessing nurses' practices related to the early detection of hypertension. Please carefully read each statement and select the score that best reflects your practices in this area. Your responses will help evaluate your proficiency in early detection of Hypertension as measured on the scale provided.

S/N	**Question**	**Response**			
		1	**2**	**3**	**4**
		Strongly disagree	**Disagree**	**Agree**	**Strongly agree**
30	I conduct routine blood pressure screenings.				
31	I calibrate blood pressure devices before taking patient's				

S/N	Question	Response			
		1	2	3	4
		Strongly disagree	Disagree	Agree	Strongly agree
32	I monitor patient's blood pressure during every visit to the health facility.				
33	I use the latest guidelines for hypertension detection and monitoring.				
34	I can identify the risk factors associated with hypertension.				
35	I engage with patients in health education talks putting emphasis on the importance of blood pressure measurements				
36	I recheck the patients' blood pressure when it is elevated.				
37	I provide counselling lifestyle modifications to the patient.				
38	I collaborate with the healthcare team to ensure comprehensive care for those requiring referrals.				
39	I can identify patients with elevated readings and then refer them for further evaluation.				
40	I can identify individuals with undiagnosed hypertension and offer them guidance to care.				

S/N	Question	Response			
		1	2	3	4
		Strongly disagree	Disagree	Agree	Strongly agree
41	I help patients who are already diagnosed with hypertension and educate them on adherence to prescribed medications.				
42	I take care for the hypertensive patients to ensure that they receive efficient services ensuring a smooth workflow in the clinical settings.				
43	I communicate to patients who are diagnosed with hypertension for their regular follow- up appointments to monitor their blood pressure.				

THE END

Appendix C: Research Work Plan

Activity	Period
Developed research concept (idea papers : 1, 2, and 3) and started on research proposal writing .	First year to 3rd year
Writing a proposal	January 2024-March 2024
Supervisor approved proposal and recommended Research proposal submission to UCU REC.	April 2024
Awaits UCU REC approval	Last 2 weeks of April
Data collection from the study sites.	May 2024
Data analysis	Last 2 weeks of May 2024
Dissertation compilation	Sept-Oct, 2024
Presentation of study results to relevant authorities	Oct-Nov 2024
Printing and Binding	Nov,2024
*S*ubmission	Nov, 2024

Appendix D: Budget

S/N	ACTIVITY/ ITEM	NO. OF UNITS	UNIT COST (Shs)	TOTAL (Shs)
1	Transport of the researcher to and from the study area.	2	180,000	360,000
2	Reams of paper	2	25000	50,000
3	Pens	5	500	2,500
4	Flask disk	1	40,000	40,000
5	Printing and Binding	Assorted	300,000	300,000
6	Meals	30 days	5000	150000
7	Airtime	Assorted	100,000	100,000
8	Research Assistant	1	300,000	300,000
9	Miscellaneous			200,000
	Total			**1,502,500**

Appendix E: Administrative Clearances

KCCA
KAMPALA CAPITAL CITY AUTHORITY
For a better City

DIRECTORATE OF PUBLIC HEALTH & ENVIRONMENT

REF: DPHE/KCCA/1301

22nd April 2024

Recommended -
Dr. Ssemwogerere
22/4/24

Ms. Kagasa Veronica
Uganda Christian University
+256 (0) 772301986/ 701081235
Kampala, Uganda

RE: PERMISSION TO CONDUCT RESEARCH.

Reference is made to your letter dated 21st April 2024 on the above subject Matter.

This is to inform you that permission has been granted to you to carry out a study titled ***"KNOWLEDGE AND PRACTICE OF NURSES TOWARD EARLY DETECTION OF HYPERTENSION IN OUT-PATIENT DEPARTMENTS OF HEALTH CENTRE IVS IN CENTRAL UGANDA."*** for a period of (01) one month from 22nd April 2024 to 22nd May, 2024.

The permission is granted to you on the following conditions:

1. Participation in your study is voluntary and the informed consent process should be observed at all times.
2. You will provide a report to the office of the Director Public Health and Environment of your findings.
3. You will access information from the in charge Kisenyi Health Centre IV

By copy of this letter, the in charge of the above facility and local Council chairperson are requested to render you all the necessary support.

DIRECTORATE OF PUBLIC HEALTH AND ENVIRONMENT
KAMPALA CAPITAL CITY AUTHORITY
KCCA
22 APR 2024
P.O. BOX 7010 KAMPALA

Dr. Sara Ramzah Wango
AG. DEPUTY DIRECTOR, MEDICAL SERVICES
Copy; In charge Kisenyi Health Centre IV
Local Council 1 Chairperson.

P. O. Box 7010 Kampala – Uganda
Plot 1 – 3 Apollo Kaggwa Road
Toll free line: 0800299000
Email: info@kcca.go.ug
@KCCAUG
WWW.KCCA.GO.UG

THE REPUBLIC OF UGANDA

WAKISO DISTRICT LOCAL GOVERNMENT

OFFICE OF THE DISTRICT HEALTH OFFICER
P.O. Box 7218, Kampala Uganda,
Email: wakisodlc@yahoo.co.uk / Website:www.wakiso.go.ug

Med/357/07/2024

4th July 2024

The In- charge

.....KASANGATI HC IV.....

PERMISSION TO CONDUCT RESEARCH BY MS. KAGASA VERONICA.

This is to introduce to you the above-mentioned student from Uganda Christian University who has requested to carry out her research using your facilities with a title **"Knowledge and Practice of Nurses toward Early detection of Hypertension in out- patient department of Health center IVs in Wakiso District."**

Permission has been granted to her to carry out the above research at your facility starting **8th July 2024 to 5th August 2024** to enable her collect data for her academic purposes.

Kindly accord her necessary assistance.

FOR DISTRICT HEALTH OFFICER
04 JUL 2024
WAKISO DISTRICT COUNCIL

Nabuganda Betty
For: District Health Officer

CC. Chief Administrative Officer, Wakiso
Cc. Ms. Kagasa Veronica, Student

Received by
KASANGATI HEALTH CENTRE IV
KYADONDO EAST HSD
11 JUL 2024
P. O. BOX 19013
KASANGATI

Kagasa Veronica

P.O Box 7010

Kampala

4th July 2024

To The Town Clerk

Lubaga Division

Kampala

Supervisor Medical Services
Dr. Buluma
Please handle
04/07/24

KAMPALA CAPITAL CITY AUTHORITY
KAWAALA HEALTH CENTRE
Received for
KCCA 08 JUL 2024
P. O. BOX 7010
KAMPALA

RECEIVED
04 JUL 2024

KCCA
08 JUL 2024
MEDICAL SERVICES
LUBAGA DIVISION

Forwarded to I/C Kawala
for assistance.
Dr. Buluma Dennis

Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO CONDUCT A STUDY

I am writing to seek your permission to conduct a study titled "knowledge and practice of Nurses towards Early Detection of Hypertension in Outpatient Departments of Health Centre IV's in Central Uganda" at Kawaala Health Centre IV. The study is planned to take place over a period of one week.

I kindly request your support and cooperation in facilitating this research.

Thank you for considering my request.

Yours faithfully,

.....

Kagasa Veronica
0772301986/0701081235

THE REPUBLIC OF UGANDA

WAKISO DISTRICT LOCAL GOVERNMENT

OFFICE OF THE DISTRICT HEALTH OFFICER
P.O. Box 7218, Kampala Uganda,
Email: wakisodlc@yahoo.co.uk / Website:www.wakiso.go.ug

Med/357/07/2024

4th July 2024

The In- charge

WAKISO HIC IV

PERMISSION TO CONDUCT RESEARCH BY MS. KAGASA VERONICA.

This is to introduce to you the above-mentioned student from Uganda Christian University who has requested to carry out her research using your facilities with a title **"Knowledge and Practice of Nurses toward Early detection of Hypertension in out- patient department of Health center IVs in Wakiso District."**

Permission has been granted to her to carry out the above research at your facility starting **8th July 2024 to 5th August 2024** to enable her collect data for her academic purposes.

Kindly accord her necessary assistance.

FOR DISTRICT HEALTH OFFICER
04 JUL 2024
WAKISO DISTRICT COUNCIL

Nabuganda Betty
For: District Health Officer

CC. Chief Administrative Officer, Wakiso
Cc. Ms. Kagasa Veronica, Student

Received and allowed as per letter dated

BUSIRO EAST HEALTH SUB-DISTRICT
04 JUL 2024
WAKISO HEALTH CENTRE IV
P. O. BOX 7218, KAMPALA

4/07/2024

Kagasa Veronica
P.O. Box 7010
Kampala
26th June 2024

KOJJA H.C IV
OFFICE OF THE
IN CHARGE
26/6/24

The In- Charge
Kojja Health Centre IV

Through the District Health Officer
Mukono

Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO CONDUCT A STUDY

I am writing to seek your permission to conduct a study titled "Knowledge and Practice of Nurses Towards Early Detection of Hypertension in Outpatient Departments of Health Centre IV's in Central Uganda" at Kojja Health Centre IV. The study is planned to take place over a period of one week.

I kindly request your support and cooperation in facilitating this research.

Thank you for considering my request.

Yours faithfully,

.....
KAGASA VERONICA
0772301986 / 0701081235

07th June, 2024

Veronica Kagasa
Uganda Christian University
0772301986
Email: veronicakagasa@gmail.com

UG-REC-026 APPROVAL NOTICE

To: Veronica Kagasa, Principal Investigator

Re: UCU-REC Application titled: **Knowledge and Practice of Nurses Toward Early Detection of Hypertension in Out-Patient Department of Health Center IVs in Central Uganda**

Application Number: UCUREC-2023-876

Version: 4.0

UGANDA CHRISTIAN UNIVERSITY APPROVED UNTIL 07 JUN 2025 RESEARCH ETHICS COMMITTEE

Type: [ ] Initial Review
[ ] Protocol Amendment
[ ] Letter of Amendment (LOA)
[ ] Continuing Review
[ ] Material Transfer Agreement
[ ] Other, Specify:

I am pleased to inform you that the **UG-REC-026**; UCUREC approved the above referenced application.

Approval of the research is for the period from **07th June, 2024**, to **07th June, 2025**
This research is considered minimal risk category.
As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and additions to the protocol or the consent form must be submitted to the REC for re-review and approval prior to the activation of the changes. The REC application number assigned to the research should be cited in any correspondence.
3. Reports of unanticipated problems involving risks to participants or other must be submitted to the REC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for REC review.

Appendix F: Nurses Individual Scores in Knowledge towards Early detection of Hypertension

S/N	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Raw scores	% Scores	Category
1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	1	14	66.7%	Good Knowledge
2	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	18	85.7%	Excellent Knowledge
3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	11	52.4%	Moderate knowledge
4	1	1	0	1	1	0	1	1	1	0	1	0	1	1	1	0	1	1	0	1	1	15	71.4%	Good Knowledge
5	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	17	81.0%	Excellent Knowledge
6	1	1	1	0	0	1	0	0	1	1	1	1	0	1	0	0	1	1	0	1	1	13	61.9%	Good Knowledge
7	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	16	76.2%	Good Knowledge
8	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	19	90.5%	Excellent Knowledge
9	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	1	1	1	1	0	1	12	57.1%	Moderate knowledge
10	1	1	1	1	1	0	0	1	1	1	1	0	1	0	1	0	1	1	0	1	0	14	66.7%	Good Knowledge
11	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	95.2%	Excellent Knowledge
12	1	1	0	1	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	10	47.6%	Moderate knowledge
13	1	1	0	1	1	1	0	1	0	1	1	0	1	1	1	0	1	0	1	1	1	15	71.4%	Good Knowledge
14	1	1	0	1	1	0	0	1	1	0	1	0	1	0	0	1	1	1	0	1	1	13	61.9%	Good Knowledge
15	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	18	85.7%	Excellent Knowledge
16	0	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	12	57.1%	Moderate knowledge
17	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	17	81.0%	Excellent Knowledge
18	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	1	14	66.7%	Good Knowledge
19	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	16	76.2%	Good Knowledge

20	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	11	52.4%	Moderate knowledge
21	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	19	90.5%	Excellent Knowledge
22	1	1	1	0	0	1	0	0	1	1	1	1	0	1	0	0	1	1	0	1	1	13	61.9%	Good Knowledge
23	1	1	0	1	1	1	0	1	0	1	1	0	1	1	1	0	1	0	1	1	1	15	71.4%	Good Knowledge
24	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	1	14	66.7%	Good Knowledge
25	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	12	57.1%	Moderate knowledge
26	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	18	85.7%	Excellent Knowledge
27	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	11	52.4%	Moderate knowledge
28	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	16	76.2%	Good Knowledge
29	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	17	81.0%	Excellent Knowledge
30	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	1	14	66.7%	Good Knowledge
31	1	1	0	1	1	1	0	1	0	1	1	0	1	1	1	0	1	0	1	1	1	15	71.4%	Good Knowledge
32	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	1	0	1	0	0	1	12	57.1%	Moderate knowledge
33	1	1	1	0	0	1	0	0	1	1	1	1	0	1	0	0	1	1	0	1	1	13	61.9%	Good Knowledge
34	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	19	90.5%	Excellent Knowledge
35	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	20	95.2%	Excellent Knowledge
36	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	16	76.2%	Good Knowledge
37	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	18	85.7%	Excellent Knowledge
38	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	1	14	66.7%	Good Knowledge
39	1	1	1	0	0	1	0	0	1	1	1	1	0	1	0	0	1	1	0	1	1	13	61.9%	Good Knowledge
40	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	17	81.0%	Excellent Knowledge
41	0	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	12	57.1%	Moderate knowledge
42	1	1	0	1	1	1	0	1	0	1	1	0	1	1	1	0	1	0	1	1	1	15	71.4%	Good Knowledge

43	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	16	76.2%	Good Knowledge
44	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	0	1	14	66.7%	Good Knowledge
45	1	1	1	0	0	1	0	0	1	1	1	1	0	1	0	0	1	1	0	1	1	13	61.9%	Good Knowledge
46	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	17	81.0%	Excellent Knowledge
47	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	11	52.4%	Moderate knowledge
48	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	18	85.7%	Excellent Knowledge
49	1	1	1	0	1	0	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	16	76.2%	Good Knowledge
50	0	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	12	57.1%	Moderate knowledge
51	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	19	90.5%	Excellent Knowledge
52	1	1	1	0	0	1	0	0	1	1	1	1	0	1	0	0	1	1	0	1	1	13	61.9%	Good Knowledge
53	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	95.2%	Excellent Knowledge

Appendix G: Nurses' Performance per Question Assessing Knowledge about hypertension early detection

Variable	Response Status	Frequency	Percentage (%)	Knowledge Level
Knowledge Questions Specific to hypertension early detection				
Q9 (Elevated blood pressure)	Correct	51	96.3	Excellent Knowledge
	Incorrect	2	3.7	
Q10 (Factors determining blood pressure)	Correct	49	92.4	Excellent Knowledge
	Incorrect	4	7.6	
Q11 (Separate blood pressure readings)	Correct	28	52.8	Poor knowledge
	Incorrect	25	47.2	
Q12 (Patient education)	Correct	48	90.6	Excellent Knowledge
	Incorrect	5	9.4	
Q13 (Nurses know about collaboration with healthcare team's)	Correct	45	84.9	Good Knowledge
	Incorrect	8	15.1	
Q14 (Threshold for early detection of prehypertension)	Correct	41	77.4	Good knowledge

	Incorrect	12	22.6	
Q15 (Nurses know about the screening and assessment of patient's).	Correct	19	35.8	Poor Knowledge
	Incorrect	34	64.2	
Q16 (Potential health implications)	Correct	38	71.7	Good Knowledge
	Incorrect	15	28.3	
Q17 (Lifestyle modifications)	Correct	33	62.3	Poor knowledge
	Incorrect	20	37.7	
Q18 (Blood pressure measurement techniques)	Correct	35	60.1	Good Knowledge
	Incorrect	18	33.9	
Q19 (Blood pressure screenings for individuals)	Correct	50	94.3	Excellent Knowledge
	Incorrect	3	5.7	
Q20 (The policy)	Correct	32	60.4	Good knowledge
	Incorrect	21	39.6	
Q21 (Primary risk factors associated with the early detection)	Correct	53	100	Excellent Knowledge

Q22 (Lifestyle factors)	Correct	26	49.1	Poor knowledge
	Incorrect	27	50.1	
Q23 (Demographic group)	Correct	39	73.6	Good Knowledge
	Incorrect	14	26.4	
Q24 (Medical conditions)	Correct	21	39.6	Poor knowledge
	Incorrect	32	60.4	
Q25 (Lifestyle factor associated with a high risk of hypertension)	Correct	52	98.1	Excellent Knowledge
	Incorrect	1	1.9	
Q26 (Early identification of hypertension)	Correct	37	69.8	Poor knowledge
	Incorrect	16	30.2	
Q27 (Consequences of early detection)	Correct	19	35.8	Poor knowledge
	Incorrect	34	64.2	
Q28 (Complication of undetected hypertension)	Correct	42	79.3	Good knowledge
	Incorrect	11	20.7	
Q29 (Principle of nurses in early detection of hypertension)	Correct	29	54.7	Poor knowledge
	Incorrect	24	45.3	

Appendix H: Nurses Individual Scores in Practices nurses towards the early detection of hypertension

S/N	Q30	Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40	Q41	Q42	Q43	Total	Mean	Category
1.	4	-	3	2	-	1	4	-	4	3	-	-	-	-	21		Very Poor practice
2.	1	2	3	-	-	4	3	-	4	2	-	-	-	-	19	1	Very Poor practice
3.	3	-	4	4	-	2	4	-	2	4	-	-	-	-	23	2	Very Poor practice
4.	2	-	3	-	1	2	3	2	2	3	2	2	2	1	25	2	Very Poor practice
5.	4	1	2	3	-	2	4	1	2	1	1	1	-	3	26	2	Very Poor practice
6.	-	3	1	-	1	3	2	4	1	-	1	2	-	2	20	1	Very Poor practice
7.	4	2	2	2	-	2	3	3	-	3	2	1	1	1	26	2	Very Poor practice
8.	3	1	3	2	1	4	1	2	2	1	-	-	-	3	23	2	Very Poor practice
9.	4	2	2	2	-	1	3	3	3	3	1	1	2	1	28	2	Very Poor practice
10.	1	1	2	1	-	1	3	4	2	1	1	2	4	2	25	2	Very Poor practice
11.	2	-	4	2	-	4	4	2	2	2	-	-	1	-	23	2	Very Poor practice
12.	4	-	2	1	-	2	4	2	2	3	-	2	4	1	27	2	Very Poor practice
13.	4	2	2	2	-	2	4	2	3	3	2	-	2	1	29	2	Very Poor practice
14.	4	-	4	-	-	4	4	1	-	4	2	1	-	4	28	2	Very Poor practice
15.	4	-	3	2	1	1	4	3	3	4	2	1	2	-	29	2	Very Poor practice
16.	3	2	4	2	-	1	4	4	3	2	-	2	1	-	27	2	Very Poor practice
17.	3	-	3	-	-	2	3	2	3	4	2	1	1	2	26	2	Very Poor practice
18.	4	2	3	2	-	2	4	4	2	2	2	1	1	-	29	2	Poor Practice
19.	3	2	3	2	-	1	4	2	2	4	2	1	1	4	31	2	Very Poor Practice
20.	4	1	3	-	2	2	3	-	1	2	3	1	2	2	27	2	Very Poor practice
21.	3	-	3	3	-	1	4	2	3	3	2	2	2	2	30	2	Very Poor Practice
22.	4	3	4	-	4	4	4	2	2	4	-	2	-	-	33	2	Poor Practice

23.	3	2	3	2	1	2	3	2	2	4	2	-	-	-	26	2	Very Poor practice
24.	4	-	4	2	-	4	4	2	2	4	2	-	-	2	30	2	Very Poor Practice
25.	4	1	4	2	1	2	4	2	3	4	3	1	1	2	34	2	Poor Practice
26.	4	-	3	2	-	2	3	3	3	3	2	2	2	-	29	2	Very Poor Practice
27.	4	2	3	2	2	2	4	4	3	3	2	1	1	2	35	2	Poor Practice
28.	4	2	4	2	1	2	4	4	4	3	2	1	1	2	36	3	Poor Practice
29.	4	-	3	2	-	1	4	4	2	4	3	2	2	2	33	2	Poor Practice
30.	4	1	4	2	1	4	4	-	4	4	1	-	-	4	33	2	Very Poor Practice
31.	4	2	4	2	2	3	4	4	4	3	3	1	1	2	39	3	Poor Practice
32.	4	2	4	2	1	2	4	4	4	3	3	1	1	2	37	3	Poor Practice
33.	4	1	4	1	2	2	3	4	3	1	3	2	3	1	33	3	Very Poor Practice
34.	4	2	4	2	2	3	4	4	4	3	3	1	1	2	39	3	Poor Practice
35.	4	2	2	2	-	2	4	3	3	3	2	1	1	2	31	2	Very Poor Practice
36.	4	-	4	-	4	4	4	4	2	2	1	1	-	2	32	2	Very Poor Practice
37.	4	3	4	-	4	4	4	2	2	4	-	2	-	-	33	2	Poor Practice
38.	3	3	2	2	-	2	4	2	4	4	-	-	-	4	30	2	Very Poor Practice
39.	4	2	2	2	1	1	4	4	4	4	2	1	1	1	33	2	Poor Practice
40.	4	-	4	2	-	4	4	3	3	4	2	-	-	2	32	2	Very Poor Practice
41.	4	2	2	2	-	1	4	3	3	4	2	1	1	2	31	2	Poor Practice
42.	4	-	4	2	2	3	4	4	4	4	2	3	4	1	41	3	Poor Practice
43.	4	2	4	1	1	4	-	3	1	4	4	4	4	4	40	3	Poor Practice
44.	4	-	4	-	2	4	4	4	1	3	2	-	-	-	32	2	Poor Practice
45.	4	2	3	2	-	1	4	3	4	4	2	2	2	-	33	2	Poor Practice
46.	4	2	2	2	1	2	4	4	4	2	2	1	1	1	32	2	Very Poor Practice

47.	4	-	4	2	-	4	3	4	1	4	2	1	1	1	31	2	Poor Practice
48.	4	-	4	-	1	4	4	4	2	4	2	1	2	-	32	2	Poor Practice
49.	3	-	4	3	-	4	4	4	3	4	3	-	-	-	32	2	Poor Practice
50.	4	-	4	-	4	4	4	4	2	2	1	1	-	4	34	2	Poor Practice
51.	4	2	4	2	2	2	4	4	4	4	1	2	2	2	43	3	Good Practice
52.	4	2	4	2	2	4	4	4	4	4	4	2	2	2	44	3	Good Practice
53.	4	2	2	2	1	2	3	3	4	3	2	1	1	1	31	2	Very Poor Practice
Mean																2.16	

Appendix I: Nurses' Performance per Question Assessing Practices towards Early detection of hypertension

Variables	SD	D	A	SA	Mean	SD	Practice Score
Q30 (Routine blood pressure screenings)	17(32.1%)	2(3.7%)	15(28.3%)	19(35.9%)	3.11	0.85	Excellent Practice
Q31 (Blood pressure devices before taking patient's)	10(18.8%)	12(22.6%)	21(39.8%)	10(18.8%)	2.74	0.89	Poor Practice
Q32 (Monitor patient's blood pressure during health facility)	12(22.6%)	5(9.4%)	20(37.7%)	16(30.3%)	3.05	0.92	Excellent Practice
Q33 (Latest guidelines for hypertension detection and monitoring)	7(13.2%)	7(13.2%)	22(41.5%)	17(32.1%)	3.00	0.90	Excellent Practice
Q34 (Risk factors associated with hypertension)	9(16.9%)	9(16.9%)	16(30.3%)	19(35.9%)	3.00	0.93	Excellent Practice
Q35 (Patients in health education talks)	7 (13.2%)	9(16.9%)	17(32.1%)	20(37.7%)	3.00	0.87	Excellent Practice
Q36 (Patients' blood pressure when it is elevated)	7(13.2%)	7(13.2%)	18(33.9%)	21(39.6%)	3.07	0.88	Excellent Practice
Q37 (Counseling on lifestyle modifications to the patient)	9(16.9%)	1(0.8%)	19(35.9%)	24(45.3%)	3.15	0.85	Excellent Practice

Q38 (Collaborate with the healthcare team)	8(15.1%)	6(11.3%)	20(37.7%)	19(35.9%)	3.00	0.93	Excellent Practice
Q39 (Identify patients with elevated readings)	15(28.3%)	5(9.4%)	13(24.5%)	20(37.7%)	2.87	1.00	Poor Practice
Q40 (Identify individuals with undiagnosed hypertension)	6(11.3%)	10(18.8%)	22(41.4%)	15(28.3%)	2.94	0.89	Poor Practice
Q41 (Patients who are already diagnosed with hypertension)	9(16.9%)	4(7.5%)	19(35.9%)	21(39.6%)	3.02	0.91	Excellent Practice
Q42 (Care of hypertensive patients)	7(13.2%)	5(9.4%)	23(43.4%)	18(33.9%)	2.99	0.89	Poor Practice
Q43 (Patients diagnosed with hypertension for their regular follow-up appointments)	9(16.9%)	5(9.4%)	18(33.9%)	21(39.6%)	3.00	0.89	Excellent Practice

Appendix J: Viva Correction Form

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SCHOOL OF RESEARCH & POSTGRADUATE STUDIES

Dissertation Correction Compliance Report by the Candidate (Post Viva Form)

Date: 28TH /06 /2025

Name of Candidate: KAGASA VERONICA **Reg. No: RM21M11/004**

Title of Dissertation: Knowledge and Practice of Nurses towards Early Detection of Hypertension in Out-Patient Departments of selected Health Center IVs in Central Uganda

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Entire dissertation is centre-aligned; use left alignment/justification.	Re-formatted all body text to **left alignment**.	Whole manuscript
2	Several typographical errors throughout.	Ran Word *Editor* + manual proof-reading; corrected typos.	Whole manuscript
3	Abstract needs headings and more statistical results.	Added structured headings (Background, Methods, Results, Conclusion) and	Abstract, pp. x

		inserted key numeric results incl. 95 % CI.	
4	Background focuses only on Uganda; add broader context.	Global and African contexts have been added in "background" section.	Page 1
5	Conceptual framework contains lit-review prose.	Trimmed to about 400 words, moved citations to Lit Review; kept schematic figure only.	Page 7-12
6	Framework lists dependent/independent variables in a descriptive study.	Explained rationale in the section about relationship among Components of the Frame work.	Page 7-12
7	Definitions written conceptually; need operationalisation.	Added Table 1 "Operational Definitions" with measurement cut-offs.	End of Introduction.
8	Literature review comprehensive but gap unclear.	A section about research gap have been added under the literature section.	Page 21-22
9	There needs to be a deeper analysis of the literature, clearly articulating the research gap and providing a critique of the existing literature to justify the need for this study.	Added a justification or key idea or point or any form of critiques at the end of all sections of the literature review.	Page 12-22
10	Provide scientific justification for study setting.	This has been updated	Page 24
11	Inclusion of two populations may hurt internal validity.	I restricted eligibility to nurses with ≥2 months OPD experience.	Page 25
12	What was the total number of nurses in all the health centers - was it 53, or did you have to select some?	Stated frame (N = 60) in the sample size determination section; explained census rationale.	Page 27
14	Revise data-collection section to be procedural.	Added step-wise bullets: facility contact, consent, questionnaire admin, quality check.	Page 30-32

15	Was observation done? How was practice assessed?	Clarified self-reported practice via validated questionnaire; no observation.	Page 30-31
16	Add confidence intervals to all results.	Inserted 95 % CIs in Tables 3–6 and text.	Page 45-48
17	p = 0.049 not significant at 0.05; clarify.	Updated	Page 58
18	Discussion statement implies observation (routine BP screenings).	Re-phrased to "self-reported"	Page 65
19	Mixing ART/NICU nurses vs OPD unfair.	Added limitation; suggested future stratified studies.	Page 44
20	Discussion lacks implications for practice.	This has been updated.	Discussion, Section
21	Some findings appear incorrect.	Re-analysed dataset; corrected percentages in Tables 3–4.	Updated tables and narrative.
22	Need more detailed limitations and policy implications.	Expanded Limitations section	Page 43-44
23	Conclusion includes findings outside objectives.	Trimmed conclusion to only objective-linked findings.	Page 71 - 72
24	Recommendations need specific implementation strategies.	This has been updated	Page 71 - 72
25	Minor citation inconsistencies.	Ran Zotero "Check Cited Items", fixed page ranges and surnames.	Clean references, Appendix C.

SN	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	It was not clear how Health Center IVs were selected. There could be bias.	A detailed explanation on the selection of Health Center IVs has been added to clarify the procedure and minimize perceived bias.	Page 36
2	Sampling procedure was not well explained.	A specific sampling method for selecting the health facilities has been added. Census sampling approach has been clarified.	Page 36–37
3	Reliability and validity were **NOT** assessed.	A full section addressing instrument validity and reliability (including pilot testing and Cronbach's alpha) has been added.	Page 40–43
4	Tables are clear and interpretations good. However, some table totals did not agree.	All tables have been reviewed, inconsistencies resolved, and totals corrected where necessary.	Page 50–53

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	Clarify on the sample selection criteria	Sample selection clarified under sampling procedure	Chapter 3, Page 36
2	Include the term 'selected' in the title	Title revised to include the word "selected"	Title Page, Abstract
3	Include a page on operational definitions	Operational definitions page added	Chapter 1, Page 9-11

Kagasa Veronica		Mary Grace Nakate	
……	……	……	
Candidate's Name	**Signature**	**Supervisor's Name**	**Signature**