KIBOGORA POLYTECHNIC

FACULTY OF HEALH SCIENCES

DEPARTMENT OF GENERAL NURSING

PREVALENCE AND RISK FACTORS ASSOCIATED WITH HYPERTENSION AMONG OUT PATIENTS AT MIBIRIZI DISTRICT HOSPITAL.

A Research Paper submitted in partial fulfillment of the requirements for the Bachelor's degree with honor in General Nursing with Health sciences

CASE STUDY: Mibirizi district hospital

PERIOD: **October up to january**

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Kibogora, March 2022

DECLARATION

Declaration by the Candidate

I NZAYINAMBAHO Seth and ISHIMWE Samuel here by declare that this is my 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 my own have been duly acknowledged. Signed by **MUVANDIMWE Jean de la Croix (Assistant lecturer)**

Date 18/MARCH/2022

Declaration by the Supervisor

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

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DATE 18/ MARCH/2022

ABSTRACT

Background: Hypertension (silent killer) is a modern day's epidemic and is becoming a public health emergency worldwide, due to its role in causation of coronary heart disease, stroke and other vascular complications (Prabhu, 2017). Many researchers have revealed that hypertension is rapidly becoming public health problem in both economically developed and developing countries (Kishore, 2016) and it is the leading cause of mortality in the world and is ranked third as a cause of disability adjusted life years (Ismail,2013). In Rwanda up on population-based estimates with hypertension and overall prevalence of hypertension in Rwanda was 15.4 % (Nahimana, 2017).

Objective: To determine the prevalence and risk factors associated with hypertension among outpatient at MIBIRIZI district hospital

Significance of the study: This study were helpful to the health care seekers due to the improvements that were made and that they got knowledge, it were also help the health care workers of the MIBIRIZI district hospital especially while they were enrich their practice level.
Methodology: This study was a quantitative descriptive cross-sectional study. Quantitative data were collected by using structured, self-developed questionnaires, and were analyzed by using frequency tables.

Findings; the respondents from Rural areas were high with 63(73.3%) as well as the findings shows that 59(68.6%) had Diabetic History.

Conclusion: Prevalence of Hypertension were 17%.The person holding above 80 kg were at risk of having Hypertension.
Recommendation: The Ministry of health must plan to teach the community about the risk factors of Hypertension while the patients above 80 kg have to start monthly check up for the Hypertension condition.

DEDICATION

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

ACKNOWLEDGMENTS

I would like to acknowledge my supervisor, MUVANDIMWE Jean de la Croix for supporting and guiding me through the study. I appreciate his advice, guidance, and support he gave me from on beginning until the end. I extend special thanks to the KIBOGORA POLYTECHNIC staffs administration, all lectures from general nursing department for their treasured knowledge and skills that have been a major tool for guidance to achieve this level. I thank my fellow students in nursing department for their encourage

LIST OF TABLE

SYMBOLS AND ABBREVIATION/ACRONYMS

KP: Kibogora polytechnic

BP: Blood pressure

CVD: cardiovascular disease

DM: Diabetes mellitus

HTN: hypertension

MoH: ministry of health

NCD: non-communicable disease

OPD: outpatient department

SPSS: Statistical package of social science

WHO: world health organization

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CHAPTER ONE: INTRODUCTION

I.0. INTRODUCTION

Hypertension is defined as systolic blood pressure level of ≥140 mmHg and/or diastolic blood pressure level ≥ 90 mmHg. Hypertension is a major public health problem due to its high prevalence all around the globe. (M. R. Kumar, 2016).

Hypertension is well-established risk factor for cardiovascular disease mortality, accounting for an estimated 7.5 million deaths per year or 13.5 % of total annual deaths where it tops the list of risk factors for death and disability, further highlighting the need and uncontrolled hypertension (Sampson, 2014).

Prevalence of hypertension, which is, refers to the total number of individual in population who have hypertension at a specific period, usually expressed as a percentage of the population. It is increasing rapidly in many developing countries, particularly in urban societies. The overall prevalence of hypertension in Rwanda was 15.3% (male 16.4%, female 14.4%) (Nahimana 10july 2017).

Risk factors: Something that could cause harm to people's health (collin2017).Hypertension is mainly associated with lifestyle factors rather than 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), or associated with other predisposing disorders (Vijver., 2013)

1.1. BACKGROUND OF THE STUDY

Hypertension is defined as an increase of blood pressure above optimal level of ≥140 mmHg and diastolic blood pressure level ≥ 90 mmHg (M. R. Kumar 2016). This is cause for death and disability globally related to stroke and heart complications. Studies demonstrated that more than two thirds of people live with hypertension and more than half of them develop cardiovascular disease, stroke and heart failure and risk factor for fetal and maternal deaths in pregnancy, dementia and renal failure (WHO, 2013).

Hypertension is becoming a major public health problem and important area of research due to its high prevalence and being major risk factor for cardiovascular diseases and other complications. Hypertension (silent killer) is a modern day's epidemic and is becoming a public health emergency worldwide, due to its role in causation of coronary heart disease, stroke and other vascular complications (Prabhu, 2017). Many researchers have revealed that hypertension is rapidly becoming public health problem in both economically developed and developing countries (Kishore, 2016) and it is the leading cause of mortality in the world and is ranked third as a cause of disability adjusted life years (Ismail,2013).

Worldwide, in 2008 approximately 40%of adults aged 25 and above had been diagnosed with hypertension (Kishore ,2016) and the number of people with condition rose from 600million in 1980 to billion in 2008 (WHO ,2013). IN United States, from 2007 to 2008, the prevalence of hypertension was 28 to 30% in the 18-year and older population, which are approximately 65million hypertensive adult populations (Bissa, 2014).

In India, hypertension is directly responsible for 42% of coronary heart disease deaths and 57% of all stroke deaths (Ismail, 2013).3 In south Asia, Bangladesh city, a meta-analysis of studies between 1995 and 2010 found the pooled prevalence of hypertension to be 13.7%, with an increasing trend and higher rate in urban versus rural area (22.2% vs 14.3%, respectively) (Islam, 2014). In all WHO regions, men have slightly high prevalence of raised blood pressure than women and this difference was only statistically significant in the Americas and Europe (WHO, 2016).

In sub-Sahara Africa, the prevalence of hypertension has increased significantly over the past two to three decades (Van, 2013). There were approximately 80 million adults with hypertension in 2000. Based on the current epidemiological data, projections suggest that this figure were rise to 150 million to 2025 (Van, 2013). Substantial evidence indicates that blacks have a higher prevalence of hypertension than whites and that severe hypertension and hypertension complicated by target organ damage are more common in blacks and lead to higher rates of CVD (Sampson, 2014)

In Rwanda, the study done at Ruhengeri hospitalized patient in the internal medicine, the prevalence of hypertension were 2.53% where hypertension was more common in women (64.9%), than men (35.1%) (Niyonzima, 2014).

In fact, there is study done at an urban tertiary education institution among adults aged between 27 to 67 years and revealed that 36 participants were hypertensive by basic occurrence of 36% of these only 3% were aware of their hypertensive status, 33% were not aware (Banyangiriki, 2017).Therefore, cross sectional study was conducted here in Rwanda up on population-based estimates with hypertension and overall prevalence of hypertension in Rwanda was 15.4 % (Nahimana, 2017). It could be speculated that the prevalence of hypertension might be on the increase as it is asymptomatic disease where people cannot know if they are suffered without doing medical checkup.

1.2 PROBLEM STATEMENT

Hypertension is the leading cause for death and disability globally and disproportionately more than two thirds of people with hypertension lives in low- and middle-income countries (LMICS). (Islam, 2015).

Hypertension is the major cause for more than half of the cardiovascular disease, stroke, and renal failure and is leading risk factor for fetal and maternal deaths in pregnancy. It is found that hypertension causes premature deaths for an estimated 45% of death due to heart disease and 51% of deaths due to stroke globally (Gli ,2017).

Hypertension is a significant health challenge and has a major impact on health costs, contributing to around 10% of total healthcare spending globally (Dhungana, 2016)

Hypertension imposes a serious economic burden on individual, households, healthcare systems and the entire nation as a whole (Ibrahim ,2012).

In most developing countries, including RWANDA, hypertension often remain undiagnosed and untreated and even when treated, a large proportion still have this problem of hypertension (Nahimana 2018).

This study were conducted at Mibirizi district hospital where we have founded a High numbers of people who are attending NCDS ward for hypertension and there we didn’t found any research done for this problems. Therefore, this study were helped to determine the prevalence and risk factors associated with hypertension among out patient at MIBIRIZI District Hospital.

1.3. PURPOSE OF THE STUDY

The purpose of this study was to assess the Prevalence and Risk factors associated with Hypertension among Outpatient at MIBIRIZI District Hospital

1.4. OBJECTIVES

1. 4.1. Main Objective

The Main objective of this study was to assess the Prevalence and Risk factors associated with Hypertension among Outpatient at MIBIRIZI District Hospital

1. 4.2. Specific Objectives

i. To determine the prevalence of hypertension among out patients at MIBIRIZI District Hospital

ii. To identify the risk factors associated with hypertension among outpatient at MIBIRIZZI District Hospital.

1.5. RESEARCH QUESTIONS

1. What is the prevalence of hypertension among out patient at MIBIRIZI District Hospital?

2 What are the risk factor associated to hypertension among outpatient at MIBIRIZI District Hospital?

1.6. SIGNIFICANCE OF THE STUDY

This research were helped the population who was coming to seek health care at MIBIRIZI District Hospital where they were gotten knowledge about complication, modifiable risk factor and seriousness of hypertension. By getting knowledge and serve as baseline for further research by health professionals. The result were helped MIBIRIZI District Hospital to elaborate policy and guide line for improving quality care.

In addition, this study were enrich the field of nursing practice at MIBIRIZI District by helping nurses, health care providers to become more concerned as far as hypertension is the leading risk

factor for death and disability. The results of the present study were also extent the body of literature and serve as a baseline for future research.

1.7. LIMITATIONS OF STUDY

Therefore, the results may not be representative and generalizable to the general population of the patients suffering from hypertension from the whole country; the research findings are less amenable to generalization because the sample is selected from one geographical area in Rwanda to the Smoking, Salt Intake in the food, Overweight Ages Hospital etc. Stress is a major risk factor for hypertension. It will also be considered in the present study for better results.

1.8: SCOPE OF THE STUDY

This study were conducted at Mibirizi District Hospital; Mibirizi District Hospital is a District Hospital located in Rusizi District. Mibirizi District Hospital is a health open research field and it offers evidence-based teaching of multidisciplinary health related fields including medical and post graduate trainees, general and hospital nursing, midwives, lab technicians, and other paramedics trainees. Mibirizi District Hospital has various services: Emergency, OPD, Operating room, Pharmacy, Laboratory, ARV, Maternity Ward, Surgical Ward, Internal medicine Ward, Pediatrics Ward, Physiotherapy Department, and Mental health Department.

1.8. 1. In Time

Our research were conducted from October/2021 to January 2022 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, Rusizi district, at MIBIRIZI District Hospital.

1.8.3. In Domain

Our study was conducted in NCDs.

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

This chapter presents the existing theoretical and empirical literature on the burden of hypertension and non-communicable diseases in general, risk factors, management of hypertension, prevention and complication of hypertension and prevalence of Hypertension

2.1. THEORETICAL LITERATURE

Hypertension is a common and serious condition that can be lead to or complicate many health problem and the risk of cardiovascular morbidity and mortality, It is directly correlated with high blood pressure above the normal which is systolic blood pressure of 140 mm/hg and diastolic blood pressure above 90mm/hg(SiyadA, 2011). Hypertension is in two types, which are essential or primary and secondary hypertension. Primary hypertension occurs when the condition has no known cause. This form of hypertension cannot be cured, but it can be controlled. More than 90% of individuals with hypertension have essential hypertension and when hypertension is caused by another condition or disease process, it is called secondary hypertension fewer than 10% of patients have secondary hypertension (Gluyette, 2016).

Those two types of HTN are classified into 4 stages of hypertensions; high blood or hypertension, or stage 1or pre-hypertension is 120/80 to 139/89mmol/Hg. Stage 2 HTN or mild hypertension is 140/90 to 159/99. Stage 3 HTN or moderate hypertension is 160/100 to 179/109.stage4 or severe hypertension is 180/110 or higher so If the blood pressure stays between 120/80 mmHg to 139/89 mmHg, then you cannot diagnose as hypertension and consider as pre-hypertension. Means it is not a high blood pressure but most likely to develop in the future and you can prevent to be hypertensive by adopting a healthy lifestyle (Kureche, 2018).

If your 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 (Kishore , 2016).

High blood pressure (HTN) is one of the most important causes of premature death worldwide killing nearly 9.4 million people every year globally, and the problem is growing. Over 1 billion people are living with high blood pressure (WHO, 2014). All WHO regions, males had a slightly higher prevalence of raised blood pressure than females, but this difference was only statistically significant in the Region of the Americas and the European Region. The prevalence is raised blood pressure in low, lower middle and upper middle-income countries is higher (WHO, 2014). Hypertension has reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and is one of the leading causes of death and disability (CDC, 2016).

2.2. 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), or associated with other predisposing disorders (Vijver., 2013).

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 (Vandervar, 2017). 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

hypertensives (Agarwal, 2014). Also, in the same country but different year, a community cross ectional study done in India has revealed that among 640 participants aged 25-64 years was used where the prevalence of HTNwas 32.9% and the tabacco use was significantly associaeted to hypertension (Shankar, 2017).

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 (Dhungana, 2016).

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 positive correlation between increasing age and increase in blood pressure (Vandervar, 2017). 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 (Raghavendra,2015). 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 (Douglas, 2015). 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 (Paquissi, 2016). It has shown also that hypertension is significantly higher in individuals more than 35 years than among 1005 participants in the study done in India (Kishore et al., 2016). 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 (Mahmood, 2013). Furthermore, study done from Cameroon has also shown that age is associated to HTN among 773 participants aged above 40 years old participants (Arrey, 2016).

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 (Razvodovsky, 2014). There is a direct effect between high levels 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 (Van de Vijver, 2013). Meta-analysis of the prospective studies done in Russia has reported a 40% increase in the relative risk of developing HTN in those drinking alcohol (Razvodovsky, 2014). It has shown that in the WHO Global Burden of Disease Study, 16% of all cases of HTN were attributable to alcohol (Razvodovsky, 2014). 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 (Douglas, 2017). 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 (Lewis,2017). 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 (Lewis,2017). Inactivity also 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 (American Heart Association, 2014) A 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 (WLi, 2017). A cross sectional study done in Nepal from 587 participants has shown that physical activity is significantly associated with HTN (Dhungana ,2016).

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 (Ntuli, 2015).

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 (Mayoclinic, 2014). 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 (Vijver, 2015).

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 (Arrey, 2016). 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 (Hu, 2017). Based on the study done in India, out of 250 study subjects, the over overall magnitude of hypertension was found to be 15.6%. They have found that 29.82% of the overweight individuals were also found hypertensive (Briasoulis, 2016).

2. 3. EMPIRICAL LITERATURE

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 (Shimbo, 2016).

2.4. OVERVIEW ON PREVALENCE OF HYPERTENSION

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 (van de Vijver, 2013).

Globally, the prevalence of hypertension was 25% in (Bissa, Mossie and Gobena, 2014) and the overall worldwide magnitude of hypertension was estimated to be 972 million (26.4%) of the adult world population, with 333 million (34.26%) in developed and 639 million (65.73%) in developing countries (Gobena, 2014). According to the National Nutrition and Health Survey (NNHS), the prevalence of hypertension in China among adults 18 years or more were 18.8 % (Yang, 2016).

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) (WHO, 2016).

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 (Mills et al., 2016). 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 (WHO, 2015). 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% (Kaneda, 2015). 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 Africa, hypertension in Sub Saharan Africa has also been on the rise with reports indicating higher values in urban settings compared to rural settings. The prevalence of hypertension in Sub Saharan Africa ranges between 14.5% in rural Eritrea, 32.9% in semi urban Ghana and 40.1% in urban South Africa. In Cameroon, the prevalence of HTN spans from 5.7% in rural settings, through 21.9% in semi urban to 47.5% in urban milieu, with a national average survey of 31.0%. Despite the relatively better BP control in urban over rural settings, levels of adequate BP control as low as 2% to 27.5% (in men) and 38.7% (in women) have been reported in urban settings (Arrey et al., 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% (Paquissi, 2016)

2.5. COMMON CAUSE OF HYPERTENSION AMONG AGED PEOPLE

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 (**Sally Writes** August 22, 2017)

As you 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. (Kaiser Permanente 03/01/2014)

2.6. 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

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

(By Markus MacGill / Mon 11 December 2017)

2.7. 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 (Kjellgren, 2016). 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 (Ranerup, 2016). However, the prevalence of headache and dizziness may be as high as about 57%, and correlates with blood pressure in both untreated and treated patients. Poor understanding of the relation between blood pressure, symptoms and lifestyle may contribute to poor outcomes of antihypertensive treatment (Hallberg,2016).

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 (Simces,2017). Decrease time in sedentary behaviors such as watching television, playing video games, or spending time online was shown also to have positive impact on hypertension (Vijver, 2015). 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 (Diwe, 2015). 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, nadolol), angiotensin converting enzyme inhibitors (benazepril, captopril, enalapril) and calcium antagonists(diltiazem) (Vijver, 2015).

2.8. 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 complications (Ordunez, 2015). 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 (Guerello, 2014). 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 (Banyangiriki, 2017). 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 (Rao, 2013).

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 (Health-ojas, 2018). 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 (Science Direct, 2016). 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 (American college of cardiologist, 2017).

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).

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

Quantitative research methods was used as it emphasize 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 introduction, literature and theory, methods, results, and discussion. (Creswell, J. W. (2013).)

3.2. STUDY DESIGN

A Cross-sectional study was used in this 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 outpatients at Mibirizi District Hospital where by settled questionnaires was given to every participant, and thereafter the data was collected for statistical analysis. This study design collected data by observing many subjects (such as individuals, firms or countries/regions) at the same point of time, or without regard to differences in time (Polit and Beck, 2016).

3.3. STUDY POPULATION

The study population comprises total patients who was attended the hospital as outpatient's department during the period of data collection and meets the inclusion criteria. According to Mibirizi District Hospital in the outpatient Department, they receive at least 505 of all patients with non-communicable diseases (diabetes 150, kidney diseases 48,asthma 68,heart disease

37,stroke 57,cancer 35) includes 110 clients with hypertension during the period of 28 days of working exclude the weekends. The study population refers as the group of people to whom you want your research results to apply (JenniferV, 2017).

3.4. SAMPLING STRATEGY

The researcher decided to use Purposive-sampling method**.** It is nonprobability sampling where participants was selected based on characteristics of a population that are interesting in and those who meted the objective of the study and which enable you to answer your research questions (Research Methodology, 2017).

3.5. SAMPLE SIZE

In this study, researcher worked with 110 of outpatients at Mibirizi District Hospital. According to the availability of them at Hospital; 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= 110/ $\{1+110(0.05)^2\}$ the study sample were approximately 86 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 (Sciencing, 2017).

3.6. DATA COLLECTION INSTRUMENTS

In this study, researchers used self-administer of questionnaire for participant. Administer of questionnaire were used for illiterate participants where every participant were helped by researchers to write the answer of the questions on the space provided on questionnaire. Researchers needed pens, which that are used in writing for researchers or participants. Blood pressure were measured using sphygmomanometer of appropriate cuff size and stethoscope where these results were classified as normal, pre-hypertensive or hypertensive participants. Researchers also used scale/ balance to measure weight and for height and the calibrated meter used to calculate Body mass index of each participant. The measured blood pressure values shall be classified as normal, pre-hypertension, or hypertension according to Joint National committee

(JNC) VII criteria (Do, 2015). 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. Blood pressure will be classified into three categories which are normal, prehypertension (where systolic blood pressure is 120-139 mmHg and diastolic BP is 80-89 mmHg), and hypertension. Hypertension has two stages where stage 1 is when systolic blood pressure is 140-159 mmHg or diastolic blood pressure is 90- 99 mmHg and stage 2 with systolic blood pressure is greater than or equal to 160 mmHg or diastolic blood pressure is greater than or equal 100 mmHg (Laux, 2012). Researchers calculate the body mass index (BMI) based on weight and height. The degree of body weight is usually expressed as BMI; this is the ratio of weight in kilograms to the square of height in meters. The BMI is used to classify a person's body weight as underweight (BMI less than 18.5), normal weight (BMI 18.5-24.9), overweight (BMI 25-29.9), or obese (BMI greater than 30 (WHO, 2018). 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 will be translated in Kinyarwanda in order to facilitate our participants.

3.7. DATA COLLECTION PROCEDURES

Before conducting this study, researcher asked permission to ethical committee of KIBOGORA POLYTECHNIC. After receiving the permission from ethical committee, researcher asked permission to the Ethics committee at Mibirizi to collect data and signed consent by participant. After getting permission to conduct research at Mibirizi Hospital, 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 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. The researcher first took blood pressure measurement for every participant who had agreed to participate where after 5 minutes of rest with the participant in sitting position, feet

relaxed on the floor and arm supported at chest level. After taking blood pressure, the researcher took height and weight for each participant and finally use administered questionnaire where researcher helped every participant by asking information based on questionnaire and felt them.

3.8. ETHICAL CONSIDERATIONS

In order to be sure that the safety and privacy of participants is adequate and to prevent human rights abuse, before conducting this research the researcher requested the permission to KIBOGORA PLYTECHNIC and to Ethic Committee at Mibirizi Hospital administration in order to conduct the research. Participant given clear explanation about the study (aim, objectives, duration and importance of participation), but there were no any motivation in terms of money or any kind of motivation for participant, who agreed to participate signed a consent form where participation is voluntary. Informed consent has been signed by everyone before participating in the research and there were no names of participants on questionnaires and not sharing information to any other person known by participants without the participant permission to assure participant's confidentiality for all information that they have provided (Ismail., 2013), the participant right (privacy, confidentiality, respect, dignity, patient safety and information) has been respected. Participants has been allowed to refuse or withdraw at any stage of the study. Researchers for all concerned people disseminated the results after finishing data analysis of the study.

3.9. DATA ANALYSIS

Data was entered, analyzed using SPSS 21 version, and data were displayed in tables. The data analyses were focused on descriptive statistics whereby percentages, frequencies, mean and standard deviation has been used. Socio-demographic characteristics has been displayed in the frequencies and percentages whereas health behavior information has to be displayed in frequencies.

3.10. VALIDITY AND RELIABILITY OF INSTRUMENT

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform whereas reliability refers to the extent to which the same answers can be obtained using the same instruments more than one time (Polit, 2017).

To ensure reliability and validity of the research instrument, the items that have been used is adopted from questionnaire developed by Dr. Imaad Mohammed, which were used in prior research related to prevalence and risk factors associated with hypertension. That questionnaire was updated by Dr. Imaad Mohammed from WHO STEPs instruments for non-communicable diseases risk factors surveillance which has undergone extensive reliability and validity testing across different countries, suggesting that it was indeed had acceptable measurement properties for use in many settings and in different languages (Ismail , 2014).

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, INTERPRETATION AND SUMMARY

4.0. INTRODUCTION

This chapter presents the study findings according to the objectives of the study, which were (1) To determine the prevalence of hypertension among out patients at MIBIRIZI District Hospital (2) To identify the risk factors associated with hypertension among outpatients at MIBIRIZZI District Hospital. About 86questionnaires were distributed to 86 respondents and the respondents had the free right to not answer some questions depending on their will. Questionnaires were distributed to the respondents after obtaining their consent, data entry was done using a computer, and analysis was done using the Statistical Package for the Social Sciences (SPSS) software Version 21.

4.1 PRESENTATION OF FINDINGS

4.1.1 Demographic Characteristics of Respondents

The researcher first wish to present the profile of the respondent in term of gender, Age, marital status, level of Education, Place of residence, Height, weight and Blood Pressure measurements while the findings are presented into tables. Concerning the distribution of the respondents by social demographic.

Characteristics are presented as follows:

TABLE 4.1. DISTRIBUTION OF RESPONDENT BY SOCIO-DEMOGRAPHIC FACTORS

VARIABLES	FREQUENCES	PARCENTAGES
Ages		
<20	6	7.0
21-30	10	11.6
31-50	27	31.4

>51	43	50.0
Total	86	100.0
Gender		
Male	49	57.0
Female	37	43.0
Total	86	100.0
Marital status		
Single	8	9.3
Married	21	24.4
Widowed	57	66.3
Total	86	100.0
Level of education		
Illiterate	19	22.1
Primary	40	46.5
Secondary	20	23.3
Diploma	7	8.1
Total	86	100.0
Residence		
Rural	63	73.3
Urban	23	26.7
Total	86	100.0
Height		
<150	9	10.5
151-160	14	16.3
161-170	37	43.0
>170	26	30.2
Total	86	100.0
Weight		
<60kg	20	23.3
60-80kg	23	26.7
>	43	50.0
Total	86	100.0
Blood pressure		

Normal BP	6	7.0
Pre-hypertension BP	9	10.5
Hypertension BP	71	82.6
Total	86	100.0

The table 4.1 showed findings about demographic characteristic of the respondent's Findings, about the age showed that the respondents with ages above 51 years old Were 43(50%), followed by the respondents who were in range group between 31-50 occupied 27(31.4%), followed by the range of ages between 21-30 who were 10(11.6%) while the respondents who were under 20 years old has 6(7%).regarding the gender Male 49 (57%), female 37(43%). Regarding the marital status, the findings show that the widowed respondents were 57 (66.3%) followed by the married respondents who were 21(24.4%), while the single Ones were 8 (9.3%). According to the level of education, the respondents with the primary level were 40(47%), followed by the respondents who has the secondary level with 20(23.7%) Besides the respondents who were illiterates composed by 19(22.0%) as well the Respondents with diploma were 7 (8.0%), Bachelor's degree were 0(0%), furthermore the master's Degree holders were 0 respondents with 0%. The findings also show the Results of the places of residence of the respondents as follows, the respondents from urban areas were 23(26.7%) moreover the respondents from the rural area has 63(73.3%). The findings about demographic characteristic of the respondent's findings, the Height of the respondents' shows that people between 161cm-170cm were 37(43%), followed by 151-160 cm were 14(16.2%) ,while with the height above 171cm were 26(30.2%),furthermore the respondents with the heights below 150cm were 9(10.4%). According to the weight of the respondents, the findings shows that the respondents above the 81 kg were 43(50%), followed by the respondents with ranges between 60-80kg were 23(26%), as well the respondents who were below 60 kg compose 20(23.3%). Regarding the Blood pressure measurements of the respondents, the findings shows that 71 respondents has the high blood pressure with 82.6%, followed by the Pre-Hypertensive Participants with 9(10.5%), as well the normal respondents has 6(7%).

TABLE 4.2 FACTORS ASSOCIATED TO HYPERTENSION IN OUTPATIENT AT MIBIRIZI DISTRICT HOSPITAL.

Variable	frequencies	percentages
Much Salt intake in the food		
Yes	56	65.1
No	30	34.9
Total	86	100.0
Smoking great than 5 cigarette day		
Yes	50	58.1
No	36	41.9
Total	86	100.0
Heavy Alcohol Consumption		
Yes	63	73.3
No	23	26.7
Total	86	100.0
Physical exercises		
Yes	39	45.3
No	47	54.7
Total	86	100.0
Patient' Diabetic history		
Yes	59	68.6
No	27	31.4
Total	86	100.0
Family History of hypertension		
Yes	47	54.7
No	39	45.3
Total	86	100.0

Table.4.2. the findings shows that the respondents who use salt intake during eating with high respondents were 56 (65.2%), followed by those do not use salt intake during eating 30(34.8%). Regarding the smokers, those who smokes were50 (58.1%), followed by those who do not smoke were 36(41.8%). According to the Alcohol consumers, those who consume alcohol were 63(73.2%), followed by those who do not consume alcohol 23(26.7%). Due to those who do not

perform Physical activities, 47(54.6%). Regarding to those who Diabetes History, the findings shows that 59(68.6%) had Diabetic History, while those who do not have Diabetic History were 27(31.3%).The findings shows that 47(54.6%) had family History of Hypertension followed by those who those who do not have family History of Hypertension with 39(45.4%).

TABLE 4.3. PREVELANCE OF HYPERTENSION

Diabetic disease		Frequency	Percent
Valid	yes	150	30
	No	355	70
	Total	505	100.0
	Asthma		
Valid	yes	68	13.5
	No	437	86.5
	Total	505	100.0
	Stroke		
	yes	57	11
	No	448	89
	Total	505	100.0
	Kidney disease		
	yes	48	10
	No	457	90
	Total	505	100
	Heart disease		
	yes	37	7
	No	468	93
	Total	505	100
	Cancer		
	yes	35	7
	No	470	93
	Total	505	100
	Hypertension		
	yes	86	17

Table.4.3. the findings shows that the respondents who was suffer from diabetes were 150(30%), followed by those who were suffered from asthma where 68 were (13.5%). Regarding the

patients who were suffered from stroke, 57 (11%), followed by those who were suffered from kidney disease were 48 (10%) and those who suffered from heart disease were 37 (7%), followed by those who suffered from cancer were 35 (7%). the Prevalence of Hypertension were 17% (male 10% female 7%). Where the overall prevalence of hypertension in Rwanda was 15.3% (male 16.4%, female 14.4%) (Nahimana 10 july 2017). According to the study done from India, it has shown that the proportion of hypertension was 27.4% among males, and 9% among females (Benjamin, 2015). According to cross sectional study done in an urban area of Bangladesh, the overall age adjusted prevalence of hypertension was 23.7% and where the prevalence of hypertension was higher among males compared to females 21.7% vs 17.0%, respectively (Islam, 2014).

4.2. DISCUSSIONS OF FINDINGS

4.2.1. The prevalence of hypertension among out patient at MIBIRIZI District Hospital

According to the findings from this study, we have founded that the prevalence of hypertension was 17%, compared to the study that have been conducted in china and shown that the prevalence of hypertension has been found to be 10.6% (WLi et al., 2017). In addition, where the overall prevalence of hypertension in Rwanda was 15.3% (male 16.4%, female 14.4%) (Nahimana 10july 2017).

4.2.2. Risk factors associated with hypertension among outpatient at MIBIRIZZI District Hospital

From the findings, about the age showed that the respondents with ages above 51 years old were 43(50%) while according to the study that has been conducted in India, they shown that the highest mean systolic BP and mean diastolic BP were among the eldest age group and preceding eldest age group 45–54 years (Shankar, 2017). As indicated in the current study, those who consume alcohol were 63(73.2%) and the smoking rate at 50(58.1%) that was the main factors of Hypertension in the current study comparing to the study conducted in Vietnam that has been showing that the tobacco use and alcohol use were found to be risk factors for being hypertensive in the study subjects. alcohol use was associated with hypertension status where rate of hypertension was higher among the alcohol users. (Douglas .,2015). The findings from the

current study indicate that the respondents with the primary school level were suffering from Hypertension with 46(46.5%) while in the study 43 conducted from an urban area of Bangladesh and have stated that Hypertension was found to be more among illiterate subjects, and as also the primary educated subjects suffered more (Karen M et al., 2018). From the findings of this study, findings show that the widowed respondents were suffered from Hypertension and occupy a huge number with 57(66.3%) when comparing to the study that has been conducted in Russia the findings have shown that Being married and government servant were found to be risk factors for hypertension (Razvodovsky, 2014) .

4.3. SUMMARY OF FINDINGS

4.3.1. Distribution of respondent by socio-demographic factors according to ages, gender, marital status, level of education and place of residence.

About demographic characteristic of the respondent's findings, about the age showed that the respondents with ages above 51 years old were 43(50%).As well as regarding the marital status, the findings show that the widowed respondents were 57(66.3%). the respondents from Rural areas were high with 53(61%).The Height of the respondents' shows that people between 161cm-170cm were 37(43%). According to the weight of the respondents, the findings show that the respondents above the 81 kg were 43(50%).

4.3.2. Factor Associated to Hypertension among outpatient at MIBIRIZI District Hospital.

The findings show that the respondents who consume much salt during eating with high respondents were 56(65.1%). According to the Alcohol consumers, those who consume alcohol were 63(73.2%). Regarding to those whose Diabetes History, the findings shows that 59(68.6%) hadn't Diabetic History and 47(54.6%) had family History of Hypertension.

CHAPTER FIVE: CONCLUSIONS AND RECOMMANDATIONS

5.0. INTRODUCTION

This chapter covered the summary on with prevalence and risk factors associated with hypertension among out patients at Mibirizi District Hospital. It provides information; about how to determine the prevalence of Hypertension as well to identify the factors associated with Hypertension.

5.1. CONCLUSION

From the findings of this study, we have founded different factors of the Hypertension such Ages factors, widowed person factor, having above 81 kg, another factors, such as those use salt intake during eating, consuming alcohol, Smoking tobacco, having Family history of Diabetic and Hypertensive History in Family. Furthermore, According to this study the Prevalence of Hypertension were 17% (male 10% female 7%). Where the overall prevalence of hypertension in Rwanda was 15.3% (male 16.4%, female 14.4%) (Nahimana 10july 2017).

5.2. RECOMMENDATION

To the Ministry of Health

The Hospital could organize the outreach programs in the community in order to teach the population about the factors of having Hypertension and preparing the campaigns of preventing Hypertension in the community by focusing on its risk factors. The ministry of health must prepare the post cards of preventing Hypertension in the community by showing the risk factors of Hypertension.

To Hospital

The hospital should recommend the patients who have above 80 kg to come back every month for checkup of the hypertension that they are in the risk stages, as well as the elderly persons according to the factors occurred from the findings.

To the patients

The patients should plan for the Blood pressure test every month in order to 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.

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7.0. APPENDIX

7.1. INFORMED CONSENT

Dear Participant

Our names are Samuel Ishimwe and Seth Nzayinambaho, students at KIBOGORA POLYTECHNIC and we are currently undertaking a Bachelor of Science in Nursing Science degree. As a partial fulfilment of this nursing science degree, we are required to undertake a research study in the area of our specialty. Therefore, we are carrying out a study to assess malaria preventive measures among clients attending KIBOGORA health center.
We are kindly requesting you to participate in our study, the information obtained will be treated in confidentiality, the findings of the study will be used to know the prevalence, and the risk factor associated with hypertension.

We will personally conduct the questionnaire. You are assured that your identity will not be revealed at any time during the study or when the study is reported or published. The data collected will be coded.

Please feel free to make your decision for participation or none participation since this decision will not affect the care given to you or your family as well as the relationship with the health providers. Your participation is voluntary and you are free to withdraw from the study at any time.

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 me, my address is:

The contact phone number is

+250782768871 (Samuel Ishimwe) &

+250780860170 (Seth Nzayinambaho)

Participants Consent

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

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

Investigator's Signature..... Date.....

7. 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.

7. 2.1.English version questionnaire

SECTION A: SOCIO INFORMATION OF THE PATIENTS

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. **Residual:** Do you live in…?

A. rural area

B. urban area

5. Level of educations. Did you educated?

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

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. How often do you smoke tobacco?

A. 2 cigarette by day ☐

B. 5 cigarette by day ☐

C. More than 5 cigarette by day ☐

3. Do you consume alcohol?

☐

A. YES ☐

B. NO

4. How much do you consume Alcohol?

☐

A. MORE

B. LITTLE

5. Do you perform physical exercise?

A. YES

B. NO

6. How much salt do you use during eating?

A. MORE

B. LITTLE

7. Do you have diabetic history?

A. YES

B. NO

8. Do you have a family history of hypertension?

A.YES

B.NO

7.2.2. 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. **Aho utuye:**

A. Mucyaro ☐

B. Mumugi ☐

5. Warize.

A. yego ☐

B. Oya ☐

6. Ikiciro cy'amashuri .

A. Amashuri abanza gusa ☐

B. Amashuri y'isumbuye gusa ☐

C. Akiciro cya mbere cya kaminuza ☐

D. Ikiciro cya kabiri cya kaminuza ☐

E. Amashuri y'ikirenga ☐

7. Icy'ukora:

A. Umuhinzi ☐

B. Umwarimu ☐

C. Ibindi ☐

8. Ibiro 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. waba usanzwe urya umunyu?

A. Mwinshi ☐

B. Uringaniye ☐

7. Waba usanzwe ugira indwara ya Diyabete?

A. Yego ☐

B. Oya ☐

8. Mwaba musanzwe mugira mu muryango wiwanyu indwara y'umuvuduko w'amaras mwinshi? ☐

A. Yego

B. Oya ☐

Thanks for your participation!