KIBOGORA POLYTECHNIC

FACULTY OF HEALTH SCIENCES

NURSING & MIDWIFERY DEPARTMENT

RESEARCH PROJECT

ASSESSMENT OF KNOWLEDGE, PERCEPTION AND PRACTICES TOWARDS PREVENTION OF HYPERTENSION AMONG PATIENTS ATTENDING NCDS' SERVICE AT KIBOGORA LEVEL TWO TEACHING HOSPITAL.

Period: From March to May 2023

Undergraduate Research Paper Submitted in Partial Fulfillment of the Requirements for the Bachelor's degree with honor in general nursing at Kibogora polytechnic

PAPER PREPARED BY:

UWIZEYIMANA Jean de Dieu 2001633

UWAMARIYA Marie Gorette 2101096

SUPERVISOR

Mr. TWAHIRWA Jean Claude, RN, HoD

Kibogora, June, 2023

DECLARATION

Declaration by the candidate

We, UWIZEYIMANA Jean de Dieu and UWAMARIYA Marie Gorette hered by declare that this is our own original work and not a duplication of any similar academic work. It has therefore not been submitted to any other institution of higher learning. All materials cited in this paper which are not ours have been duly acknowledged.

UWIZEYIMANA Jean de Dieu Signature ……..
UWAMARIYA Marie Gorette Signature ……

Declaration by the Supervisor

I declare that this work has been submitted for examination with my approval as KP Supervisor

SUPERVISOR'S NAME: TWAHIRWA Jean Claude

Signed…….

Date……..

DEDICATION

Primarily we thank the almighty God who raised us up and guide our steps through all stages of development. We also dedicate this work to our lecturers, parents, brothers and sisters, and our lovely friends who kept giving us all kinds of support that led us to the accomplishment of this study. May God bless each and every one who provided any kind of support to accomplish our research project.

ACKNOWLEDGEMENT

The realization of this Research project would have been incredible without the help; we are giving thanks to the Almighty God for his divine protection and guidance throughout this course. Many thanks go to entire school of nursing and midwifery especially those in General nursing department for their encouragement and support .We would also like to express our profound gratitude to our supervisor Mr. TWAHIRWA Jean Claude for his guidance, suggestions and many efforts he used in making sure that this research project comes out well. We are also grateful to all our group members and classmates for challenging and encouraging us to learn.

To everyone who helped and supported us throughout this course, we say God richly bless you.

ABBREVIATIONS AND ACRONYMS

BP: Blood Pressure

CT: Computerized Tomography

CVD: Cardio Vascular Disease

DBP: Diastolic Blood Pressure

ECG: Electro Cardiogram

FDC: Fixed-Dose Combination

HC: health center

HIC: High Income Countries

HTN: Hypertension

JNC8: Eighth Joint National Committee

KL2TH: Kibogora Level Two Teaching Hospital

KP: Kibogora Polytechnic

LMIC: low and Middle-Income co

MmHg: Millimeters of Mercury

NCD's: Non Communicable Disease

NGOs: non- governmental organizations

OPD: Outpatient Department

SBP: Systolic Blood Pressure

SSA: Sub-Saharan Africa

WHO: World Health Organization

ABSTRACT

Background: Hypertension is one of the most markedly concern of public health. It contributes to global burden of disease and mortality, which accounts for approximately 9.4 million deaths annually. Hypertension remains the first CVD and third leading cause to death. People are still encouraged to adopt healthy behaviors to control the burden of hypertension.

The Aim of this study: Our Study was about assessing knowledge of hypertension, perception and practices towards hypertension prevention among patients attending NCDS' service at KL2TH.

Objectives: The specific objectives are: 1. to assess knowledge regarding hypertension among hypertensive patients attending NCDS' service KL2TH 2. To identify the perception toward among hypertensive patients attending NCDS' service at Kibogora level two teaching hospital.

3. To assess the practice on knowledge of hypertension, awareness towards hypertensive Patient and socio demographic characteristics of hypertensive patients attending NCDS' service at Kibogora level two teaching hospital.

Methodology: Research approach: A quantitative descriptive study **(**cross sectional study design). **Study setting**: Kibogora level two teaching hospital**.**

Study population: Hypertensive patients on a monthly basis participated in the study.

Sampling strategy: convenience sampling method.

Sample size: A sample of 80 patients calculated according to Solvin's formula have been used. **Data collection tool:** An adopted and modified tool designed.

Results: From this study, only 35% of patients had adequate knowledge about hypertension. Even though they had good knowledge about hypertension, 42.34% of patients were unaware of their disease status. Almost all patients (97%) thought that taking medicine plays a key role in controlling the blood pressure. But most patients (78.8%) had low drug adherence, 8.8% had medium practice and only 12.5% of patience highly adhere to their medication.

Key words: Knowledge, perception, practices, and hypertension

TABLE OF CONTENTS

CHAPTER ONE: GENERAL INTRODUCTION

1.0. INTRODUCTION

Hypertension is highly becoming a crucial and growing issue of public health as it constitutes a well-known risk factor for cardiovascular diseases leading to death and disability worldwide.

Assessments of knowledge, perception, practice of patient on hypertension, Moreover, premature deaths have been reported among both sex due to hypertension. The term hypertension is used to describe high blood pressure.(Kruszon-moran, 2017). It is considered when blood pressure exceeds systolic blood pressure of 139 mmHg and or diastolic blood pressure greater than 89 mmHg (Nyandwi Alypio, 2015). Furthermore, it is a silent killer as its signs and symptoms are not obviously known, and most of patients consult at a critical state. Although studies have identified low level of perception to antihypertensive medication use among patients in diverse regions across the world; Hypertension should be prevented and controlled by cost-effective ways such as life style change and correct practice to treatment. (Nahimana et al., 2017) In this chapter we will discuss on background of hypertension, problem statement, and purpose of the study, specific objectives, Research questions and significance of the study, Limitation of the study , scope of the study.

1.1. BACKGROUND

Globally hypertension contributes to a serious burden of disease and mortality that accounts an estimate of 9.4 million deaths annually (Guwatudde, Nankya-Mutyoba, et al., 2015). It is a primarily common cardiovascular disorder that affects a large number of people and remains the first CVD and third leading cause to deaths(Guwatudde, Nankya-Mutyoba, et al., 2015).

Regarding high income countries (HIC), between 2015–2016, United States of America reported a prevalence of hypertension of 29.0% that increased with age: age group 18–39, 7.5%; 40–59, 33.2%; and 60 and over, 63.1%, (Fryar, Ostchega, Hales, Zhang, & Kruszon-Moran, 2015)

In low and middle-income countries, (LMIC) hypertension affects almost about 1 in every 5 of the adult people and this is protruded to increase. In addition, almost three out of every four people with hypertension by 2025 will be living in LMICs(van de Vijver et al., 2013). According to WHO 2010 survey appraisal, 22% of adults aged 18years and above have hypertension; across the WHO regions, the highest prevalence of hypertension are found in Africa with 30% of the people affected; during the same time the lowest prevalence was recorded in the American Region,(Nahimana et al., 2017)

Few studies have been recorded and compared the burden of hypertension across different SSA populations(Guwatudde, Nankya-Mutyoba, et al., 2015). A recent research showed that hypertension in sub-Sahara Africa (SSA) is an endemic widespread, and in most common communities, it has been reported to be as high as 38 %. It was predicted that out of the approximately 650 million people in SSA, between 10 to 20 million might have hypertension (Guwatudde, Nankya-Mutyoba, et al., 2015). A study conducted in central Africa in 2017 indicated that the overall prevalence of hypertension was 61.1%; among hypertensive people, 46.7% were aware of their condition; 17.3% were treated and 23.8% had their hypertension controlled (pilleron, 2017).

In Rwanda, Hypertension is a leading cause of cardiovascular diseases and grows considerably (Nahimana et al., 2017). The WHO estimate argued that in Rwanda 18 out of 100,000 deaths resulted from hypertension. In the study conducted in Rwanda by Marie-Rosette Nahimana and Alypio Nyandwi 2015 on 7116 participants where 62.8% were females and 38.2% were males stated that the mean age of study participants was 35.3 years old; the result of entire population prevalence of hypertension was 15.3% (16.4% for males and 14.4% for females), 22% hypertensive participants were previously diagnosed. The

findings of this study showed that the prevalence of hypertension is high in Rwanda (Nyandwi Alypio, 2015).

According to Kibogora level two teaching hospital, data from annual report of 2021 showed that every month 48 new cases of hypertension were diagnosed; NCD's services receives 570 hypertensive patients per month and accounts 4.29% of total population available in its catchment area. Despite the dramatic increase of the burden of hypertension, compliance to treatment meets serious challenges among hypertensive patients (kibogora, 2021). Our study assesses knowledge of hypertension, perception and practices towards antihypertensive drug among hypertensive patients attending NCD's services in Kibogora level two teaching hospital.

1.2. STATEMENT OF THE PROBLEM

Hypertension is a silent killer disease though its signs and symptoms are not obvious (Okoro, 2017). Worldwide it is one of the five sources of mortality and contributes to more than 40% of diseases related to cardiovascular and renal diseases in many HIC and LMIC (Nahimana et al., 2017).

In Rwanda, estimate from WHO and health facilities report a non-negligible rate of mortality and morbidity due to hypertension. Moreover Kibogora level two Teaching Hospitals, 2021 health report revealed at least 15 new cases of HTA per month at NCDs services; whereas people remain unknowledgeable about the severity of the condition or consult at a late stage of the illness. Mainly during our clinical practice, we noticed that some patients dropped the treatment (Nahimana et al., 2017).

Currently, there is no research conducted to explore the knowledge of hypertension, perception toward antihypertensive medication especially at Kibogora level two teaching hospital. Hence, the researchers found well to assess knowledge, perception and practices or lifestyle modification among hypertensive patients attending NCD's services in the Kibogora hospital as one of the health facilities located western region and receive a large number of hypertensive patients.

1.3. PURPOSE OF THE STUDY

To explore/assess knowledge of hypertension, perception and practices toward antihypertensive medication use among hypertensive patients attending NCDS' service at Kibogora level Two Teaching hospitals.

1.3.1. Specific objectives

1. To assess knowledge regarding hypertension among hypertensive patients attending NCDS' service at Kibogora level two teaching hospital.
2. To identify perception and practices toward antihypertensive medication among hypertensive patients attending NCDS' service at Kibogora level two teaching hospital.
3. To assess the association between knowledge of hypertension, perception and practices toward antihypertensive medication use and socio demographic characteristics of hypertensive patients attending NCDS' service at Kibogora level two teaching hospitals.

1.4. Research questions

1) What is the level of knowledge regarding hypertension among hypertensive patients at Kibogora level two Teaching hospital?
2) What is level of perception and practices toward hypertension and prevention among patients at Kibogora level two Teaching Hospital?
3) What is perception, practices towards hypertension and socio-demographic variables of hypertensive patients at Kibogora Level Two Teaching Hospital

1.5. Significance of the study

In nursing practice

Our study intends to explore/assess knowledge of hypertension, perception and practice toward hypertensive medication. This will improve the way the health care providers deliver services to patients with hypertension in NCDS' services including continuous health education. In nursing research

It will provide information that will be a baseline for future research. Therefore investigators, students should use our literature to improve their works as conducting a research requires the use of a set of theoretical and empirical findings from previous literature similar to the topic

of interest. Nursing lecturers and students should get updated information easily from our research.

In nursing education this will help us to expand our knowledge on hypertension, a dangerous but neglected condition because we assessed many literatures talking about the topic. This will be a rich basis for students who will want to conduct an inquiry on hypertension; they will find in this work current data.

At community level in the community around Kibogora level two teaching hospital, people should change behaviors (life style) which would affect treatment and control of hypertension like; smoking, alcohol consumption, sedentary lifestyle, improper medication consumption, amount of sodium in diet.

At level of Ministry of Health After this study, also ministry of health will be able to set different methods or strategies that the health care providers might apply to care for those patients with Hypertension in proper ways

1.6. Limitations to study

Information bias like cultural barriers whereby hypertensive patients might not express all his/her ideas. Generalizability should not be established as this study conducted in one hospital, results would not explain the problem of the whole country. Also we use a small number of population

1.7. Scope of Practice

Our study was to assess the knowledge, perception and practices towards hypertensive medication among patients attending NCD's services at Kibogora level two teaching hospital from March to May 2023

1.7.1. Geographical Scope

This study carried at Kibogora level two Teaching Hospital, located in western province, Nyamasheke district, Kanjongo sector, Kibogora cell in Gataba village. It is at the left side of the main road Rusizi-Karongi, Near Kibogora polytechnic and Free Methodist Church

1.7.2. Time for Study

This study started from March 2023 to May 2023

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

In this chapter we look on deferent reviews of the existing theoretical and empirical literatures on the burden of hypertension. Theoretical aspect we address on classification and types of hypertension, test and diagnosis, prevention, management, treatment, complications and antihypertensive treatment. Empirical literature we discuss on prevalence, risk factors, Knowledge and awareness of hypertension lifestyle issues, factors contributing to antihypertensive medication adherence, Research gaps, Conceptual Framework.

2.1. Definitions of key concepts / Terms

Knowledge is the level to which individuals have information about hypertension (Nyandwi Alypio, 2015). Example: To make informed medication and health decisions in order to safely and effectively use their medication regardless of the mode by which the content is delivered (e.g., written, oral, and visual).

Hypertension: The term hypertension is used to describe high blood pressure.(States et al., 2017). It is considered when blood pressure exceeds systolic blood pressure of 139 mmHg and or diastolic blood pressure greater than 89 mmHg (Nyandwi Alypio, 2015).

Perception: refers to the level of knowledge and perception of a situation or fact related to hypertension

Practices: is the selection and use of medical measures to fight against hypertension**.**

Medication: a drug or other form of medicine/practices that is used to treat or prevent disease

2.2. Assessment on knowledge regarding to hypertension among patients attending NCD'S Service at Kibogora Level Two Teaching Hospital

Hypertension, also known as high or raised blood pressure, is a condition in which the pressure in blood vessels has persistently raised. Blood reaches other parts of the body from the heart and through the vessels. Each time the heart beats and pumps blood passes the vessels. Blood pressure is created by the force of blood pushing against the walls of blood vessels (arteries) as it is pumped by the heart. The higher the pressure the harder the heart has to pump (Haldar, 2015).

The standard measurement of blood pressures is millimeters of mercury (mm Hg) and is recorded as two numbers usually written one above the other. The upper number is the systolic blood pressure, the upper number represent higher pressure in blood vessels that happens when the heart contracts, or beats. The lower number is the diastolic blood pressure that signify lower pressure in blood vessels in between heartbeats when the heart muscle relaxes. Normal adult blood pressure is defined as a systolic blood pressure of 120 mm Hg and a diastolic blood pressure of 80 mm Hg(Tran & Giang, 2014).

However, the cardiovascular benefits of normal blood pressure extend to lower systolic (105 mm Hg) and lower diastolic blood pressure levels (60 mm Hg). HTN is defined as a systolic blood pressure to above 140 mmHg and/or diastolic blood pressure above 90 mm Hg. Normal levels of both systolic and diastolic blood pressure are particularly important for the efficient function of vital organs such as the heart, brain and kidneys and for overall health and wellbeing (Reif, 2018).

2.2.1. Types of hypertension.

Primary hypertension, major type of hypertension also known as essential hypertension, is the most common type of hypertension where there is no single identifiable cause. There is no apparent underlying disease, condition or disorder causing the high blood pressure. Instead, hypertension occurs because of genes, diet and lifestyle (Bosu, Reilly, Aheto, & Zucchelli, 2019). Secondary hypertension, minor type of hypertension and less common form of the disease that occurs because of a specific condition. Disorders including sleep apnea, tumors, pregnancy, kidney failure can all cause hypertension to occur as a side effect (Tran & Giang, 2014).

Less common types of hypertension: Malignant hypertension is high blood pressure that occurs suddenly and drastically. A person might experience numbness in the body as well as vision problems, extreme fatigue, confusion, anxiety and seizures. This may be caused by various diseases like scleroderma, kidney disease, spinal cord injuries, tumor of adrenal gland, use of illegal drugs like cocaine, and the use of certain medications like birth control pills. When the underlying condition is cured, the blood pressure goes back to normal (Tran & Giang, 2014).

Isolated systolic hypertension does not have an identifiable cause. This type of hypertension is a result of old age and a poor diet. The arteries become stiff, resulting in a high systolic number with a normal diastolic number (Anand & Singh, 2017).

White coat hypertension occurs only when a person’s blood pressure is taken in a clinical setting. Outside of settings, blood pressure is normal. It is believed that these patients feel extremely stressed when they visit health care provider (Bosu, Reilly, Aheto, & Zucchelli, 2019).

Resistant hypertension, it is called resistant when three medications fail to successfully treat the condition (Anand & Singh, 2017).

2.2.2. Symptoms of hypertension

For the most times hypertensive people have no symptoms at all. Some signs and symptoms that hypertension causes include headache, shortness of breath, dizziness, and chest pain pa and palpitations of the heart. It can be dangerous to ignore such symptoms, but nothing of them can directly signify hypertension. Hypertension is a serious warning sign in which significant lifestyle changes are required. The condition can be a silent killer and it is important for everybody to know their blood pressure reading (Fryar et al., 2015).

2.2.3. Test and diagnosis of hypertension.

2.2.4. Investigations

Measuring blood pressure by manual using BP machine, the healthcare professionals taking blood pressure measurements might have adequate initial training (Carey, Muntner, Bosworth, & Whelton, 2018).

Client should stop smoking and consumption of alcohol or coffee and nicotine within 30 minutes before measuring the blood pressure because they can cause adrenaline secretion, which raise blood pressure and pulse rate. They also need to lean back, sit comfortably and maintain arm at the level of the heart as well as to rest for five minutes before starting measuring the blood pressure (Sakhaee, Maalouf, & Sinnott, 2015)

If there is irregularity of the pulse, palpate the radial or brachial pulse before measuring. If pulse irregularity is present, measure blood pressure manually using direct auscultation over the brachial artery(Carey et al., 2018)

Healthcare providers must ensure that devices for measuring blood pressure are properly validated, maintained and regularly recalibrated according to manufacturers' instruction. When measuring blood pressure in the clinical settings or at home, standardize the environment and provide a relaxed, temperate setting, with the person quiet and seated, and

their arm outstretched and supported. Use an appropriate cuff size for the person's arm, take it and notes the reading(Carey et al., 2018)

2.2.4.1. Laboratory examination

Blood pressure is suspected throughout laboratory examination, which includes; Renal function (Cr), urine dipstick (protein in suspected nephrotic syndrome), Thyroid function tests (TSH, T3, and T4), ECG if concerned for ischemia, but not otherwise helpful, imaging: Bedside cardiac/ thoracic ultrasound as above. Consider formal echo and renal ultrasound if working up secondary causes of hypertension. Head CT without contrast if concern for intracranial hemorrhage or hypertensive encephalopathy (if any neurological defects on exam, confusion). Fundoscopy (for retinopathy) (Sa, Darwazeh, Khalil, & Zyoud, 2018)

2.2.4.2. Diagnosis

High blood pressure is diagnosed or confirmed when the average systolic blood pressure is 140 mmHg or higher or when the average diastolic blood pressure is 90 mmHg or higher, taken on two or more separate days. Systolic and diastolic blood pressure of less than 120 mmHg and 80 mmHg, respectively, is considered normal. Most people who think that their blood pressure is low actually have normal blood pressure (Sakhaee et al., 2015). According to the Eighth Joint National Committee (JNC8), those over age 80 are advised that their target blood pressure should be below 150/90 mmHg (Sakhaee et al., 2015)

2.2.4.3. Management

Different studies indicates that the goal of treatment is to reduce blood pressure (States et al., 2017). There are two ways to manage hypertension, which are pharmaceutical management or non-pharmaceutical management

Globally hypertension contributes to a serious burden of disease and mortality that accounts an estimate of 9.4 million deaths annually (Guwatudde, Nankya-Mutyoba, et al., 2015). It is a primarily common cardiovascular disorder that affects a large number of people and remains the first CVD and third leading cause to deaths(Guwatudde, Nankya-Mutyoba, et al., 2015).

Regarding high income countries (HIC), between 2015–2016, United States of America reported a prevalence of hypertension of 29.0% that increased with age: age group 18–39, 7.5%; 40–59, 33.2%; and 60 and over, 63.1%, (Fryar, Ostchega, Hales, Zhang, & Kruszon-Moran, 2015)

In low and middle-income countries, (LMIC) hypertension affects almost about 1 in every 5 of the adult people and this is protruded to increase. In addition, almost three out of every four people with hypertension by 2025 will be living in LMICs(van de Vijver et al., 2013). According to WHO 2010 survey appraisal, 22% of adults aged 18years and above have hypertension; across the WHO regions, the highest prevalence of hypertension are found in Africa with 30% of the people Region,(Nahimana et al., 2017)

In Rwanda, Hypertension is a leading cause of cardiovascular diseases and grows considerably (Nahimana et al., 2017). The WHO estimate argued that in Rwanda 18 out of 100,000 deaths resulted from hypertension. In the study conducted in Rwanda by Marie-Rosette Nahimana and Alypio Nyandwi 2015 on 7116 participants where 62.8% were females and 38.2% were males stated that the mean age of study participants was 35.3 years old; the result of entire population prevalence of hypertension was 15.3% (16.4% for males and 14.4% for females), 22% hypertensive participants were previously diagnosed. The findings of this study showed that the prevalence of hypertension is high in Rwanda (Nyandwi Alypio, 2015).

According to Kibogora level two teaching hospital, data from annual report of 2021 showed that every month 48 new cases of hypertension were diagnosed; NCD's services receives 570 hypertensive patients per month and accounts 4.29% of total population available in its catchment area. Despite the dramatic increase of the burden of hypertension, compliance to treatment meets serious challenges among hypertensive patients (kibogora, 2021). Our study assesses knowledge of hypertension, perception and practices towards prevention of hypertension among patients attending NCD's services in Kibogora level two Teaching hospital Lifestyle modification (LFM)

Diet management is very important in controlling hypertension and includes reducing salt, cholesterol and unsaturated fat intake and consuming adequate amounts of vegetables and fruit (Sakhaee et al., 2015). To reduce the risk, the recommended daily intake of sodium is less than 2 grams of sodium or 5 grams of salt. Salt makes your body hold on to more water and this extra stored water raises your blood pressure and puts strain on your kidneys, arteries, heart and brain (Damasceno, 2016).

2.2.4.4. Pharmaceutical Management

Drug therapy is needed if lifestyle modifications cannot adequately bring BP to goal. First-line medications used in the treatment of hypertension include diuretics, angiotensin-converting enzyme (ACE), inhibitors or angiotensin receptor blockers (ARBs), beta-blockers, and calcium channel blockers (CCBs) (Foex & Sear, 2017).

Thiazides: Hydrochlorothiazide 12.5mg or Bendrofluthiazide 5mg, ACEI: Captopril 25mg bd; enalpril 5mg bd; Lisinopril 5 mg bd, B-blocker: Atenolol, CCB: Nifedipine 20mg SR daily; Diltiazem 30mg Tds; Verapamil 40mg TDS, ARB: Losartan 25mg daily, ALD antagonist: Spironolactone 25mg daily (Foex & Sear, 2017). In adults with hypertension, controlling BP to non- hypertensive levels through non-pharmacological and pharmacological treatment reduces the risk for CVD events and all causes of mortality by 20% to 40% (7, 78)(Carey et al., 2018).

2.2.4.6. Treatment strategies

The goal of hypertension treatment is to reduce BP to <140/90 mm Hg; however, in patients with hypertension and diabetes or renal disease, the BP goal is even lower, targeted at ≤130/80mmHg. Non pharmacologic interventions should be instituted in all patients with hypertension (Foex & Sear, 2017).

2.2.4.7. Complications of hypertension.

The consequences of hypertension are related to its severity. There is no threshold for complications to occur, as elevation of blood pressure is associated with increased morbidity throughout the whole range of blood pressure. The cardiac consequences of hypertension are left ventricular hypertrophy and coronary artery disease. Left ventricular hypertrophy is caused by pressure overload and is concentric. There is an increase in muscle mass and wall thickness but not ventricular volume. (Foex & Sear, 2017)

Congestive heart failure, a serious condition in which the heart is unable to pump enough blood to supply the body's needs. Over working of Left, ventricle leads to its hypertrophy and this impairs diastolic function, slowing ventricular relaxation and delaying filling. Left ventricular hypertrophy is an independent risk factor for cardiovascular disease, especially sudden death (Foex & Sear, 2017).

2.2.4.8. Prevention and control of hypertension.

Promoting a healthy lifestyle decreases the risk with emphasis on proper nutrition for infants and young people, reducing salt intake to less than 5 g of salt per day, Eating fruit and

vegetables, avoiding harmful use of alcohol, promotion of regular physical activity for children and young people. (Reif, 2018). WHO recommends physical activity for at least 30 minutes a day five times a week (Nahimana et al., 2017), Maintaining a normal body weight, stopping tobacco use and exposure to tobacco products, proper management of stress (Haldar, 2015).

The prevention and control of hypertension require political will on the part of governments and policy- makers. Health workers, the academic research community, civil society, the private sectors, families, and individuals all have a role to play. (Haldar, 2015)

In South Africa, a cohort study in rural community conducted on 451 diagnosed hypertensive patients participants proposed community-based activities as an effective way to reach out to community members for prevention and management of hypertension.(Jongen et al., 2019)

2.3. Identify perception and practices towards medication among hypertensive patients

2.3.1. Prevalence of hypertension

According to the data from the World Health Organizations, Global Health Observatory, an estimated 17.9 million people die due to cardiovascular diseases in 2016; representing 31% of all-global deaths, 85% of deaths are due to heart attack and stroke that result from hypertension(Zhang, Ph, & Kruszon-moran, 2017). Worldwide an estimated 1.13 billion people have hypertension, most (two-thirds) living in low- and middle-income countries (Agbor, Takah, & Aminde, 2018)and the prevalence is expected to increase to 29% by 2025.

In an analysis done on 19·1 million participants occurred from 1978 to 2015 by NCD Risk Factor Collaboration (NCD-RisC), about worldwide trends in blood pressure, they revealed that, the Global age-standardized prevalence of raised blood pressure was 24·1% in men and 20·1% in women in 2015. Mean systolic and mean diastolic blood pressure decreased substantially from 1975 to 2015 in high-income countries that leads to moving these countries from having some of the highest worldwide blood pressure in 1975 to the lowest in 2015.

By contrast, in the low-income countries including sub-Saharan, Southeast Asia and Oceania, mean blood pressure has risen. The number of adults with raised blood pressure increased from 594 million in 1975 to 1·13 billion in 2015, with the largely increase in low-income and middle-income countries. Several studies manifested that worldwide the highest blood pressure levels have shifted from high-income countries to low-income countries in

south Asia and sub-Saharan Africa due to opposite trends, while blood pressure has been persistently high in central and Eastern Europe (Bosu et al., 2019).

In Africa, some studies prove that hypertension is a serious problem in sub-Saharan Africa (SSA); where in some communities, it has been reported to be as high as 38 % (Agbor et al., 2018). David Guwatudde carried out cross section study from January 2011 up to july 2012 for 4 sub-Saharan countries include Tanzania, South Africa, Uganda and Nigeria about the burden of hypertension in sub Saharan countries. 1414 Participants were selected from 5 different population groups; they found that overall age-standardized prevalence of hypertension among the 1216 participants was 25.9%. The overall age-standardized prevalence of pre-hypertension was 21.0 % (Guwatudde, Nankya-mutyoba, et al., 2015).

In Rwanda, a cross-sectional population based study conducted by Marie Rosette Nahimana on assessment risk factors of non-communicable diseases on 7116 participants, hypertension was found in 15.3%; (16.4% for males and 14.4% for females) (Nahimana et al., 2017).

2.3.2. Risk factors of hypertension

2.3.2.1. Behavioral risk factors for the development of hypertension

Risk rises as consumption of food containing too much salt and fats, and not eating enough fruit and vegetables increases. Studies revealed that 50% of patients with high cholesterol levels have hypertension; Dyslipidemia (Abnormally elevated blood cholesterol and triglyceride levels) raise the risk of cardiovascular complications (hypertension); whereas low-fat diet with more fibers like vegetables, fruits, grains and seaweeds prevent cholesterol absorption and synthesis (Domingo et al., 2017).

According to research done in Belgium, it is well established that excessive alcohol consumption is a significant predictor of the development of hypertension (HTN) (Collart et al., 2015). At the same time, they declared a consumption of more than three glasses alcohol per week in 8.8% of cases (6.4% in normotensive and 16.7% in hypertensive subjects) and during the weekend in 24.2% of cases; 20.8% in normotensive and 34.9% in hypertensive (Collart et al., 2015). Hypertension prevalence was higher among respondents who had a history of smoking, alcohol consumption, and those with low physical activity.

Physical inactivity and lack of exercise are known as risk of hypertension. People who are insufficiently physically active have an increased risk of all-cause mortality, compared with those who engage in at least 30 minutes of moderate-intensity physical activity most days of the week (Damasceno, 2016). Throughout the life course, being overweight and obese is

associated with multiple adverse health consequences. Obesity is linked to an increased risk of hypertension (Damasceno, 2016). According to a research done in Rwanda on the prevalence and risk factors, hypertension was 2 times higher among respondents with BMI more than or equal to 30 kg/m^2. as compared to those with normal BMI (AOR: 3.93, 95% CI: 2.54–6.08, p-value < 0.001,) compared to those with normal BMI (AOR: 1.74, 95% CI: 1.30–2.32, p-value < 0.001(Nahimana et al., 2017).

2.3.2.2. Socioeconomic factors

Sex is strongly associated with hypertension. In fact, the Rwanda NCD survey results showed that males 34% were likely to have hypertension compared to women (Collart et al., 2015). As observed in many other studies older generations tend to have high blood pressure compared to young generation(Nyandwi Alypio, 2015). Hypertension risk increases with age (over 65 years) due to stiffening of blood vessels (Haldar, 2015). Although ageing of blood vessels can be slowed through healthy living, including healthy eating and reducing the salt intake in the diet, it is worsen by uncontrolled co-existing diseases such as diabetes or kidney disease. According to research done in Rwanda by M. Nahimana et al., 2018, the multivariate logistic regression showed that increase in age was associated with a linear increase in the risk of having hypertension. Being four times more prevalent among respondents aged 55–64 (AOR: 8.02, 95% CI: 5.63–11.42, p-value < 0.001) compared to those aged 25–34 years old (AOR: 1.69, 95%CI: 1.25–2.80, p-value < 0.001)(Zhang et al., 2017)

Educational level and marital status have a detrimental impact on health; A study done in Rwanda found that a high prevalence was observed among the less educated and respondents who were not in union with their spouses (separated, divorced and widowed) (Nahimana et al., 2017)

2.3.2.3. Other risk factors

In some cases, there is no known specific cause for hypertension. Genetic factors may play a role, and when hypertension develops in people below the age of 40 years, it is important to exclude a secondary cause such as kidney disease, endocrine disease and malformations of blood vessels (Nahimana et al., 2017).

Genetic factors are hypertension that occurs in some women during pregnancy. It usually resolves after the birth but it can sometimes persist, and women who experience preeclampsia are more likely to have hypertension in later life(WHO, 2015)

A systematic review made of a collection of 1327 studies carried out by Vendele Cuffee, Chinweogedegbe in United Stated of America since 2010 up to 2014 revealed the role of psychosocial stressors in leading hypertension among workers exposed to a heavy workload. In younger subgroup aged between 25-44 years old the studies review revealed that people who re-experiencing traumatic events manifested high significant rate of HTN than those who reported no reoccurrence (OR:1.32,95CI,0.96,1.82 VS OR:0.86,95CI:0.68,1.10 respectively). Finally, they found that sleeping quality may contribute to incidence of hypertension, for instance researchers revealed that people who experienced insomnia for 1year with combination of objective short sleep duration exhibited 4 times in incidence of HTN compared to normal sleepers who slept 6hours (OR:3.75,95CI:1.58-8.95) in sample of 1741people.

According to M. Nahimana et al., 2018, some drugs also may be the risk for developing hypertension, they argued that the prevalence was higher among respondents who had high fasting blood glucose or were on medication for diabetes, and those with raised total cholesterol. Certain types of medications act as leading factor for hypertension, or worsening the previously controlled hypertension; furthermore, they may reduce the effectevenness of antihypertensive medication or induce a hypertensive emergency.

Both prescribed and non-prescribed medication for other acute or chronic conditions may be the precipitating factor for hypertension; these drugs include steroids, nonsteroidal anti-inflammatory drugs, sympathomimetic agents, central nervous system stimulants (alcohol, amphetamine), dietary supplements (ginseng,natural liquor ice etc.), immunosuppressant, anesthetics, heavy metals and toxins.

2.3.3. Knowledge regarding hypertension

Studies have showed that knowledge on hypertension remains the significant precursor of antihypertensive medication adherence in hypertension control. A cohort study in rural community on 451diagnosed hypertensive patients conducted in South Africa on what they know about their illness; the study results about their knowledge on hypertension were categorized as intermediate (74.3%) or good (14.0%) and only 11.8% of the population had poor knowledge(Jankowska-Polańska et al, 2016)

S. Pirasath, T. Kumanan, and M. Guruparan conducted a cross- sectional descriptive comparative study at Teaching Hospital Jaffna in northern Srilanka on Knowledge, Awareness, and Medication practice in Patients with Hypertension. They found that

hypertension was known by 69.9% of respondents while 40.5% of patients were not informed about the numeric value of their blood pressure. Furthermore, the same study showed that 75.8% of patients could not remember their blood pressure values at the time of diagnosis while 72.3% of patients had forgotten their last blood pressure values (IrPasath et al., 2017). The study concluded that patient's knowledge was reasonable; whereas in Rwanda although hypertension prevalence was more significant, people remained unknowledgeable (Nahimana et al., 2017).

2.3.4. Perception and practices towards hypertensive medication

Numerous studies have been conducted to assess awareness and knowledge regarding to antihypertensive agents. Lower medication literacy is associated with inappropriate medication taking behavior(Agbor et al., 2018)

A study carried regarding perception towards anti hypertension and medication practice in a national referral hospital of Kenya revealed that, compliance to drug and to adequate diet were observed by 85% and 75% of participants respectively. However only 16% had inadequate awareness about hypertension (Bacha & Abera, 2019). Subsequently the same study stated that (72%) of participants dropped out the treatment once the condition was stabilized. This implies the pivotal role of continuous education in addressing the burden of hypertension and plausible ways for patients remind for drug compliance should be implemented. Patient education is a key component in the programs and interventions designed to control hypertension, so it is therefore important to assess the patients' knowledge and awareness of hypertension (Jongen et al., 2019).

2.3.5. Factors contributing to practice for hypertensive medication

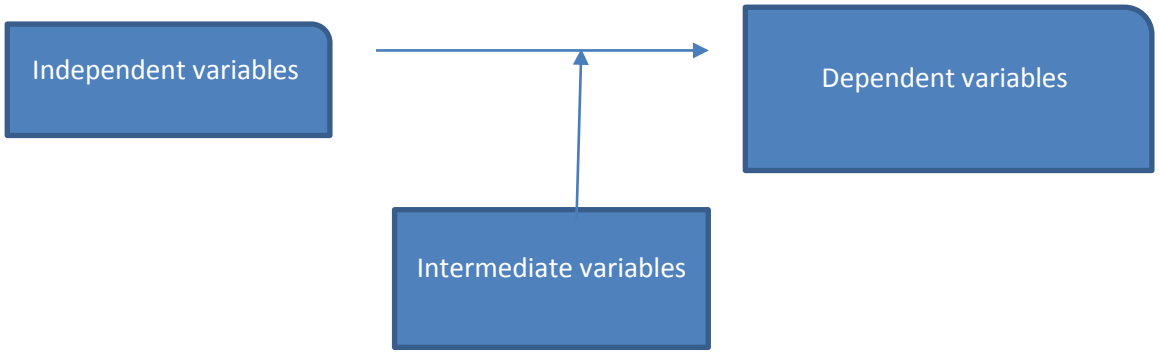
Lack of knowledge and awareness, in self-care practice of hypertensive patients, drug adherence stands at far front in terms of controlling hypertension and hence possibly preventing long-term complications related to hypertension. Blood pressure control is closely associated with patients' poor practice or mal practice to antihypertensive drugs (Bacha & Abera, 2019). According to the study done in rural community of southern Zimbabwe almost half of hypertension-related deaths are associated with poor compliance or adherence to antihypertensive treatment. The most important barrier to adherence is lack of knowledge and awareness on hypertension and its complications (Chimberengwa & Naidoo, 2019).

The same study argued that although the majority of participants (94%) believed in using tablets for controlling hypertension, there were strong traditional beliefs that the use of herbs

(51%) and traditional medicines (15%) influenced the community's health seeking behavior. In study done in Poland revealed that hypertensive drug treatment was found to be effective in 28% of male and 29% of female patients. At the Same time, as many as 39% of men and 29% of women diagnosed with hypertension do not start their treatment, which indicates poor perception of long-term complications of hypertension which lead to poor practice to medications. (Jankowska-Polańska et al, 2016).

According to the results of study conducted in tertiary care center from northern Sri Lanka, Most of patients (84.5%) had poor compliance of drugs in our study. The forgetfulness and interruptions of daily routine were common reasons for non-adherence, Religious beliefs and cultural practices 10.2%, Too many medications to take10.5%, Lack of reminders 11.6%, Being busy or late for work 11.5% (IrPasath et al., 2017).

2.4. Conceptual Framework



CHAPTER THREE: RESEARCH METHODOLOGY

3.0 .INTRODUCTION

Research methodology is a set of systematic technique used in research (McManners, 2016). This simply means a guide to research and how it is conducted (Igwenagu, 2016). This chapter widely discussed the methodology used to shape our study in order to achieve the predetermined objectives and included the introduction, research approach, the study area, study design, study population, study sample, sampling strategy, selection criteria, data collection methods, data collection instruments, procedures to be used, data analysis, data management, problems and limitation for the study and ethical considerations related to the present study will be discussed.

3.1. Research approach and design

Research approach means the plans and the procedure for research that encompasses the all steps from broad assumptions to detailed methods of data collection, analysis, and interpretation.(Groove, 2015). A qualitative approach was used because our study based on numerical and statistical data (Taherdoost, 2018). Qualitative research involves the systematic collection of numerical information, often under conditions of considerable control, and the analysis of the information using statistical procedures. (DeLaune & Ladner, 2012)

Research design in formal sense is a systematic study of a problem attacked by a deliberately chosen strategy which starts with choosing an approach to solve a particular problem or for designing research hypotheses (Groove, 2015). Cross sectional study involves looking at data from a population at one specific point in time.(Muhammad & Kabir, 2018).The choices of research design depend on the researcher's expertise, the problem and the purpose of the study and the desire to generalize the finding. In this study, descriptive design was used to assess knowledge of hypertension, perception and practices toward medication use among number of patients in those attending NCDs' service in Kibogora level two teaching hospital.

Setting is a physical location and condition in which data collection take places in study (Igwenagu, 2016). This study carried at Kibogora level two Teaching Hospital, located in western province, Nyamasheke district, Kanjongo sector, Kibogora cell in Gataba village. It is at the left side of the main road Rusizi-Karongi , Near Kibogora polytechnic and Free Methodist Church. This Hospital serves a population of 270880 of 13 health centers and 15

health post. Kibogora level two Teaching hospital is government sponsored and works in partnership with Free Methodist church.

3.2. Target population, sampling procedure and sampling size

The Target population refers to the group of people to whom you want your research results to apply (Igwenagu, 2016). The target population comprised of hypertensive patients attended NCD's service during the period of our data collection and meet inclusion criteria. According to the data from Kibogora level two Teaching hospital, we found that in 2019 NCD's service received 25 confirmed hypertensive clients per week; hence, we estimated that in one week of data collection 100 clients would be covered.

3.2.1 Selection criteria

3.2.2. Inclusion criteria

To participate in study the required criteria were patients diagnosed with hypertension who attends NCDs at Kibogora level two teaching hospital. Willing to participate in the study by signing the informed consent form. Hypertensive patients who are not physically weak (not aged below 30 0r above 75 years old).

3.2.3. Exclusion criteria were;

All patients refused to participate in the study, hypertensive patients who are very old (physically weak aged above 75 years old). Selected hypertensive patients who did not have a will to participate.

3.2.4. Sampling

3.2.5. Sample size

A sample size is the absolute size of the participants group selected relative to the complexity of the population (Taherdoost, 2018). According to our survey, information gained during clinical placement and data from Kibogora hospital, we found that at NCDs service, they do follow up for 25 clients who take medications every week, hence in four weeks we got a population of 100 clients. This population helped us to calculate the sample size. The target sample size of the study was calculated using solvin's formula with a confidence interval of 95% and a margin error of 5% as the following:

$n=N/ (1+N (e)^{2})$

n: sample size

N: total population

e: margin error(error tolerance)

Then, according to Solvin formula if confidence level of 95%, margin error was e=0.05

Where by

$n=100/ (1+100(0.05)^2=80$ A sample of 80 patients have been used in the study.

3.2.6. Sampling strategy

Sampling strategy consists of choosing a subset of individuals from the entire population in which the research was conducted (Taherdoost, 2018). A sample of 80 hypertensive patients who were most conveniently available, ready during the period of research and fulfilling inclusion criteria were selected using convenience sampling strategy which is a non-probability sampling.

Convenience sampling technique is a method that consists of selecting participants because they are often readily and easily available. (Igwenagu, 2016) Typically, convenience sampling tends to be a favored sampling technique, because it is inexpensive and an easy way compared to other sampling techniques. Convenience sampling often helps to eliminate many of the limitations that can occur in research. (Taherdoost, 2018)

3.3. Data collection tools and procedure

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes (Shahravi, Rezvani, & Jahan, 2019). The goal for all data collection is to capture quality evidence used in data analysis and allows the building of a convincing and credible answer to research questions.(Muhammad & Kabir, 2018).

Data collection instrument is a device used to collect data; such as a paper, pens , questionnaire or computer assisted interviewing system (Taherdoost & Group, 2017). The instrument used in this study is questionnaire.

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents.(Muhammad & Kabir, 2018).

A questionnaire with closed ended questions that aggregated into either a scale or index. It is a valid instrument which includes for instance questions that measures knowledge of hypertension, perception toward antihypertensive drugs and life style modification among hypertensive patients.

The questionnaire consists of questions to assess the Patient's knowledge of hypertension (from Q1 to Q14), Patient's awareness toward antihypertensive drugs (from Q15 to Q22),

Patient's drug adherence of hypertension, Reasons for non-adherence of drugs (from Q23 to Q49).

This Hypertension Fact Questionnaire was designed by; S. Pirasath, T. Kumanan, and M. Guruparan, 2017, as an instrument to offer an objective mean of collecting information about patient's knowledge of hypertension, Patient's awareness of hypertension, Patient's drug adherence of hypertension, Reasons for nonadherence of drugs and have been successfully used in previous researches (IrPasath et al., 2017). A permission to use it and to translate it in kinyarwanda has been obtained on february 13th ,2020; 00:48 from the compositor. Via email: specialissues@hindawi.com , it is on their journal (http://about.hindawi.com/authors/open-access/) and all their articles are are published under the creative commons attribution licence (https://creativecommons.org/licenses/by/4.0/).

3.4. Validity and reliability of instrument

Validity basically means the extent in which an instrument measures what is intended to measure (Taherdoost & Group, 2017). Validity explains how well the collected data covers the actual area of investigation. The questionnaire had been successfully used in previous researches like A "Study on Knowledge, Awareness, and Medication Adherence in Patients with Hypertension from a Tertiary Care Centre from Northern Sri Lanka" (IrPasath et al., 2017). Moreover, content validity assessed by comparing questionnaire responses with objective measures of hypertension.

3.4.1. Reliability of the instrument

According to Carmines and Zeller, (1979), Reliability concerns the extent to which a measurement of a phenomenon provides stable and consistent result. Reliability is also concerned with repeatability. For example, according to (Moser and Kalton, 1989) a scale or test is said to be reliable if repeated measurement made by it under constant conditions will give the same result (Igwenagu, 2016). To ensure reliability and the feasibility of the study, we conducted a pilot survey on eight participants to assess external reliability of the tool (10% of the sample size). The Pilot study's results contributed more for further editing of the questionnaire. A Pilot study is a small-scale study, done on small number of participant, earlier to the main study to refine methodology; it is developed similarly to proposed study, using similar subjects, the same setting, the same data collection, and analysis technique (Igwenagu, 2016).

3.5. Data analysis

Data analysis is the process of systematically applying statistical and /or logical techniques to describe and illustrate, outline and evaluate data (Igwenagu, 2016). Data collected have been analyzed by SPSS Version 2022

3.5.1. Ethical considerations

Ethical clearance have obtained from Kibogora polytechnic. Aim and objectives of the study explained to the participants in order to have them understand the purpose of the study and willingly participation. The consent obtained from patients with hypertension who were attending NCD's, and informed consent in Kinyarwanda provided to the participant and signed.

3.13. Data management

Collected data entered and kept on safe on external device (USB), both computer and email of researchers, where they will be assessed by research team. After 5 years, any of the researchers is allowed to discard the data but no one among the researchers is allowed to dismiss the data from email before 5 years are reached.

3.5.2. Data dissemination

Data dissemination is the process by which producers of micro data from surveys and from public and official statistics make their data available to other users. An additional aspect of dissemination is how to share research findings with interested parties (Granda & Blasczyk, 2016). Collected data shared among research team so that will be available for them and will be available in library of university of Kibogora Polytechnic to be used by students and others who need them.

3.5.3. Limitations and challenges to study

Information bias like cultural barriers whereby hypertensive patients might not express all his/her ideas. Generalizability should not be established as this study conducted in one hospital, results would not explain the problem of the whole country.

Questions where most participants had adequate knowledge about hypertension. But they were unaware of their disease status. Most patients had poor practices. Prompt recommendations given according to the research findings emphasizing on identified gaps.

CHAPTER FOUR: RESULTS PRESENTATION

4.1. INTRODUCTION

This chapter covers the results of the statistical analysis that attempt to answer the objectives as stated in chapter one and their interpretation. It targets on the socio-demographic characteristics, Patient's knowledge of hypertension, Patient's perception toward antihypertensive drugs, Patient's drug adherence of hypertension, Reasons for mal practice to drugs.

4.2. SOCIO-DEMOGRAPHIC CHARACTERISTICS RESPONDENTS (n=80)

selected variables	Frequency	Percentage%
gender		
male	24	30
female	56	70
age		
<40	5	6.3
41-65	56	70
>65	19	23.8
educational status		
primary	30	37.5
secondary	38	47.5
University (A1 or A0)	11	13.8
masters and above	1	1.3
marital status		
single	5	6.3
married	39	48.8
widowed	35	43.8
divorced	1	1.3

Table 4.2.1. Represents information on the socio-demographic characteristics of respondents. The study mostly involved 70% of females and about 30% of the respondents were males. The age ranged from aged 41-65 years representing the greater majority(70%), least 6.3%

aged <40 years old. Most of the respondents (47.5%) were educated at educational secondary level. About the marital status of participants, 48.8% were married and 43.8% widowed.

4.3. KNOWLEDGE OF HYPERTENSION AMONG PATIENTS.

Tables 4.3.1. illustrates the knowledge of hypertension where it have been tested among 80 hypertensive patients with validated questionnaires and found 92.5% knew that Regular physical exercise reduces HT, 86.3% knew More salt consumption increases BP and HT can lead to life-threatening condition, 85% knew Eating fatty foods is a risk factor for HT.

Questions	Yes	No	Yes (%)	No (%)
Adequate knowledge on hypertension	34	46	42.5	57.5
Perception on hypertension	44	36	55	45
HT can progress along with the age	45	35	56.3	43.8
Both sexes have equal chance of developing HT	19	61	23.8	76.3
What are the practice on hypertension	40	40	50	50
Risk of developing HT if there is a family history of HT	35	45	43.8	56.3
Aging is greater risk of HT	30	50	37.5	62.5
Smoking is a risk factor for HT	49	31	61.3	38.8
Eating fatty foods is a risk factor for HT	68	12	85	15
Overweight is a risk factor for HT	61	19	76.3	23.8
Regular physical exercise reduces HT	74	6	92.5	7.5
More salt consumption increases BP	69	11	86.3	13.8
Medication is alone in controlling HT	46	34	57.5	42.5
HT can lead to life-threatening condition	69	11	86.3	13.8

Tables 4.3.1: Patients' knowledge of hypertension

4.4 DISTRIBUTION OF KNOWLEDGE LEVEL AMONG HYPERTENSIVE PATIENTS

Table 4.3 presents the levels of participant's knowledge about hypertension. Where only 28(35%) of patients had adequate knowledge about hypertension while the remaining 52 (65%) of patients had poor knowledge about hypertension

A scoring system was used to analyze responses to closed ended questions on knowledge: 1 = coded as (yes) correct response (consistent with WHO essential hypertension guidelines). 0= coded as (no) incorrect response (inconsistent with WHO essential hypertension

guidelines). Any participant who does not know the answer was considered to have an incorrect response (no). Therefore, according to this study, those scoring below the 70% are considered to have poor knowledge and above or equal to 70% are considered to have good knowledge (Sofia Naseem, 2018).

Table 4.4. Distribution of participant's knowledge about hypertension (n= 80)

marks/14	percentage	frequency	Conclusion	Participants in number and %	
12	85.71	4	adequate knowledge		
11	78.57	9	adequate knowledge	28	35%
10	71.43	15	adequate knowledge		
9	64.29	11	poor knowledge		
8	57.14	19	poor knowledge		
7	50	13	poor knowledge		
6	42.86	6	poor knowledge	52	65%
5	35.71	1	poor knowledge		
4	28.57	1	poor knowledge		
1	7.14	1	poor knowledge		

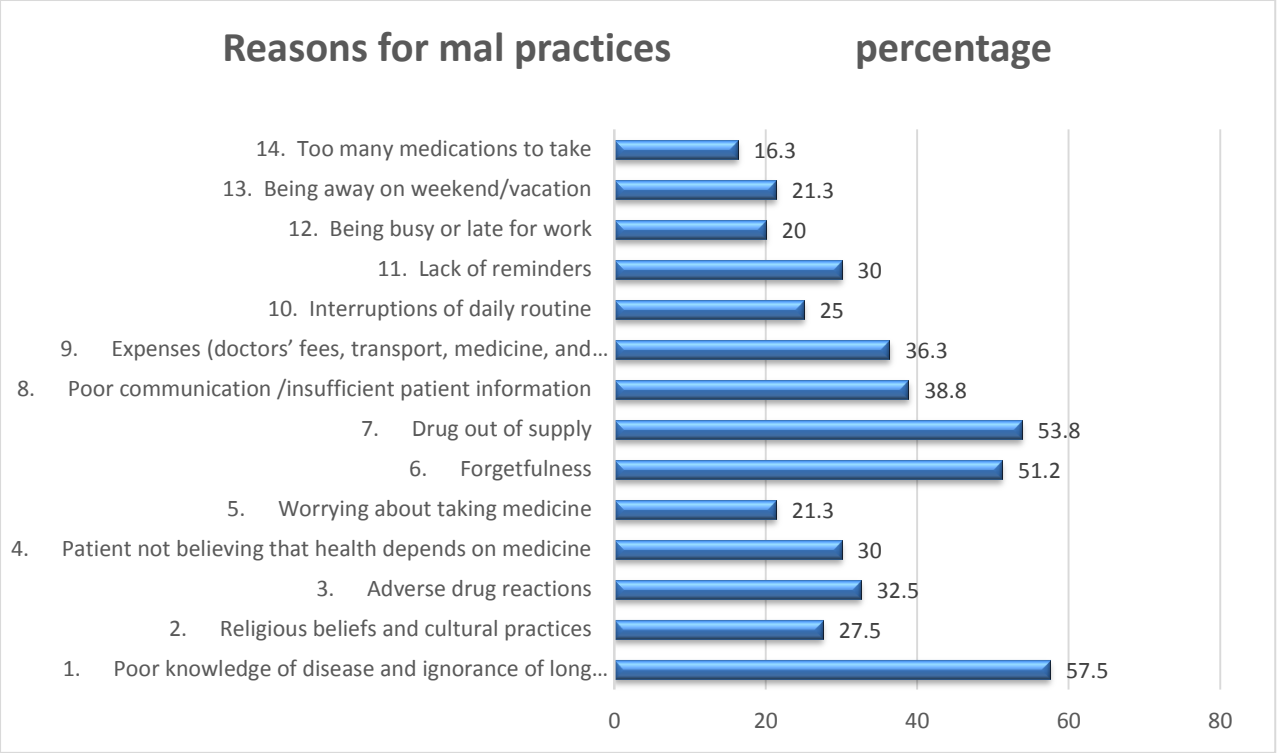
4.5 PATIENT'S PERCEPTION OF HYPERTENSION

Table 4.5 represents the study findings about Patient's perception of hypertension; Even though they had good knowledge about hypertension, 35% of patients were unaware of their disease status. At time of diagnosis 61.3% of patients had not known the values of their blood pressure, 57.5% of patients knew improvement of their blood pressure over the last 12 months. The majority of patients 70% knew that changing their lifestyle helps in lowering of their blood pressure. 70% of patients had not known the values of target personal blood pressure. 67.5% of patients had perception of target organ damage due to uncontrolled hypertension.

Questions	yes	no	Yes (%)	No (%)
Knowing about having hypertension	52	28	65	35
Knowing blood pressure values in diagnosing as hypertension	31	49	38.8	61.3
Knowing the values of target personal blood pressure	24	56	30	70
Controlling of blood pressure reduces your complications	71	9	88.8	11.3
Uncontrolled hypertension can lead to your organ's damage	54	26	67.5	32.5
Thinking that HT is curable condition	35	45	43.8	56.3
Changing your lifestyle helps to lower your blood pressure	56	24	70	30
Improvement of your blood pressure over the last 12 months	46	34	57.5	42.5

Table 4.5: Patient's perception of hypertension

Graph 4.5.1: Reasons for mal practices on hypertensive medication



4.6 ASSOCIATION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS AND PARTICIPANT'S KNOWLEDGE ABOUT HYPERTENSION

Table 4.6 illustrates socio-demographic factors associated with participant's knowledge of hypertension. A bivariate analysis was conducted to examine the association between various socio-demographic variables and participant's knowledge of hypertension. In all socio-demographic characteristics that were tested only educational status of the respondents was found to be related to knowledge about hypertension ($p<0.045$). The bivariate analysis shown

that there was a significant relationship between education and knowledge about hypertension. There was no association between gender (p>1.142), age (p>0.959), marital status (p>0.209) and knowledge about hypertension

4.7. ASSOCIATION (CROSS TABULATION) OF KNOWLEDGE OF HYPERTENSION AND PRACTICES TO ANTI-HYPERTENSIVE MEDICATIONS

Table 4.7 illustrates the bivariate analysis of knowledge of hypertension and practices to anti-hypertensive medication. Among 78.8% who has low practice, 51.2% has poor knowledge and 27.5% has adequate knowledge where in 35% having adequate knowledge 27.5% has low practice, 1.3% has medium practice and 6.3% has high practice. However, the bivariate analysis shows that there was no significant relationship between knowledge of hypertension and practice to anti-hypertensive medications

			practices			total	chi-square
			low	medium	high		p value
knowledge	poor	Count	41	6	5	52	0.315
		% of Total	51.20%	7.50%	6.30%	65.00%	
	adequate	Count	22	1	5	28	
		% of Total	27.50%	1.30%	6.30%	35.00%	
Total		Count	63	7	10	80	
		% of Total	78.80%	8.80%	12.50%	100.00%	

Table 4.7: Bivariate analysis of knowledge of hypertension and practices to anti-hypertensive medication

CHAPTER FIVE: DISCUSSION OF THE RESULTS

5.1 INTRODUCTION

Our study intends to assess knowledge of hypertension, perception and practice towards prevention of hypertension among hypertensive patients attending NCD's services in Kibogora hospital. We found that only 28(35%) of patients had adequate knowledge about hypertension while the remaining 52 (65%) of patients had poor knowledge about hypertension. There were no association between the level of knowledge and the levels of participant's practices to hypertensive medication. Only the educational level was the significantly related to knowledge ($p>0.045$).

5.2 SOCIODEMOGRAPHIC CHARACTERISTICS

In our study mostly 30% males are likely to have hypertension compared to females. And this is consistent to Rwanda NCD survey results showed that males 34% were likely to have hypertension compared to women (Collart et al., 2015). As observed in many other studies older generations tend to have high blood pressure compared to young generation (Nyandwi Alypio, 2015).This implies a regular screening of hypertension among all generations especially aging people.

5.3 PATIENTS'KNOWLEDGE REGARDING HYPERTENSION

In this study most patients (65%) has poor knowledge about hypertension. This is consistent to the study results of research in south Africa where knowledge on hypertension were categorized as intermediate (74.3%) or good (14.0%) and only 11.8% of the population had poor knowledge (Jankowska-Polańska et al, 2016). Similarly, the same study conducted in Northern Srilanka found that hypertension was known by 69.9% of respondents while 40.5% of patients were not informed about the numeric value of their blood pressure (Pasath et al., 2017). National estimate from WHO and health facilities report a non-negligible rate of mortality and morbidity due to hypertension. This a bit consistent to the situation of Kibogora hospital where the 2021 health report revealed at least 15 new cases of HTA per month at NCD s services; whereas people remain unknowledgeable about the severity of the condition or consult at a late stage of the illness (Nahimana et al., 2017).

In the present study, most patients were unaware of their HT with (57.5%) reporting that a healthcare provider had told them that they have HT. But most patients (42.3%) were unaware of current status of their disease ; this is inconsistent with the results from the study

conducted in National referral hospital of Kenya whereby only 16% of participants were unaware of hypertension at time diagnosis (Bacha & Abera, 2019).

Recent reports have suggested that hypertension knowledge is related to BP control. SBP is a strong independent risk factor for cardiovascular disease. It is important to assess the extent to which patients are aware of the importance of controlling their SBP levels. 61.3% of patients had not known their values of blood pressure at time of diagnosis. 35% of patients were unaware of their values of blood pressure at time of last visit. 57.5% of patients who knew the values of blood pressure at time of last visit were in a false assumption that their blood pressure control was satisfactory. Some Patients were unaware that SBP is important in BP control and reported that physicians did not emphasize the significance of high SBP levels. These findings suggest the need for education of patients by physicians and other primary healthcare providers related to the importance of elevated SBP and cardiovascular risk. Many patients could not recall their BP level at time of diagnosis (61.3%) and at last clinic visit (35%).

5.4 PATIENTS'PRACTICES TO HYPERTENSIVE MEDICATION

Even though the patients knew their BP level at time of diagnosis (38.8%) and at last clinic visit (65%), they were not in a position to accurately classify their blood pressure level. Subsequently the same study in Kenya stated that (72%) of participants dropped out the treatment once the condition was stabilized (Bacha & Abera, 2019). These findings suggest that patients' perception of their BP level does not reflect their actual readings except for the majority of those with controlled BP.

5.5 ASSOCIATION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS AND PARTICIPANT'S KNOWLEDGE ABOUT HYPERTENSION

The results of bivariate analysis shown in all socio-demographic characteristics that were tested only educational status of the respondents was found to be related to knowledge about hypertension ($p<0.045$) . This is significantly consistent to the study conducted in southern Zimbabwe, where; the more education respondents had received, the more likely they were knowledgeable about hypertension (odds ratio for secondary education, 95%. and for tertiary education 95%, compared to those without formal education) (Isangula, 2019). Similarly, Mahmut Kilic in Turkey found, Educational status and level of knowledge about HT were shown to promote positively the control of HBP, but the additional effects of these factors were found to be minimal (Mahmut Kilic, 2016).

In this study, physicians, Registered nurses, mass media, print, and video materials were identified as important sources of information to improve hypertension knowledge and Perception as reported by the patients.

In this research most of patients (78.8%) had poor drug practices, 8.8% had medium practice and only 12.5% of patients highly adhered to their medication; this is consistent to a research conducted in China indicated that more than half of participants 63.6% do not comply to their medication and nearly 20% of them had a low knowledge level (Jankowska-Polańska et al, 2016). Furthermore, according to the study done in rural community of southern Zimbabwe almost half of hypertension-related deaths are associated with poor practices to antihypertensive treatment (Chimberengwa & Naidoo, 2019). In addition, a study carried out at the hospital-based study on outpatients in Northern Cameroon showed that only 12.9% of them had correct compliance to medication and poor compliance was attributed to hypertension associated morbidity such as physical handicaps and low educational level (Hadiza, akasai, Yau, Adamu, & Mijinyawa, 2017).

In this study, poor knowledge of disease and ignorance of long-term treatment (57.5%), Drug out of supply (53.8%) and Forgetfulness (51.2%) were common reasons for mal practice. Knowledge on hypertension is a significant independent determinant of good practice. This is slightly significant to the study conducted in Tertiary Care Hospital in Mumbai/India; revealed 39.4% were compliant to their treatment. Forgetfulness and subjective feeling of wellness were the prevalent reasons for noncompliance (Ayushi Jayesh, 2018). Additionally, our study is consistent to the study done in northern Srilanka that found; The forgetfulness and interruptions of daily routine were common reasons for mal practice, Religious beliefs and cultural practices 10.2%, Too many medications to take 10.5%, Lack of reminders 11.6%, Being busy or late for work 11.5% (Pasath et al., 2017).

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1. INTRODUCTION

This study was aimed at assessing the patient's knowledge and perception about hypertension and practice toward prevention of hypertension among hypertensive patients attending NCDs' service at Kibogora Level Two Teaching Hospital.

6.2 CONCLUSION

The study has revealed that nearly all participants' had poor knowledge about hypertension (28, 35%), unaware of their disease status and Most patients had poor drug compliance. There was no significant relationship between knowledge of hypertension and practice to anti-hypertensive medication. The forgetfulness and interruptions of daily routine were the most common reasons for mal practice among the patients. The most significant variables in this study was the educational level ($p>0.045$) and data emphasize the need to maximize the efficiency of hypertension prevention and control programs. Furthermore, Achieving optimum blood pressure control is minimized in countries experiencing recent emergence of hypertension as a major public health problem. Hypertension is a worldwide issue and kills once uncontrolled. Its management requires close collaboration involving patients themselves, health care providers, national and international stakeholders.

6.3 RECOMMENDATIONS

To the researchers

We firstly recommend more researchers to explore deeply the knowledge of hypertension, perception and practice towards medication use among hypertensive patients. Investigators have to deeply explore the cause of poor adherence/compliance to antihypertensive medications apart from knowledge as we have found it is not statistically significant to medication adherence. The results of this study in selected patients attending NCDs services in Kibogora level two teaching hospital may not reflect the reality of the general population of Rwanda.

Administration

The Rwanda policies in charge of health promotion such as ministry of health, Rwanda biomedical center in charge of non-communicable diseases (NCDs) like Rwanda NCDs

Alliances, leaders of different institutions (Hospitals and Health centers) should have to prepare the regular trainings and screenings of non-communicable diseases (Hypertension) to the community and to improve their knowledge about hypertension. Therefore, the institution should organize the course to improve the patients' knowledge and they should assess and ask patients diagnosed with hypertension the reason for mal practices.

To the educational institutions and Minister of Health

The educational institutional in Rwanda (privates & public) should promote the health of their individuals and higher institution should organize continuously community screening session as 61.30% of patient found to have hypertension on time of diagnosis, this will increase the awareness in community and minimize the effect of diseases. Encourage the community for doing exercises and regular checkup of blood pressure for their healthy life development.

Suggestion for the study

To explore the knowledge, perception and practice in the community for hypertensive patient need more time, if we work closely as health care providers we can discover more and save the people.

LIST OF REFERENCES;

Damasceno, A. (2016). Noncommunicable Disease. In Heart of Africa: Clinical Profile of an Evolving Burden of Heart Disease in Africa. https://doi.org/10.1002/9781119097136.part5

DeLaune, S. C., & Ladner, P. K. (2012). Fundamentals of Nursing S T Andards &Practice.

Domingo, A., Mccarthy, S., Carlos, M. C., Engelhardt, K., Khow, K., Heng, C., … Ruiz, A. (2017). Healthy eating habits for patients with hypertension. Retrieved from http://apps.who.int/iris/bitstream/10665/254746/3/9789290617990-hyp-mod3-eng.pdf

Eissa, A. T. (2013). Knowledge , Attitudes and Practices towards Medication Use among Health Care Students in King Saud University. 1(2).

Foex, P., & Sear, J. W. (2004). Hypertension : pathophysiology and treatment. (December 2015). https://doi.org/10.1093/bjaceaccp/mkh020

Fryar, C. D., Ostchega, Y., Hales, C. M., Zhang, G., & Kruszon-Moran, D. (2015). Key findings Data from the National Health and Nutrition Examination Survey. Hypertension Prevalence and Control Among Adults: United States, (289), 2015–2016.

Granda, P., & Blasczyk, E. (2016). Data Dissemination. (August), 688–713.

Grover, V. (2015). Thoughts. (March).

Guwatudde, D., Nankya-Mutyoba, J., Kalyesubula, R., Laurence, C., Adebamowo, C., Ajayi, I. O., … Dalal, S. (2015). The burden of hypertension in sub-Saharan Africa: A four-country cross sectional study. BMC Public Health, 15(1), 1–8. https://doi.org/10.1186/s12889-015-2546-z

Haldar, R. N. (2015). Global Brief on Hypertension: Silent Killer, Global Public Health Crisis. Indian Journal of Physical Medicine and Rehabilitation, 24(1), 2–2. https://doi.org/10.5005/ijopmr-24-1-2

Igwenagu, C. (2016). Fundamentals of research methodology and data collection. (May).

IrPasath, S., Kumanan, T., & Guruparan, M. (2017). A Study on Knowledge, Awareness, and Medication Adherence in Patients with Hypertension from a Tertiary Care Centre from Northern Sri Lanka. International Journal of Hypertension, 2017(October), 8. https://doi.org/10.1155/2017/9656450

Jankowska-Polańska et al. (2016). Relationship between patients ’ knowledge and medication adherence among patients with hypertension. 2437–2447.

Jongen, V. W., Lalla-Edward, S. T., Vos, A. G., Godijk, N. G., Tempelman, H., Grobbee, D. E., … Klipstein-Grobusch, K. (2019). Hypertension in a rural community in South Africa: What they know, what they think they know and what they recommend. BMC Public Health, 19(1), 1–10. https://doi.org/10.1186/s12889-019-6642-3

Marianna, M., & Paraskevi, A. (2011). What are the Major Ethical Issues in Conducting Research?Is there a Conflict between the Research Ethics and the Nature of Nursing? 1, 3–14.

Naunton, M. (2012). Internal medicine. Journal of Pharmacy Practice and Research, 42(2), 159–160.

Nguyen, Q., Dominguez, J., Nguyen, L., & Gullapalli, N. (2010). Hypertension management: An update. In American Health and Drug Benefits (Vol. 3, pp. 47–55).

Nyandwi Alypio, A. K. M. (2015). REPUBLIC OF RWANDA Rwanda Non-communicable. (November).

Reif, M. C. (2018). What ’ s In the New Hypertension Guidelines ?

Roth, G. A., Johnson, C., Abajobir, A., Abd-Allah, F., Abera, S. F., Abyu, G., … Patankar, P. M. and S. (2017). Global Ncd Target Reduce High Blood Pressure. The Lancet, 31(4), 190–215. https://doi.org/.1037//0033-2909.I26.1.78

Rowley, J., Slack, F. (2018). 866929.Pdf (Vol. 27).

Sa, H. H., Darwazeh, R. N., Khalil, A. A., & Zyoud, S. H. (2018). Knowledge , attitudes and practices of hypertensive patients towards prevention and early detection of chronic kidney disease : a cross sectional study from Palestine. 1–13.

Sakhaee, K., Maalouf, N. M., & Sinnott, B. (2015). and Management. 25(May), 1847–1860. https://doi.org/10.1210/jc.2011-3492

Taherdoost, H. (2018). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. SSRN Electronic Journal, (January 2016). https://doi.org/10.2139/ssrn.3205035

Bosu, W. K., Reilly, S. T., Aheto, J. M. K., & Zucchelli, E. (2019). Hypertension in older adults in Africa: A systematic review and meta-analysis. PLoS ONE, 14(4), 1–25. https://doi.org/10.1371/journal.pone.0214934

Carey, R. M., Muntner, P., Bosworth, H. B., & Whelton, P. K. (2018). Prevention and Control of Hypertension: JACC Health Promotion Series. Journal of the American College of Cardiology, 72(11), 1278–1293. https://doi.org/10.1016/j.jacc.2018.07.008

Chimberengwa, P. T., & Naidoo, M. (2019). Knowledge, attitudes and practices related to hypertension among residents of a disadvantaged rural community in southern Zimbabwe. PLoS ONE, 14(6), 1–16. https://doi.org/10.1371/journal.pone.0215500

Collart, F., De Timary, P., Dom, G., Dor, B. D., Duprez, D., Lengele, J. P., … Stärkel, P. (2015). Alcohol-induced hypertension: An important healthcare target in Belgium. Acta Clinica Belgica: International Journal of Clinical and Laboratory Medicine, 70(6), 389–395. https://doi.org/10.1179/2295333715Y.0000000039

DeLaune, S. C., & Ladner, P. K. (2012). Fundamentals of Nursing S T Andards &Practice.

Domingo, A., Mccarthy, S., Carlos, M. C., Engelhardt, K., Khow, K., Heng, C., … Ruiz, A. (2017). Healthy eating habits for patients with hypertension. Retrieved from http://apps.who.int/iris/bitstream/10665/254746/3/9789290617990-hyp-mod3-eng.pdf

Eissa, A. T. (2013). Knowledge , Attitudes and Practices towards Medication Use among Health Care Students in King Saud University. 1(2).

Guwatudde, D., Nankya-Mutyoba, J., Kalyesubula, R., Laurence, C., Adebamowo, C., Ajayi, I. O., … Dalal, S. (2015). The burden of hypertension in sub-Saharan Africa: A four-country cross sectional study. BMC Public Health, 15(1), 1–8. https://doi.org/10.1186/s12889-015-2546-z

Appendices 1: Authorisation letter from the study etting

OK, See DAF & DNM

KIBOGORA POLYTECHNIC

Kibogora, **May 29th 2023**

To: Mr. Director General of Kibogora Hospital

KIBOGORA LEVEL TWO TEACHING HOSPITAL
RECEPTION
DATE 31 MAY 2023
Names :.....
Signature :.....

RE: Request of conducting research

Dear Sir,

We write this letter to humbly request you to allow **Mr. UWIZEYIMANA Jean** and **Mrs. UWAMARIYA Marie Gorette** to conduct a research in your institution.

The above mentioned are bonafide students of Kibogora Polytechnic Pursuing Bachelor's degree in General Nursing Department.

These students are currently conducting a research topic on:" **KNOWLEDGE OF HYPERTENTION, AWARENESS AND PRACTICES TOWARDS MEDICATIONS USE AMONG HYPERTENSIVE PATIENTS ATTENDING NCDs SERVICE AT KIBOGORA LEVEL2 TEACHING HOSPITAL"**

We are convinced that your institution will constitute a valuable source of information pertaining to their research, the purpose of this letter is to humbly request you to provide to them the pertinent information they may need. We pledge to ensure that all provided information will be confidential and used in the strict academic purpose.

Any assistance rendered to the candidates will be highly appreciated.

Yours sincerely,

Mr. NSENGIYUMVA Jean Paul
Ag. Dean of health Sciences Faculty
Kibogora Polytechnic

Granted Accreditation and Legal Personality by The Ministerial Order N° 7/2015Official Gazette N° 03 of 19/01/2015
P.O.Box: 50 Nyamasheke-Rwanda Tel:(+250)788568015 E-mail:info@kp.ac.rw, Website : www.kp.ac.rw

THIS INFORMED CONSENT FORM IS FOR HYPERTENSIVE PATIENTS WHO ATTEND NCD'S SERVICE AT KIBOGORA LEVEL TWO TEACHING HOSPITAL

The research prepared by; UWIZEYIMANA Jean de Dieu

UWAMARIYA Marie Gorette

Students in the Department of General Nursing at Kibogora Polytechnic

Supervisor: Mr.TWAHIRWA Jean Claude , Lecturer at Kibogora Polytechnic

PART I: Information Sheet

We are doing research on hypertension disease, which is very common in this country. we invite you to be part of this research because, We are inviting all adults who have been diagnosed with hypertension, to participate in the research on the (knowledge of hypertension, awareness and practices towards medication use among hypertensive patients attending ncds' service at Kibogora district hospital). There may be some words that you do not understand Please ask. If you have questions later, you can ask them of the study investigators or the staff. This research involve answering questions provided on questionnaire. The information you provide shall be used for academic purpose and shall be treated with most confidentiality. You are therefore requested not to provide any information that might identify you like your name, nickname, mobile number or email addresses on questionnaire. A copy of the research report will be retained at the KP's library for future reference. You are under no obligation to participate in this research and thus no rewards will be accorded to you because of your participation in this research. You further should feel uncomfortable to proceed with the research, you can discontinue and no ramifications shall befall you.

PART II: Certificate of Consent

If you accept to participate in this research, please fill and sign in the space bellow.

Name of Participant _____ Signature of Participant_____

Date: 31/05/2023

IYI NYANDIKO NSABABURENGANZIRA IGENEWE ABARWAYIB'UMUVUDUKO W'AMARASO URI HEJURU, BAGANA SERIVISE Y'INDWARA ZITANDURA MU BITARO BY'AKARERE BYA KIBOGORA

Ubu bushakashatsi bwateguwe na;UWIZEYIMANA Jean de Dieu na UWAMARIYA Marie Gorette

ABANYESHULI MU ISHAMI RY'UBUFOROMO, ISHULI RY'UBUFOROMO, UBUFOROMOKAZI N'UBUBYAYAZA, MURI KIBOGORA POLYTECHNIC

Umugenzuzi: Bwana TWAHIRWA Jean Claude, umwarimu muri Kaminuza ya Kibogora

IGICE CYA I: URUPAPURO RUTANGA AMAKURU

Turi gukora ubushakashatsi ku ndwara y'umuvuduko,yamaze kuba yiyongereye cyane muri iki gihugu. Turagusaba kugira uruhare muri ubu bushakashatsi kubera ko turi gutumira abantu bakuru bose bagaragaweho iyi ndwara y'umuvuduko kugira uruhare muri ubu bushashakashashatsi harebwa (ubumenyi, ubusobanuro n'uburyo abarwayi b'umuvuduko w'amaraso uri hejuru bavurirwa muri serivisi z'indwara zitandura mukigo nderabuzima cya rwamagana bitwara). Ahari amagambo mudasobanukiwe muze kutubaza ntakibazo. Kandi ugize icyo udasobanukiwe biremewe kubaza. Muri ubu bushakashatsi muraza gusangamo ibibazo murasubiza kurupapuro rw'ibibazo. Amakuru muratanga azakoreshwa kumpamvu z'amasomo gusa kandi azabikwa mu ibanga. Niyompamvu usabwe kudatanga ibikuranga nk'izina,numero ya telefoni cg imeyili yawe. kopi y'ubu bushakashatsi izabikwa mu isomero rya Kaminuza y'akibogora kugira ngo izifashishwe m'ubundi bushakashatsi. Kugira uruhare muri ubu bushakashatsi ni uburenganzira bwawe.

IGICE CYA II: ICYEMEZO CY'AMASEZERANO

Niba wemeye kugira uruhare nuri ubu bushakashatsi uzuza kandi usinye mumwanya ukurikira

Amazina…….

Umukono……..

Itariki: 31/05/2023

Appendices 4: questionnaire

ENGLISH QUESTIONAIRE ADRESSED TO PATIENTS

Instruction:

1. This questionnaire is addressed to you individually. Circle correct answer where it apply and Choose YES or NO for certain question and write the answer in the space provided.
2. The questionnaire is anonymous; do not put your name anywhere on this questionnaire.
3. Note that your participation in this study is voluntary. You can withhold or withdraw at any stage without any penalty or punishment.
4. This tool that is going to be used for data collection will remain the property of the researcher and it will be destroyed after 5years and the information you give during this study will be confidential and will be used for study purposes of this study alone
5. This questionnaire consists of questions to assess the Patient's knowledge of hypertension (from Q1 to Q14), Patient's awareness toward antihypertensive drugs (from Q15 to Q22), Patient's drug adherence of hypertension, Reasons for non-adherence of drugs (from Q23 to Q49).
6. Your contribution is valued greatly

SOCIO DEMOGRAPHIC CHARACTERISTICS

1. Age: …
2. Gender
    a. Male
    b. Female
3. Educational status
    a. A2
    b. A1
    c. A0
    d. Masters
    e. PhD
    f. Other specify…
4. Marital status
    a. single
    b. married
    c. widowed
    d. divorce

Patient's knowledge of hypertension.	Answer	
Questions	yes	No
1. Knowing normal values of BP as 120/80mmHg		
2. Increase in BP > 140/90mmHg called HT		
3. What are the practice on HT		
4. Both sexes have equal chance of developing HT		
5. HT is a treatable condition		
6. Risk of developing HT if there is a family history of HT		
7. Aging is greater risk of HT		
8. Smoking is a risk factor for HT		
9. Eating fatty foods is a risk factor for HT		
10. Overweight is a risk factor for HT		
11. Regular physical exercise reduces HT		
12. More salt consumption increases BP		
13. Medication is alone in controlling HT		
14. HT can lead to life-threatening condition		

Patient's Perception of hypertension.		
Questions	yes	no
15. Knowing about having hypertension		
16. Knowing blood pressure values in diagnosing as hypertension		
17. Knowing the values of target personal blood pressure		
18. Controlling of blood pressure reduces your complications		
19. Uncontrolled hypertension can lead to your organ's damage		
20. Thinking that HT is curable condition		
21. Changing your lifestyle helps to lower your blood pressure		
22. Improvement of your blood pressure over the last 12 months		

Patient's drug adherence of hypertension.		
Questions	yes	no
23. Do you sometimes forget to take your medication?		
24. People sometimes miss taking their medication for reasons other than forgetting.Thinking over the past two weeks, were 25. there any days when you did not take your medication?		
26. Have you ever stopped or taken again medication without 27. telling doctor?		
28. When you leave/travel home, do you sometimes forget to take 29. your medication?		
30. Did you take your medicine yesterday?		
31. When you feel like your health is under control, do you 32. sometimes stop your medication?		

33. Taking tablets every day is really unconvincing for some people. 34. Do you ever feel hassled about sticking to your treatment plan?		
35. How often do you have difficulty remembering to takeyou're your medicine? • Never/rarely—4 • Once a while—3 • Sometimes—2 • Never—1		

Reasons for mal practice on medication.		
Reasons	yes	no
36. Poor knowledge of disease and ignorance of long term treatment		
37. Religious beliefs and cultural practices		
38. Adverse drug reactions		
39. Patient not believing that health depends on medicine		
40. Worrying about taking medicine		
41. Forgetfulness		
42. Drug out of supply		
43. Poor communication /insufficient patient information		
44. Expenses (doctors' fees, transport, medicine, and hospitalization)		
45. Interruptions of daily routine		
46. Lack of reminders		
47. Being busy or late for work		
48. Being away on weekend/vacation		
49. Too many medications to take		

Nomero

URUPAPURO RW'IBIBAZO RUGENEWE UMURWAYI

A. AMABWIRIZA:

1.Uru rupapuro ruriho ibibabazo, ni urwawe kugiti cyawe. Vivura (✔) ahabugenewe aho kugisubizo nyacyo kandi hari ibibazo bimwe na bimwe urasabwa gusubiza Yego cyangwa Oya, wandike mumwanya wabugenewe. uru rupapuro rw'ibibazo singombwa gushyiraho umwirondoro nk'amazina yawe, nomero ya terefone, n'ibindi.

2.Zirikana ko uruhare rwawe ari ubushake.

3.Uru rupapuro rurakoeshwa mugukusanya amakuru kandi ruzaguma ari nkumutungo w'abakora ubushashakashatsi rutakaza agaciro nyuma y'mumyaka 5. kandi amakuru mutanze azabikwa muburyo bw'ibanga azanakoreshwe gusa kumpamvu z'amasomo.

4.Uru rupapuro rugizwe n'ibibazo bisuzuma ubumenyi abarwayi b'umuvuduko w'amaraso uri hejuru bafite kuri iyo ndwara (kuva kukibazo cya 1 kugeza kucya 14), ubusobanuro abarwatyi bafite kundwara y'umuvuduko w'amaraso uri hejuru (kuva kukibazo cya 15 kugeza kucya 22) ukigereranyo abarwayi bafataho imiti n'impamvu badafata imiti (kuva kukibazo cya 23 kugeza kucya 49)

5.Uruhare rwanyu ni ingirakamaro.

B. AMAKURU RUSANGE Y'UMURWAYI

5. imyaka ☐

6. igitsina

c. Gabo ☐

d. Gore ☐

f. ndubatse

g. narapfakaye ☐

h. natandukanye byemewe n'amategeko n'uwo twashakany ☐

7. amashuli wize

a. ntanarimwe ☐

b. abanza ☐

c. ayisumbuye ☐

d. kaminuza ☐

8. irangamimerere

e. ndi ingaragu ☐

☐

C. IBIBAZO

Ubumenyi bw'umurwayi kubijyanye n'umuvuduko w'amaraso	Igisubizo(✔)	
Ibibazo	yego	Oya
1. Ese waba uzi ibipimo fatizo by' umuvuduko w'amaraso ko ari 120/80mmHg ?		
2. kuba Umuvuduko w'amaraso uri hejuru ya 140/90mmHg byitwa Umuvuduko w'amaraso uri hejuru?		
3. Umuvuduko w'amaraso wiyongera uko umuntu agenda akura?		
4. Ibitsina byombi bigira amahirwe angana yo kugira umuvuduko w'amaraso uri hejuru?		
5. Ese umuvuduko w'amaraso uri hejuru uravurwa?		
6. Ese hari amahirwe yiyongereye yo kugira umuvuduko uri hejuru bitewe na karande y'umuryango?		
7. Gukura niyo mpamvu iruta izindi itera umuvuduko w'amaraso uri hejuru?		
8. kunywa itabi byatera umuduko w'amaraso uri hejuru?		
9. kurya ibiryo biganjemo amavuta bitera Umuvuduko w'amaraso uri hejuru?		
10. umubyibuho ukabije bitera umuvuduko w'amaraso uri hejuru?		
11. imyitozo ngororangingo igabanya umuvuduko w'amaraso uri hejuru?		
12. kurya umunyu mwinshi byongera umuvuduko?		
13. Imiti niyo yonyine igabanya umuvuduko?		
14. umuvuduko w'amaraso uri hejuru wagira ingaruka mbi cyane kubuzima bw'umuntu?		

Ibibazo	Yego	Oya
15. Ese wari usanzwe uzi ko ugira umuvuduko w'amaraso uri hejuru?		
16. Ese uzi ibipimo ngenderwaho hemezwa ko umuntu afite umuvuduko w'amaraso uri hejuru?		
17. Ese uzi ibipimo fatizo by'umuvuduko w'amaraso?		
18. gukurikirana umuvuduko w'amaraso bigabanya ingaruka zawo?		
19. umuvuduko w'amaraso uri hejuru watera kwangirika kwa bimwe mubice by'umubiri wawe?		
20. Utekereza ko umuvuduko w'amaraso uri hejuru ukira?		
21. guhindura imibereho yawe ya buri munsi byagufasha kugabanya umuvuduko?		
22. hari impinduka nziza zabaye kumuvuduko wawe mumezi cumi n'abiri ashize?		

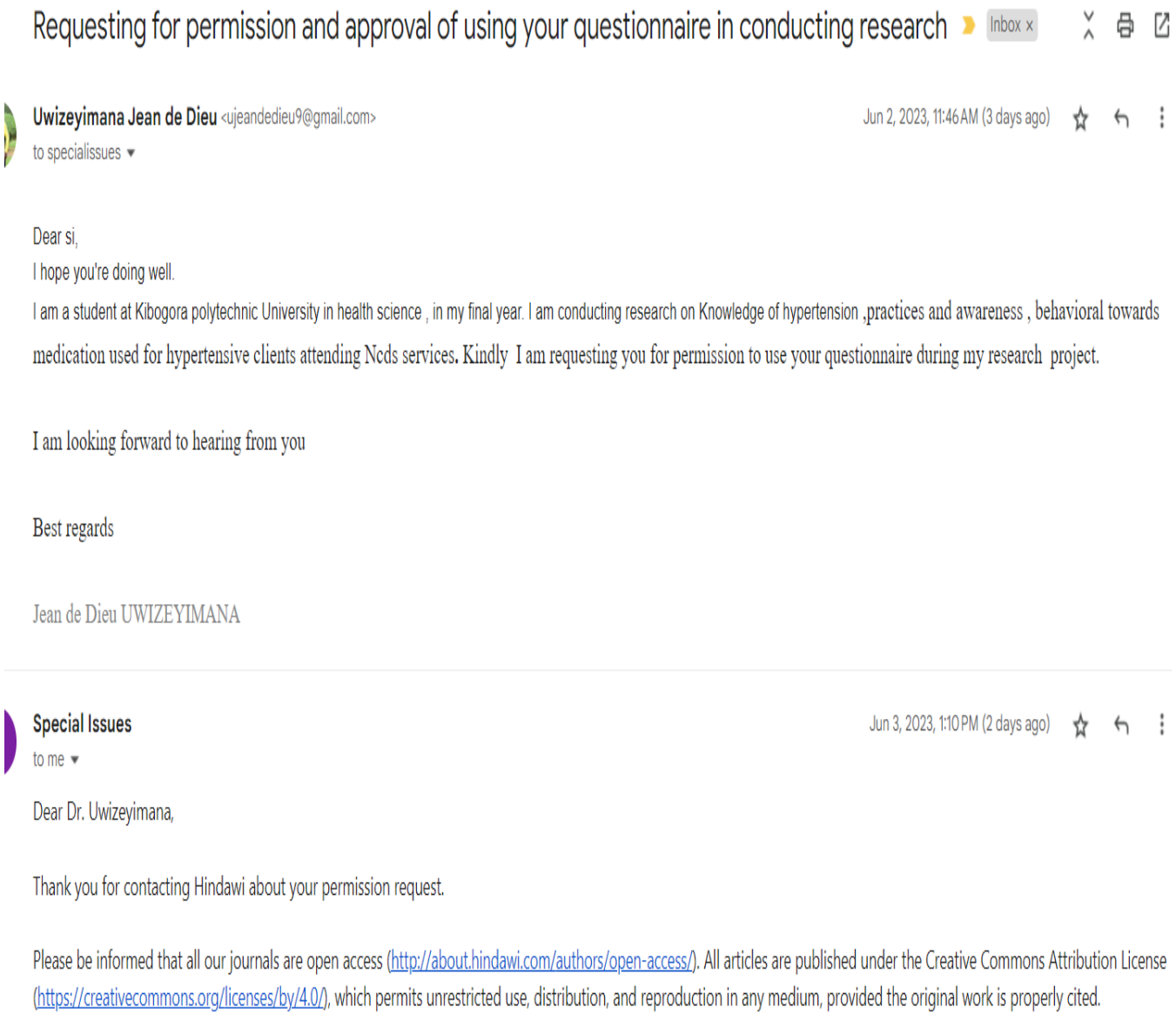
uko abarwayi b'umuvuduko w'amaraso uri hejuru bafata imiti		
Ibibazo	yes	no
23. Rimwe na rimwe ujya wibagirwa gufata imiti yawe?		
24. Rimwe na rimwe usiba gufata imiti bitewe n'indi mpamvu itari ukwibagirwa?		
22. Mubyumweru 2 bishize hari umunsi utanyoye imiti?		
25. hari ikindi gihe wibagiwe gufata imiti ntubibwire muganga wawe?		
26. iyo uvuye murugo ugafata urugendo rimwe na rimwe wibagirwa kugendana imiti?		
27. Ejo hashize wanyoye imiti yawe?		
28. Iyo wumvise umeze neza uhagarika gufata imiti?		
29. Gufata ikinini buri munsi ntibyumvwa neza ku bantu bamwe na bamwe?		
30. Wigeze wumva kumenyera imivurirwe yawe bikugoye?		
31. ni gute wibagirwa kunywa imiti ? • gake cyane • rimwe mubuzima • rimwe na rimwe • nta narimwe		

impamvu zo kudafata imiti.

Impamvu	yego	oya
32. ubumenyi buke kundwara n'ubuvuzi bw'igihe kirekire.		
33. imyumvire iterwa n'imyemerere.		
34. Ingaruka z'imiti zitateganijwe.		
35. atekereza ko ubuzima budashingira kugufata imiti.		
36. kugira ubwoba bwo gufata imiti.		
37. Kwibagirwa.		
38. Imiti yabuze.		
39. amakuru adahagije y'umurwayi ajyanye no gufata imiti.		
40. ubwishyu(kwishyura muganga,amafranga y'urugendo,imiti n'ibitaro).		
41. ihindagurika ryo kunywa imiti.		
42. kubura abakwibutsa.		
43. kuba uhuze cyane cyangwa wakerewe kukazi.		
48. kuba uri kure muri wikendi cyangwa mukaruhuko.		
49. mfata imiti myinshi.		

impamvu zo kudafata imiti.		
Impamvu	yego	oya
44. ubumenyi buke kundwara n'ubuvuzi bw'igihe kirekire.		
45. imyumvire iterwa n'imyemerere.		
46. Ingaruka z'imiti zitateganijwe.		
47. atekereza ko ubuzima budashingira kugufata imiti.		
48. kugira ubwoba bwo gufata imiti.		
49. Kwibagirwa.		
50. Imiti yabuze.		
51. amakuru adahagije y'umurwayi ajyanye no gufata imiti.		
52. ubwishyu(kwishyura muganga,amafranga y'urugendo,imiti n'ibitaro).		
53. ihindagurika ryo kunywa imiti.		
54. kubura abakwibutsa.		
55. kuba uhuze cyane cyangwa wakerewe kukazi.		
49. kuba uri kure muri wikendi cyangwa mukaruhuko.		
50. mfata imiti myinshi.		

APPENDICES 2: aproval for questionnaire use



Requesting for permission and approval of using your questionnaire in conducting research Inbox x

Uwizeyimana Jean de Dieu <ujeandedieu9@gmail.com> Jun 2, 2023, 11:46 AM (3 days ago)

to specialissues

Dear si,

I hope you're doing well.

I am a student at Kibogora polytechnic University in health science , in my final year. I am conducting research on Knowledge of hypertension ,practices and awareness , behavioral towards medication used for hypertensive clients attending Ncds services. Kindly I am requesting you for permission to use your questionnaire during my research project.

I am looking forward to hearing from you

Best regards

Jean de Dieu UWIZEYIMANA

Special Issues Jun 3, 2023, 1:10 PM (2 days ago)

to me

Dear Dr. Uwizeyimana,

Thank you for contacting Hindawi about your permission request.

Please be informed that all our journals are open access (http://about.hindawi.com/authors/open-access/). All articles are published under the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Special Issues

Jun 3, 2023, 1:10 PM (2 days ago)

to me

Dear Dr. Uwizeyimana,

Thank you for contacting Hindawi about your permission request.

Please be informed that all our journals are open access (http://about.hindawi.com/authors/open-access/). All articles are published under the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

You are free to reuse this text with proper citation and attribution of the Hindawi article, unless the text is indicated to be from previous copyrighted work. In that case, you should seek permission from the copyright holder of the original publication that included the text.

If I can help you with anything else, please let me know.

Best regards,

John

John Hernandez
Support Specialist

Hindawi

Hindawi.com | Twitter | FaceBook | LinkedIn | YouTube