KIBOGORA POLYTECHINIC

FACULTY OF HEALTH SCIENCE

DEPARTMENT OF GENERAL NURSING

PREVALENCE AND RISK FACTORS ASSOCIATED WITH HYPERTENSIONAMONG PATIENTS ATTENDING THE NON-COMMUNICABLE DISEASES (NCDS) DEPARTMENT AT KIBOGORA HEATH CENTER.

Case study: Kibogora Health Center

Period (2023 December-2024 June)

Undergraduate research thesis submitted for partial fulfillment of the requirements for Bachelor's Degree in General nursing at Kibogora Polytechnic

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Kibogora, September, 2024

DECLARATION

Declaration by candidates

We, DUSHIMIRIMANA Julienne and IRADUKUNDA Claudine hereby proclaim that this is our original work and no duplication of any similar academic work. It has never been submitted to any other institution of higher learning. All materials cited in this paper that are not our own have been duly acknowledged.

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ABSTRACT

Background: Hypertension is a major public health problem due to its high prevalence all around the globe 7.5 million deaths or 12.8% of the total of all annual deaths worldwide occur due to high blood pressure. It is predicted to be increased to 1.56 billion adults with hypertension in 2025.

Purpose: This study sought to assess the prevalence and risk factors associated with hypertension among patients attending to NCDS department at Kibogora-health Center.

Methodology: target population was 350 from which a sample size of 187 selected using Yamane's formula and a study adopted a cross-section retrospective study with quantitative approach. The data collection instruments used was questionnaire, Statistical package and social science version 22 was used to analysis data.

Findings: The prevalence of Hypertension among patients attending to non-communicable diseases department, at Kibogora Health Center reveals that among 350 patients in the non-communicable department, hypertension is prevalence at a rate of 28% and the risk factors associated with Hypertension among patients attending non-communicable department there were statistical significant relationship between following risk factor and hypertension age which p value 0.045, smoking which p value 0.016, physical exercise which p value0.045 ,family history is not significant which p value 0.227, alcohol use which p value 0.036 .

As conclusion: The prevalence of hypertension was 28 % and various aspects risk of hypertension such as age of patient, smoking, physical inactivity's of hypertension, and alcohol use. These findings provide a basis for targeted interventions and training programs to change life style modification.

DEDICATION

We dedicate this work to our almighty God who enables as to achieve this success; we also dedicate it to our beloved parents whose educational sacrifice, parental care and love that made me who we are until now. We dedicate it to our sister and brothers for their great support during our course time. We dedicate it especially to our classmates and our Supervisor for their great support a long the period of our course.

ACKNOWLEDGEMENTS

We are heartily thankful to our Almighty God for blessing us all days of our lives, especially during our studies. This work should not be accomplished without his guidance.

We are also thankful to numerous individuals and institutions if they were not present our research would not be possible. We feel an obligation to extend our sincere appreciations to the people and institutions for their contribution to our educational career in general and this research in particular.

We take this opportunity to express our high gratitude to our supervisor for her efforts and limitless advice during this project, Ms. TUYISENGE Francine was a great joy to work under his supervision.

We would like to thank also the faculty of Health Science, the General Nursing Department at Kibogora Polytechnic, especially the lecturers and staff, for their close guidance, knowledge, and technical advice throughout our studies.

Special thanks to our parents, brothers, and sisters for their encouragement during our studies and for providing all the requirements and supports.

Finally, our thanks go to our colleagues, classmates, friends, and roommates whose moral and support were vital to the success of our studies at Kibogora Polytechnic.

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LIST OF ABBREVIATIONS AND ACRONYMS

AAD: Acute aortic dissection

AAS: Acute aortic syndrome

BP: Blood pressure

CVD: cardiovascular disease

DASH: Dietary approaches to stop hypertension

DM: Diabetes mellitus

DALYs: disability-adjusted life years

DBP: diastolic blood pressure

HTN: hypertension

 HBM: Health Belief Model

KP: Kibogora polytechnic

LMICs: low and middle income countries

MENA: Middle East and North Africa

MI: myocardial infarction

MOH: ministry of health

NCDS: non-communicable disease

NNHS: National nutrition and health survey

OPD: outpatient department

SPSS: Statistical package of social science

SDOH; Social Determinants of Health)

TPB: Theory of Planned Behaviour

WHO: world health organization

CHAPTER ONE: GENERAL INTRODUCTION

1.0. INTRODUCTION

This study was presents the background of the study, Problem statements of the study, Research objectives, Research questions, Significance of the study, Limitations of the study and Scope of the study.

1.1. BACKGROUND OF THE STUDY

Hypertension is a condition when systolic blood pressure is greater than 140mmHg and diastolic blood pressure is greater than 90mmHg. Hypertension is a major public health problem due to its high prevalence all around the globe 7.5 million deaths or 12.8% of the total of all annual deaths worldwide occur due to high blood pressure. It is predicted to be increased to 1.56 billion adults with hypertension in 2025. HTN is a silent killer because, in the early stages, very few symptoms are evident until a serious medical emergency occurs, such as a heart attack, stroke, chronic renal disease, or risk factors for both maternal and fetal death during pregnancy. The only way to detect high blood pressure is through measurements because people are not aware of it. While the majority of hypertension patients do not experience any symptoms, some do report headaches, dizziness, vertigo, changes in vision, or fainting episodes (Whelton, 2016). High blood pressure is the main Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality worldwide. Approximately 80% of all cardiovascular deaths occur in low- and middle-income countries. By 2030, it is estimated that there will be 23 million cardiovascular deaths worldwide, with SSA accounting for half of those deaths due to the region's rare prevalence of hypertension (Ntaganda, 2022).

Sub-Saharan Africa has also seen an increase in hypertension, with research showing that urban settings have higher levels than rural ones. In Sub-Saharan Africa, the prevalence of hypertension varies from 14.5% in rural Eritrea to 32.9% in semi-urban Ghana and 40.1% in urban South Africa. The national average survey for HTN in Cameroon is 31.0%. The prevalence of HTN ranges from 5.7% in rural settings to 21.9% in semi-urban Kaiser Permanente (03/01/2014). In urban environments, the prevalence is 47.5%. Urban environments have been found to have levels of acceptable blood pressure control as low as 2% to 27.5% (in men) and 38.7% (in women), despite the fact that blood pressure control is generally higher in urban settings than in rural ones (Walters , 2016).

The estimated frequency of HTN in Sub-Saharan Africa (SSA) is 16.2%, with 10.6% in Ethiopia and 29.6% in Ghana, according to one report. In SSA, urban regions have a greater frequency of HTN (20.7%) than rural areas (13.7%) (Chobufo, 2020).

The frequency was estimated to be 30.8% in 2010, despite a substantial increase in some parts of Africa of between 36.2% and 77.3% In this continent, there were 92.3 million cases of hypertension in 2000, 130.2 million cases in 2010 and, according to predictions, there will be 216.8 million cases in 2030. Due to a lack of knowledge regarding the disease's prevention, this is an extremely high rate of growth. A very low level of awareness of hypertension was discovered in Africa, ranging from 29.2% to 33.7% between 2000 and 2010, respectively. Research conducted in Africa showed that hypertension is particularly common in certain African countries (Alireza, 2020).

The highest rates, which ranged from 77.3% to 65.4% in 2010, were observed in South Africa, Tanzania, Tunisia, and Senegal. The prevalence rate was 33.3% in Northern Africa, 27.8% in Sub-Saharan Africa overall, 34.6% in Southern Africa, 27.3% in Western Africa, 27.1% in Central Africa, and 26.7% in Eastern Africa. Researchers found that Tanzania has a high pre-hypertension rate of 36.2% but a lower prevalence of hypertension (8.0%). According to, researchers found that South Africa had an extremely high prevalence of hypertension, at 49.2%. (Lawlor, 2020).

In Rwanda, the prevalence of hypertension was 15.3% in 2015. At present, there are no accurate predictions of the prevalence of hypertension and its trend over time in Rwanda to assist decision makers in making plans for prevention and more effective interventions. The study done on Prediction of the Prevalence of Hypertension and Associated Risk Factors in Rwanda (Dukunde A, 2023).showed that the prevalence of hypertension is estimated to reach 17.82% in 2025, with tobacco use, being overweight or obese, and other risk factors having a respective prevalence of 26.26%, 17.13%, 4.80%, and 33.99%, which shows the increase and, therefore, measures for prevention to be taken. Therefore, to prevent and reduce the prevalence of this disease, the government of Rwanda should take appropriate measures to promote a balanced diet and physical exercise. (Ryan, 2020) The purpose of this study is to assess the Prevalence and Risk factors associated with Hypertension among patients who attended NCDS department at Kibogora health center.

1.2. PROBLEM STATEMENT

Hypertension, a leading cause of morbidity and mortality globally, has been increasingly recognized as a significant public health concern, particularly in developing countries. According to World Health Organization understanding the prevalence and associated risk factors is crucial for the effective management and prevention of hypertension (Ntaganda, 2022).However, the absence of localized data on hypertension prevalence and its determinants limits the ability of healthcare providers to tailor interventions that address the specific needs of this population (Katherine , 2020).

Furthermore, the increasing incidence of hypertension among younger patients and its correlation with emerging risk factors such as stress and urbanization underscores the urgent need for research in this area. The study aims to fill this gap by providing a detailed analysis of the prevalence and risk factors associated with hypertension among patients attending the NCDS department. As suggested addressing these research gaps is essential for the development of effective public health strategies that can reduce the burden of hypertension and improve patient outcomes. (Glanz, 2020).

This study conducted at Kibogora health center where we were found the numbers of people who have hypertension are attending NCDS department and there we found any research done for this problems. Therefore, this study was helped to determine the prevalence and risk factors associated with hypertensive patient attended at Kibogora health center

1.3. THE PURPOSE OF THE STUDY

The purpose of this study is to assess the Prevalence and Risk factors associated with Hypertension among patients who attended NCDS department at Kibogora health center

1.4. OBJECTIVES

1. 4.1. Main Objective

The Main objective of this study is to assess the Prevalence and Risk factors associated with Hypertension among patients who attended NCDS department at Kibogora health center

1. 4.2. Specific Objectives

I. To determine the prevalence of Hypertension among patients attending NCDS department at Kibogora health center

II. To determine the risk factors associated with Hypertension among patients attending NCDS department at Kibogora health center

1.5. RESEARCH QUESTIONS

1. What is the prevalence of Hypertension among patients attending NCDS department at Kibogora health center?

2. What are the risk factor associated to Hypertensive patient attending NCDS department at Kibogora health center?

1.6. SIGNIFICANCE OF THESTUDY

This research will be helped the population who will coming to seek health care at Kibogora health center in NCDs department, to get knowledge about risk factor and seriousness of hypertension. And provide knowledge and serve as baseline for further research by health professionals. It will be also helped Kibogora health center to elaborate policy and procedure for improving quality care. In addition, this study will have enriched the field of nursing practice at Kibogora health center by helping nurses, health care providers to become more concerned as far as hypertension is the leading risk factor for death and disability.

1.7. LIMITATIONS OF STUDY

Therefore, the results from this study may not be more representative and generalizable to the general population of the patients suffering from hypertension from the whole country, hence the sample is selected from one geographical area in Rwanda.

1.8 SCOPE OF THE STUDY

This study was conducted at Kibogora health center located in Nyamasheke District. Kanjongo sector Kibogora cell Nyagacaca village is a health open research field and it offers evidence-based teaching of multidisciplinary health related fields including Nursing, midwives, lab technicians, and other paramedics trainees have various services: OPD, Pharmacy, Laboratory, ARV, Maternity department, Mainor Surgical, and Mental Health Department, NCDS department.

1.8. 1. In Time

Our research was conducted from 2023 December to June 2024 It is a time that we believe enough to have a representative sample for our study and gather sufficient relevant information.

1.8.2. In Space

This work was done in western province, Nyamasheke district, at Kibogora health center.

1.8.3. In Domain

Our study was conducted in NCDs department of Kibogora health center

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

This chapter were included Definition of Key Concepts/Terms, Literature relating to the first objective, Literature relating to the second objective, any other relevant and related literature to support the study, Gap in literature, Theoretical underpinning, Conceptual framework and Empirical study.

2.1. DEFINITIONS OF KEY CONCEPTS/TERMS

2.1.1. Hypertension

Hypertension is a condition when systolic blood pressure is greater than 140mmHg and diastolic blood pressure is greater than 90mmHg (Pyakurel, 2019).

2.1.2. Prevalence

Prevalence of Hypertension" refers to the proportion or percentage of a population that has been diagnosed with hypertension (high blood pressure) at a given point in time or over a specific period. (Desai, 2021).

2.1.3. Risk factor

Risk Factor for Hypertension" is any attribute, characteristic, or exposure that increases an individual's likelihood of developing hypertension (high blood pressure). Risk factors can be behavioral, environmental, genetic, or biological, and they contribute to the onset or exacerbation of hypertension. (Kraemer, 2020).

2.2 LITERATURE RELATING TO THE PREVALENCE OF HYPERTENSIVE

Hypertension, often referred to as high blood pressure, has emerged as one of the most significant global public health challenges. According to the World Health Organization (WHO, 2021), approximately 1.28 billion adults aged 30-79 years worldwide have hypertension, with a substantial number of these individuals residing in low- and middle-income countries. The rising prevalence of hypertension is concerning due to its role as a major risk factor for cardiovascular diseases, including heart attacks, strokes, and kidney failure. Despite advancements in medical science, the control of hypertension remains inadequate, with many individuals unaware of their condition, leading to late diagnosis and complications.

In recent years, studies have highlighted an alarming increase in the prevalence of hypertension, particularly in developing countries. A study revealed that the global prevalence of hypertension in adults has increased from 27% in 1990 to 31% in 2019, with the highest rates observed in sub-Saharan Africa, South Asia, and Central and Eastern Europe. This increase, it contributes the rapid of urbanization, changes in dietary patterns, increased stress levels, and the growing prevalence of obesity. These factors have contributed to a shift in the burden of hypertension from high-income countries to low- and middle-income regions. (Eslavath , 2020).

The rising prevalence of hypertension is further complicated by the coexistence of other non-communicable diseases (NCDs). A comprehensive review by (Pedro, 2020) found that nearly half of all hypertensive patients also suffer from one or more comorbidities, such as diabetes or hyperlipidaemia. This comorbidity not only exacerbates the risk of cardiovascular events but also complicates the management of hypertension. The interconnectedness of these diseases underscores the need for integrated approaches in healthcare systems to address the growing burden of hypertension and related conditions.

Furthermore, socioeconomic factors play a crucial role in the prevalence and management of hypertension. Research (Lawlor, 2020) indicates that individuals from lower socioeconomic backgrounds are more likely to develop hypertension due to limited access to healthcare, unhealthy diets, and higher exposure to stress. These disparities are particularly pronounced in rural areas, where healthcare resources are scarce, and lifestyle changes are less feasible. Addressing these inequities is essential for reducing the global burden of hypertension.

Public health initiatives have been launched worldwide to combat the rising prevalence of hypertension, but their effectiveness varies. According to the Global Burden of Disease Study (Bulter, 2020) .while some countries have achieved significant reductions in hypertension prevalence through public health campaigns and improved access to treatment, others continue to struggle with high rates of uncontrolled hypertension. The success of these initiatives often depends on factors such as government commitment, community involvement, and the availability of healthcare infrastructure.

The increasing prevalence of hypertension poses a significant challenge to global health, particularly in low- and middle-income countries. To effectively address this issue, there is a need for continued research, public health interventions, and policies that target the root causes of hypertension. As highlighted   (Aphrodis , 2022), a comprehensive approach that includes lifestyle modifications, early detection, and equitable access to healthcare is essential for reducing the global burden of hypertension and improving outcomes for individuals affected by this condition.

Hypertension has always been regarded as a disease of affluence but this has changed drastically in the last two decades with average blood pressures now higher in Africa than in Europe and USA and the prevalence increasing among poor sections of society (Sharma, 2021)

Many studies were carried out and shown that the occurrence of increased blood pressure was elevated in Africa where it was 46% for both sexes combined (WHO, 2016). Both men and women have high frequency of raised blood pressure in the Africa region with incidence rates over 40%. The lowest occurrence of elevated blood pressure was in the WHO region of the Americas at 35% for both sexes) where men in that region have greater dominance than women (39% for men and 32% for women (Bin , 2021).

Globally, the overall prevalence of high blood pressure (including those on medication for high blood pressure) in adults aged 25 and above was around 40% in 2008. Among all WHO regions, the prevalence of raised blood pressure was highest in the African Region (46%) and lowest in the Region of the Americas (35%). In the South-East Asia Region, 36% of adults have hypertension (Pengpid, 2022)

 However, mean blood pressure has decreased in nearly all high-income countries; it has been stable or increasing in most African countries. Today, mean blood pressure remains very high in many African and some European countries. The prevalence of raised blood pressure in 2008 was highest in the WHO African Region at 36.8%. In 2010, 31.1% of the world's adults had hypertension; 28.5% in high-income countries and 31.5% in low- and middle-income countries. An estimated 1.39 billion   people had hypertension in 2010: 349 million in high-income countries and 1.04 billion in low and middle-income countries (WHO, 2014).

From 2000 to 2010, the age standardized prevalence of hypertension decreased by 2.6% in high-income countries, but increased by 7.7% in low- and middle-income countries (Mills,, 2016).In Angola, estimates show that 9% of 301,000 deaths occurred due to CVDs in 2012, 12 with 24.2% of probability of premature death (aged between 30 and 70 years) due to no communicable diseases (NCDs). Little is known about the prevalence of hypertension in the general population. In the few existing studies, the prevalence varied between 23% and 45.2% (Cruz S. Sebastião, 2023).If blood pressure is in the pre-hypertension range, it is likely that you were end up with high blood pressure unless you take action to prevent it. High blood pressure need to be treated because it can lead to kidney failure, heart attack, heart failure, stroke and between 1980 and 2008, due to the growth and aging of population around the world, the number of people with uncontrolled hypertension was reported to be increased and in the same period, mean age adjusted systolic blood pressure has declined in developing countries like in the North America, Australia, and increased in developing countries like in the East Africa, Oceania and South Asia (Serato, 2022).

2.3. RISK FACTORS ASSOCIATED WITH HYPERTENSION

Hypertension is mainly associated with lifestyle factors rather than with genetics and has a strong association and causal link with five particular behaviors: tobacco use, excessive use of alcohol, physical inactivity, unhealthy diet (high salt intake and, insufficient fruit and vegetable consumption) and obesity. Risk factors leading to hypertension can be reversible (modifiable), irreversible (non-modifiable such as age and family history), or associated with other predisposing disorders (strategy, 2020).

Tobacco Use: Tobacco use is known to increase the risk of developing hypertension and cardiovascular diseases like stroke, thrombosis and heart attack. Smoking causes an immediate increase in blood pressure resulting in higher ambulatory blood pressure levels for smokers than for non-smokers (Eslavath , 2020).

Based on the study done in India, out of 250 study subjects, the overall magnitude of hypertension was found to be 15.6%. The addiction to any form of tobacco was found among 28.40% of the study participants and out of those, almost 50% were hypertensive (Prashant , 2022).

Also, in the same country but different year, a community cross sectional study done in India has revealed that among 640 participants aged 25-64 years was used where the prevalence of HTN was 32.9% and the tobacco use was significantly associated to, hypertension (Desai, 2021).

In the study done in Nepal where prevalence of hypertension was 32.5% from 587 participants has revealed that the current smoking and past smoking participants were significantly associated with hypertension with proportion 19.9% and 17%, respectively (Sushant , 2021).

Age: Among the non-modifiable risk factors of HTN, age and family history of HTN are the strongest predictors of hypertension. There is a strong severe hypertension correlation between increasing age and increase in blood pressure (Eshetu, 2023).

The study has shown that the prevalence of hypertension increased as the age increased and was established to be statistically significant. The risk of high blood pressure increases with age and through early middle age, about age 45, high blood pressure is more common in men; it has found that women are more likely to develop high blood pressure after age 65 (Eshetu, 2023).

 The risk of high blood pressure increases with age as it was shown in the study done in Vietnam from 17199 participants, pre -Hypertension and hypertension combined affected 62.5% of adults aged 25–64 years and increased with age (from 52.0% among those aged 25–34 years to 80.4% among those aged 55– 64 years (Jasper , 2021).

 In additional to the study done in Angola, from 265 participants aged 18 years and above, the prevalence rates of hypertension and pre-Hypertension were 38.5 and 30.20%, respectively where hypertension was associated with age greater than 35 years with 10.09% were hypertensive (Yashika, 2022).

The proportion of hypertension showed an increasing trend with age according to the study done in India from 1509 participants. 70 (27.55%) of the 254 individuals who were aged between 18-30 years were found to be hypertensive, while 79 (54.10%) of the 146 individuals who were aged above 60 years were found to be hypertensive (Abu , 2021).

Furthermore, study done from Cameroon has also shown that age is associated to HTN among 773 participants aged above 40 years old participants. (Meredith Hay, 2020).

Alcohol Consumption: heavy drinkers with great variation in their daily alcohol consumption have showed the greatest variation in their BP and it is considerable that alcohol is a major risk factor for development of hypertension (Daniel , 2020).

There is a direct effect between heaves and specific patterns of alcohol consumption (such as binge drinking) and rising risk of hypertension. Alcohol consumption is relatively frequent in Africa, the influence of heavy drinking, on increasing blood pressure levels has been described in Nigeria (a H. W., 2022).

Meet analysis of the prospective studies done in Russia has reported a 40% increase in the relative risk of developing HTN in those drinking alcohol (Flávio Danni Fuchs, 2021). It has shown that in the WHO Global Burden of Disease Study, 16% of all cases of HTN were attributable to alcohol (Flávio Danni Fuchs, 2021). Across sectional study done in Rwanda on 7116 study participants, the overall prevalence of hypertension was 15.3% (16.4% for males and 14.4% for females) and it has been shown that alcohol consumption is associated with HTN where 1.24% has developed HTN among them (Nahimana, 2018).

Inadequate Physical Activity: Adequate physical activity has been shown to have many health promoting effects and has a direct, independent role in reducing hypertension (Borja , 2022).

Physical activity is good for the heart and circulatory system in order to function well. It is widely accepted that physical inactivity is a risk factor for cardiovascular disease (James, 2021).

When someone is not active in lifestyle, she or he may increase the chance of high blood pressure because other risk, factors get a chance of acting to the body like overweight or obese (Bulter, 2020) .Inactivity makes it easier to become overweight or obese where hypertension come worsen. When physical activity is practiced, it improves health and lower blood pressure with regular, moderate to heavy physical activity (Bulter, 2020)

Prospective study reported that Harvard college alumni who did not participate in vigorous exercise had a 35% higher incidence of hypertension than those who were more active. They found that the intensity of activity was not associated with the risk of hypertension after adjustment for both age and total amount of activity (Bethany , 2021).

A cross sectional study done in Nepal from 587 participants has shown that physical activity is significantly associated with HTN. Anti-hypertensive response to exercise is highly variable; differences in exercise regimens, environmental factors, and genetic factors may be responsible for considerable inter and intra study variability in the blood pressure response to exercise. In one study, 20-25% of those with hypertension were non-responders with no reduction in blood pressure with exercise (Ciumărnean, 2021).

High Salt Intake: too much sodium in diets can cause body to retain fluid, which increases blood pressure. Potassium helps balance the amount of sodium in the cells but if we don't get enough potassium in the diet or retain enough potassium, it may accumulate too much sodium in the blood (Kuwabara, 2020).

A high intake of sodium is common in Africa mostly from salt used to preserve food or to make it tastier where decreased salt intake does not only reduce blood pressure and related CVD risk, but has other beneficial cardiovascular effects that are independent of and additive to its effect on blood pressure (Jaques, 2021).

Obesity: today's lifestyle is characterized by increased intake of calories with reduced physical activity, which benefits a real epidemic of obesity in the population. The increase in the prevalence of hypertension in the population follows a significant increase in the prevalence of obesity.

According to the cross-sectional study done in Cameroun from 733 participants, obesity which is one of the common pathways between diabetes and HTN was also found to be strongly associated with HTN in that study. According to the cross-sectional survey conducted in Chine from 7805 participants, 2172 were overweight and 693 were obese. The prevalence of hypertension increased among those were overweight on 41.9% and obese on 49.4% in both genders (Yongze Li, 2021). Based on the study done in India, out of 250 study subjects, the overall magnitude of hypertension was found to be 15.6%. They have found that 29.82% of the overweight individuals were also found hypertensive (Zhao, 2019).

With one quarter of the world's adult population estimated to have hypertension, totaling nearly one billion, and with the worldwide prevalence of hypertension projected to increase 60% by 2025, the primary prevention of hypertension has become a global public health challenge (Michael, 2021).

2.4.0. COMMON CAUSE OF HYPERTENSION AMONG AGED PEOPLE

HTN is public health problem with the patient have Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality worldwide and approximately 80% of all cardiovascular deaths occur in low- and middle-income countries (Katherine , 2020)

Many people with hypertension do not notice symptoms and may be unaware there is a problem. Symptoms can include early morning headaches, nosebleeds, irregular heart rhythms, vision changes, and buzzing in the ears. More severe forms may exhibit fatigue, nausea, vomiting, confusion, anxiety, chest pain, and muscle tremors. If left untreated, hypertension can cause persistent chest pain (also called angina), heart attacks, heart failure, and an irregular heartbeat, which can lead to a sudden death (Gian , 2020).

Research has indicated that blood vessels naturally 'harden' with age, losing their elasticity. This may be one explanation for why older people are more at risk of developing high blood pressure. High blood pressure, also known as hypertension, is unlike low blood pressure in that it rarely has any noticeable symptoms. However, it often causes long-term health problems if undetected. (Richard , 2021).

As become old, vessels become less flexible, making it harder for blood to move through them easily. Fatty deposits called plaques also collect along your artery walls and slow the blood flow from the heart. These things, along with poor nutrition and exercise habits, can increase your risk of heart disease. Add other risk factors such as smoking, and diabetes and it's likely that you will have a greater risk for a heart disease (Paulette, 2021).

2.4.1. CONSEQUENCES OF HYPERTENSION

Long-term hypertension can cause complications through atherosclerosis, where the formation of plaque results in the narrowing of blood vessels. This makes hypertension worse, as the heart must pump harder to deliver blood to the body. High blood pressure raises the risk of a number

of health problems, including a heart attack. Hypertension-related atherosclerosis can lead to: Heart failure and heart attacks (Massimo, 2021).

An aneurysm, or an abnormal bulge in the wall of an artery that can burst, causing severe bleeding and, in some cases, death Kidney failure, Stroke, Amputation Hypertensive retinopathies in the eye, which can lead to blindness (Massimo, 2021).

2.4. 2.MANAGEMENT OF HYPERTENSION

Globally, hypertension is poorly controlled due to its asymptomatic condition and its management consists mainly of preventive behavior, adherence to treatment and risk factor management Efforts are needed to develop methods to support patients in self-managing their treatment. It is a commonly held opinion that hypertension is a symptomless condition. (Emanuele , 2023) Management of hypertension involve lifestyle changes as well as drug treatment. The Following diagnosis, lifestyle modifications involving healthy eating, sodium reduction, reduced ingestion of alcohol and smoking and increased physical activity can be helpful in managing and preventing hypertension (Emanuele , 2023).

Hypertension is a major risk factor for a number of cardiovascular diseases. Proper management of hypertension may require both pharmacological and non-pharmacological interventions. Non-pharmacological interventions help reduce the daily dose of antihypertensive medication and delay the progression from prehypertension to hypertension stage. Non-pharmacological interventions include lifestyle modifications like dietary modifications, exercise, avoiding stress, and minimizing alcohol consumption. Nutritional requirements of hypertensive individuals can be addressed through adopting either the DASH diet or through traditional Mediterranean diet. These dietary guidelines promote the consumption of fruits, vegetables, grains, dairy products, and food rich in K+, Mg+2, Ca+2, and phosphorus. Restriction of Na+ intake has the greatest role in lowering the blood pressure. The DASH diet alone has the effect equal to that of a single drug therapy. After dietary modifications, exercise and weight loss are the second major intervention for hypertension management. Avoiding stressful lifestyle, depression, and anxiety also help to reduce elevated blood pressure. Minimizing alcohol intake also favors the blood pressure reduction. However, lifestyle modification is a dynamic process and requires continuous adherence (Samia , 2021).

It is a multi-factorial approach targeting more than one intervention. However, 6–12-month lifestyle modifications can be attempted in stage-1 hypertensive patients without any cardiovascular complication, in the hope that they may be sufficiently effective to make it unnecessary to use medicine. (Samia , 2021).

Decrease time in sedentary behaviors such as watching television, playing video games, or spending time online was shown also to have severe hypertension impact on hypertension (Jin Q. , 2023).

Treatment is aimed at controlling the blood pressure within the normal range using appropriate medications suited for the patient's circumstance using either monotherapy or combination therapy (Makki, 2021).

Hypertensive drugs are available for managing high blood pressure where oral doses of fast acting are used like loop diuretics (bumetanide, furosemide), beta blockers (propranolol, metoprolol, andosol), angiotensin converting enzyme Inhibitors (benazepril, captopril, enalapril) and calcium antagonists(diltiazem) (Benetos, 2019).

2.4.3 PREVENTION OF HYPERTENSION

Patients with hypertension often skip their medication or regular checkups because they have no symptoms. If hypertension is neglected, it can lead to more severe diseases or complications, such as stroke, myocardial infarction and chronic kidney disease. Continuous blood pressure control is recommended to prevent these complication (Pedro, 2020).

It is important to maintain a healthy lifestyle, visit the hospital regularly and take medication continuously to prevent complications. Regular check-ups are also needed to prevent complications. Annual blood and urine tests should be done, as well as regular tests to detect any damage to eyes, heart or kidneys (WHO, 2017). Increasing physical activity has been repeatedly associated with a decrease in cardiovascular risks. Regular physical activity is considered a cornerstone in the prevention and management of hypertension (Rimer, 2022).

The 1997 report of the Joint National Committee on Prevention, Detection, Evaluation, and treatment of high blood pressure recommends that lifestyle modifications should be the initial treatment strategy for lowering high BP (Evariste , 2022).

Stressing the need to initiate screening strategies at an earlier age and promote opportunistic screening for hypertension during routine health care visits, so that major health gains can be made through the implementation of primary prevention strategies (Michael , 2021).

The high pressure on the artery wall's causes by high blood pressure can slowly damage the blood vessels, and organs in the body. The higher the blood pressure and the long term it goes undiagnosed and/or controlled, then greater the damage it can cause (Hannan, 2023).

Hypertension is extremely common among older men and women. Among older adults, hypertension is the most prevalent modifiable cardiovascular risk factor for coronary heart disease, cerebrovascular disease, and peripheral arterial disease. More than 70% of older adults with incident myocardial infarction (MI), stroke, acute aortic syndromes, and heart failure had preexisting hypertension. (Hannan, 2023).

 A stroke can take place when flow of blood to one of the body's most important organs, the brain, is restricted to the point where brain functionality becomes abnormal. Because high blood pressure directly affects the flow of blood to the brain, people with hypertension are several times more likely to suffer a stroke. Acute aortic syndromes (AAS) encompass a constellation of life-threatening medical conditions including classic acute aortic dissection (AAD), intramural hematoma, and penetrating atherosclerotic aortic ulcer (Marwah , 2021).

Therefore, HTN causes severe problems within the blood vessels. When blood pressure spikes it damages the vessel wall, which leads to wall thickening and fat accumulation. This leads to myocardial infarction, heart failure and kidney failure by decreasing the blood flow to the heart, brain, kidneys and extremities. Detection of complications is achieved by regular checkups, including blood pressure measurement, blood and urine testing and electrocardiogram exam (WHO, 2017).

2.5 Gap in literature

Despite the extensive research conducted on hypertension, significant gaps remain in the literature, particularly regarding the prevalence and risk factors among specific patient populations, such as those attending the NCDS department. One key gap is the limited focus on localized studies that assess the prevalence and risk factors in specific healthcare settings, especially in low- and middle-income countries. While global studies like those (Daniel , 2020).

and provide valuable insights into broad trends, they often overlook the nuanced differences in prevalence and risk factors that may exist within specific populations or regions. This gap highlights the need for more targeted research that can inform localized public health strategies.

Another gap is the underrepresentation of certain demographic groups, such as younger adults and rural populations, in hypertension research. Studies like (Benetos, 2019) have pointed out the high prevalence of hypertension in rural areas of sub-Saharan Africa, yet there is a paucity of data on the risk factors contributing to this prevalence among different age groups and settings. The lack of age- and region-specific data limits the ability to develop age-appropriate and culturally relevant interventions. This gap suggests that future research should aim to disaggregate data by age, gender, and geographic location to better understand the diverse factors influencing hypertension prevalence.

There is a need for more longitudinal studies that track changes in hypertension prevalence and risk factors over time within specific patient populations. Most existing studies, such as those (Zhao, 2019). and are cross-sectional, providing a snapshot of prevalence at a single point in time. Longitudinal studies could offer deeper insights into how risk factors evolve and how they interact with other non-communicable diseases, which is crucial for developing effective long-term management strategies.

The interaction between socio-economic factors and hypertension is another area where literature is lacking. While research by (Glanz, 2020) has highlighted the link between low socioeconomic status and increased hypertension risk, there is limited exploration of how these factors specifically impact patients in healthcare settings like the NCDS department. Understanding the socio-economic determinants of hypertension in these contexts is critical for addressing health disparities and improving outcomes for vulnerable populations.

The role of healthcare access and quality in managing hypertension among patients attending NCDS departments is underexplored. (Borja , 2022) pointed out the disparities in hypertension control between different regions of Europe, suggesting that healthcare system factors play a significant role in patient outcomes.

However, there is a lack of research examining how these factors impact hypertension management in resource-limited settings, such as those often encountered in NCDS departments in low-income countries. This gap highlights the need for studies that assess the effectiveness of healthcare delivery systems in managing hypertension in these settings.

While there is growing recognition of the importance of lifestyle modifications in managing hypertension, the literature lacks sufficient evidence on the effectiveness of culturally tailored interventions in diverse populations. Studies like   have identified key risk factors such as diet and physical inactivity, but there is limited research on how to effectively modify these behaviors within specific cultural contexts. This gap suggests that future research should focus on developing and testing culturally appropriate interventions to reduce hypertension risk and improve control among diverse patient populations. (Chobufo, 2020)

2.6. THEORETICAL UNDERPINNING RELATED TO PREVALENCE OF HYPERTENSION

Understanding the prevalence of hypertension requires a strong theoretical foundation that explains how various factors contribute to the widespread occurrence of this condition across populations. One of the primary theoretical frameworks in this context is the Epidemiologic Transition Theory. which has been expanded upon by contemporary researchers such as societies transitioning from high mortality due to infectious diseases to chronic non-communicable diseases (NCDs) like hypertension experience a shift in disease burden. This theory helps explain why hypertension prevalence has surged in many low- and middle-income countries as they undergo economic and social changes, leading to lifestyle modifications that increase the risk of hypertension (Bulter, 2020).

The Social Determinants of Health (SDOH) framework is also crucial for understanding the prevalence of hypertension. the prevalence of hypertension is deeply intertwined with social factors, including income inequality, education, employment, and access to healthcare. Populations with lower socio-economic status often experience higher rates of hypertension due to the cumulative effects of stress, poor diet, limited access to healthcare, and other adverse living conditions.

This framework emphasizes the role of broader social policies in addressing the root causes of hypertension and reducing its prevalence across different populations. (Marwah , 2021).

Behavioural and Lifestyle Theories, such as the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB), provide insight into how individual behaviours contribute to the prevalence of hypertension. these theories suggest that individuals' perceptions of the risk and severity of hypertension, combined with their confidence in their ability to change behaviour (self-efficacy), significantly impact the prevalence of hypertension. For instance, low levels of physical activity, unhealthy diets, and high stress are prevalent behaviours that contribute to high rates of hypertension. These theories underscore the importance of public health interventions that target behaviour change to reduce the prevalence of hypertension (Glanz, 2020).

The Life Course Theory offers another perspective on the prevalence of hypertension by emphasizing the cumulative impact of risk factors over an individual's lifetime. argue that exposures to adverse conditions early in life, such as poor nutrition, socioeconomic disadvantage, and stress, can lead to a higher prevalence of hypertension in adulthood. This theory is particularly useful in explaining why certain populations, such as those who have experienced prolonged periods of poverty or malnutrition, show higher prevalence rates of hypertension later in life. It suggests that interventions aimed at reducing hypertension prevalence should consider the long-term impacts of early life experiences (Olubokola, 2021).

The Genetic and Epigenetic Theories provide a biological explanation for the prevalence of hypertension. genetic predispositions play a significant role in determining an individual's risk of developing hypertension, and these genetic factors can interact with environmental and lifestyle factors to influence the overall prevalence of the condition. Recent studies have also highlighted the role of epigenetic changes modifications in gene expression due to environmental factors in the rising prevalence of hypertension. This theoretical approach suggests that addressing hypertension prevalence requires a multifaceted strategy that includes both genetic research and lifestyle interventions (Rifton, 2020).

2.6.1 THEORETICAL UNDERPINNING RELATED RISK FACTORS

2.6.1.1 The Endothelial Dysfunction Theory

Research has significantly advanced our understanding of endothelial dysfunction as a key risk factor for hypertension. endothelial dysfunction, characterized by impaired vasodilation and increased vascular resistance, plays a critical role in the development of hypertension. The endothelium, the thin layer of cells lining blood vessels, becomes less effective at regulating vascular tone and blood flow due to factors such as oxidative stress, inflammation, and high levels of circulating lipids. studies emphasize that endothelial dysfunction can lead to sustained increases in blood pressure by reducing the ability of blood vessels to expand and relax. His work supports the notion that targeting endothelial health through lifestyle modifications and pharmacological treatments could be an effective strategy for managing hypertension (Ryan, 2020).

2.6.1.2 The Gut Microbiome Theory

The gut microbiome in hypertension, His research suggests that the composition and diversity of gut microbiota can influence blood pressure regulation. certain gut bacteria produce metabolites that can affect systemic inflammation, vascular function, and sodium metabolism, all of which are linked to hypertension. Disruptions in the gut microbiome, such as an imbalance in beneficial and harmful bacteria, can contribute to elevated blood pressure by affecting these physiological processes (James, 2021). findings highlight the potential of microbiome-based interventions, including dietary adjustments and probiotics, as novel approaches to hypertension management

These contemporary theories emphasize the complex and evolving understanding of hypertension risk factors, incorporating insights from endothelial health and gut microbiome research to inform more targeted and effective treatment strategies(Ryan, 2020).

Study conducted on the prevalence of hypertension among patients in various healthcare settings, providing valuable insights into its widespread impact. the hypertension remains a major public health concern, with prevalence rates varying significantly across different populations and regions.

His research highlights that the prevalence of hypertension among patients has been steadily increasing, driven by factors such as aging, lifestyle changes, and rising rates of obesity. findings indicate that hypertension affects a substantial portion of the adult population, with estimates showing that approximately 30-40% of adults globally are affected by the condition. His study underscores the need for improved screening, early detection, and management strategies to address the growing burden of hypertension and its associated complications (Olubokola, 2021).

The theoretical frameworks that explain the risk factors associated with hypertension are essential for understanding the complex interplay between various determinants of this condition. One key framework is the Life Course Epidemiology Theory, which suggests that the risk factors for hypertension accumulate throughout an individual's life, beginning from early childhood. early life exposures, such as poor nutrition and stress, can have long-lasting effects on an individual's blood pressure, increasing the likelihood of hypertension in adulthood. This theory highlights the importance of early interventions and the role of life-long health behaviors in managing hypertension risk (Lawlor, 2020).

The Social Determinants of Health (SDOH) framework also plays a critical role in understanding the risk factors for hypertension. This framework posits that social, economic, and environmental conditions significantly influence health outcomes, including hypertension. argue, factors such as income inequality, education levels, and access to healthcare are pivotal in determining an individual's risk for hypertension. For example, individuals from lower socio-economic backgrounds are often exposed to higher levels of stress, poor living conditions, and limited access to healthy foods, all of which contribute to the development of hypertension. The SDOH framework underscores the need for addressing social inequalities to effectively manage and prevent hypertension (Allen, 2020).

The Biopsychosocial Model is another influential theoretical approach that integrates biological, psychological, and social factors to explain the development of hypertension. this model suggests that hypertension is not solely a result of physiological factors but also of psychological stress and social environment. For instance, chronic stress can lead to sustained high blood pressure, while social isolation or lack of social support can exacerbate this condition.

This model has been instrumental in guiding research on the psychosocial aspects of hypertension and emphasizes the need for holistic approaches in treatment and prevention (Romano, 2022).

Behavioral Theories, such as the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB), are also relevant in understanding the risk factors for hypertension. These theories focus on how individual beliefs and attitudes towards health behaviors influence the risk of developing hypertension. the HBM suggests that individuals are more likely to engage in health-promoting behaviors, such as reducing salt intake or increasing physical activity, if they believe they are at risk of hypertension and that the behavior change will be beneficial. Similarly, TPB emphasizes the role of intention, perceived control, and social norms in determining health behaviors. These theories provide a basis for designing interventions that encourage lifestyle changes to reduce hypertension risk (Rimer, 2022).

The Ecological Systems Theory offers a broader perspective by considering the multiple levels of influence on hypertension risk. This theory examines how individual, interpersonal, community, and societal factors interact to shape health outcomes. For example, an individual's risk of hypertension can be influenced by family behaviors, community norms, and even national policies on food and healthcare. This theory highlights the importance of multi-level interventions that address the various factors contributing to hypertension risk, from individual behaviors to policy changes (Ryan, 2020).

2.7 CONCEPTUAL FRAMEWORK

Conceptual framework is a written or visual representation of an expected relationship between dependent variable, independent variables and intermediate variables. Framework is generally developed based on literature review of existing studies about the prevalence and risk factor associated patient with hypertension in no communicable diseases at kibogora health center (Lindgreen, 2024).

The figures below show conceptual framework in order to establish the relationship between variables. Dependent variable is Hypertension; Independent variables are heart diseases, kidney diseases, diabetes, obesity. Intermediate variables are Smoke tobacco, Alcohol, Physical exercise status, Diet, Family history of hypertension, High cholesterols.

Figure 1: Conceptual framework

INDEPENDENTS VARIABLE   **DEPENDENTS VARIABLE**

Independent Variable		Dependent Variable
• Heart diseases • Kidney diseases • Diabetes • Obesity	→	**Hypertension**

INTERMEDIATE VARIABLE

- Smoke tobacco
- Alcohol
- Physical exercise status
- Diet
- Family history of hypertension
- High cholesterols
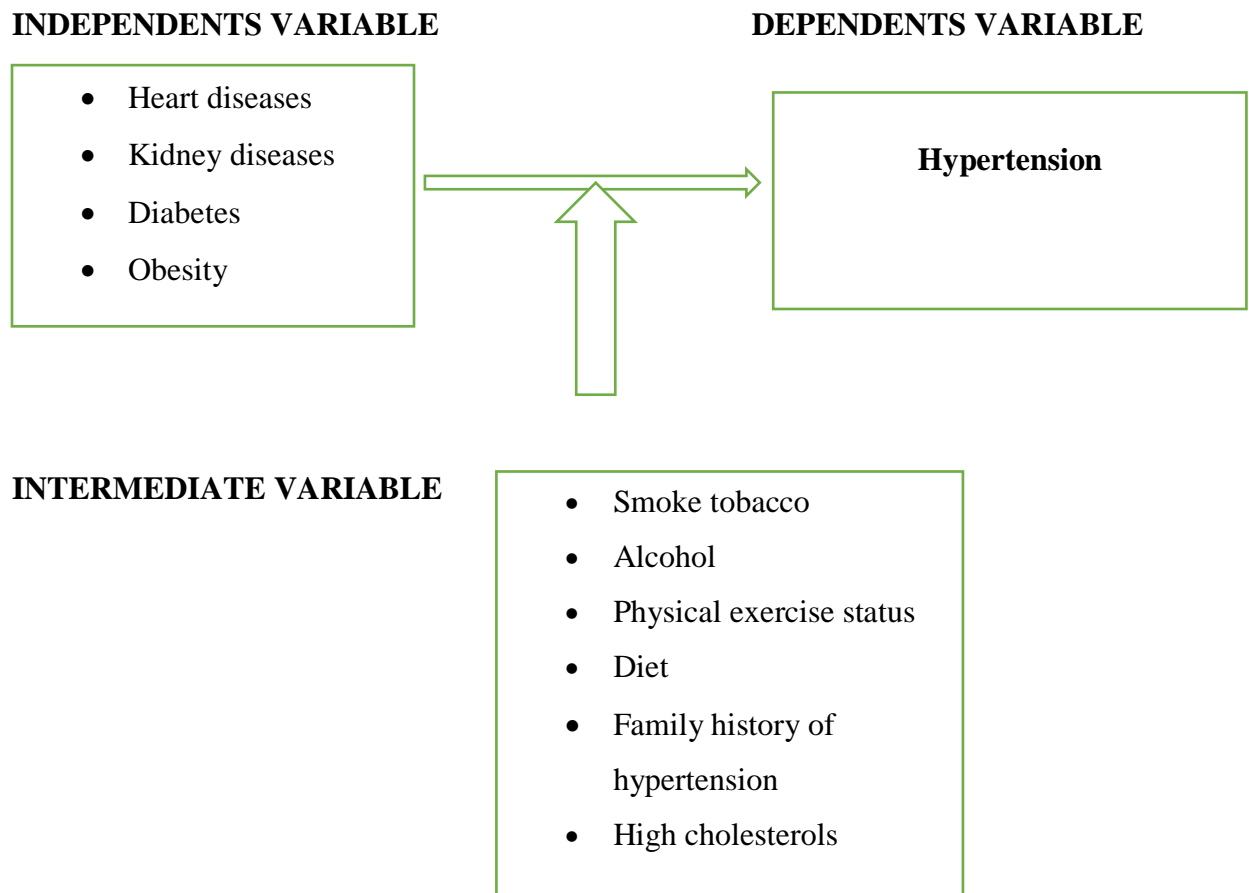
2.8 EMPRICAL STUDY

Recent studies have provided substantial evidence highlighting the growing prevalence of hypertension worldwide, particularly after 2019. an analysis of global hypertension trends revealed a significant increase in the number of individuals living with high blood pressure. The study, which included data from over 100 million participants across 184 countries, found that the global prevalence of hypertension rose from 31% in 2010 to 34% in 2020. This increase was especially pronounced in low- and middle-income countries, where healthcare infrastructure is often inadequate to manage the rising burden of non-communicable diseases (Risc, 2016).

In sub-Saharan Africa, the prevalence of hypertension has reached alarming levels. A systematic review reported that approximately 46% of adults in sub-Saharan Africa are hypertensive, with rural areas experiencing an unexpectedly high prevalence.

The study emphasized that despite the high prevalence, awareness, treatment, and control rates remain dismally low, with only about 10% of hypertensive individuals in these regions receiving adequate treatment. This evidence points to a critical need for public health interventions that focus on increasing awareness and improving access to healthcare services in underserved areas (Atakliter, 2021).

The situation in Asia is similarly concerning as study found that in China, the prevalence of hypertension among adults aged 18 and above increased from 23% in 2010 to 29% in 2019. The study linked this rise to rapid urbanization, dietary changes, and increased stress levels associated with modern lifestyles. Additionally, the researchers noted a significant disparity between urban and rural areas, with urban populations showing higher prevalence rates but better access to treatment. This evidence underscores the complex interplay between lifestyle factors and healthcare access in influencing hypertension rates (Marwah , 2021).

In Latin America, hypertension has become a major public health issue, particularly among older adults. A population-based study conducted in Mexico reported that the prevalence of hypertension in adults aged 40 and above had reached 50% by 2019. The study highlighted that while awareness and treatment rates have improved over the years, the control of hypertension remains suboptimal, with only 30% of those on treatment achieving target blood pressure levels. This evidence points to the need for more effective treatment strategies and patient education to improve hypertension control in the region (Harnandez, 2021).

Europe, traditionally known for its relatively lower prevalence of hypertension compared to other regions, has also seen a concerning increase. the prevalence of hypertension in European adults increased from 25% in 2015 to 28% in 2020. The study attributes this rise to aging populations, sedentary lifestyles, and unhealthy diets high in processed foods and salt. The researchers also noted that while treatment rates are relatively high in Europe, control rates remain suboptimal, particularly in Eastern Europe, where healthcare resources are more limited (Atakliter, 2021).

Finally, the Middle East and North Africa (MENA) region has experienced one of the highest increases in hypertension prevalence in recent years.

A study by Ibrahim et al. (2021) reported that the prevalence of hypertension in the MENA region increased from 29% in 2010 to 35% in 2020. The study identified obesity, high salt intake, and low levels of physical activity as the primary drivers of this increase. Additionally, the study found that despite high awareness levels, treatment and control rates were low, with only 20% of hypertensive individuals achieving adequate blood pressure control. This evidence highlights the urgent need for region-specific strategies to address the growing hypertension crisis in the MENA region.

These studies collectively provide robust evidence of the rising prevalence of hypertension across various regions of the world. The consistent increase in prevalence, coupled with low control rates, underscores the need for global and regional public health strategies aimed at reducing the burden of hypertension. Continued research and targeted interventions are crucial for addressing the specific risk factors contributing to the rising prevalence of hypertension in different populations. (Ibrahim, 2018).

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the research methodology, which includes the research approach, target population, sampling strategy, samples size, data collection methods and procedures, data analysis, ethical consideration and reliability and validity measures.

3.1. RESEARCH APPROACH

3.1.1 Quantitative research

Quantitative research methods were used as it emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon. The final written report has a set structure consisting of an introduction, literature and theory, methods, results, and discussion (Levitt H. M., 2021).

3.1.2 RESEARCH DESIGN

The study used a retrospective cross-sectional design

A retrospective cross-sectional design, use historical data to identify member of population who have been exposed or not exposed to diseases. Researcher was looked on historical data recorded in books or other materials used for keeping patient's data safe. In our research we were considered to the information from recorded book, how many patients exposed of hypertension in period of December 2023 to June 2024. study a type of non-experimental research design that collect data at once in time (LoBiondo-Wood and Haber, 2014). This study determined the prevalence, risk factors associated with hypertension among patient attended at NCDS department of Kibogora health center where by settled questionnaires was given to every participant, and then after the data was collected for statistical analysis. At the same point of time, or without regard to differences in time. (Qirong, 2020)

3.2 TARGET POPULATION

The study population comprises total patients who was attended NCDS department at Kibogora health center during the period of data collection and meets the inclusion criteria. The study population refers as the group of people to whom you want your research results to apply. The target population was 350 patients.

3.2. 1 SAMPLING STRATEGY

The researcher decides to use Purposive-sampling method. It is non probability sampling where participants were selected based on characteristics of a population that are interesting in and those who meets the objective of the study and which enable you to answer we research questions (Ameeta Retzer, 2023).

3.2.2 SAMPLE SIZE

In this study, 95% is confidence interval is used to describe a 5%marginal error. Researcher worked with 350 of patients that attended NCDS department at Kibogora Health Center. According to the availability of them at Kibogora health center; researcher worked until getting this sample during the period of data collection. In order to get the sample size of this study, researcher used the Yamane's formula. The formula is as follows: n= N/ {1+N (e) 2} whereby n is the sample, N the study population, and e is a constant equal to 0.05 (Tarleton State University, 2013). Using this formula, n= 350/ {1+350(0.05)2} the study sample was approximately 187 of the participants. Sample size is an important concept in statistics, and refers to the number of individual pieces of data collected in a survey (Muhamad , 2019).

3.3. DATA COLLECTION INSTRUMENTS

In this study, researchers used self-administer of questionnaire for participants. Administer of questionnaire was used for illiterate participants where every participant was helped by researchers to write the answer of the questions on the space provided on questionnaire. Researchers needed pens, and paper, which are used in writing for researchers or participants. This tool contains two parts where part one describes socio- demographic characteristics which are age, gender, religion, marital status, level of education, occupation, place of residence, height, weight, and blood pressure measurement.

 Part two describes health behavior information, which is salt intake, history of smoking, history of alcohol consumption, physical activity, history of diabetes, family history of hypertension,

incidence of HTN, and type of follow up for those who were diagnosed with HTN. The instruments were translated in Kinyarwanda in order to facilitate us participants.

3.3. 1 DATA COLLECTION PROCEDURES

Before conduct this study, researcher asked permission to ethical committee of kibogora polytechnics. After receiving the permission from ethical committee, researcher asked permission to the Ethics committee at Kibogora health center to collect data and signed consent by participant. After getting permission to conduct research at Kibogora health center, the researcher started the process of data collection but before the researcher provided more information to the participants regarding the study Purpose of the study, instructions to consider during data collection period and tool to be used.

Following explanation of the aims and content of the study to the participants, each participant has signed consent. Participation were voluntarily, there were no names on questionnaires to keep given information confidential. Use administered questionnaire where researcher helped every participant by asking information based on questionnaire.

3.4. DATA ANALYSIS

Data entry, analysis, and table display were done with SPSS 22 version. The descriptive statistics that included percentages and frequencies were the main focus of the data analyses. While health behavior data must be presented as frequencies and p-values, sociodemographic factors will be shown as percentages and frequencies.

3.5. VALIDITY AND RELIABILITY OF INSTRUMENT

Validity refers to how accurately the instrument measures what is supposed to measure or a study

Answers the study questions this is further divided into face and content validity assess whether an instrument adequately or exhaustively contains all the items necessary to represent the concept being measured (Muhammad, 2023). Our items of questionnaire set out to measure. Also, validity of this researcher, supersiors to assess if the instruments measured what they supposed to measure. Face validity is the extent to which the item on the research instrument measure what it intended to measure in the appearance or in the view of respondents (Ronaldo, 2021).

Reliability refers to whether an assessment instrument give the same result each time is used in a setting to the same type of subject Our data collection tool (questionnaire) consistency was checked through pre testing it on retrieving information from clients that attending NCDs department. that it is indeed has an acceptable measurement property for use in many settings and in different languages.

3.6. ETHICAL CONSIDERATIONS

The study was carried out with authorization from both ethical committees of Kibogora polytechnic and ethical committees at Kibogora health center administration, before conducting this research the researcher requested the permission in order to conduct the research. Only participants who provided signed consent were included in the study. Participant given clear explanation about the study. privacy and confidentiality were upheld by excluding names from the questionnaires. Any information shared by a participant in the study will not be disclosed to any else without the participant in the participant's explicit permission (Iphofen, 2020).

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CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, INTERPRETATION AND SUMMARY

4.0. INTRODUCTION

Data within this chapter were collected presented, analyzed and then interpreted. Also it includes also discussion of the study and summary on prevalence and risk factors associated with hypertension among patients attending to non-communicable diseases (NCDS) department at Kibogora health center. Lastly, Excel used for percentage manipulation, tales used for presentation and SPSS version 22 was use for p-values analysis

4.1. PRESENTATION OF FINDINGS AND INTERPRETATION

4.1.0 DATA REPRESENTATION

This chapter presents the findings of data collected from 187 patients' from NCDS department at Kibogora health center. Information obtained represented through the tables and comments added.

The table presents data on the characteristics of a population, including gender, age, marital status, and occupation. The data is presented in terms of frequency and percentage. For gender, there are more females 104(56%) than males 83 (44%) in the population. Age, the majority of the population 63 (34%) is over 51 years old, followed by those aged 41-50 years 51(27%). The youngest group is those under 20 years old 28(14%). Marital status, the majority of the population is married 92(49%), followed by those who are single 62 (33%). The remaining 33 individuals (18%) are widowed. About the occupation, the largest occupation group is farmers 91 (49%), followed by teachers 41(21%). The remaining 55 individuals (29%) are categorized as "Others".

Table 1 :Social demographic characteristic of respondents n= 187

Characteristics		Frequency	(%) percentage
Gender	Male	83	44%
	Female	104	56 %
Age	< 20 years	28	15%
	21-40 years	45	24%
	41-50 years	51	27%
	>51 years	63	34%
Marital status	Single	62	33%
	Married	92	49%
	Window	33	18%
Occupation	Farmer	91	50%
	Teacher	41	21%
	Others	55	29%

The table summarizes the prevalence of hypertension among patients at Kibogora Health
Center's Non-Communicable Diseases (NCDs) department over seven months. The data shows a
significant variation in monthly hypertension rates, ranging from 17% in the December to 35%
in the May. Overall, out of 350 patients seen during this period, 98 were diagnosed with
hypertension, resulting in an average prevalence rate of 28%. This indicates a substantial portion
of the patients have hypertension, with notable monthly fluctuations that may warrant further
examination.

Table 2: Prevalence of hypertension among patients attending to non-communicable diseases (NCDS) department at Kibogora Health Center collected during seven months

Characteristics of hypertension patients in 7 months.		Total patients	Confirmed for hypertension	
			Frequency	Percentages
7 months	December	60	10	17%
	January	50	15	30%
	February	52	16	30.7%
	March	47	15	31.9%
	Apply	48	12	25%
	May	40	14	35%
	June	51	16	31%
Total		350	98	
Prevalence		98*100/350= 28%		

The data presents the results of a survey conducted among a group of patients regarding their history of high risk factors for hypertension. The survey covered various aspects such as age of patient, smoking, physical exercises, family history of hypertension, and alcohol using.

Age of patient, the majority of the patients <20 (10%) were aged 21-40 years (47%), 41-50years (18) and greater than 50years (25%) were aged > 50 years. The p-value of 0.045 indicates a statistically significant difference between the age groups. Smoking, the majority of the patients 154 (82%) reported that they did smoked, while only 33 (18%) reported that they did not smoked. The p-value of 0.016 indicates a statistically significant difference between the yes and no groups. Physical exercises, the majority of the patients 161 (88%) reported that they did not perform physical exercises, while only 36 (14%) reported that they did. The p-value of 0.045 indicates a statistically significant difference between the yes and no groups.

Family history of hypertension, the majority of the patients 117 (63%) reported that they have a family history of hypertension, while only 70 (37%) reported that they did. The p-value of 0.227 indicates no statistically significant difference between the yes and no groups. Alcohol using, the majority of the patients 106 (57%) reported that they used alcohol, while only 81 (43%) reported that they did not. repoted the p-value of 0.036 indicates a statistically significant difference between the yes and no groups.

Table 3 : **Risk factors associated with hypertension among patients attending to non-communicable diseases (NCDS) department at Kibogora health center**

Variables				
Risk factors	**Categories**	**Frequency**	**percentage**	**P-value**
age of patient (years)	< 20	18	10%	0.045
	21-40	89	47%	
	41-50	33	18%	
	>50	47	25%	
Smoke	NO	33	18%	0.016
	Yes	154	82%	
Physical exercises	No	161	86%	0.045
	Yes	26	14%	
Family history of hypertension	Yes	117	63%	0.227
	No	70	37%	
Alcohol using	No	81	43%	0.036
	Yes	106	57%	

4.2 DISCUSSION OF FINDINGS

The prevalence of hypertension increased among those were overweight on 41.9% and obese on 49.4% in both genders (Yongze Li, 2021). Based on the study done in India, out of 250 study subjects, the overall magnitude of hypertension was found to be 15.6%. They have found that 29.82% of the overweight individuals were also found hypertensive (Zhao, 2019).Our findings show the intentional of this study was to assess the prevalence and risk factors associated with hypertension among patients attending to non-communicable diseases (NCDS) department at Kibogora health center. So far for gender, there were more females 104(56%) than males 83(44%) in the population Marital status, the majority of the population is married 92(49%), followed by those who are single 62(33%). The remaining 33 individuals (18%) are widowed. About the occupation, the largest occupation group is farmers 91 (49%), followed by teachers 41 (21%). The remaining 55 individuals (29%) are categorized as "Others". Age of patient, the majority of the patients <20 (10%) were aged 21-40 years (47%), 41-50years (18%) and greater than 50years (25%) were aged the prevalence of hypertension among patients at Kibogora Health Center's Non-Communicable Diseases (NCDs) department over seven months. The data shows a significant variation in monthly hypertension rates, ranging from 17% in the December to 35% in the May. Overall, out of 350 patients seen during this period, 98 were diagnosed with hypertension, resulting in an average prevalence rate of 28%.

According to the Based on the study done in India, out of 250 study subjects, the overall magnitude of hypertension was found to be 15.6%. The addiction to any form of tobacco was found among 28.40% of the study participants and out of those, almost 50% were hypertensive (Prashant , 2022). Age of patient, the majority of the patients <20 10% were aged 21-40 years 47%, 41-50years 18 and greater than 50years 25% were aged > 50 years. The p-value of 0.045 indicates a statistically significant difference between the age groups. Smoking, the majority of the patients 82% reported that they did smoked, while only 18% reported that they did not smoked. The p-value of 0.016 indicates a statistically significant difference between the yes and no groups. Physical exercises, the majority of the patients 88% reported that they did not perform physical exercises, while only 14% reported that they did. The p-value of 0.045 indicates a statistically significant difference between the yes and no groups.

According to Increasing physical activity has been repeatedly associated with a decrease in cardiovascular risks. Regular physical activity is considered a cornerstone in the prevention and management of hypertension (Rimer, 2022). Our finding show Family history of hypertension, the majority of the patients 63% reported that they have a family history of hypertension, while only 37% reported that they did. The p-value of 0.227 indicates no statistically significant difference between the yes and no groups. Alcohol using, the majority of the patients 57% reported that they used alcohol, while only 43% reported that they did not. repoted the p-value of 0.036 indicates a statistically significant difference between the yes and no groups.

4.3 SUMMARY OF THE FINDINGS

The sample size of patients at Kibogora health center among NCDS patients was equal to 187, among them females were 56% and males 44% in the population. Also among them Age of patient, the majority of the patients <20 10% were aged 21-40 years 47%, 41-50years 18% and greater than 50years 25% were aged   Also 92(49%) were married, 33% were single and 18% were widowed. About the occupation, farmers were 49%, followed by teacher's 21% and 55 individuals 29% are categorized as "Others". And also the percentage of hypertensive patients increased variation in monthly hypertension rates, ranging from 17% in the December to 35% in the May. Also survey results indicate that most patients were aged 41-50 years, did not smoke, did not exercise, and did not have a family history of hypertension. A significant portion reported using alcohol. Statistically significant differences were found between age groups, smoking status, physical exercise, and alcohol use, while no significant difference was observed for family history of hypertension. The calculation of prevalence of hypertension among all NCDs patients resulted in an average prevalence rate of 28%.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter runs conclusions, recommendations and suggestion on the prevalence and risk factors associated with hypertension among patients attending to non-communicable diseases (NCDS) department at Kibogora health center.

5.1 CONCLUSION

This study was focused on the to assess the Prevalence and Risk factors associated with Hypertension among patients who attended NCDS department at Kibogora health center, it had three Specific Objectives: To determine the prevalence of Hypertension among patients attending NCDS department and To identify the risk factors associated with Hypertension among patients attending NCDS department, quantitative approaches was used, A retrospective and cross section research design were used ,target population was 350 patient with hypertension, sample size was 187 patients questionnaire was used as research instruments.

Findings of first objectives was the prevalence of Hypertension among patients attending NCDS department, at Kibogora Health Center reveals that among 350 patients in the NCDs department, hypertension is prevalence at a rate of 28%. For gender, there are more females 56% than males 44% in the population.

Findings for second objectives was the risk factors associated with Hypertension among patients attending NCDS department was Age of patient, the majority of the patients <20 10% were aged 21-40 years 47%, 41-50years 18 and greater than 50years 25% were aged > 50 years. The p-value of 0.045 indicates a statistically significant difference between the age groups. Smoking, the majority of the patients 82% reported that they did smoked, while only 18% reported that they did not smoked. The p-value of 0.016 indicates a statistically significant difference between the yes and no groups. Physical exercises, the majority of the patients 88% reported that they did not perform physical exercises, while only 14% reported that they did. The p-value of 0.045 indicates a statistically significant difference between the yes and no groups.

As conclusion the prevalence of hypertension among patients who attended the NCDS department highlights a significant public health concern, particularly in the context of the associated risk factors identified.

The data indicate that a substantial portion of the population is affected by hypertension, with lifestyle-related factors such as age, smoking, physical inactivity, and alcohol consumption playing a critical role in its development risk factors through community-based education, regular health screenings, and the promotion of healthy lifestyles are essential. Additionally, understanding the socioeconomic and regional disparities in hypertension prevalence can inform more effective, equitable health strategies. As hypertension remains a leading cause of morbidity and mortality, particularly in rural settings like Kibogora, continued research and proactive public health measures are vital to reduce its impact and improve overall community health outcomes. And also the prevalence hypertension was 28% and various aspects risk of hypertension such as age of patient, smoking, physical exercises, family history of hypertension, and alcohol using.

5.2 RECOMMENDATIONS

5.2.1TO Ministry of Health (MOH)

The Ministry should intensify public health and again encourage the administration who have responsibilities for NCDS department to plan the program for screening blood pressure in all health centres within the country and education campaigns focused on the risk factors for hypertension, including unhealthy diets, lack of physical activity, and alcohol consumption. These campaigns should target various age groups, particularly those identified as high-risk, to promote lifestyle changes that reduce the incidence of hypertension.

The Ministry should consider developing and enforcing policies that limit the availability of tobacco and alcohol, promote healthier food options, and encourage physical activity. Such policies could include higher taxes on tobacco and alcohol, subsidies for healthy foods, and urban planning that supports physical activity.

5.2.2 TO Kibogora health center

Kibogora Health Center should implement educational programs that inform patients about the risk factors associated with hypertension, particularly focusing on the importance of regular physical exercise, maintaining a healthy diet, and avoiding tobacco and excessive alcohol consumption.

The health center should establish regular monitoring and follow-up systems for patients diagnosed with hypertension or those identified as high-risk. This includes routine check-ups and support for lifestyle modifications.

To ensure effective management of hypertension, the health center should invest in the continuous training of healthcare providers, enabling them to stay updated on the latest guidelines for hypertension management and risk factor mitigation

Nurse of Kibogora health center initiate regular health education programs to raise awareness about the risk factors for hypertension, such as poor diet, lack of physical activity, and excessive alcohol consumption. These programs can be organized in collaboration with local health professionals from Kibogora Health Center and delivered in community centers, churches, and schools. By educating the community on the importance of a healthy lifestyle, individuals can be empowered to make informed choices that reduce their risk of developing hypertension

5.2.3. Patients

-The patients should be avoiding all behavior that increases the Blood pressure such as smoking tobacco, alcohol consumption, physical inactivity, eating too much salt and prevent the instantaneous condition that can occur and helping them to be treated early as well as asking more information to Health care providers in order to be knowledgeable to those conditions.
-Advice for performing regular physical exercises.

5.3. SUGGESTION FOR FURTHER STUDY
The following were the suggestions that facilitates our study:

- Explore the role of socioeconomic factors, such as income level, education, and access to healthcare, in the prevalence of hypertension among patients at the NCDS department
- Examine the differences in hypertension management practices between Kibogora and other regions with similar demographics
- Investigate the long-term effects of lifestyle interventions, such as dietary changes, increased physical activity, and smoking cessation, on the prevalence of hypertension among patients attending the NCDS department at Kibogora
- Assessment of knowledge, attitude and practice of prevention of Hypertension among patients who attended NCDS department

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APPENDIXS

APPENDIX 1: QUESTIONNAIRE FOR RESEARCH

INFORMED CONSENT

Dear Participant

0ur names are DUSHIMIRIMANA julienne and IRADUKUNDA Claudine. We are finalist students in Faculty of health science, General Nursing Department at Kibogora polytechnic. We are conducting this study in partial fulfillment of the requirements for the Bachelor of Science with honors in General Nursing. Our topic is entitled".

The questionnaire

Is intended to examine the prevalence and risk factor associated with hypertension among the patients attending non-communicable diseases at Kibogora health center catchment area. The information given will be used for academic purpose and confidentiality will be observed. Could you please kindly feel free to fill and answer the questions bellow?

Many thanks.

If you agree to participate, please sign below. All the signed forms will be kept in locked cabinet

only accessible to the Investigator and will be destroyed at the completion of the study. If you feel you need to communicate with us, our phone numbers are:

+2507893741 (DUSHIMIRIMANA Julienne) &

+250780257963 (IRADUKUNDA Claudine)

Participants Consent

I have read this consent Form and I voluntarily want to participate in this study

Participant's Signature..................................... Date...................................

Researchers Signature..................................... Date...................................

APPENDIX 2: QUESTIONNAIRE

Instructions:

The name should not appear on the question paper, only codes are used.

This questionnaire comprises two part and it has been only designed for research purpose. Below

you are given some questions; please provide your most appropriate answer by circling

appropriate number corresponding to your answer.

APPENDIX 3: ENGLISH VERSION QUESTION

SECTION A: DEMOGRAPHIC   INFORMATION

1. Ages:

A. < 20

B.21-40

C.41-50

D. >50

2. Sex: Are you?

A. male

B. Female

3. Marital status: Are you?

A. single

B. married

C. widowed

4. What is grade of category (mutuelle)?

A. cat I

B. cat II

C. cat III

5. Level of educations. Did you educate?

A. yes

B. no

6. in which level.

A. P6

B. S6

C. A1 Diploma

D. Bachelor

E. Masters

7. Occupations: what is your profession?

A. former

B. Teacher

C. others

C

8. Weight:

A. < 60

B. 60-80

C. >80

9. Height:

A. <150

B. 151-160

C. 161-170

D. >170

SECTION B: Factors contributing to hypertension

1. DO you or have you smoke tobacco?

A. YES

B. NO

2. Have you/Do you smoke?

Yes

No

3.How many cigarettes have you/do you smoke per day?

A. 2 cigarette by day

B. 5 cigarette by day

C. More than 5 cigarettes by day

3. Do you consume alcohol?

A. YES

B. NO

4. how often do you consume alcohol?

A. Daily

B. Weekly

C. Monthly

D. Occasionally

5. Do you perform physical exercise?

A. YES

B. NO

6. How often do you engage in physical activity?

A. Daily

B. Several times a week

C. Weekly

D. Rarely

E. Never

7. How would you describe your diet?

A. Balanced

B. High in salt

C. High in fat

D. High in sugar

8. Do you often feel stressed?

A. Yes

B. No

9. Do you have any other medical conditions?

A. Diabetes

B. High cholesterol

C. Heart disease

D. Kidney disease

E. Other

10. Do you have a family history of hypertension?

A.YES

B.NO

APPENDIX 4: IBIBAZO MU KINYARWANDA

IGICE CYA A: IMYIRONDORO

1. Imyaka:

A. <20

B.21-40

C.41-50

D. >50

2. Igitsina:

A. Gabo

B. Gore

3. Icyiciro urimo:

A. Ingaragu

B. Nd'Ubatse

C.Narapfakaye

4. Uba mucyiciro cya kangahe cyubudehe:

A. Icyambere

B. Icyakabiri

C.Icyagatatu

5. Warize.

A. yego

B. Oya

6. Ikiciro cy'amashuri.

A. Amashuri abanza gusa

B. Amashuri y'isumbuye gusa

C. Icyiciro cya mbere cya kaminuza

D. Ikiciro cya kabiri cya kaminuza

E. Amashuri y'ikirenga

7. Icy'ukora:

A. Umuhinzi

B. Umwarimu

C. Ibindi

8. Ibziro byawe:

A. < 60kg

B. 60-80kg

C. > 80kg

9Uburebure bwawe:

A. <150

B. 151-160

C. 161-170

D. >170

IGICE CYA B: IBINTU BITERA UMUUDUKO W'AMARASO

1. Waba usanzwe unywa itabi?

A. Yego

B. Oya

2. Unywa itabi ringana iki?

A. 2 k'umunsi

B. 5 k'umunsi

C. Hejuru 5 k'umunsi

3. Waba usanzwe unywa inzoga?

A. Yego

B. Oya

5. Waba usanzwe ukora imyitozo ngororamubiri?

A. Yego

B. Oya

6. Ukora imyitozo ngororamubiri inshuro zingahe?

A. Burimunsi

B. Inshuro zingahe mucyumweru

C. Inshuro zingahe mukwezi

D. Ntayo ukora

7. waba usanzwe urya ibiryo bimezute?

A. Indyo yuzuye

B. Harimo umunyu ugerera nije

C. Harimo umunyu mwnshi

D. Unywa isukari nyinshi

8. Waba usanzwe ugira ubundi burwayi budakira aribwo ubu?

A. Diyabete

B. umutima

C. Impyiko

D. Nibindi

9. Mwaba musanzwe mugira guhangayika gukabije?

A. Yego

B. Oya

10. Mumuryango wiwanyu mwaba mugira indwara yumuvuduko wamaraso mwinshi?

A. Yego

B. Oya

Murakoze

APPENDIX 5 : RESEARCH LETTER

KIBOGORA POLYTECHNIC

RESEARCH LETTER

Date:............./ 2024

Ref: N° 12/GA/KP-IRB/2024

TO WHOM IT MAY CONCERN,

We write this letter to humbly request you to allow:

1. Mr/Ms. RABUGUNDA .... Claudine .... Reg Num 2000.63.6

2. Mr/Ms. DUSHIMIRIMANA .... Juliana .... Reg Num 2000.81.0.

To conduct research in your Organization/Institution/Territorial entity

The above mentioned are students at Kibogora Polytechnic pursuing Bachelor's degree in

1. .... General .... Nursing ....

The candidate are conducting research entitled:

.... Prevalence ......and ...... Risk ...... factor ...... associated ...... with ....
...Hypertension ...... among .... patients ...... attending ...... NCDs ....
...Department ...... at .....the.. KIBOGORA ...... Health ...... Center ....

We are convinced that your Organization/Institution/Territorial entity will constitute a valuable source of information pertaining to their research. The purpose of this letter is to humbly requesting you to avail them with the pertinent information they may need. We pledge to ensure that all provided information will be used in the strict academic purpose.

For any inquiries, please contact Dr. Gabriel Janvier TUGIRINSHUTI, Director of Research, Consultancy, and Innovation through email: drci@kp.ac.rw or Tel: 0788793509

Yours sincerely,

Dr. NDABARORA Eleazar

Dean of faculty of Health Sciences-Kibogora Polytechnic

Email: eleazarndaba@gmail.com

Tel: 0785371340

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