KNOWLEDGE AND PRACTICE OF NURSES IN MANAGING PATIENTS WITH HYPERTENSION AT A SELECTED DISTRICT HOSPITAL

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Declaration by the Student

I do hereby declare that this *dissertation* submitted in partial fulfillment of the requirements for the degree of **MASTERS OF SCIENCE** in **NURSING**, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Signature of the Student…………………………………………………………………

Date ……………………………………………………………………

Authority to Submit the dissertation

Surname and first name of Supervisor

…………………………………………………………………………….

In my capacity as a Supervisor, I do hereby authorise the student to submit his/her **dissertation**.

Date and Signature of the Supervisor

…………………………………………………………………………….

DEDICATION

I sincerely dedicate this work to my Beloved Husband John Peter SINDAMBIWE for a special love shown in my life.

To all my children, parents, brothers and sisters for invaluable support.

To all my classmates especially Marie Jose MWISENEZA for the moments shared together

Finally to all my relatives, friends and family friends.

May Almighty God bless you all.

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ABSTRACT

Background: Hypertension is a non-communicable disease which causes mortality and morbidity among main individualize worldwide. Nurses' good knowledge and practice is a key factor to provide quality care for chronically sick patients including hypertension. Nurses are responsible for having good knowledge and practice to manage the patients with hypertension in the clinical setting. The impact of untreated or poorly treated hypertension due to misclassification of patients is a major contributor to the overall burden of adult diseases in any population. Management of hypertension relies on knowledge and practice exhibited by the health care professionals particularly by the nurses to reduce the long term complications. There seems to be a gap in knowledge and practice of nurses in District Hospitals regarding the management of hypertensive patients.

Aim: To identify level of knowledge and practice of nurses in managing patients with hypertension and determine correlation between nurses' knowledge and practices regarding management of patients with hypertension at Byumba District Hospital.

Design and Method: This is a cross sectional quantitative descriptive study where all seventy two (72) nurses from Byumba District Hospital was recruited by purposive sampling procedure to participate in the study. The instrument used for data collection was a questionnaire. This tool was piloted and tested for validity and reability. During data analysis, level of knowledge and practice with regards to management of patients with hypertension were categorized and described. Data were analyzed using descriptive statistics and Chi-square.

Results: The findings from this study revealed that 57.14% of participants had poor level of knowledge in managing patient with hypertension and three-quarters of them (70%) had poor practice, the relationship between knowledge and practice was not significant (P=0.29).

Conclusion: The study identified that both knowledge and practices of nurses were inadequate regarding management of patient with hypertension. This suggest that nurses 'knowledge and practice need further improvement trough training such as regular continuous education.

Keywords: knowledge; practice; nurses; patient; hypertension.

LIST OF ACRONYMS AND ABBREVIATIONS

ACE: Angiotensin-Converting enzyme

ADA: American diabetes association

AHA: American heart association

ARB: Angiotensin receptor blocker

CCB: Calcium Channel blocker

CDC: Centre disease control

CMHS: College of medicine and health sciences

CVD: cardiovascular disease

DH: District Hospital

ESC: European society of cardiology

ESH: European society of hypertension

IRB: institution of research board

JNC: Joint national committee

NCD: Non- communicable diseases

WHO: World health organization

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CHAPTER ONE : INTRODUCTION

1.1 Introduction
This chapter discussed the background, problem statement, objectives and significance of the study, as well as the scope of the study.

1.2 Background

Hypertension is the most common global cardiovascular risk factor and the current statistics show that is affecting around 39% of the global population (WHO, 2014). The (WHO, 2014) annual report has quoted cardiovascular disease as the main cause of mortality from non-communicable diseases, among which hypertension accounts for 45% of the total mortality.

The prevalence of hypertension is expected to increase considerably each year. In 2000, the estimated number of adults living with high blood pressure globally was 972 million and this is expected to increase to 1.56 billion by 2025 (WHO, 2013).

In 2012, non-communicable diseases were responsible for the mortality of 38 million patients around the world. This constituted 68% of the global morality. Hypertension is leading cause of premature deaths, more than 16 million deaths occurred among patients under 70 years of age where 82% of the premature deaths were recorded in low and middle income countries (WHO, 2014).

According to Cappuccio & Michelle (2016) at least two-thirds of cardiovascular deaths occur in low- and middle-income countries, bringing a double burden of disease. Moreover, countries continue to spend more to manage it so that economy is affected where the costs account $46 billion each year. This total includes the cost of health care services, medications to treat high blood pressure, and missed days of work (Mozzafarian & Benjamin et al, 2015).

In developed countries such as the United States about 70 million American adults (29%) have hypertension, only about half (52%) of them have their condition under control (Nwankwo et al., 2013).According to European Society of Cardiovascular disease (ESC), 2013, the prevalence of hypertension appears to be around 30–45% of the general population of Europe increase by ageing

According to (WHO, 2013), the prevalence of hypertension is highest in African region. Also, Hypertension is the leading single cause of morbidity and mortality worldwide and it is a growing public health problem in sub-Saharan Africa (Guwatudde et al., 2012) and nearly 74.7 million are hypertensive patients and estimated to increase by 68.0% in 2025 (Twagirumukiza et al., 2012).Although there is shortage of extensive data, it has been estimated that 6% of the Ethiopian population have hypertension. In addition, around 30% of adults in Addis Ababa have hypertension (Tesema & Disasa, 2016).

A retrospective study conducted by (Pande & Niyonzima , 2010) on prevalence and clinical features of arterial hypertension in Rwanda at Ruhengeri District hospital revealed that the majority of patients had severe hypertension (47.4%) and patients over 50 years of age had the highest prevalence of severe hypertension (67%). In addition, A survey done by (Banyangiriki & Phillips, 2013) on prevalence of hypertension among working adults at urban institution in Rwanda, among 100 adults aged 27 to 67 years revealed that 36% were hypertensive, and only 3% were aware of their status, where 33% were not aware.

In a study conducted by Musinguzi & Nuwaha,(2013) to assess prevalence , awareness and control of hypertension in Uganda, awareness of the hypertension was very low at less than 30 percent. Authors continued stating that awareness of hypertension largely depends on the capacity of the health system to provide diagnostic services for hypertension to the general population.

Based on the recommendation of World Health Organization (2013), the burden of hypertension is increasing due to its devastating impact on health, socioeconomic development and poverty alleviation, and that most studies show the poor knowledge and practice among health care provider in caring hypertensive patients. Hence, this study has aim to assess knowledge and practice of nurses toward patients with hypertension at Byumba District Hospital.

1.3 Problem statement

Hypertension is the major killer which causes mortality and morbidity both in developing and developed countries. According to the current statistics, hypertension is affecting around 39% of the global population (WHO, 2014).

Hypertension is a burden worldwide; in addition there is an issue of inadequate knowledge and practice among health care providers. However,82.4% of health care providers had inadequate knowledge to manage patients with hypertension (Elisabeth et al (2012). Good knowledge and practice about hypertension is linked to better control of hypertension. (Almas et al., 2012).

In health sector, the nurses are the ones who firstly meet the patient, and they are the start point of hypertension identification , diagnosis and monitoring. To provide quality care for hypertensive patients, nurses are expected to have good knowledge and practice about hypertension care in order to prevent and treat this condition.

According to observations and records from Byumba District Hospital during the year 2015-2016, 1256 patients were received with hypertension and 34 among these patients had complication of hypertension. Seven nurses among seventy two (9.8%) working at Byumba DH received training on NCD but there is no in service education to nurses or health education to patients conducted periodically (Byumba hospital records, 2016).

In addition, based on studies cited above, the nurses have low knowledge and power practice in treating patients with hypertension. This leads to significant variability in nursing practice and missed opportunities for identification and management of Hypertension. There is limited literature that has been documented about assessing the knowledge and practice of nurses in managing patients with hypertension in Rwanda hence the researcher was motivated to conduct this study to identify existing level of knowledge and practice of nurses in that area.

1.4. Objectives

1.4.1 Broad objective
This study is aimed at identifying level of knowledge and practice of nurses regarding management of patients with hypertension and examines the relationship between them at Byumba District Hospital

1.4.2 Specific objectives

-To assess the level of nurse's knowledge about patients with hypertension.

-To examine the nurse's practice in managing patients with hypertension.

-To determine the relationship between nurses' knowledge and practices regarding management of patients with hypertension.

1.5 Research questions

1. What is the existing level of nurse's knowledge in managing the patients with hypertension?

2. What are nurse's practices in treating the patients with hypertension?

3. Is there any relationship between nurse's knowledge and practices regarding management of hypertensive patients?

1.6 Significance of the study

This study provides baseline information about level of knowledge and practice of nurses in managements of patients with hypertension. The findings of this study can contribute to nursing practice, nursing education, and development of further research in nursing profession as follow: 1) For nursing practice, The study provided an opportunity for the nurses to evaluate themselves how they care patients with hypertension. It might enhance combined effort of the nurses and health institution's administration to induce change with the aim of improving nurses 'practices and knowledge about hypertension through training programs.

2) For nursing education**:** Evidence based information shows a need to incorporate NCD courses include hypertension in nursing curriculum to increase capacity building in management of hypertension and disseminate guideline accordingly.

 3) For nursing research, the research findings can be used as baseline reference for future research, such as the effectiveness of educational program to increase knowledge and practice regarding hypertension management.

1.7 Definition of key terms

Knowledge: Is defined as facts, information, descriptions or skills acquired through experience or education, the theoretical or practical understanding of a subject (Oxford Dictionary, 2017) In this study, it is information that nurses gained from theory, practice and experience which they refer for caring patients with hypertension.

Practice: Currently proficient in a particular activity or skill as a result of repeated exercise or performance of it (Oxford dictionary, 2016) .In this study, practice is shown by application of hypertension guidelines and knowledge that help the nurses to provide care to the patients with hypertension.

Nurse: Nurse is a person who has completed a program of basic, generalized nursing education and authorized by the appropriate regulatory authority to practice nursing in his/her country (ICN, 2015).In this study, nurses is health professional that provide care to hypertensive patients.

Hypertension: Hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure, putting them under increased stress. When systolic blood pressure is equal to or above 140 mm Hg and/or a diastolic blood pressure equal to or above 90 mm Hg the blood pressure is considered to be raised or high which called hypertension WHO (2015).

Patient: A person receiving or registered to receive medical care and treatment (Oxford medical dictionary, 2016) .The patients in this study are someone who has been diagnosed hypertension and he or she is under hypertensive drugs.

1.8. Structure organization

This thesis is composed by five main chapters which are introduction, literature review, methodology, results presentation and discussion of the results. Chapter one contains its introduction, background of the study, problem statement, the aim of the study, research objectives and research questions, significance of the study as well as end with conclusion. Chapter two is literature review which composed by introduction, theoretical literature with

information regarding hypertension, empirical Literature, Critical Review and Research Gap identification and Conceptual framework.

Chapter three is research methodology which contains introduction; research design, research approach research, and setting, Population under it sampling strategy and sample size were discussed. It has data collection part where data collection instrument and procedure should be described. This chapter also contains data analysis, ethical considerations, data management, dissemination, data dissemination, Limitations and challenges and finally ends with conclusion. Chapter four deal with presentation of the results concerning socio-demographic information, knowledge and practice of nurses regarding findings about hypertension management. Chapter five deal with discussion of findings, conclusion and recommendations.

Conclusion: Hypertension is still burden woldwidely, the number of patients with hypertension continue grow up. Although the nurses are responsible to manage patients with hypertension, the research showed that there is an issue of inadequate knowledge and practice among health care providers include nurses. This study was to assess nurses 'level of knowledge and practice of nurses in managing hypertensive patients. The findings may be contribute to nursing education, practice and nursing research in building capacity in knowledge and practice about management of hypertensive patients

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter discussed theoretically information such as definition, causes, stage and classification and clinical manifestation of hypertension and how is diagnosed through investigations and evaluating patient, management of hypertensive patients. These information are selected Based on comprehensive hypertension guidelines developed by WHO for under and developing notions because of burden of hypertension worldwide(WHO, 2010). In addition, it focused on studies related to nurses' knowledge and practice regarding hypertension which included in empirical literature. Critical Review and research gap identification were identified and at the end the conceptual framework was established based on Bloom Taxonomy. The research engines used in were Hinary, google scholar, mediscape and were between 2012-2017.

2.2. Theoretical literature

2.2.1 Definition

Hypertension or high blood pressure, is a condition in which the systolic blood pressure is equal to or greater than 140 mmHg or diastolic blood pressure is equal to or greater than 90 mmHg (Omuemu et al., 2006; WHO, 2015) or patient is taking antihypertensive medication; or having been told at least twice by a physician or other health professional that one has hypertension (McConnell & Baker, 2013)

2.2.2 Stage and Classification

2.2.2.1. Classification of hypertension

Hypertension can be classified either essential (primary) or secondary Madhur, Kamran, Dreisbach(2014). Essential hypertension indicates that no specific medical cause can be found to explain a patient's condition. Secondary hypertension indicates that the high blood pressure is a result of (i.e. Secondary to) another condition, such as diabetes, kidney disease or tumors (pheochromocytoma) among others (Twagirumukiza et al., 2012) where the cause of the high blood pressure can be identified and sometimes treated. The main types of secondary hypertension are from chronic kidney disease, renal artery stenosis, excessive aldosterone secretion, pheochromocytoma, and sleep apnea((Maheshwari et al., 2015).

2.2.2.2. Stage of hypertension

Definitions and classification of BP levels (mmHg) according to the European Society of Hypertension (ESH) guidelines (ESH, 2013)

Table 1: Definitions and classification of BP levels

Category	Systolic		Diastolic
Optimal	<120	And	<80
Normal	120-129	and/or	80-84
High normal	130-139	and/or	85-89
Grade 1 hypertension	140-159	and/or	90-99
Grade 2 hypertension	160-179	and/or	100-109
Grade 3 hypertension	> or equal to180	and/or	> or equal to 110
Isolated systolic hypertension	> or equal to 140	And	<90

The table1 above showed the stage of hypertension which are respectively optimal ,normal BP, pre-hypertension or called high normal, hypertension stage one, hypertension stage two and emergency hypertension or grade 3 hypertension. Optimal hypertension is systolic of fewer than 120 and diastolic of less than 80 mm hg. Normal blood pressure is said when systolic is 120-129 and systolic of 80-84 mmHg .High normal hypertension (pre-Hypertension) is said when diastolic blood pressure is 130-139 and /or systolic blood pressure is 85-89mm Hg. Grade 1 hypertension is diastolic of 140-159 and/or systolic of 90-99 mmHg. Grade 2 hypertension is 160-179 and/or 100-109 mmHg respectively diastolic and systolic blood pressure. Grade 3

hypertension (hypertension crisis) **is** > or equal to180 and/or > or equal to 110 .Isolated systolic hypertension is > or equal to 140 diastolic and <90 systolic.

2.2.4 Symptoms

High blood pressure is sometimes called the "silent killer" because it usually has no warning signs or symptoms. However sometimes high blood pressure can cause symptoms such as headache, shortness of breath, dizziness, chest pain, palpitations of the heart or nose bleeds (WHO ,2013)

2.2.5 Diagnosis of Hypertension

Accurate BP measurement is the foundation of optimal diagnosis and treatment of hypertension and indicated that the diagnosis of hypertension is established when elevated blood pressure occur in at least two separate visits to the health care provider (JNC7, 2013)

According to (ESH, 2013), diagnosis of hypertension should be based on at least 3 different blood pressure measurements, taken on 2 separate office visits. Blood pressure can be measured by either a conventional sphygmomanometer using a stethoscope or by an automated electronic device. The electronic device, if available, is preferred because it provides more reproducible results than the older method and is not influenced by variations in technique or by the bias of the observers Weber et al(2014).

The findings from (JNC7, 2013) showed the measurement and clinical evaluation of blood pressure, and designated that clinic blood pressure should be measured by maintaining the arm cuff position at the heart level during rest in a seated position. Also, highlighted that the measurement must be performed two or more times at intervals of 1–2min, and the mean value of two measurements that provide stable values (difference in the values < 5mmhg) should be used.

According to guidelines from (ESH, 2013) define the important point to be emphasis on as follow: an appropriate cuff size for the patient's left arm circumference. The patient in sitting position with the arm at heart level and the forearm resting comfortably at the table, and blood pressure should be measured after a 5 to 10-minute of rest.

Furthermore, Blood pressure should be measured in both arms; and if the readings are different, the arm with the higher reading should be used for measurements thereafter (Frese et al., 2011). Other indications indicated in recommendation of BP measurement patients should be seated with their backs supported and with their legs resting on the ground and in the uncrossed position for 5 minutes (Weber et al., 2014).

In addition, it is useful to obtain standing blood pressures (usually after 1 minute and again after 3 minutes) to check for postural effects, particularly in older people (Weber et al, 2014). Some patients may have blood pressures that are high in the clinic or office but are normal elsewhere. This is often called white-coat hypertension. If it is suspected, consider getting home blood pressure readings.(Mancia, Fagard, Narkiewicz, Redon, Uk, et al., 2013)

2.2.6 Evaluating the Patient

Often, high blood pressure is only one of several cardiovascular risk factors that require attention in which before starting treatment for hypertension, it is useful to evaluate the patient more thoroughly by The history, physical examination, and selective testing (Weber et al 2014)

As stated by (Luehr et al., 2012) in Hypertension Diagnosis and Treatment guideline for healthcare , it is essential to assess and accurately stage newly confirmed hypertension. A complete review of all medications (prescription and over-the-counter) and herbal supplements is very important and the goal of evaluation is to determine whether the patient has primary or secondary hypertension, target organ disease, and other cardiovascular risk factors.

2.2.6.1 History

It is important to document all history about lifestyle modifications, including weight reduction and maintenance, the Dietary Approaches to Stop Hypertension (DASH) diet, reduction of dietary sodium, moderation of alcohol intake, physical activity, tobacco avoidance, and increase in dietary potassium intake, relaxation and stress management (Weber,et al 2014).

In addition (Luehr et al(2012) indicated that it is a crucial to determine all medications that patient have used including herbal supplements, over the counter, prescriptions and illicit drugs because some agents may temporally increase blood pressure and adversely affect the blood pressure control. A family history of hypertension, cardiovascular disease, cerebrovascular disease, diabetes mellitus, and dyslipidemia should be documented and symptoms and signs of target organ disease and secondary hypertension via a directed history should be assessment .

2.2.6.2 Physical Examination

At the first visit it is important to perform general examination including height, weight and waist circumference (BMI and Diabetic risk screening), two or more BP measurements separated by 1-2 minutes with the patient either supine or seated; and a(after standing for at least one minute take standing BP at 2 minutes and again at 5 minutes in the elderly, diabetics and other conditions where postural hypotension is frequent or suspected Weber et al(2014)

Other exams indicated are Fundoscopy, examination for carotid bruit, abdominal bruit, presence of peripheral pulses and radio-femoral delay, cardiac examination, abdominal examination for renal masses and bruit, aortic aneurysm and abdominal obesity, neurological examination to look for evidence of stroke signs of endocrine disorders (e.g. Cushing syndrome, acromegaly and thyroid disease)(Ministry of Health of Malaysian, 2013)

2.2.6.3 Tests

 The (ESH, 2013) mentioned the laboratory examinations for the overall assessment of cardiovascular assessment and indicated that lab exams that should be performed during the initial examination of hypertensive patients and at least once a year during antihypertensive treatment.

Those tests are follow: general urinalysis, blood cell tests, blood chemistry tests concerning blood urea nitrogen , creatinine, uric acid, electrolytes, fasting triglyceride level, HDL-cholesterol, total cholesterol, LDL-cholesterol, glucose, total bilirubin, and others body chemicals.

2.2.7 Management of hypertension.

After the diagnosis of HTN has been made, treatment should be started (Jacdonmi et al., 2016) to decrease cardiovascular risk, this can be achieved by nonpharmacological (lifestyle measures) as well as pharmacological means (Rachna Mundada & Sangeetha G, 2014).

2.2.7.1 Lifestyle modifications

The initial approach to hypertension management indicated is lifestyle changes include dietary interventions (reducing salt, increasing potassium, alcohol avoidance, and multifactorial diet control), weight reduction, tobacco cessation, physical exercise, and stress management Rachna& Sangeetha(2014) and (CDC, 2016).

This diet should be reduced in saturated fat and sodium then consumption of fruit and vegetables should be promoted. It is also recommended to maintain a healthy weight, be physically active, limit alcohol use, don't smoke, prevent or treat diabetes early (CDC, 2016). Furthermore, lifestyle modifications when used early can decrease other disease risks and may avoid the need for drug therapy.

2.2.7.2 Pharmacologic therapy

A study conducted by (Jacdonmi et al, 2016) to evaluate the role of epidemiological principles in the prevention and control of hypertension indicated that if lifestyle modifications are insufficient to achieve the goal BP, there are several drug options for treating and managing hypertension.

In patients with newly diagnosed uncomplicated hypertension and no compelling indications, choice of first line is monotherapy includes ACEIs, ARBs, CCBs, diuretics and beta blocker (Luehr et al,2012) and (Jacdonmi et al,2016) indicated Thiazide diuretics are the preferred agents in most patients with uncomplicated hypertension.

In addition, complicated (compelling) indications may include high-risk conditions such as heart failure, ischemic heart disease, chronic kidney disease, and recurrent stroke, or those conditions commonly associated with hypertension, including diabetes and high coronary disease risk. Drug

intolerability or contraindications may also be factor. An angiotensin-converting enzyme (ACE) inhibitor, angiotensin receptor blocker (ARB), calcium channel blocker (CCB), and beta-blocker are all acceptable alternative agents in such compelling case (Ductin surgical clinic, 2014).

According to (Jacdonmi et al.,2016),drug class recommended for compelling indications are based on various clinical trials. Those drug classes include: 1) Diuretic, Beta-blocker, ACE Inhibitors, ARB and aldosterone antagonist for are indicated for the patient with heart failure2) For the patients with post myocardial infarction should have Beta-blocker, ACE inhibitor, aldosterone antagonist 3) High coronary disease risk: Diuretic, beta-blocker, ACE inhibitor, CCB.4) When hypertensive patient have diabetes, they should take diuretics, beta-blocker, ACE inhibitor, ARB and CCB in their drugs regimen.5) Chronic kidney disease: ACE inhibitor, ARB and Recurrent stroke prevention: Diuretic, ACE inhibitor

2.3. Empirical literature

A multicenter cross sectional study conducted in Karachi, Pakistan shown that 54% of strokes and 47% of cardiac deaths are attributed to suboptimal blood pressure control. Hypertension is one of the most common medical disorders, associated with an increased incidence of all cause and cardiovascular disease (CVD) mortality. Good knowledge about hypertension is linked to better control of hypertension. (Almas et al., 2012).

A retrospective study conducted on prevalence and clinical features of arterial hypertension at Ruhengeri District hospital revealed that the majority of patients had severe hypertension (47.4%) and patients over 50 years of age had the highest prevalence of severe hypertension (67%) (Pande & Niyonzima, 2010)

A study conducted in Zambia on prevalence of hypertension and its treatment among adults presenting to primary health clinics in rural Zambia shown the prevalence of hypertension by onsite measurement was 23.1 % , (23.6 % in females, 22.3 % in males). The age standardized prevalence of hypertension across participating sites was 28.0 % (Tesema et al., 2013).

Musinguzi & Nuwaha,(2013) have articulated awareness of hypertension is a pre-condition for control and prevention of high blood pressure and in a study done by (Mendis et al., 2013) concluded that considering the rate of knowledge and control of hypertension, health care providers should reinforce their activities to help to improve patient's knowledge level toward control of hypertension.

A pilot study conducted in Uganda on knowledge, skills, and attitudes of nurses caring for hypertensive patients in an outpatient clinic shown that hypertensive prevalence rates estimated to range from 22.5% to 30.5%. Coupled with low levels of detection, treatment, and control, hypertension represents a Ugandan public health crisis. An innovative WHO-ISH education program culturally. (Katende et al, 2014).

Correspondingly, (Almas et al,2012) indicated the role of physicians has been critiqued in several studies in terms of lack of knowledge and practice of treating hypertension .Those are similarly to a study done by Elisabeth, Lohre and Liljevik(2012) in Tanzania among

hypertensive women that had shown that 82, 4% of health care providers had inadequate knowledge to manage patients with hypertension.

Compared to another study conducted from Dammam, Saudi Arabia on assessment of knowledge, attitude and practice of primary health care physicians and nurses towards hypertension, that study shown that both physicians and nurses regarding basic information about hypertension was low and 34% of nurses think that the care for hypertensive patients in their Primary Health Care Centers is inadequate (Gati, Idogonsit, Abdullahi, & Isaac, 2012)

WHO make remembered the importance of primary health care in struggle against hypertension and pointed the health professionals, especially nurses, should take part in creating awareness among the society members and they should take active role in organizing educational meetings (WHO, 2013).

A study conducted by Gyamfi et al (2017) aimed to explore the results from trained nurses in task-shifting strategies for the management and control of hypertension in Ghana some nurses had limited knowledge.

Compared with a study conducted by Lulebo et al (2015) to assess hypertension management in primary health care settings in Kinshasa, Democratic Republic of Congo found that a low proportion of nurses were knowledgeable on cardiovascular diseases including hypertension. In addition (Grabowska & Narkiewicz, 2013) indicated that the implementation of knowledge by nurses in their professional activities can contribute to a higher detectability of high blood pressure and more effective health education.

A study done by Li et al (2013) with aims to identify the gaps in current hypertension knowledge, and thus to inform the development of effective health education programs for the prevention and management of hypertension, they found Hypertension knowledge is extremely low, and average hypertension knowledge score was 25.6 out of the maximum 100 points for hypertensive and 20.0 for non-hypertensive respondents

These recommendation are similarly to the conclusion of the study of Kilic et al(2016) where he has articulated that nurses can be a source of knowledge about hypertension and should be motivated to prepare educational programs for the patients.

2.4. Conceptual framework

This study has conceptual framework that developed based on BLoom'Taxonomy.This was selected because the researcher need to examine whether nurses have knowledge or have been trained to achieve leaning outcomes needed to provide care to hypertensive patients. Bloom's taxonomy is composed with Cognitive alternately knowledge-based domain, affective alternately attitude-based domain and psychomotor which consist of physical skills-based domain (Munzenmaier & Rubin, 2013).

Authors continued highlighting that Cognitive domain is an intellectual of learning process. It is demonstrated by knowledge recall and the intellectual skills that can be categorized and observed through six levels of behaviors starting from the simplest behavior to the most complex behaviors: remembering, comprehension, application, analysis, synthesis and evaluation. (Zhu et al, 2015) illustrated that learning is around comprehending facts, information, descriptions, or abilities.

Affective domain relates emotion, attitudes, appreciation and values (Munzenmaier & Rubin, 2013) and affective domain are included five significant classifications as recorded starting with those simplest conduct technique of the complex: receiving, responding, valuing, organization, and characterization(Randall, 2010).

For psychomotor domain relates to physical movement, coordination and use of motors skills. As stated above for others domain from simplest behavior to complex behaviors, behaviors of psychomotor domain: limitation, manipulation, precision, articulation and naturalization (Munzenmaier & Rubin, 2013)

Cognitive domain in this study focus on knowledge of nurse regarding hypertension based on to provide care to hypertensive patients. Psychomotor domain focus on practice regarding hypertension care. Affective domain is not applied in this study because some nurses have less judgment and attitude in providing hypertension related care. Cognitive domain includes knowledge of hypertension related care regarding basic level of knowledge(remembering, comprehension and application).The psychomotor domain includes practices of hypertension related care regarding basic level of practice(limitation, manipulation and precision).

Cognitive and affective domain

➢ Knowledge about Hypertension

Definition

Causes

Pathophysiology

Classification

Clinical manifestation

Diagnosis

Investigation

Psychomotor domain

➢ **Practice on hypertension**

Monitoring and measuring blood Pressure

Perform history taking

Perform physical examination

Check cause and symptoms

Interpretation of blood investigation

Drug administration and Primary, secondary and tertiary prevention

Outcomes of nurses' knowledge and practices

• **Outcome for nurses**

Quality services delivery

Knowledge recall and the intellectual skills grow up

Prevent complication of HT

Competencies in managing hypertensive patients .

Outcomes for patient

Early diagnosis and treatment

Reduce hospitalization

Reduce mortality and morbidity

Resources management

Community be aware of hypertension's preventives measures

Outcome for health system
Reduce mortality and morbidity from hypertension

Reduction of hypertension prevalence

Figure1: Bloom Taxonomy Framework of knowledge and practice regarding hypertension.

Conclusion: This chapter identiffied the riterature riview about information on hypertension both theorectical and empirical.some Authors concentate on blood pressur measurement related knowledge and practice,assess those variable on health care provider in general and there was an isssues of gap related to recenty articles focus on knowledge and practice of nurses regarding management of patients with hypertension.

Discussion some articles used in literature

Authors	Research design	Sampling strategy	Data collection	Data Analysis	Findings
Umar Gati Adamu, Idogonsit Okon Ibok, Aisha Abdullahi, Isaac Olajide Ogundele, George Alaba Okuk(2013)	Cross sectional	Simple random	Pre-test post test interventions	Descriptive statistics	Knowledge, Attitude and Practice of Physicians and nurses were deficit
Gyamfi et al(2017)	cluster-randomized trial	Simple randomly	Semi-structure qualitative interview through mixed-method, pre–post test survey	Descriptive statistics and multiple linear regressions.	nurses had limited knowledge
(Tesema et al., 2013).	Prospective cross-sectional	Simple randomly	Interviewed questionnaire	Descriptive statistics	The study found inadequate levels of knowledge and practice of non-drug control of hypertension
GodfreyKatende,1 Sara Groves,2 and Kathleen Becker(2014)	one group pre-post design using	convenience sampling	Pre-test post test intervention.	Descriptive statistics.	Inadequate level of knowledge and practice of nurses

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter discussed research design, research approach ,research setting population, sampling include sampling strategy and sample size, instruments data collection procedure were discussed, data analysis, ethical considerations, data management, data dissemination, limitations and challenges then after conclusion for this chapter is done.

3.2. Research design

Research design is defined by (Burns &Grove, 2009) as blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings and (Polite & Beck, 2012) define a research design as "the researcher's overall for answering the research question or testing the research hypothesis".

In this study, cross-sectional-descriptive study design was conducted to obtain information on knowledge and practice regarding hypertension at Byumba District Hospital and to examine the relationship among those variables from 13rd to 31th March 2017. A study is called cross-sectional when researcher conducts the all measurements at once upon a time or within a short period of time with aim to study the prevalence of a phenomenon, problem, attitude or issue (Thisted, 2006).

3.3. Research approach

This is quantitative research approach. Quantitative research is the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect (Abawi, 2008)

3.4. Research setting

It refers to the place where data will be collected (Cavanagh, 2009).This study was conducted at Byumba District Hospital one in 42 government District Hospitals and data were collected in different services. It is located in Northern Province, in Gicumbi District, in Byumba sector near Urumuli Hotel and Byumba School of Nursing and Midwifery.

It serves population of 430000 and there more than 127patiens getting admitted per day, among them around 1256 are hypertensive patients admitted per year. This Hospital has 211 beds and it composed with 26 wards. The total numbers of nurses in this hospital were 72.This hospital was chosen based of ease to be reached by researcher and Service of NCD provided on this area.

3.5. Population

A research population is a well-defined collection of individuals or objects known to have similar characteristics in the sample is taken (Japheth, 2014).In this study population were all nurses working at Byumba District Hospital.

3.5.1 Inclusion criteria

This study was conducted to all nurses working at Byumba District Hospital. Those nurses were recruited based on ward allowing them to provide care to the patients with hypertension.

3.5.2 Exclusion criteria

Nurses working in neonatology ward were excluded.

3.6. Sampling

It is the process of selecting a number of individuals of a study in such way that individuals represent the large group from which they are collected (Samkange, 2012).

3.6.1. Sampling strategy

In this study, purposive sampling strategy was used. All 72 nurses working at Byumba District Hospital during the study period were invited to participate.

3.6.2. Sample size

All 72 nurses working at Byumba District Hospital during the study period were invited to participate in this study. All nurses available and willing to participate during the time of the study were recruited in the study.

3.7. Data Collection

This is the process of gathering and measuring information on targeted variables in an established systematic fashion, which then enables one to answer relevant questions and evaluate outcomes (Margaret Rouse, 2016)

3.7.1. Data Collection instruments

Questionnaire on Assessment of Knowledge and Practice of nurses toward hypertensive patients. It was structured questionnaire with multiple choice questions developed by researcher. It used to gather the needed information knowledge and practice that nurses should have in treating patients with high blood pressure which was done in February 2017.It was developed based on WHO theory and practice regarding hypertension guidelines.

The Questionnaire is constructed in English and translated in French and it is developed based on available literature from mentioned sources of information. It separated into two parts. The first part is composed with demographic data that can influence nurse's knowledge and practice. For demographic the participants responded about their age, sex , educational level, training received about NCD and working experiences in clinical setting especially in treating patients with hypertension.

The second part of questionnaire contains two sections: Section one had 22 questions on knowledge of nurses and sections two contains 20 questions that focus on practice. The practice sections had questions about monitoring and measuring blood Pressure, performing history taking, performing physical examination, checking cause and symptoms and interpreting blood investigation results and intervene accordingly and skills in administrating anti-hypertensive drugs and then providing health education on hypertension.

The section of knowledge composed of questions on definition, causes, pathophysiology, classification and clinical manifestation of hypertension and how is diagnosed through investigations and evaluating patient. The questionnaire was presented to the panel composed with four members from school and revised by researcher guided with her supervisors before gathering data.

Measurement

A questionnaire was prepared by the researchers in accordance with the literature to measure the level of knowledge and practice about hypertension. The questionnaire had 22 items as follows: three questions about BP classification; four questions about different given to hypertension, three questions about HT complications, three questions about factors can cause HT, fives questions about treatment and BP control; and four questions about signs and follow-up of HT And also a tool was formed to get data about socio-demographic characteristics of the subjects. The correct answer was scored1 and others response were scored 0.Total scores for the questionnaire about knowledge on hypertension ranged from 0 to 28 at maximum. The subjects were classified further in respect to the scores obtained from the questionnaire as follows: low level of knowledge< 17 points(<60 % points); moderate level of knowledge 17 to 22 points(605 to 80%); and adequate level of knowledge ≥ 22 points(> 80%). The tool also had 20 questions about practice. The questions were scored based on five level of Likert scale using reverse cording. As follows: strongly agree=4points, agree=3, undecided=2, disagree =1 and strongly disagree =0 for correct statement. Total scores for questions about practice ranged from 0to100 at maximum. The points were categorized as follows: low practice<60, moderate practice 60to 80 and adequate practice >80 scores.

Pilot study

A pilot study was conducted to determine reability and validity of the instrument as far as possible whether the instrument was clearly worded and not contains bias(Burns & Groves, 2009). It gave an idea of how long it takes to administer questionnaires. The pilot study was conducted on 16 nurses of Byumba health center localize on the gate of Byumba District Hospital a week before major study in February. Participants were explained about the study in order to get voluntary consent then after unclear questions were modified. Content validity was assessed through use of literature currently available on hypertension.

The reliability of instrument was obtained by Alpha coefficient method for suitability in which the instrument was tested over twice. The investigator did administer all the questionnaires herself to avoid bias associated with inter-rater reliability.

SPSS version 21 was used to compute the reliability coefficients for each scale in the questionnaire before the overall was computed. The Cronbach's alpha reliability test was determined against the acceptable range of it was equal 0.74 for knowledge and 0.73 for practice regarding questions.

3.7.2. Data collection procedure

Data were collected by researcher .The procedure for data collection was as follow: 1) the investigator got ethical clearance from institution review board (IRB) of the faculty of Nursing and Midwifery, CMHS, University of Rwanda to conduct the research. The researcher physically introduced herself to Byumba hospital Administration for requesting permission to collect data and acceptance letter was gotten. 2) The objectives and benefits of the study were explained in English or French to the participants. 3) Collection of data was done from 08.00 am to 4.00pm, from Monday to Wednesday. Participants were approached during working hours. Data collection was done during the period started from 13th February to March 2017

4.) The researcher provided informed consent form to the nurses before distributing the questionnaire to ensure their autonomous.5) The nurse received questionnaire after signing the informed consent form voluntary and researcher requested them to fill it individually in private room and there were no names included on the questionnaire, information disclosure to ensure anonymity. Completed questionnaire was coded and kept in locked, secured room during ten months. 6) The researcher checked answered questionnaires for incompleteness.

3.8. Data analysis

Data were entered into researcher's computer using SPSS version 21; they were checked before being analyzed. Demographic characteristics, the knowledge transformed scores regarding management of hypertensive patients, and practice transformed scores regarding treating hypertensive patients were analyzed using descriptive statistic such as frequency, mean, standard deviation and range. The level of knowledge and practice in regards to management hypertensive patients were categorized and described. That relationship between knowledge and practice regarding management of hypertensive patients were analyzed utilizing the Chi square.

3.9. Ethical considerations

Ethical clearance was obtained from institution review board (IRB). Introduction and aim of the study were cleared defined to respondent before signing the consent form (only if she/he agreed). The participants asked to sign consent form for the study. Participants had right to know the aim of the study, to withdraw without consequences during data collection. Participants have been informed that confidentiality and respect of personal privacy were maintained and the data from the study will not be used for other purposes. The questionnaires were filled without influence of researcher and there was no risk to fill them. Questionnaire did not include the names of research participants. All the questionnaires were given code numbers.

3.10. Data management

The questionnaire were collected and kept securely and they were accessed by researcher only.

3.11. Data Dissemination

The findings through this study will be presented and submitted to the University of Rwanda, CMHS. The research findings will be presented to management committee and to the nurses of Byumba District Hospital.

The findings of the research will be disseminated through in-service education and seminar and finally it will be published in the peer reviewed journals.

3.12. Limitations and challenges

The study was conducted at Byumba District hospital, one of Rwanda hospitals localized in Northern Province. This was one hospital which produces the small sample size; and results were not enough to be generalized to the rest of hospitals of the country. The nature of the study design was like self-report of nurses especially in part of practice which did not permit examining the actual practice in relation to provide care to the patients with hypertension. Valuable methods of data collection like observation of actual practice and document review were not used because of limited time for the study.

Conclusion: The researcher used descriptive cross-sectional design. A quantitative research approach conducted at Byumba District Hospital where seventy two nurses were selected to participate purposively and self structured questionnaire was used. The Pilot study was conducted to test reability and validity of tool. The data were analyzed using descriptive statistics and chi-square for correlation. The research was limited by generalization of the findings due to small sample size.

CHAPTER FOUR: RESULT PRESENTATION AND INTERPRETATION

4.1. Introduction

This study was aimed to examine nurse's level of knowledge and practice regarding management of hypertensive patients at Byumba District Hospital and to examine relationship between knowledge and practice. A descriptive cross-sectional design was used in this study. Seventy (70) out of seventy two nurses at Byumba District Hospital had completed questionnaire leading a response of 97% of responses.

4.2. Respondent's demographic characteristics

In this study the demographic data into consideration were age, sex, education level, working experiences and area of work as well as training received on hypertension management.

Table 2: 4.1. Distribution of studied nurses regarding their socio-demographic characteristics

Socio-demographic characteristics Items	sample (n=70)	
	N	%
Age group		
20-29	15	21.4
30-39	38	54.3
40-49	15	21.4
above 50	2	2.9
Sex		
Male	24	34.3
Female	46	65.7
Education Level		
Nursing secondary school	23	32.9
Diploma in nursing	41	58.6
Bachelor in nursing	6	8.5
Working Experience		
0-5 years	23	32.9
6-10 years	21	30.0
11-15 years	15	21.4
16-20 years	10	14.3
Above 20 years	1	1.4
Training regarding management of hypertensive patients		
No	63	90.0
Yes	7	10.0

The demographic data of respondents are presented in Table 4.1 above. More than half of respondents were female (65.7%).The results revealed that 54.3% of participants were in class

category of (30-39). More than half of respondents (58.6%) had completed diploma in nursing. According to the findings more than one-fourth of respondents had working experience between (0-5 years). Only less than one-fourth of participants (10%) had received training regarding managing hypertensive patients.

4.3. Knowledge regarding management of hypertensive

The knowledge regarding management of hypertensive patients was assessed through twenty two multiple choice questions. Moreover, the correct answer was scored one marks and incorrect answer was scored zero. The total score on knowledge was twenty eight (28) which were categorized based on different cut-off point from similar studies as follow: under 17=low level of knowledge, (17-22)=moderate level and above 22 was categorized as adequate knowledge.

Table 3: 4. 3: Distribution of studied nurses' knowledge regarding management of hypertensive patients

Items about Knowledge of Nurses	sample (n=70)	
	N	%
Hypertension controlled with therapy and uncontrolled with discontinuation of therapy is rebound		
Rebound	29	41.4
Other answer	41	58.6
Definition of hypertension		
Other response	36	51.4
SBP>=140 mm hg or DBP>=90 mm hg	34	48.6
Hypertension crisis		
Other	22	31.4
180/120 mm hg	48	68.6
Nurses who considered 134/85 as pre -hypertension		
Other	27	38.6
Pre-Hypertension	43	61.4
Nurses who were able to define 119/80		
Other	13	18.6
Normal	57	81.4
Risk Factors of Hypertension		
some risk factors among outlined	39	55.7
All risk factors outlined	31	44.3
Nurses who were able to define White Collar Syndrome		
Nurses who were unable to define white collar syndrome	47	67.1
Nurses who were able to define white collar syndrome	23	32.9
Nurses who were able to define Hypertension as Silent Killer		
Defined Hypertension as Silent Killer it usually has no warning signs and symptoms	21	30.0
H usually has no warning signs and symptoms and many people	28	40.0

they don't know that they have it		
Nurses who were unable to define Hypertension as Silent Killer	21	30.0
Knowledge of BP measurement with auscultatory method		
Nurse who knew auscultation method by distinguish korotkoff sound	49	70.0
Nurse who did not know auscultation method by distinguish Korotkoff sounds	21	30.0
Complication of Hypertension (9 complication)		
Nurse who did not know any complication	3	4.3
0 T0 3 ITEMS among outlined complication	9	12.9
4 T0 6 ITEMS among outlined complication	20	28.6
7 T0 9 ITEMS among outlined complication	38	54.3
Time of the diagnosis of Hypertension		
Nurses who knew Confirmation periods of the diagnosis at additional time of patient	28	40.0
Nurses who did not know Confirmation periods of the diagnosis at additional time of patient	42	60.0
Hypertensive patient assessment items		
Nurses who did not know elements to consider while examining hypertensive patients	5	7.1
1 item among outlined	11	15.7
2 item among outlined	2	2.9
All item	52	74.3
Major Hypertension management measures		
Nurse who did not know management measure	13	18.6
One management measure	8	11.4
all management measures	49	70.0
Group of people at greatest risk		
Nurses who were not able to define Group of people at greatest risk	17	24.3
Nurses who were able to define Group of people at greatest risk	53	75.7

Lisinopril and Lasix as Regimens of Hypertension		
Who knew the use of Lisinopril and Lasix	56	80.0
Who did not know the use of Lisinopril and Lasix	14	20.0
Aerobic exercise Program		
Who did not know the Aerobic exercise Program	29	41.4
Who knew the Aerobic exercise Program	41	58.6
Action of furosemide in Treating Hypertension		
Who did not know the action of Lasix	30	42.9
Who knew the action of Lasix	40	57.1
Nurse explication about occurrence of signs and symptoms of hypertension		
signs and symptoms of hypertension are often absent	51	27.1
signs and symptoms of hypertension occur with other issues	19	72.9
Sodium and water Excretion in kidneys		
Who were unable to describe Sodium and water Excretion in kidneys	45	64.3
Who were able to describe Sodium and water Excretion in kidneys	25	35.7
Laboratory Exams for Hypertensive Patients		
Who did not know the laboratory exams for hypertensive patients	7	10.0
Who knew the laboratory exams for hypertensive patients	63	90.0

The result from table 4.2 above shown that more than half of the respondents did not know respectively that Hypertension controlled with therapy and uncontrolled with discontinuation of therapy is rebound and SBP>=140 mm hg or DBP>=90 mm hg is hypertension (58.6%; 51.4). Continued on the stage of the hypertension, more than half of them respectively knew that 180/120 mm hg and 134/85 mm hg are hypertension crisis , pre-hypertension (68.6;61.4). More than tree-fourth of studied nurses (81.4%) were able to define 119/80 as normal blood pressure. More than half of them were unable to recognize all risk factors of hypertension outlined by researcher (55.7%).

More than half of participants did not know what white coat syndrome is (67.1%). Only more than one-fourth of respondents were able to define hypertension as silent killer(40%).

More than half of them knew auscultation method by distinguish korotkoff sounds (70%). Regarding the complication of hypertension, more than half of respondents knew between seven to nine complications outlined by researcher (54.3%). In this study, less than half of respondents knew confirmation periods to diagnose hypertension one to four weeks after first measurement at additional visit of patient (40%). Around a three fourth of respondents knew all elements to consider while examining hypertensive patients, all major strategies for managing hypertensive patients and they were able to define Group of people at greatest risk of developing hypertension 74.3%;70% and75.7%.

Most of respondents knew the use of Lisinopril and Lasix in treating patients with hypertension (80%).More than half knew respectively Aerobic exercise Program for patient with hypertension, action of Furosemide in treating hypertensive patients (58.6%;57.1%). Around tree-fourth of respondents did not know that occurrence of signs and symptoms of hypertension are often absent (72.9%). Less than half of respondents knew that Sodium and water Excretion in kidneys as factors can cause BP to drop normal levels (35.7%). Finally, most of respondents knew the laboratory exams for patients with hypertension (90%).

Chart 4.1. Distribution of nurses' knowledge score regarding management of hypertensive patients
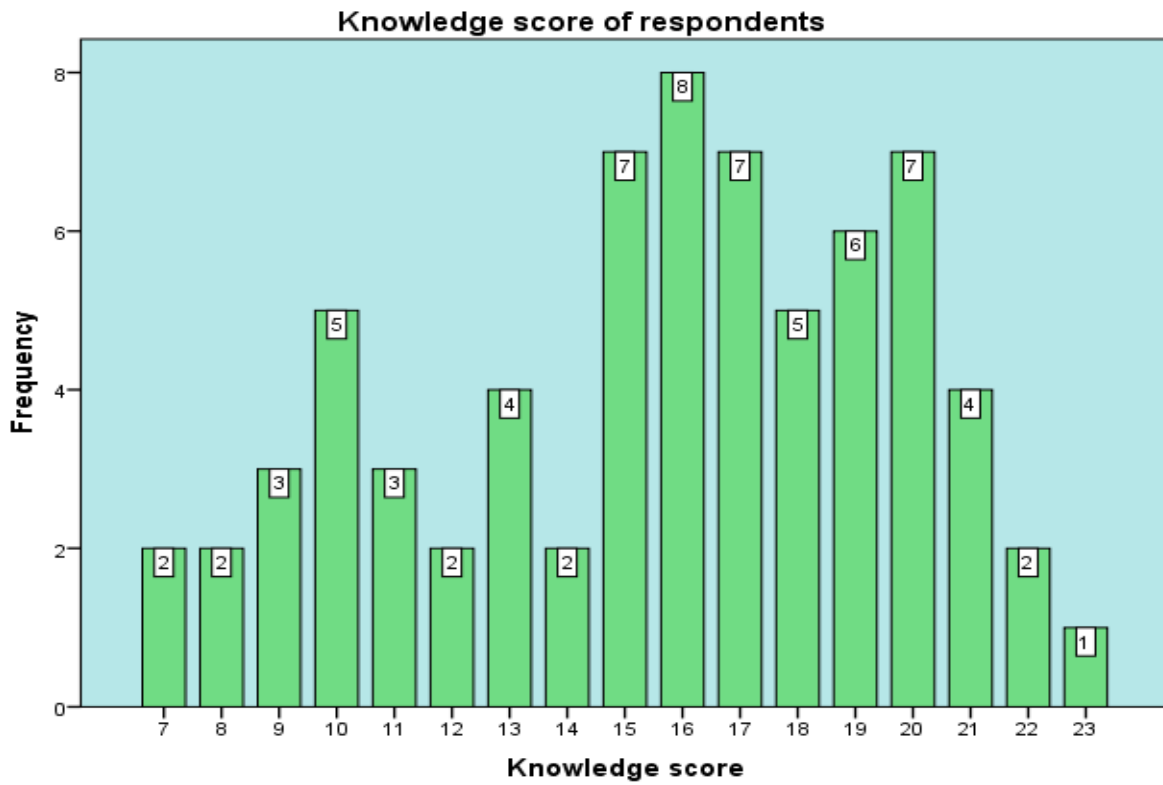
The chart above showed that the minimum score obtained by respondents regarding knowledge toward hypertensive patients 7, maximum was 23 which gives mean of mean score of 15.59 and Std. Deviation of 4.130.

Figure 1.1 Nurses' knowledge level regarding management patients with hypertension

level of knowledge of respondents
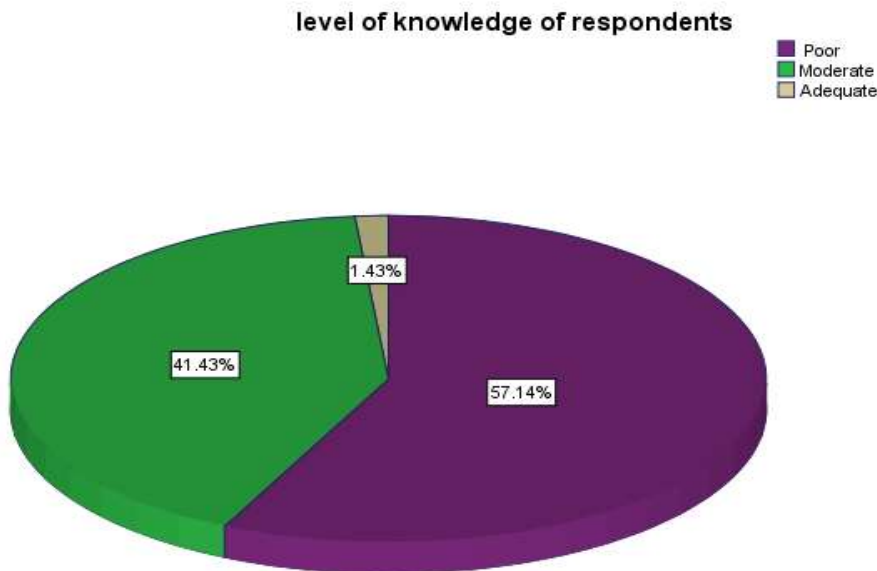
In the above figure results revealed that the level of knowledge of this group of participants was poor. More than half of participants had poor level of knowledge (57.14%), Less than half participants had moderate knowledge (41.4%) and only 1.4% of participants had adequate knowledge**.**

4.4. Practice regarding management of hypertensive patients

The practice regarding management of hypertensive patients was assessed through twenty questions based on Likert scale. The total score on knowledge was twenty eight(28) which were categorized based on different cut-off point from similar studies as follow: under 17=low level of knowledge,(17-22)=moderate level and above 22was categorized as adequate knowledge.

Table 4: 4. 3 Distribution of studied nurses' practice regarding management of hypertensive patients.

Items about Practice of Nurses	Sample (70)				
	SA N (%)	A N (%)	U N(%)	D N (%)	SD N (%)
For accurate measurement correct Blood pressure cuff size should be used.	49(70)	13(18.6)	8(11.4)	0(0)	0(0)
If the readings of BP are different in both arms, the arm with the higher reading should be used for measurements thereafter.	15(21.4)	32(45.7)	10(14.3)	5(7.1)	8(11.4)
Patient should sit upright with the arm supported while checking the blood pressure	28(40)	17(24.3)	12(17.1)	6(8.6)	7(10)
The nurses have to tell the patient to empty their bladders before taking blood pressure.	11(15.7)	18(25.7)	8(11.4)	14(20)	19(27.1)
Accurate BP can be obtained by checking two times at the interval of 2 minutes	16(22.9)	25(35.7)	18(25.7)	5(7.1)	6(8.6)
Patient's arm being used for the measurement should very frequently be at the same level as the heart, with the arm resting comfortably on a table.	39(55.7)	21(30)	7(10)	1(1.4)	2(2.9)
The BP cuff should be placed exactly on 2cms of cubital fossa	29(41.4)	15(21.4)	20(28.6)	3(4.3)	3(4.3)
Checking the blood pressure in standing position helps to identify the postural hypotension	9(12.9)	15(21.4)	17(24.3)	16(22.9)	13(18.4)

Additional patient visit, usually 1 to 4 weeks after the first measurement to diagnose hypertension	33(47.1)	22(31.4)	10(14.3)	0(0.0)	5(7.1)
Patient can take coffee /tea before checking the blood pressure	9(12.9)	4(5.7)	4(5.7)	8(11.4)	45(64.3)
During checking the blood pressure the cuff should be inflated quickly and released slowly	15(21.4)	22(31.4)	15(21.4)	5(7.1)	13(18.6)

The results from table 4. 3 have shown that more than half were strongly agree that for accurate measurement correct Blood pressure cuff size should be used (70%).In addition less than quarter were strongly agree that if the readings of BP are different in both arms, the arm with the higher reading should be used for measurements thereafter(21.4%). As result shown, less than half of respondents were strongly agree that patient should sit upright with the arm supported while checking the blood pressure (40%).

Less than quarter of the respondents were respectively strongly agree that the nurses have to tell the patient to empty their bladders before taking blood pressure, accurate BP can be obtained by checking two times at the interval of 2 minutes (15.7%; 22.9%).More than half of respondents were strongly agree that patient's arm being used for the measurement should very frequently be at the same level as the heart, with the arm resting comfortably on a table (55.7%). Less than half of them were strongly agree than the cuff should be placed exactly at 2cm from cubital fossa during measurement of blood pressure (41.4%).

Also the findings from this study have shown than less than one-fourth of studied nurses were strongly agree than checking the blood pressure in standing position helps to identify the postural hypotension(12.9%).Less than half of respondents were strongly agree that additional patient visit, usually is 1 to 4 weeks after the first measurement to diagnose hypertension(47.1%).More than half of them were strongly disagree that Patient can take coffee /tea before checking the blood pressure(64.3%). Less than quarter were strongly agree that that during checking the blood pressure the cuff should be inflated quickly and released slowly (21.4%).

The results from table4.2 above reported that more than half of studied nurses were strongly agree than is very important to consider weight, height and body mass index during physical examination of the patients with hypertension (55, 7%). More than quarter of studied nurses were agree that checking perpheral pulse is vital to diagnose purpheral artery disease in patients having hypertension(38.5%). Results indicated that more than half of them (64.29%) were agree that they shoud provide heath education on lifestyle modification. Less than quarter of them (22.8%) were correctly strong disagree that nurses should not give advice to the patients with hypertension that has begun an aerobic exercise progra about recommended exercise regimen.Similarly less than quarter of respondents (20%) were correctly strong disagreee that there is the no difference between checking blood pressure while patient clothing and when patient is unworn. The results also revealed that more than half of studied nurses (54.29%) were correctly strong agree that they used to give the appointment note to the patient under hypertensive treatment to maintain their visit appointment.

More than half of respondent (65.7%) were correctly strong agree that is the responsibility of the nurse to educate the patient on the side effects of the anti-hypertensive drugs. Approximately, more than half of them (55.75%) were correctly strong agree that nurses should provide to patient education about drug and food interactions with antihyprtensives drugs.Finaly few number of repondents(7.15%) were correctly strong desagree that hypertension has rarely been managed based on its stage.

Chart 4.2. Practice score regarding managing of hypertensive
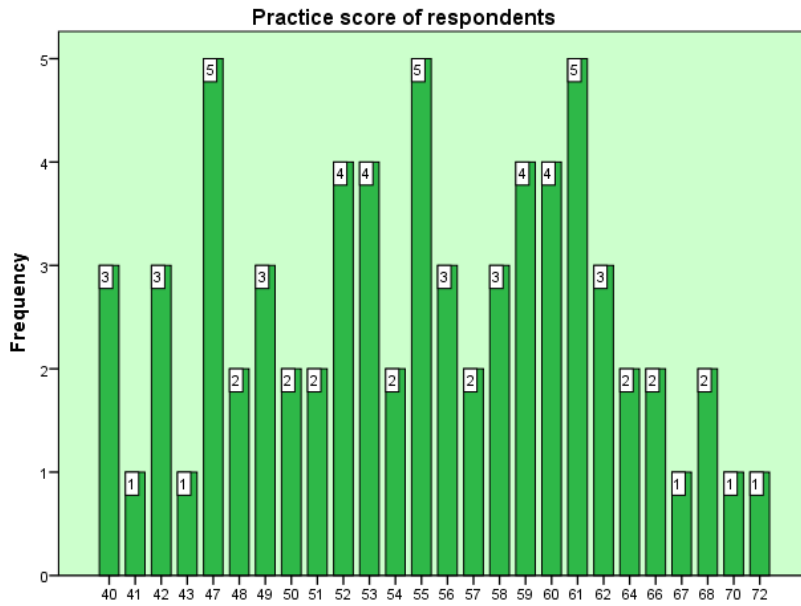
According to chart 4.2, the results revealed that practices of this participants was at poor level (mean=54.8% SD=7.720) with the minimum score of 40 and maximum score of 7
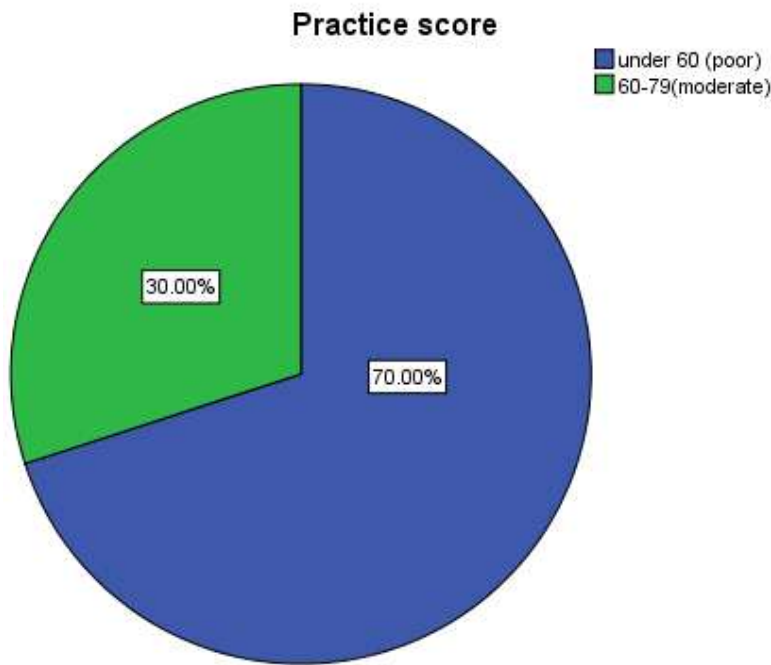
Figure 4.2. Nurses' level of practice in managing patients with hypertension.

More than half of participants had poor practice (70%), less than half participants had moderate practices (30%) and none had adequate practice.

4.5. Relationship between knowledge score and practice score.

Correlation analysis was conducted to determine the relationship between knowledge and practice regarding managing patient with hypertension using chi-square correlation coefficient. The results from this study revealed that there was no significant relationship between nurses' knowledge and practice regarding managing hypertensive patients (P=0.29).However, there was very significant relationship between training received and practice (P=0.02) as well as between working experience and practice (0.002).

Conclusion: The results from this study showed that seventy over seventy two participants were participated. Among them, only 10% had received training regarding management of hypertensive patients. 57.14% of nurses had poor knowledge and (70%),of them had poor practice and there was no correlation between nurses' knowledge and practice regarding management hypertensive patients(P=0.29).

CHAPTER FIVE: RESULTS DISCUSSION

5.1. Introduction

The chapter discussed results of knowledge and practice of nurses toward patients with hypertension at Byumba District Hospital and also focuses on relationship between knowledge and practices.

5.2. Demographic characteristics.

A total of 70 nurses were participated, 54.3% were ranged between 30 and 39 years old. More than half of respondents were female (65.7%). The high percentage of female nurses in the study may be is due to the dominance of females in nursing career.

That dominance mentioned above is due to that the men were historically excluded in nursing career, and were seen as fit for task restricted to physical jobs like moving or lifting patients and never appreciated their caring task. These are due to Florence Nightingale who made major contributions in the nursing profession, she was greatly involved in excluding men from this profession by affirming that nursing was a discipline for female (Evans, 2017). Furthermore the barriers have affected the numbers of men in nursing career who seen to be will not appear to be a nurse, and will thus avoid the stigma associated with men who work in female dominated professions.

Majority of the nurses had working experience between (0-5years) and more than half of respondents had attained diploma education in nursing (58.6%). These results are close as the findings from the same study cited above which stated that the mean age was 4.4 years of working nursing experience. The few years of working experience is explained by the fact that the public service system has just started recruitment of nurses and mutation of nurses from one hospital to other. In addition the high percentage of diploma holders in nursing is due to the heath policy issues of strengthening and increase the capacity of health care providers by upgrading their level of study and the process of appointed nurses by MOH at that level.

Only less than one-fourth of participants (10%) had received training regarding managing hypertensive patients.

The finding in this study are converse than the findings of (Machado et al., 2014) aimed to determine and to analyze the theoretical and practical knowledge of Nursing professionals on indirect blood pressure measurement which shown that only one third of professionals participated in training on BP measurement after professional education, This may be explained by less expanded of task shifting in managing NCD in health sector and this fact shows the few importance that is given to this thematic. This is will be more likely to affect adverse the management of hypertension as articulate by (Rajesh et al., 2016) where the nurses felt that they had not received sufficient training for them to feel fully confident while independently managing patients with hypertension.

5.2 Nurses 'knowledge regarding management of hypertensive patients

The result from table 2 above shown that more than half of the respondents did not know respectively that Hypertension controlled with therapy and uncontrolled with discontinuation of therapy is rebound and. in this study almost of half of respondents (48.6%) were able to define hypertension as SBP>=140 mm hg or DBP>=90 mm hg. Continued on the stage of the hypertension, more than half of them respectively knew that 134/85 mm hg are hypertension crisis, pre-hypertension (68.6;61.4). More than tree-fourth of studied nurses (81.4%) were able to define 119/80 as normal blood pressure.

These results are not far high as the findings of (Grabowska & Narkiewicz i,2013)which revealed that every third participant of the study (33.7%) identified the "optimal" blood pressure with levels corresponding to the normal blood pressure category. Authors also continued showing that previous studies reported an unsatisfactory level of knowledge of the current classification of blood pressure levels both among nurses and physicians and medical faculty students.

In this study 44.3 % were able to define most of risk factors of hypertension. These results are below of the study done by (Shaikh et al., 2011) aimed to assess knowledge regarding risk factors of hypertension among entry year students of a medical university, which revealed that more than 60% were aware of high salt intake and a high-calorie diet being risk factors. However, a gap in knowledge was seen in two modifiable risk factors, namely, physical activity (52.7%) and oral contraceptives; 86.4 % of the participants were not aware that these were risk

factors for hypertension. More than 50% were not aware of the non-modifiable risk factors such as male gender (88.2%), increasing age (60.0%), and positive family history of CVD (50.9%).

These results indicated that the respondents had a gap in knowledge about risk factors of hypertension thus most of those risks are modifiable through lifestyle change and will alter the management strategies of hypertension

More than half those participants did not know what white coat syndrome is (32.9%). These are around three times more than what (Grabowska & Narkiewicz, 2013) have found in the study aimed to assess nurses ' knowledge on the classification , prevalence and consequences of arterial hypertension. They found that the respondents who were able to respond that elevated blood pressure in doctor's office measurements as the "white coat effect" was presented merely by (11.3 %) of the respondents. This is showing that most of nurses were not aware of what white collar syndrome. Consequently these are indicating that patients can be poorly diagnosed or managed.

Regarding the complication of hypertension, more than half of respondents knew at almost of complications (54.3%). The results are below of study of (Grabowska & Narkiewicz, 2013) who found that the best-known consequences of hypertension in the study group proved to be: cerebral stroke (93.5%), coronary heart disease (86.1%) and cardiac failure (84.6%) – 88% correct answers on average, followed by renal failure (72.4%) and atherosclerosis (68.1%) – 70% correct answers on average

 Similarly, (Fadhillah et al., 2015) in a study of a descriptive study with a cross-sectional approach aimed to assess prevalence of hypertension and its complications among 828 respondent in Jatinangor have found that The most common complication due to hypertension in Jatinangor was heart attack (n = 53) and stroke (n = 29).

In this study results showed that less than half of nurses knew confirmation periods to diagnose hypertension one to four weeks after first measurement at additional visit of patient (40%). Those are below the results of the study done by (Grabowska & Narkiewicz, 2013) which revealed that 61.2% of the participants, arterial hypertension is diagnosed on the basis of the results of multiple BP measurements taken during at least two consecutive visits.

Respectively, more than third of respondents knew all elements to consider while examining hypertensive patients (74.3%). These results are showing that most of the nurse were aware of examinations requirements.(Felipe et al., 2008) in a descriptive study with objective to observe the aspects of nursing consultation undergone by hypertensive patient developed in three healthcare centers in the city of Fortaleza. The subjects were 13 nurses, and data collection comprised the observation of three of each nurse's consultation, followed by an interview with this professional.

The authors (Felipe et al., 2008) showed that that several aspects considered essential for the anamnesis were only partially executed, such as the description of socio-demographic characteristics. In several consultations, the nurses also failed to ask about the length of the hypertensive condition, the patient's family history and symptoms suggesting damage in a target organ or secondary hypertension.

Less than half of respondents knew that Sodium and water Excretion in kidneys as factors can cause BP to drop normal levels (35.7%) Finally, most of respondents knew the laboratory exams for patients with hypertension (90%). A detailed history and physical examination is essential for identifying risk factors and stratifying patients to target those who need more aggressive therapy to achieve goal BP. The history should include details of dietary salt intake and should explore lifestyle patterns and social and psychosocial stressors that could potentially affect BP levels. Ophthalmologic assessment and funduscopic examination were simple techniques used to identify the severity of disease and target organ damage by grading retinal changes (Mohammed, 2013)

In this study level of knowledge of respondents were classified as poor, moderate and adequate knowledge and scored 57.14%, 41.4% and 1.4% respectively. A study conducted by (Gyamfi et al., 2017) aimed to explore the results from trained nurses in task-shifting strategies for the management and control of hypertension in Ghana some nurses had limited knowledge. In addition,(Lulebo et al., 2015) in a study conducted with objectives to assess hypertension management in primary health care settings in Kinshasa, Democratic Republic of Congo found that a low proportion of nurses were knowledgeable on cardiovascular diseases including hypertension.(Grabowska & Narkiewicz, 2013) indicated that the implementation of knowledge

by nurses in their professional activities can contribute to a higher detectability of high BP and more effective health education.

A study done by (Li et al., 2013) with aims to identify the gaps in current hypertension knowledge, and thus to inform the development of effective health education programs for the prevention and management of hypertension, they found Hypertension knowledge is extremely low, and average hypertension knowledge score was 25.6 out of the maximum 100 points for hypertensive and 20.0 for non-hypertensive respondents. A small proportion of respondents correctly answered questions about hypertension complications (i.e., 36.5% for stroke, 38.9% for heart attack, 18.0% for kidney disease and 27.9% for eye disease among hypertensive respondents and 31.2% for stroke, 32.1% for heart attack, 11.8% for kidney disease and 19.6% for eye disease among non-hypertensive respondents). And they found that respondents who participated in the educational sessions had better hypertension knowledge than those who did not. This statement is showing that nurses are key important to enhance knowledge of population as well as hypertensive patients. Consequently our study found that the level of knowledge of most of nurses was poor. Thus under such circumstances management of patients with hypertension is likely to be sub-optimal.

5.3. Practice regarding management of hypertensive patients

Most of respondent (70%) in this study have agreed that to measure blood pressure is essential to use correct Blood pressure cuff size. Indeed, accurate measurement of blood pressure is critical for making appropriate clinical decisions in management of high blood pressure. Although, (Machado et al., 2014) articulated that most of professionals confirmed inadequate cuff might influence values obtained but, the steps for brachial circumference measurement and to select the adequate cuff to the arm were not followed. (Toit, 2013) stated that is important to make sure that the cuff is positioned at the level of the heart. Henceforth, inaccurate measurement of blood pressure could lead to a patient being falsely classified as hypertensive or falsely classified as having high normal or normal blood pressure as well as lead to faulty clinical decisions.

In this study more than a half of respondents (64.3%) have agreed that patient should sit upright with the arm supported while checking the blood pressure and less than half of respondents were strongly agree that patient should sit upright with the arm supported while checking the blood

pressure (40%). And Less than half of them were strongly agree than the cuff should be placed exactly at 2cm from cubital fossa during measurement of BP (41.4%). As indicated by (Williams et al., 2009) the cuff should be placed on a bare arm, approximately 2 cm above the elbow crease, with the midline of the bladder directly over the brachial artery and should fit snugly but should still allow for two fingers to slide under the cuff.

Indeed, patient should be seated with back and arms supported, feet on floor, and legs uncrossed with upper arm at heart level (phlebostatic axis: 4th intercostal space, halfway between the anterior and posterior diameter of the chest (Martin, 2010; Eliza Schub & Caple, 2015). A study conducted by (Machado et al., 2014) to determine and to analyze the theoretical and practical knowledge of Nursing professionals on indirect blood pressure measurement, the majority of respondents mentioned the calm environment rather than a quiet environment.

In addition less than quarter were strongly agreeing (21.4%) that the arm with the higher reading should be used for measurements if the readings of BP are different in both arms. The respondents were likely to ignore significant and its importance difference in the pressure recorded in both arms. (Patrick J. Skerrett, 2012) indicated the right and left arms can signal circulatory problems that may lead to stroke, peripheral artery disease, or other cardiovascular problems.

Merely less than quarter (21.4%) were strongly agree that if the readings of BP are different in both arms, the arm with the higher reading should be used for measurements. These findings are lower than the results of (Toit, 2013) who revealed that sixty-one participants (59.8%) indicated that they measure the BP in both arms, while only 12 participants (11.8%) recorded the arm used for the measurement.

Ninety-eight percent (98%) of the participants agreed that it might be appropriate to measure the BP in both arms in special circumstances, and consequently 96 participants (94.1%) expected the reading to be the same in both arms. As (Frese et al., 2011) indicated the difference between the first two readings is more than 5 mm Hg, one or two additional readings should be obtained, and the average of the multiple readings should be used. Moreover studies indicated that the arm with the higher reading should be used for measurements if readings of BP measurement are different. (Clark et al., 2012) have indicated that assessment of blood pressure in both arms is

recommended by guidelines and should become a core component of initial blood pressure measurement in primary care. Detection of difference should prompt consideration of further vascular assessment and aggressive management of risk factors.

Around of half of respondents (47.1%) in this study strongly agreed that additional patient visit, usually is 1 to 4 weeks after the first measurement to diagnose hypertension. These results are showing that most of the respondents were not aware of the importance of additional visits for patient who has higher measurement of BP.

In this study above of half of respondently (64.29%) agreed that they shoud provide heath education on lifestyle modification. Additionally , a study done by (Njambi & Tanui, 2014) aimed to understand the effectiveness of lifestyle modification in prevention of hypertension indicated that lifestyle modification is the main way of preventing hypertension. This can only be achieved through collaboration between the patient and the healthcare giver.

It has been found that patients who receive education and counseling on hypertension management demonstrate enhanced adherence.(Himmelfarb et al., 2016). And, (Diaz & Shimbo, 2013) in a study conducted with a purpose of reviewing the most recent evidence for the role of physical activity in the prevention of hypertension and discuss the recent studies that have sought to address these unanswered questions they articulated physical activity is commonly recommended as an important lifestyle modification that may aid in the prevention of hypertension. Authors have pointed that current guidelines recommend increasing physical activity as a means to prevent hypertension. Also, (Brook et al., 2013) stated that he general recommendations for exercise to improve health have been outlined and are not provided specifically for the treatment of hypertension but have suggested an exercise program according to an individual's habitual physical activity, physical function, and health status.

In this current study, around half of studied nurses (54.29%) were correctly strongly agreed that they used to give the appointment note to the patient under hypertensive treatment to maintain their visit appointment. That are alike of what (Dennison Himmelfarb et al., 2016) have articulated. They have articulated that Hypertension care teams used note to enable appointment scheduling, reminders, and follow-up. Also (Barreto et al., 2014) indicated that on nursing appointment, they should perform health education actions, encouraging the supported self-care,

so that people, families and groups can develop skills that facilitate them to take action intentionally in relation to changeable risk factors, and the adherence to drug therapy.

In this study more two third of participants had poor practice (70%), around third participants had moderate practices (30%) and none had adequate practice. These results are differently as study done by (AI-Dharrab et al., 1996) aimed to evaluate the quality of management of hypertensive patients attending Primary Health Care Center (PHC) in Dammam city and to determine factors that possibly affect it. They found that 34% of nurses think that the care provided to hypertensive patients was inadequate. These findings are showing that most of the nurses have poor practice regarding to management of hypertension.

5.4. Relationships between knowledge and practice of respondents

The results from this study revealed that there was no significant relationship between nurses' knowledge and practice regarding managing hypertensive patients (P=0.29). However, there was very significant relationship between training received and practice (P=0.02) as well as between working experience and practice (0.002). The findings are contrarily of (Barreto et al., 2014) who revealed that there is essential difference between knowledge and practice, and (Li et al., 2013) showed that there is between health information regarding hypertension association with knowledge of the respondents for hypertension. Additionally, (Gyamfi et al., 2017) evaluate the level of knowledge at the post study training, the assessment indicated improvements in the nurses' hypertension knowledge; thus is the study is indicating that there should be the opportunities for effective training to improve their knowledge and practice.

According to (Alleyne et al., 2011), It is essential that nurses have the necessary knowledge and skills to lobby, advocate, educate, inform and support and authors continued showing that Even among the well informed, there is often a gap between what nurses know and what they carry out certain tasks. Health professionals and others with the necessary knowledge and skills can have a significant impact in motivating and supporting behavioral change.

CHAPTER SIX:CONLUSION,RECOMMENDATIONS AND LIMITATIONS.

6.1 SUMMARY OF RESULTS.

The results from this study showed that seventy over seventy two participants were participated. Among them, only 10% had received training regarding management of hypertensive patients. 57.14% of nurses had poor knowledge and (70%) of them had poor practice and there was no correlation between nurses' knowledge and practice regarding management hypertensive patients (P=0.29).

6.2.CONCLUSION

This study was to answer the questions: what is level of knowledge and practice regarding management of hypertensive patients and if there is relationship between knowledge and practice. The study identified that both knowledge and practices of nurses in management of patients with hypertension were poor; Nurses must be trained to manage patients with hypertension. Additional updated training and evaluation and regular in-service training programs are necessary to ensure improvement of nurses 'knowledge and practice. The practice of reflecting on knowledge and skills development should also be promoted to ensure that nurses move beyond performing a practice safely and accurately to being able to integrate the cognitive, affective and psychomotor domains in an effective way to provide high quality nursing care.

6.3. RECOMMENDATIONS

Implication in nursing education.

There is need to establish and implement a continuous professional education program on management of patients with hypertension focus on knowledge about hypertension. Implementation of these recommendations will require a multifaceted approach with combined input of the hospital and nurse leaders, Rwandan nurses' council, practicing nurses and nurse-educators in conjunction with Ministry of Health.

To ensure adequate knowledge and practice of nurses, there is need that will foster capacity building for nurses caring patients with hypertension. The implications of these findings are broad particularly as nurses are the largest group of healthcare workers in Rwanda health sector.

Our findings suggest that training nurses in hypertension management can increase their knowledge of treatment and control strategies which may decrease hypertension rates in the country by encouraging those trained to apply leaned and gained knowledge into practices. This can be led nurse- leaders in the hospital and Ministry of Health.

Implication in research

A study involving more than one hospital is recommended to gain more information on the knowledge and practices of nurses related to management of patients with hypertension. This will help to generalize the findings about nurses' knowledge and their practice in this area of health. Methods of data collection like document reviews and observation need to be used to help analysis of the actual practices for improvement.

Interventional study is recommended to improve knowledge and practice of nurses in management of hypertension.

Implications for Nursing practice.

The study provided an opportunity for the nurses to evaluate themselves in the area of knowledge and practices related to manage hypertension in adults. It might enhance combined effort of the health care providers and health institution's administration towards the establishment of team work to induce change with the aim of improving nurses 'practices and knowledge about hypertension.

6.4. LIMITATIONS

 The nature of the study design was like self-reports of nurses especially in part of practice. This did not permit examining the actual practice in relation to provide care to the patients with hypertension. Valuable methods of data collection like observation of actual practices and document review were not used because of limited time for the study.

Nurse's workload was challenge in approaching them which made the research to reach them in extra time.

And other challenges met were that no recent literatures regarding nurses' knowledge and practice regarding hypertensive patients' management which is challenge for data discussion of the study results.

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APPENDIX

1.2 CONSERTFORM

My name is Eugenie NYIRABAZUNGU on behalf of university of Rwanda/College of Medecine and Health Sciences; Kigalicompus. I am conducting a study inByumba District Hospital- Northern Province aiming at assessing knowledge and practice of nurses toward patient with hypertension.

All nurses who meet inclusion criteria during time of data collection will be requested to participate in the study after having explanation about the study. If the request is positively agreed, the participant will be given the questionnaire.

You are kindly requested to participate in this study. All information will be kept confidentially and securely, names are not allowed to be written on questionnaire. Your participation is vital as well as is voluntarily. And, you are allowed to participate freely as you have right to refuse or withdraw at any time even without any effects. However your participate is highly demanded and will be appreciated.

Therefore, I have read and understand the aim of this study.

Respondent signature   Interviewer signature

………………………   …………………………

Date………………….   Date…………………

1.2 FORMAT DE CONSERTEMENT

Je m'appelle Eugenie NYIRABAZUNGU au nom de l'université du Rwanda / Faculté de Médecine et des Sciences de la Santé; Kigali compus. Je mène une étude à l'hôpital de district de Byumba - province du Nord visant à évaluer la connaissance et la pratique des infirmières vers le patient avec l'hypertension.

Toutes les infirmières qui répondent aux critères d'inclusion au moment de la collecte des données seront invitées à participer à l'étude après avoir donné des explications sur l'étude. Si la demande est approuvée, le participant recevra le questionnaire.

Nous vous prions de bien vouloir participer à cette étude. Toutes les informations seront conservées de façon confidentielle et sécurisée, les noms ne sont pas autorisés à être inscrits sur le questionnaire. Votre participation est vitale et volontaire. Et, vous êtes autorisé à participer librement comme vous avez le droit de refuser ou de retirer à tout moment, même sans aucun effet. Cependant votre participation est fortement demandée et sera appréciée.

Par conséquent, j'ai lu et compris le but de cette étude.

Signature de l'intimé   Signature de l'intervieweur

....

    ………………………………........

Date………………….   Date…………………

QUESTIONNAIRE

This questionnaire to collect data on knowledge and practice of nurses toward hypertensive patients is composed by tree parts

Part 1. Demographic data profile
Please answer the following questions and give mark

(X) On the parenthesis and fill in the blank area

1. Age:

   20-29(......)

   30-39(......)

   40-49(......)

   Above 50(......)

2. Sex: Male: (......)

   Female: (........)

3. Educational level:

   Nursing secondary school: (   )

   Diploma in nursing: (   )

   B. bachelor in nursing: (   )

   Masters of nursing: (   )

4. Service experience:

   0-5 years: (........)

   6-10 years: (.........)

   11-15 years: (........)

16-20 years: (.........)

Above 20years: (............)

5. Have you ever taken any training regarding management of hypertensive patients?

No: (............)

Yes: (...........)

Part 2

Section 1: Knowledge regarding managements of hypertensive patients

Please read the following sentences and give marks (X) of multiple choice questions to the best answer for each question according to your understanding (question on cognitive domain).

1. Which of the following terms explains when the blood pressure, is controlled with therapy, becomes uncontrolled with the discontinuation of therapy?

A. Rebound X

B. Essential

C. Primary

D. Secondary

2. Which of the following define hypertension?

X A. When systolic blood pressure is equal or to above 140 mm Hg and/or a diastolic blood pressure equal to or above 90 mm Hg.

B. When systolic blood pressure is below 140 mm Hg and/or a diastolic blood pressure below 90 mm Hg.

C. When systolic blood pressure is above 140 mm Hg and/or a diastolic blood pressure is above 90 mm Hg.

D. When systolic blood pressure is equal to140mm Hg and/or diastolic blood pressure is equal to 90 mmHg.

3. Hypertension crisis is defined as: when the blood pressure is

A. 160/80 mm Hg

B. 150/110 mm Hg

C. 140/100 mm Hg

X D.180/120 mmHg

4. A blood pressure of 134/85 is considered to be:

X A. Pre-hypertension

B. Stage 1 Hypertension

C. Stage 2 Hypertension

D. None of the above

5. A blood pressure reading of 119/80 is considered to be:

A. Pre-hypertension

B. Stage 1 Hypertension

C. Stage 2 Hypertension

D. None of the above

6. All of the following are contributing factors to hypertension EXCEPT

A. obesity and smoking.

B. High secretion of the renin-angiotensin and aldosterone.

C. Increase stress level and sedentary lifestyle.

X D. Alternative and complimentary therapy.

7. What is white collar syndrome?

a. High blood pressure experienced by the corporate people

X b. Elevation of the blood pressure during doctor's consultation

c. Elevation of blood pressure during sleep

d. Elevation of blood pressure experienced by the nurses.

8. High blood pressure is sometimes called the "silent killer" because:

A.it usually has no warning signs or symptoms.

B. Many people do not know that they have high blood pressure.

C. It has dangerous signs and symptoms

X D.A and B

9. If the auscultatory method is used during blood pressure measument, the first and fifth Korotkoff sounds (the appearance and disappearance of sounds) will correspond to the systolic and diastolic blood pressures.

X A.True

B. False

10. Stroke and eye diseases are only two life conditions of complication of hypertension.

A. True

X B. False

11. Dementia; retinopathy, diabetes and sexual dysfunction are also complication of hypertension.

A. False

X B. true

12. The following life conditions are complications of hypertension EXCEPT:

A. Atherosclerosis

B. Heart failure

X C. Asthma

D. Kidney disease

13. The diagnosis of hypertension should be confirmed at an additional patient visit:

A. Usually 1 to 4 days after the first measurement.

X B. Usually 1 to 4 weeks after the first measurement.

C. Usually 1 to 4 months after the first measurement.

14. During assessment of patient with hypertension, nurse should check all of below:

A. History taking

B. Perform physical examination.

C. Analyse lab resuts

X D. All of above

15. Which of the following are major strategies to manage patient with hypertension?

A. Lifestyle modification

B. Pharmacotherapy

C. Hypertension screening

X D.A and B.

16. Which individual is at greatest risk for developing hypertension?

A. Person with active life style

B. Type B personality

X C. hronic cigarrate smoker

D. Good family support

17. The physician orders lisinopril (Zestril) and furosemide (Lasix) to be administered concomitantly to the client with hypertension. The nurse should:

A. Question the order

X B. dminister the medications

C. Administer separately

D. Contact the pharmacy

18. A client with hypertension has begun an aerobic exercise program. The nurse should tell the client that the recommended exercise regimen should begin slowly and build up to:

X A. 20–30 minutes three times a week

B. 45 minutes two times a week

C. 1 hour four times a week

D. 1 hour two times a week

19. What is action of furosemide in treating hypertension? It

A. It dilates peripheral blood vessels.

B. It decreases sympathetic cardio acceleration.

X C. It inhibits reabsorption of sodium and water in the loop of Henle.

D. It inhibits the angiotensin-coverting enzymes

20. While a client with hypertension is being assessed, he says to the nurse, "I really don't know why I am here. I feel fine and haven't had any symptoms." The nurse would explain to the client those symptoms of hypertension:

X A. Are often not present

B. Signify a high risk of stroke

C. Occur only with malignant hypertension

D. Appear after irreversible kidney damage has occurred

21. A client with hypertension asks the nurse factors can cause blood pressure to drop to normal levels?

A. Kidneys' excretion to sodium only.

B. Kidneys' retention of sodium and water

X C. Kidneys' excretion of sodium and water

D. Kidneys' retention of sodium and excretion of water

22. The following are laboratory tests for patient with hypertension except

A. Electrolytes, FBC

 B. fasting glucose concentration,liver function tests

C. Serum creatinine and blood urea nitrogen, lipids,

X D. Stool exam

Section 2: Practice regarding managements of hypertensive patients

Please answer the following questions by giving marks (X) on the column that most fit to your current practice (based Likert scale)

no	Items	Strongly agree	agree	Undecided	Disagree	Strongly disagree
1.	For accurate measurement correct Blood pressure cuff size should be used.	X				
2.	If the readings of BP are different in both arms, the arm with the higher reading should be used for measurements thereafter.	X				
3.	Patient should sit upright with the arm supported while checking the blood pressure	X				
4.	The nurses have to tell the patient to empty their bladders before taking blood pressure.	X				
5.	Accurate BP can be obtained by checking two times at the interval of 2 minutes	X				
6.	Patient's arm being used for the measurement should very frequently be at the same level as the heart, with the arm resting comfortably on a table.	X				
7.	The BP cuff should be placed exactly on the 2 cms above cubital fossa	X				
8.	Checking the blood pressure in standing position helps to identify the postural hypotension	X				
9.	Additional patient visit, usually 1 to 4 weeks after the first measurement is needed and, the systolic blood pressure should be ≥140 mm Hg or the diastolic pressure ≥90 mmHg to diagnose hypertension	X				
10.	Patient can take coffee /tea before checking the blood pressure					X

w

11	During checking the blood pressure the cuff should be inflated quickly and released slowly	X				
12.	Assessing patient's weight, height and body mass index are important during physical examination	X				
13.	Checking peripheral pulse rates is vital to diagnose peripheral artery disease in hypertensive patients.	X				
14.	The nurses should provide health education on life style modification	X				
15.	The nurses should not give advice to the patients with hypertension that has begun an aerobic exercise program that the recommended exercise regimen should begin slowly and build up to 20–30 minutes three times a week.					X
16.	There is no difference between checking blood pressure while patient clothing and when patient is unweared.					X
17.	Nurses frequently used to give the appointment note to the patient under hypertensive treatment to maintain their visit appointment.	X				
18.	It is the responsibility of the nurse to educate the patient on the side effects of the anti-hypertensive drugs	X				
19.	The nurses should teach the patients on the drugs or food that they are not allowed to take concomitantly with hypertension medication.	X				
2o.	Hypertension has rarely been managed based on its stage.					X

x

QUESTIONNAIRE

Cet questionnaire est redigé pour collecter les données sur les connaissances et la pratique des infirmières vers les patients hypertendus, est composé de trois parties

Partie A: Parti des données démographiques du participant

Veuillez répondre aux questions suivantes et marquer (X) dans les parentheses.

1.Âge:

20-29 (......)

30-39 (......)

40-49 (......)

Plus de 50 (......)

2. Sexe: Masculin: (......)

Femine : (........)

3. Religion: Musulman: (.......)

Christian: (...........)

Autres: (...........)

4. État matrimonial: célibataire: (........)

Marié: (.......)

Séparé: (.......)

Veuf (ve): (...........)

Divorcé (e): (............)

5. Niveau d'instruction:

École secondaire de soins infirmiers A1: ()

Diplôme en soins infirmiers A2 : ()

Soins infirmiers Bachelorier A0 : ()

Maîtrise en soins infirmiers: ()

6. Expérience de service:

0-5 ans: (........)

6 à 10 ans: (.........)

11-15 ans: (........)

16-20 ans: (.........)

Plus de 20ans: (............)

7. Expérience de travail en milieu Clinique : .... années

8. Avez-vous déjà suivi une formation sur la prise en charge des hypertendus?

Non: (............)

Oui: (...........)

Si oui, mentionner le nombre de formations recues (............) et la date de la dernière formation (.......... / .... / ....)

Partie B: Connaissances concernant la prise en charge des patients hypertendus.

Veuillez lire les phrases suivantes de questions à choix multiples et encercler la meilleure réponse pour chaque question selon votre comprehension.

1. Lequel des termes suivants àattribuer à l'hypertension dans laquelle la tension artérielle, qui est contrôlée par la thérapie, devient non contrôlée (anormalement élevée) avec l'arrêt du traitement?

A. Rebond

B. Essentiel

C. Primaire

D. Secondaire

2. Parmi les éléments suivants, lesquels définissent l'hypertension?

A. Lorsque la pression artérielle systolique est égale ou supérieure à 140 mm Hg et / ou une tension artérielle diastolique égale ou supérieure à 90 mm Hg,

B. Lorsque la pression artérielle systolique est inférieure à 140 mm Hg et / ou une pression artérielle diastolique inférieure à 90 mm Hg,

C. Lorsque la pression artérielle systolique est supérieure à 140 mm Hg et / ou une pression artérielle diastolique est supérieure à 90 mm Hg, la tension artérielle est considérée comme étant élevée ou élevée, ce qu'on appelle hypertension.

3. La crise de l'hypertension se définit comme suit: quand la pression artérielle est

A. 160/80 mm Hg

B. 150/110 mm Hg

C. 140/100 mm Hg

D.180 / 120 mmHg

4. 134/85 est considéré comme étant:

A. Pré-hypertension

B. Hypertension de stade 1

C. Hypertension de stade 2

D. Aucune des réponses ci-dessus

5. 119/80 est considéré comme étant:

A. Pré-hypertension

B. Hypertension de stade 1

C. Hypertension de stade 2

D. Aucune des réponses ci-dessus

6. Lesquels des facteurs suivants contribue à l'hypertension?

A. Les facteurs environnementaux comprennent l'excès de sel, l'obésité et peut-être le mode de vie sédentaire.

B. Certains facteurs génétiquement liés pourraient inclure une activité inappropriée élevée du système rénine-angiotensine-aldostérone.

C. Le système nerveux sympathique et la susceptibilité aux effets du sel alimentaire sur la tension artérielle.

D. Une autre cause commune de l'hypertension est la raideur de l'aorte avec l'âge.

E. Tous les réponses sont correctes.

7. Qu'est-ce que le syndrome du col blanc?

une. Hypertension artérielle subie par les gens d'entreprise

B. Élévation de la tension artérielle pendant la consultation du médecin

C. Élévation de la tension artérielle pendant le sommeil

ré. Élévation de la tension artérielle subie par les infirmières.

8. L'hypertension artérielle est parfois appelé le «tueur silencieux» parce que:

A. Il n'a généralement pas de signes d'alertes ou de symptômes.

B. Beaucoup de gens ne savent pas qu'ils ont une pression artérielle élevée.

C. Il présente des signes et symptômes dangereux

D.A et B

E. Aucune des réponses ci-dessus.

9. Si la méthode auscultatoire est utilisée pendant la mesure de la tension artérielle, les premier et cinquième sons de Korotkoff (apparition et disparition des sons) correspondent aux pressions sanguines systolique et diastolique.

A. Vrai

B. Faux

10. Les accidents vasculaires cérébraux et les maladies oculaires ne sont que deux problèmes de santé liés à la complication de l'hypertension.

A. Vrai

B. Faux

11. Démence; La rétinopathie, le diabète et la dysfonction sexuelle sont également une complication de l'hypertension.

A. Faux

B. vrai

12. Les problèmes de santé suivants sont des complications de l'hypertension SAUF:

A. Atherosclerosis

B. Insuffisance cardiaque

C. Asthme

D. Maladie du Rein

13. Le diagnostic d'hypertension doit être confirmé lors d'une visite supplémentaire du patient:

A. Habituellement 1 à 4 jours après la première mesure.

B. Habituellement 1 à 4 semaines après la première mesure.

C. Habituellement 1 à 4 mois après la première mesure.

14. Lors de l'évaluation d'un patient souffrant d'hypertension, l'infirmière devrait vérifier tout ce qui suit:

A. prised'historique

B. Effectuer un examen physique.

C. Analyser les résultats de laboratoire

D. Tous les réponse ci-haut sont correctes

C. Aucune des reponses ci-dessus est correctes

15. Quelles sont les stratégies majeures pour gérer le patient souffrant d'hypertension?

A. Modification du mode de vie

B. Pharmacothérapie

C. Le dépistage de l'hypertension

D. A et B.

16. Quelle personne est le plus à risque de développer une hypertension?

A. Personne ayant un style de vie actif

B. Personnalité de type B

C. Cigarette chronique

D. Bon soutien familial

17. Le médecin ordonne que le lisinopril (Zestril) et le furosémide (Lasix) soient administrés de façon concomitante au client souffrant d'hypertension. L'infirmière devrait:

A. Interroger l'ordre

B. Administrer les médicaments

C. Administrer séparément

D. Contactez la pharmacie

18. Un client souffrant d'hypertension a commencé un programme d'exercices aérobiques. L'infirmière devrait informer le client que le régime d'exercices recommandé doit commencer lentement et se développer jusqu'à:

A. 20-30 minutes trois fois par semaine

B. 45 minutes deux fois par semaine

C. 1 heure quatre fois par semaine

D. 1 heure deux fois par semaine

19. Quelle est l'action du furosémide dans le traitement de l'hypertension artérielle? Il

A. Il dilate les vaisseaux sanguins périphériques.

B. Il diminue l'accélération cardiaque sympathique.

C. Il inhibe la réabsorption de sodium et d'eau dans l'Anse de Henle.

D. Il inhibe les enzymes de counverture de l'angiotensine

20. Lorsqu'un client souffrant d'hypertension est évalué, il dit à l'infirmière: «Je ne sais vraiment pas pourquoi je suis ici, Je me sens bien et je n'ai pas eu de symptômes.» L'infirmière expliquerait au client les symptômes de l'hypertension:

A. sont souvent absents

B. Signifier un risque élevé d'Accident Vasculaire Cérébrale

C. Ne se produisent qu'avec l'hypertension maligne

D. Apparition après une atteinte rénale irréversible

21. Un client souffrant d'hypertension demande aux facteurs de l'infirmière de faire chuter la tension artérielle à des niveaux normaux?

A. L'excrétion rénale au sodium seulement.

B. Rétention rénale de sodium et d'eau

C. L'excrétion de sodium et d'eau des reins

D. Rétention rénale de sodium et excrétion d'eau

22. Les tests suivants sont effectués en laboratoire chez les patients hypertendus sauf

A. Électrolytes, FBC

 B. concentration en glucose à jeun, tests de la fonction hépatique

C. Créatinine sérique et azote uréique, lipides,

D. Examen des selles

Section 2: Pratique concernant la prise en charge des patients hypertendus

Veuillez répondre aux questions suivantes en donnant des points (X) sur la colonne qui correspond le mieux à votre pratique actuelle (échelle Likert basée)

no	Items	Tout à fait	d'accord	d'accordIndécis	Pas d'accord	Pas du tout d'accord
1.	Pour une mesure précise, il faut utiliser la taille correcte de la brassard d'une pression artérielle.					
2.	Si les lectures de BP sont différentes dans les deux bras, le bras avec la lecture plus élevée doit être utilisé pour les mesures par la suite.					
3.	Le patient doit être assis debout avec le bras soutenu pendant la prise de la tension artérielle					
4.	Les infirmières doivent dire au patient de vider leurs vessies avant de prendre la tension artérielle.					
5.	BP précise peut être obtenue en verifiant deux fois à intervalles de 2 minutes					
6.	Le bras du patient utilisé pour la mesure doit être très souvent au même niveau que le cœur, le bras reposant confortablement sur une table.					
7.	Le brassard BP doit être placé exactement sur la fissure cubitale cms.					
8.	La vérification de la tension artérielle en position debout permet d'identifier l'hypotension postural.					
9.	Une visite de patient supplémentaire,					

	habituellement 1 à 4 semaines après la première mesure est nécessaire et la pression artérielle systolique doit être ≥ 140 mm Hg ou la pression diastolique ≥ 90 mmHg pour diagnostiquer l' hypertension.					
10.	Le patient peut prendre du café / thé avant de vérifier la tension artérielle					
11	Au cours de la vérification de la pression artérielle, le brassard doit être gonflé rapidement et libéré lentement.					
12.	L'évaluation du poids, de la taille et de l'indice de masse corporelle du patient est importante pendant l'examen physique.					
13.	La vérification des taux d'impulsions périphériques est essentielle pour diagnostiquer la maladie des artères périphériques chez les patients hypertendus.					
14.	Les infirmières devraient fournir une éducation sanitaire sur la modification du style de vie.					
15.	Les infirmières ne devraient pas donner des conseils aux patients souffrant d'hypertension qui a commencé un programme d'exercice aérobie que le régime d'exercice recommandé devrait commencer lentement et construire jusqu'à 20-30 minutes trois fois par semaine.					
16.	Il n'y a aucune différence entre la vérification de la pression artérielle lorsque le patient est inhabillé et du patient est envetû.					
17.	Les infirmières fréquemment utilisées pour donner la note de rendez-vous au patient sous					

	hypertension pour maintenir leur rendez-vous.					
18.	Il est de la responsabilité de l'infirmière d'éduquer le patient sur les effets secondaires des médicaments anti-hypertensifs.					
19.	Les infirmières devraient enseigner aux patients sur les médicaments ou les aliments qu'ils ne sont pas autorisés à prendre en même temps avec des médicaments contre l'hypertension.					
2o.	Hypertension a rarement été géré en fonction de son stade.					

ETHICAL CLEARANCE

UNIVERSITY OF RWANDA

COLLEGE OF MEDICINE AND HEALTH SCIENCES

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 09/01/2017
Ref: CMHS/IRB/042/2017

NYIRABAZUNGU Eugenie
School of Nursing and Midwifery, CMHS, UR

Dear NYIRABAZUNGU Eugenie

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled *"Assessment Of Nurses' Knowledge And Practice Toward Patients With Hypertension District Hospital– Northern Province Rwanda".*

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

Professor Kato J. NJUNWA
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

Prof JB
Vice – Chair

Ce:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR

REQUEST LETTER FOR DATA COLLECTION

NYIRABAZUNGU Eugenie

Byumba, 26/1/2017

University of Rwanda

College of Medicine and Health Sciences

Medical-surgical track

To: The Director of Byumba District Hospital

Dear Sir,

Re: Requesting for permission of data collection for research project

I am humbly writing this letter requesting for permission to conduct the research study at Byumba District Hospital-Rwanda.
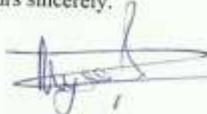
In fact, I am a Bachelor's Degree holder, currently a student at college of Medicine and Health Sciences, University of Rwanda. I am enrolled in Master's Program / Medical Surgical track with conducting a research study as a requirement.

My study aims to assess knowledge and practice of nurses toward hypertensive patients in which all nurses working at Byumba District Hospital will participants except those who work in neonatology services. I will collect data from participants using the questionnaires. Before conducting my study, all research participants will first be requested to sign consent form after getting all information regarding the study. The finding will be presented to the hospital agents.

Find attached to the current letter the Ethical clearance, consent form and semi structured questionnaire to be used.

I am looking forward to hearing from you

Yours sincerely,

NYIRABAZUNGU Eugenie

DATA COLLECTION ACCEPTANCE LETER

REPUBLIC OF RWANDA

Byumba, on 6/02/2017

N°20/.M.?.../HOP BY/2017

NORTHERN PROVINCE

GICUMBI DISTRICT

BYUMBA HOSPITAL

E-mail : hopbyumba@yahoo.fr

Phone: 252564329

To: **Eugenie NYIRABAZUNGU**

Dear Madam;

Re: Data collection acceptance letter

Reference made to the letter dated on26[th]January 2017; requesting permission for data collection for research project.

I'm pleased to inform you that Byumba District hospital accepted your request and you are welcome to carry out this activity that will contribute more to the service delivery.

Sincerely

Dr TWIZEYIMANA Jean de Dieu

Director of Byumba Hospital