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FACULTY OF HEALTH SCIENCES

DEPARTMENT OF GENERAL NURSING

**ASSESSMENT OF PREVELENCE AND FACTORS ASSOCIATED
WITH GASTRITIS AMONG PATIENTS ATTENDING KIBOGORA
DISTRICT HOSPITAL IN RWANDA**

Case of Kibogora Hospital: 2019-2022

**A Research Paper submitted in Partial Fulfillment for the Award of a Bachelor Degree
with Honor in Nursing of Kibogora Polytechnique**

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DECLARATION

This research proposal is our original work and has not been presented to any other institution. No part of this proposal should be reproduced without the author's consent that of Kibogora polytechnic.

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ABSTRACT

The current study was conducted to assess the prevalence and factors associated with gastritis at Kibogora District Hospital in Rwanda. It was guided by the three specific research object study such as to determine the prevalence of gastritis among patients attending Kibogora District Hospital in Rwanda, to examine the contributing factors associated with gastritis among patients attending Kibogora District hospital in Rwanda and to assess the relationship between the life style of patients with gastritis and associated factors among patients attending Kibogora District Hospital in Rwanda. The target population was 290 people and the sample size was 168 respondents. Questionnaire was used as data collection instrument. SPSS software version 26 was used to analyze the obtained data. On objective one, the findings revealed that the average of 2.8% of patients attending Kibogora District Hospital were confirmed to have gastritis as recorded in the register of Kibogora District Hospital from 2018-2021. On objective two, the findings revealed that among factors associated with gastritis, social class, educational background where considered to be significant. This was proven by the proportion of gastritis among patients which was significantly first social class (92.0%) third social class category (35.3%) with the p value of $0.002 < 0.05$ there was a statistical significant relationship between taking alcohol, the frequency of eating and having stress where the study shows the P-values of 0.001, 0.011 and 0.000 respectively. The study recommends that Ministry of Health to continuously work with and ministry of local government to ensure that people in community have sufficient knowledge that help them to prevent various diseases including gastritis. The study suggests that the further study can conduct the prevalence and risk factors for helicobacter pylori in gastroduodenal diseases in Rwanda.

DEDICATION

Dedication of our thesis goes to our parents and other family who supported us during the study process and to all our friends with love for their moral encouragement. They have really helped us to make this dream to be true through encouragement given in hard times.

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LIST OF ABBREVIATIONS AND ACCRONYMS

GI	:Gastro Intestinal
HPAG	: Helicobacter Pylori Associated Gastritis
HPC	: Helicobacter Pylori Culture
HPI	: Helicobacter Pylori Infection
MALT	: Mucosa Associated Lymphoid Tissue
PUD	: Peptic Ulcer Disease
SPSS	: Statistical Package for Social Science
VaC	: Vacuolating Cytotoxin
WHO	: World Health Organization

CHAPTER ONE: INTRODUCTION

1.0 Introduction

The chapter one presents the background to the study, statement of the problem, objectives with corresponding research questions, significance and scope and also limitation as well organization of the study.

1.1 Background of the Study

Gastritis is a disease which results from an inflammation of the gastric mucosa (Cecilia, Guillermo, Marta & Graciela, 2020). It is characterized by pain, swelling, and irritation of the mucosal membrane of the stomach (Cecilia, et al, 2020). Moreover, it manifested by a sign and symptom such as nausea, vomiting, dull pain, discomfort in the upper abdomen, feeling of fullness, and loss of appetite (Smith, Muinah & Rinaldo, 2019).

Gastritis is either an acute or a chronic depending on how long the signs and symptoms persist (Serra & Servet, 2016). In particular, acute gastritis is an inflammation of the stomach lining that occurs suddenly and lasts shortly within one or two days and even less than a month. Correspondingly, chronic gastritis is an inflammation of the gastric mucosa that occurs gradually and persists for more than a month and even for some years.

Gastritis still remains a social and public health problem both in developed and developing countries (Demisew, 2018). It is an underlying cause affecting individuals' socioeconomic status, health behaviors, and living standards such as lifestyles, living conditions, behaviors, and habits.

Globally, 50.8% of the populations in developing countries suffer from gastritis (Marcis, Olga, Jelizaveta & Yaron, 2018). With a lower figure, 34.7% of the population in developed countries had health problems due to gastritis. Compared with developing countries, the prevalence rate of gastritis markedly decreased in developed countries. However, it has been remained as a major health problem (Marcis et al., 2018). In general, gastritis was higher among men than women. However, a study conducted in Brazil showed 67.8% of women and 32.2% of men suffered from chronic gastritis.

A systematic review of African countries indicated 38% of women and 18% of men suffered from gastritis. In Kenya, among patients who visited health care institutions, 73.3% of children and 54.8% of adults diagnosed clinically as they had gastritis. Similarly, in Uganda, 44.3% of young people less than the age of 12 years were suffering from gastritis. Furthermore, in Nigeria, 40.7% of children with an age range from 6–10 years had gastritis due to *H. Pylori* (Smith, Muinah & Rinaldo, 2019).

Globally, gastritis like in India is associated with serious diseases and can also lead to having various disorders of the upper gastrointestinal tract in adults and children (Suerbaum & Michetti, 2015). Despite, over 50% of the world's inhabitants are infected with bacteria which were found to be the highest prevalence in the developing countries than developed countries (Alazmi, *et al.*, 2016). Although, revealed that in United State of America (USA), some reports have shown that *H. pylori* positive patients that lead to having gastritis disease and an association between *H. pylori* and gastritis remain controversial.

(Aziz, *et al.*, 2015) gastritis colonizes the various regions located in the upper side of digestive system like stomach and duodenum which may cause stomach and duodenal ulcers and also some levels of stomach cancers. The infection nowadays is experience to be common and the bacteria are believed to be prevalence all over the world. Mainly, the major cause of chronic gastritis is infection with *H. pylori* (Sugano, *et al.*, 2015). They also added that an organism known to cause progressive damages to the gastric mucosa and it is indicated as it plays a greater participation a causative role in a number of important diseases such as duodenal ulcer disease, gastric ulcer disease and gastric adenocarcinoma.

In Africa, the prevalence associated with gastritis increases generally with socio demographic status of people in community especially in age group but decreases have been found in people at childhood age in South Africa (Torres, *et al.*, 2016). The risk factors to gastritis includes but sometimes not stopped to people with low socioeconomic status and infection status of family members. *H. pylori* are contagious with faecal oral route being the main mode of transmission and person to person transmission through either the oral-oral route is mostly. Therefore, the consistent with such transmission routes, the bacteria have been isolated from feces, saliva and dental plaque of some of the infected people.

In Nigeria, (Ahmad, Ali and Musa 2018) revealed that helicobacter pylori has been noted to be the causality agent of various diseases in Gastro Intestinal (GI) tract, gastric, peptic ulcer,

disease and gastric adenocarcinoma. Ahmed, Is very crucial to determine the burden and the risk factors of getting such infection where the lower social class has a significance association with increased H. pylori infection. High prevalence of H pylori in Nigeria and low socioeconomic status, unclean water, overcrowding was considered to be significant risk factor of H. pylori infection (Ahmad, Ali and Musa, 2018). Despite, determination of the true prevalence of helicobacter pylori is very complicated in hyper endemic area (Abiodun, 2016). The majority as 63.5% of patient in Nigeria with endoscopic gastritis were found to have H. pylori infection.

In Rwanda, H. pylori is Ubiquitous bacterium, spiral shaped gram negative and aerobic which found in various areas of the stomach, specifically the antrum in the gastric mucus layer or adherent to the epithelial lining cells (Lefertheiner, *et al.*, 2017).

The chronic inflammation of the gastric mucosa causes the peptic ulcer diseases and lymphoid tissue lymphoma that may also lead to having gastric cancer. The majority of patients with gastritis may various body issues such as having abdominal pain, vomiting, feeling full in stomach and loss of appetite.

Globally, 50.8% of the populations in developing countries suffer from gastritis. With a lower figure, 34.7% of the population in developed countries had health problems due to gastritis. Compared with developing countries, the prevalence rate of gastritis markedly decreased in developed countries (Musa, 2018).

Factors that increase your risk of gastritis include: Bacterial infection. Although infection with Helicobacter pylori is among the most common worldwide human infections, only some people with the infection develop gastritis or other upper gastrointestinal disorders, (Ali 2019).

1.2 Problem Statement

The factors associated with gastritis which are recognized as a global health challenge, are mostly experienced to be high in developing countries compared to developed countries (Bardhan, 2017). Gastritis in Africa was found to be high and the bacteria have been found to be present in patient with gastritis or circumstances that have not been in the past believed to have a microbial cause (Lwai-lume, *et al.*, 2016). Therefore, there is a high level of morbidity and mortality caused by gastritis due to experience a high level of a gastritis malignancies and peptic ulcers of which may be varied from one generation to another (Chey & Wony, 2017). Having stress, smoking and taking alcohol are associated with gastritis. Despite, (Noah, *et al.*,

2018) revealed that approximately 15% develop peptic ulcer diseases and a relatively small number of subjects develop gastric cancer. In Rwanda especially at Kibogora Hospital, patients get suffering gastritis on high number because they can get 10 patient suffering from gastritis during a month due to various factors. It was also noted that kibogora district Hospital experienced 2.8% of patients confirmed to have gastritis as indicated by the data recorded from 2018 to 2021 (Kibogora, 2022). This study therefore, will seek to assess the prevalence and factors associated with gastritis among patients attending Kibogora District hospital in Rwanda.

1.3 Purpose of the Study

The aim of study was to assess the prevalence and factors associated with gastritis at Kibogora District Hospital in Rwanda.

1.4 Research Questions

- i. What is the prevalence of gastritis among patients attending Kibogora District Hospital in Rwanda from 2018-2021?
- ii. What are the contributing factors associated with gastritis among patients attending Kibogora District hospital in Rwanda?
- iii. What is the relationship between the life style of patients with gastritis and associated factors among patients attending Kibogora District Hospital in Rwanda?

1.5 Specific Objective

- i. To determine the prevalence of gastritis among patients attending Kibogora District Hospital in Rwanda.
- ii. To examine the contributing factors associated with gastritis among patients attending Kibogora District hospital in Rwanda.
- iii. To assess the relationship between the life style of patients with gastritis and associated factors among patients attending Kibogora District Hospital in Rwanda.

1.6 Significance of the Study

The findings of this study will be significance to patients attending Kibogora District hospital by getting some advices related to the ways through which they might prevent associated factors of gastritis.

The findings of this study will be significance to Kibogora hospital by allow them to improve quality care provided to the patient.

On nursing education the findings will be the review of nursing carcurum (information)

On research the findings of this study will be a references to the other researcher.

The findings of this study will be significance to the Ministry of Health specifically in department responsible to prevent infectious diseases so as to find out the strategies that can be employed to prevent infectious diseases in community life gastritis by fighting against anything related to helicobacter that can be experienced by people in society.

1.7 Limitation of the Study

This study was conducted at Kibogora District Hospital located in Nyamasheke district in Rwanda. The respondents might withhold overcame this limitation by explaining to the respondent collected data from patients with gastritis attending hospitals beyond Kibogora District Hospital.

1.8 Scope of the Study

The scope of this study covered three aspects such as content scope, geographical scope and time scope.

1.8.1 Content Scope

The content of this study is based on prevalence and factors associated with gastritis in patient attending Kibogora District Hospital. There, the content was developed due to the specific research objectives.

1.8.2 Geographical Scope

The geographical representation of this study was based on patients with gastritis attending Kibogora District Hospital. Therefore, other patients having gastritis attending hospitals beyond Kibogora District Hospital will not be involved in this study.

1.8.3 Time Scope

This study was conducted in time that planned activities were completed effectively. Therefore, this study was conducted focusing on the data recorded from 2018-2021.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The chapter two covers the study literatures as both theoretical and empirical literature as well as the study gaps, theoretical framework and conceptual framework. Finally, summary of the chapter.

2.1 Definitions of Operational Key Terms .

Risk factor: something that increases risk. Especially something that makes a person more likely to get a particular disease or condition (Watari, 2018).

Gastritis: Refers to an inflammation, irritation or erosion of the lining of the stomach. It can be acute or chronic (Sugano, 2015).

Inflammation: Refers to a localized physical condition in which part of body becomes reddened, swollen, hot and often painful especially as a reaction to injury or infection (Coati, 2015).

Lifestyle Factors: Refer to modifiable habits and ways of life that can greatly influence overall health and well-being, (Carmel R 2018).

Prevalence: Refers to the proportion of patients with gastritis indicated to be caused by various factors, (Azuma, 2017).

2.2 The Concept of Gastritis

(Samy 2019) gastritis can be referred as the basis of histological characteristics of the gastric mucosa. This implies that the gastric mucosa can lead having gastritis disease. The histological characteristics that make gastric mucus should be focused on some pathological mechanisms.

(Azuma, *et al.* 2016) revealed that from 60% to 70% of gastritis negative can be subjected functional dyspepsia gastro esophageal reflux. This implies that having gastritis need to be prevented at a high level as this disease affect the effective functioning of human body. However, (Azuma *et al.* 2015) also indicated that negative in gastritis can be experience once a person has respected the guidelines like negative triple staining of gastric mucosal biopsies, a negative *Helicobacter Pylori* Culture (HPC).

According to (Yang, Lu and Lin 2014), the cause of gastritis can be subjected to tobacco smoking, taking alcohol and high level of using non-steroidal anti-inflammatory drugs. This implies that the frequency of smoking and taking alcohol and other drugs can highly cause gastritis. Despite, Gastritis can also be caused by auto immune gastritis associated with serum anti-parietal and anti-intrinsic factor antibodies, acid reflux and organisms related to helicobacter pylori such as Mycobacterium avium- intracellular, herpes simplex and cytomegalovirus. However, (Rugge and Genta 2018) suggested that the rare causes of gastritis could be comprised by collagenous gastritis and lymphocytic gastritis.

On the other hand, (Yang, Lu and Li 2016) stated that major causes of gastritis can be cauterized as Helicobacter Pylori Associated Gastritis (HPAG) which is considered to be common cause of gastritis worldwide and autoimmune gastritis which is based on the chronic inflammatory illness which can be featured by chronic atrophic gastritis. (Watari, *et al.*, 2018) revealed that chronic gastritis is experienced to be the common disease in developing countries which can be caused the prevalence of H. pylori that may vary due to geographical region and socioeconomic status. This implies that socioeconomic status and environmental hygiene need to be the important elements in the transmission of Helicobacter Pylori Infection (HPI) across the countries (Samy, 2019).

2.3 Prevalence of Gastritis among Patients

The prevalence of gastritis in the study area was 78.8%. Specifically, 48.9% and 29.9% had acute and chronic gastritis, respectively. The study found that low income and taking medicinal drugs was slightly significantly to higher gastritis status; however, being younger age was slightly contributed significantly contributed to lower gastritis status. (Abiodun, *et al.*, 2019) carried a study that took place in Nigeria which was based on the prevalence of helicobacter pylori among Nigerian patients with dyspepsia. The study employed question during the phase of data collection as instrument of getting the study findings. (Abiodun, *et al.*, 2019) found that 63.5% within 55 patients were tested to have serious gastroduodenal lesions had the infection

According to (Ahmad, Ali and Musa 2018), people with lower class level are highly associated with gastritis. This implies that people with high problem of living conditions are a high risk of getting H. pylori that can case gastritis as the decrease of individual socio-economic status can increase the level of H. pylori infection. (Kimanga et al. 2018) also added that a high prevalence level of gastritis could be associated with lower socioeconomic status, unclean

water, overcrowding and taking cigarette smoking which also significantly considered to be one the risk factors related to gastritis.

(Allaker, *et al.*, 2017) established that the major risk factor associated to gastritis acquisition is lower level of economic status as it take easily to the spread of gastritis at large group of people without protection by the oral to oral or by fecal to oral routes. This implies the effective fighting against the infection of *H. pylori* is to fight against the problems related to the socioeconomic status. (Saad and Chey 2016) gastritis could be identified from the human stomach. (Alvarado 2015) also added that *H. pylori* also cause peptic ulcers which can affect the increase of gastric mucosa which is also associated with lymphoid tissue.

Lower level of socioeconomic status is highly noted to the risk factor *H. pylori* infection due to the fact that it enhances poor environmental sanitation, crowding situation and fecal contamination of water source as for domestic use. This implies that having clean water for domestic use and avoiding overcrowding areas as well as enhancing environmental sanitation can reduce the transmission of *H. pylori* which can cause human gastritis.

(Bashir and Ali 2019) suggested that the development of *H. pylori* is directly subjected to smoked people and those people that mostly take alcohol at a high level. This expresses that the risk factors associated to the acquisition of *H. pylori* infection can be reduced once there is a reduction based on the burden of the diseases transmitted by such infection.

(Bianca, *et al.*, 2018) conducted the study in Europe based on finding association between helicobacter pylori chronic gastritis, psychological trauma and somatization disorder. The study adopted descriptive cross-sectional design. (Bianca, *et al.*, 2015) indicated that digestive manifestations like ulcer and gastritis were identified greatly exacerbated as compared with the endoscopic and histological aspect of the gastric mucosa. However, (Bianca et al. 2018) also added that patients simultaneously developed to a complex psychiatric pathology.

. On the other hand, the prevalence of having helicobacter pylori among dyspeptics using biopsy methods was indicated to be at a high level in the region of South-Western part of Nigeria (Abiodum, *et al.*, 2016). This also implies that the majority of citizens in Nigeria should be tested and treated with *H. pylori*.

(Mwaleso, 2019) conducted the study in Kenya entitled as the prevalence of helicobacter pylori infection among patients with peptic ulcers and the associated risk factors. The study adopted cross-sectional research design within a purposive sampling techniques and questionnaire as

instrument used during data collection. The findings established by (Mwaleso 2019) revealed that gastritis was indicated to be at a high level especially to people who were in age group between 31 and 40 years old with 32.4%. On the other hand, (Mwaleso 2019) indicated that there was a low level of having gastritis among people aged between 81 and 90 years old.

2.4 Contributing factors associated gastritis patients

(Sang 2018), the transmission of helicobacter pylori can be associated by various factors such socio-economic status of households and genetic predisposition. However, Added that the availability of H. pylori in the gastric juice in African people is indicated to be up to 58% of patient that were infected by H. pylori which can also be raised in that gastric juice as it is being transmitted easily. Mother responsible to feed their children may get a risk considered to be one of the factors of H. pylori infection (Sang, 2016). Despite, H. pylori is usually considered to be main cause of Peptic Ulcer Disease (PUD) and also to be gastritis which may be transformed to actively chronic that can lead to gastric cancer (Mohammed *et al.*, 2018).

Socio-economic status

Countries expressing low socioeconomic status can experience a high risk of being associated with the increment of H Pylori Infection (HPI) among citizens. This implies that that transmission of H. pylori is mostly closed with the socioeconomic status where people living a high poverty rate are at a high risk of being H. pylori infection rather than those of high standard of living condition. (Malaty and Graham 2019) also revealed that a household that meet a challenge based on socioeconomic status of any subject the childhood of their children may be automatically exposed to being a determinant of the development of H. pylori infection. This also means that people in their childhood should be protected carefully with adequate living condition in order to be protected from having such infection caused by H. pylori.

The living condition of people can present a high influence based on the prevalence H. Pylori infection which is mostly experienced in the majority of countries having difficulties related socioeconomic status which may keep improving significantly (Sang, 2017). However, (Asaka 2016) also revealed that the country of Japan got a challenge of economy that affected the majority of citizens to fall in prevalence of H. pylori infection specifically to people aged below 40 years old. This also indicates that the development of economic status of Japan prevented them to fight against H. pylori infection which was significantly associated with the living condition affected the Second World War (Asaka, 2020).

On the other hand, (Johnsen, *et al.*, 2018) also stated that the issues related to socioeconomic status promote the level H. pylori transmission due to the fact that people of high poverty level do not get aware of prevention which requires a high level of financial capacity. This implies that countries as responsible for improving the welfare of citizens should be encourage their citizens to invest more so as to be economically equipped and to fight against H. pylori transmission.

Smoking

According to (World Health organization 2019), cigarette production and consumption have been seen dramatic growth and although the health effects of smoking are widely presented as also impact the environment. Specifically, (Ogihara et al 2020) conducted the study in Egypte related to finding the relationship between helicobacter pylori infection and smoking. The authors found that the smokers have a greater risk of having H. pylori sero-positivity than those who had never smoked. (Kikuchi and Hasegawa 2018) also added that the cigarette consumption showed a close-dependently negative association with H. pylori sero-positivity. Also revealed that the association between smoking and H. pylori infection was strong in younger. This implies that H. pylori are mostly found in people who are still young.

(Hirschwitz 2016) also added that the decreased mucus secretion and decreased epidermal growth factor secretion changes that are thought to lead to chronic gastritis and gastric ulcers. On the other hand,(Lindel 2018) said that the loss of H. pylori infection from the gastric mucosa is due to the development of atrophy as also a result of long-standing gastritis. This implies that smokers infected with H. pylori may be more likely to progress towards atrophic gastritis.

Taking alcohol

Alcohol is one the most popular psychoactive substances in the world and it can have a powerful effects on the consumer's mood and mental state (Binge, 2018). According to

(Sagawa 2018), taking alcohol can lead to liver disease and other severe and chronic diseases. (Sagawa 2018) also added that alcohol may trigger emotional or past traumatic experiences and increases depression and anxiety. (Marry 2017) conducted the study and revealed that the habit of taking alcohol was negatively associated with H. pylori positivity. This implies that the extent of being colonized by taking alcohol can significantly be correlated to having H. pylori Infection. In contrast, (Hermann et al 2014) stated that there is no relationship between drinking only and H. pylori infection. This means that alcohol consumption against active infection with H. pylori can be managed.

(Ogihara, *et al.*, 2019) conducted the study to examine the relationship between alcohol consumption and H. pylori infection in Germany and the researchers indicated that there is an inverse association between alcohol consumption and H. pylori infection. (Lazza, Imeneo and Maletta 2017) explained that consumption of moderate amounts of alcohol in the form of wine, beer and spits may protect against H. pylori infection. Therefore, some alcohol beverages can stimulate gastric acid secretion which may also eradicate H. pylori by lowering the PH in the stomach.

(Quartero 2018) in the study conducted revealed that a relation between alcohol consumption and helicobacter pylori was indicated to have the risk for infection recorded to be at a high level and due to the consumed alcohol than in those that did not. According to Weisse and (Eberly 2015), men have twice the risk for helicobacter pylori infection than women as they tend to be consuming a high quantity of alcohol. (Weisse and Eberly 2015) also added that the quantity of grams per week of at risk alcohol consumption was greater in individuals with helicobacter pylori infection than in those without it.

2.5 Lifestyle Factors Associated with Gastritis Patients

According to (Lucy, *et al.*, 2019), smoking is one of the factors associated lifestyle to patients having gastritis and it was considered to increase the patient' risk and lead to mortality. However, it the study conducted by (Lucy, *et al.*, 2019) smoking was not associated with the changes to the effect related to poor feeding or loss of vitamin. revealed that the frequency of taking alcohol s significantly associated with gastritis and recorded to be having H. pylori. (Nevertheless, Goodman and Correa 2015) also added that there was no significant interaction between vitamin supplementation and lifestyle factors associated with gastritis patients.

According to (Nobuyuki, *et al.*, 2019), the various lifestyle factors associated with gastritis were indicated to be smoking, alcohol intake, psychological stress, a high fat diet and recumbent position after a meal. The frequency smoking affects esophageal defenses mechanisms and lead to causing reduction of esophageal clearance and saliva secretion (Nobuyuki, *et al.*, 2018). On the other hand, (Thomas, Rhodes and Ingram 2015) revealed that the higher proportions of gastritis patients were associated with smoking habits and it was recorded to be a significant risk factor.

2.6 Relationship between lifestyle of patients with gastritis and associated factors

Basing on various views presented in epidemiology and other health sections, the infection plays a significant interpersonal standard associated with its transmission which leads to the increase of the *H. pylori* prevalence mostly in young children specifically in developing countries including Rwanda (Lieber, 2018). This also implies that the prevalence of gastritis can significantly be increased in people of low income capacity. According to (Gregson 2019), the index of gastritis has significantly be reduced in developing countries where old people were having more prevalence of gastritis than that of young people due to having better hygiene. This implies that any lack of hygiene may proportionally increase the prevalence of *H. pylori* among people of the confirmed cases.

The infection by helicobacter pylori in relationship in Europe to its prevalence, can significantly change in developed and developing countries. This implies that in the absence of controlling *H. pylori* can significantly increase its prevalence regardless the income capacity. (Luiz, *et al.*, 2017) also added that people having opportunities to improve their socio-economic status, get a high chance of showing the difference associate the prevalence of helicobacter pylori.

(Michel 2015) conducted the study in Ghana and revealed that it is not exactly indicating the reasons based on the relationship the lifestyle of patients with gastritis. Nevertheless, it was announced that having positive socio-economic factors, environment and cultural practices lead to making life very easy and affordable. On the other hand, genetic associate factors are considered to have some influences associated with housing conditions (Lieber, 2018).

(Murray, Lane and Harvey 2019) conducted the study in Tanzania the study in beyond of *H. pylori*, there are several factors that can be involved on the development gastritis diseases. (Lieber 2018) also added that the frequency of taking alcohol can lead to experiencing some

injuries which could result to description of barrier associated with gastritis. Nevertheless, (Murray, Lane and Harvey 2019) also added that the inappropriate habit of taking diet, alcohol and smoking, having stress and trauma as well as irradiation upon the stomach systematically lead to gastritis.

2.7 Theoretical Framework

2.4.1 Gastritis Theory

This theory of gastritis was postulated by Barry and Warren in 1981 who discovered the bacterium helicobacter pylori and deciphered its role in gastritis. According to (Nisa 2018), gastritis can be categorized as acute gastritis and chronic gastritis where an acute gastritis is based on transient mucosal inflammation process which may lead inconsistent degrees of epigastric pain and vomiting. Therefore this may lead to ulceration, hemorrhage, hematemesis, malena or rarely massive loss of blood. Despite, (Huwez 2019) indicated that chronic gastritis comprises two categories such as Category A which refers to the body predominant form and category B which refers to the central predominant form which is related to helicobacter pylori.

(Nisa 2018) also added that the general cause of chronic gastritis is infection with the bacillus helicobacter pylori. Therefore, the gastritis theory guided this study because it indicates the risk factors that can lead having gastritis in human which helicobacter pylori. Despit acute helicobacter pylori infection does not indicate sufficient symptoms that need medical attention like chronic gastritis that request the patient to seek medical treatment.

2.8 Conceptual Framework

This study was in a need to assess the factors associated with gastritis among patients attending Kibogora District Hospital in Rwanda. Therefore, the conceptual framework of this study is given in the Figure 2.1.

Independent variable

Factors associated with Gastritis

Contributing factors

- Smoking
- Alcohol

Dependent variable

Prevalence of gastritis

Number of patients with gastritis



Figure 1: Conceptual Framework, Del Moral-Hernández O, (2019)

2.6 Summary

This chapter presents the thoughts presented by other scholars that conducted related to assess the factors associated with gastritis among patients attending Kibogora District Hospital in Rwanda. This is the reason why the literature was based on various sub-headings such as definition of key terms, the concept of gastritis, factors associated with gastritis, the prevalence and risk factors for gastritis and then correlation between related variables. Theoretical framework was developed basing on the existing knowledge of other scholars while conceptual framework presented independent variable.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology that will be employed in this study and it will cover the design of the study, target population with corresponding sample size a headed by the sampling

techniques, data collection instruments that will be selected basing on the validity and reliability, data analysis techniques and then ethical considerations.

3.1 Research Approach

Research approach Are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation Lambrecht (NW2019)

This study based on quantitative. The quantitative findings were founded on the questionnaire.

Research Design

According to (Creswell 2016), a research design can be referred as the level through which the decision established from various extensive assumptions detail the techniques used in data collection. Therefore, this study was based on descriptive survey research design as well as correlation research design to find out the relationship between variables. The qualitative findings are those findings that are found from conducting guided interview while quantitative findings are such findings found questionnaire or doing document analysis review.

3.2 Target Population

According to (Alvi 2016), the target population can be referred as group of people used in the study that meet the specific criteria as indicated in the area of the study due to established objectives. On the other hand, (Borg and Gall 2017) established that the study population can also be defined as a set of people with factual hypothetical group in which the researcher needs to generalize the study findings. Therefore, this study targeted patients attending Kibogora District hospital. Patient attended in outpatient department (OPD), Patient admitted in internal medicine and patient at emergency).

3.3 Sampling procedures

Procedures used while sampling are those techniques used to indicate the number of active study participants as sampled from a large population in order to get the study findings that could be used to achieve the study objectives (Anderson, 2019). Therefore, the study employed probability sampling technique. The probability sampling technique helps a researcher to choose samples from a larger population using a method based on theory of probability.

3.4 Sample Size

Sample Size Calculation

According to (Bless, *et al.*, 2013), sampling refers to the process of getting the number of study participants that were able to be managed the researcher during data collection. Therefore, Yamane formula was used to calculate the sample size from the size of targeted population.

Thus, $n = N / [1 + N (e)^2]$. Where *n*: Sample size, *N*: Target population and *e*: Marginal error (Yamane, 1976). This study also assumes the 95 percent as confidence level and maximum variance (P=95%). Therefore, $e = 1 - 0.95 = 0.05$ and 290 people as target population.

Therefore, $n = 290 / [1 + 290 (0.05)^2]$

$$n = 290 / [1 + (290 \times 0.0025)]$$

$$n = 290 / (1 + 0.725)$$

$$n = 290 / 1.725 = 168 \text{ respondents.}$$

Table 1: Target population and proportionate sample size

Age group	Target population	Sample size
15 Years and below	40	23
16-40 years	70	41
41 years and above	180	104
Total	290	168

Inclusion criteria

Patient admitted in Internal medicine (female and male word), patients attending in out patient department (OPD) and patient who are at emergency.

Exclusion criteria

All other patient not admitted in internal medicine, in emergency and not attending in OPD, admitted in Maternity and Patient admitted in Neonatology.

3.5 Research instrument for Data Collection

(Oso and Onen 2016) a questionnaire used during data collection as a research instrument, measures the like hood of straight and also the blunt answer.

Questionnaire will be employed as data collection instrument to respondents of the study in order to examine various factors associated with gastritis among patients in Kibogora District hospital located in Nyamasheke district. .

3.6 Data Collection Procedures

(Kerling 2019), administration of instruments for data collection to the respondents of the study refers to an action of distributing data collection instrument to study respondents which done in advance followed by systematic execution that brings out the fruitful study findings.

At the binging we got a permission letter from the Authorities of Kibogora polythechnique.

This letter will help us to enter in Kibogora district hospital and allow us to ask permission to the person who is in charge of research in Kibogora District hospital, we will introduce our self to him and explain well what we need. And ask a permission of getting the patients admitted in internal medicine, the patient attending in OPD and patient who are at emergency. Before getting the patient we introduce our self to the nurse who are in charge of the word and ask a permission of getting patient.

After getting a patient we also introduce our self to them and telling them the purpose of our research and ask them the consent of being participant

At the end of data collection, the researchers cross checked the completeness of questionnaire to seen whether they were returned successfully or not as they needed to be coded in data set.

3.7 Ethical Considerations

(Johnson 2018), ethics are intervened as guidelines and principles that a researcher should respect during data collection. During data collection ethical values were respected. Firstly, recommendation letter was given to the researcher by Kibogora polytechnique as a way of introducing the researcher to field of data collection. The respondents were given all information and all details about the research and also the chance to ask some questions to the researcher before signing their consents for participation. In the process of filling questionnaire, respondents got an opportunity to be explained where they don't understand for better clarification. The collected findings were treated confidentially by making anonymous

approach. No personal identification numbers as well as names of the respondents were presented in questionnaire. The study also protected anything that can harm the respondents.

3.8 Data Analysis

Data analysis refers to a variety of specified techniques and methods to be used and come with relevance findings and conclusion (Spring, 2016). Therefore, the findings that were got from study instruments were immediately subjected to data processing that will comprise coding, clearing and tabulation that were established using SPSS software version 26 for data management. Descriptive analysis was performed to quantitative findings and be presented as associated frequencies and percentages to get the prevalence and associated factors among patients with gastritis attending Kibogora District Hospital in Rwanda.

3.9 Validity and Reliability

i. Validity

Validity of the research instrument can be defined as an assessment that assesses the extent to which the instrument measures what is designed to measure (Robson, 2018). Therefore, it presents the degree to which the results obtained are trustful.

ii. Reliability

On the other hand, reliability of the research instruments refers to stability or consistency of scores over time and therefore, it is the degree to which measures are free from error and effect yield consistency results (Mugenda & Mugenda, 2016). To maintain the reliability of the data collection instrument, the findings from the research instruments were gathered in the process of conducting pilot study to 17 respondents that were not sampled in the study as were 10% of the study sample size and it only included patients with gastritis. The research instrument was reliable at an average above 70 percent by using test and re-test to get statistical reliability of study tools.

CHAPTER FOUR: RESEARCH FINDINGS, INTERPRETATION AND DISCUSSION

4.0 Introduction

The fourth chapter of this study covers the findings gathered during data collection due to the analyzed responses, presentation and interpretation of the study findings as were collected from patients attending Kibogora District Hospital. This strengthened the researcher to employ the questionnaire to Patient attended in outpatient department, Patient admitted in internal medicine and patient at emergency. However, the researcher also presents the demographic characteristics of respondents and presentation of findings as well as interpretation of the study findings. This therefore, involved the researchers to present and interpret the study finding as per objectives.

4.1 Presentation of Findings and Interpretations

4.1 .1 Demographic Characteristics of Respondents

Respondents' age group

The age category of respondents was in need to be presented for the purpose of mentioning their maturity and to assure their provided data.

Table 2: Age group of respondents

Age group	Frequency	Percentage
15years and below	23	13.7
16-40years	41	24.4
41years	104	61.9
Total	168	100.0

Source: Field data (2022)

The Table4.1 indicates the demographic characteristics of respondents that participated in the study where majority of respondents were in age group of 41years and above and participated at 69.1%. However, the respondents corresponding with 24.4% were aged from 16years and 40years. The remaining respondents were in category of 15years and below that correspondent with only 13.7%. This implies that majority of participants that provided their data were still in working age which may significantly reduce their living standard.

Respondents' Gender

The study was in need to findings the respondents' gender in order to find out whether gender balance was involved in during data collection.

Table 3: Gender of respondents

Gender	Frequency	Percentage
Male	128	76.2
Female	40	23.8
Total	168	100.0

Source: field data (2022)

The study collected the data based on gender of respondents and the study revealed that majority of respondents as participated in this study was male corresponding with 76.2% while female were corresponding with the remaining 23.8%. This implies there was no gender disparity during data collection and participation in the study. However, it also shows that

males are more exposed to having gastritis due to various factors like taking alcohol and smoking.

Respondents' residence

This study was encouraged to present the area of residence among patient attending Kibogora District Hospital for the purpose of finding out the region of associated with being attacked by gastritis.

Table 4: Respondents' residence

Respondents' residence	Frequency	Percentage
Urban	25	14.8
Sub-urban	38	22.7
Rural	105	62.5
Total	168	100.0

Source: Field data (2022)

The study presents that majority of respondents (patients attending Kibogora District Hospital) are located in rural area as they were scaled to be 62.5% of respondents. This was followed by the respondents found from sub-urban area that are corresponding with 22.7%. However, the study also collected the data from patients as respondents located in urban area of Nyamasheke district where they were scaled by 14.8% of the total respondents. This implies majority of patients being attached by gastritis are located in rural area which should significant affect various people from the region.

4.1.2 Presentation of Findings as per Objectives

Data collected from the respondents of the study were presented quantitatively due to the specific research objective such as to determine the prevalence of gastritis among patients attending Kibogora District Hospital in Rwanda, to examine the contributing factors associated with gastritis among patients attending Kibogora District hospital in Rwanda and to assess the relationship between the life style of patients with gastritis and associated factors among patients attending Kibogora District Hospital in Rwanda. Therefore, quantitative findings were managed by using software of SPSS version 26 and they were presented by using tables, charts and figures.

4.1.2.1 Prevalence of gastritis among patients attending Kibogora District Hospital in Rwanda

Specific objective one of this study was conducted basing on determining the prevalence of gastritis among patients attending Kibogora District Hospital in Rwanda. Both questionnaire was used as data collection instruments and employed to the study respondents and came with quantitative findings.

Table 5: Prevalence of gastritis among patients attending Kibogora 2018-2021

Year of assessment	Total Patients	Confirmed for gastritis	
		Frequency	Percentage
2018	29,3228	9,440	3.2%
2019	42,763	1,118	2.6%
2020	47,415	859	1.8%
2021	54,635	829	1.5%
Total	438,041	12,246	9.1%

Source: SECONDARY DATA Kibogora District Hospital (2018-2021)

The Table4.4 presents the prevalence of gastritis among patients attending Kibogora 2018-2021 among patients attending Kibogora District Hospital. The study revealed that the number of patients reduced across the year. The study found that majority of patients was in 2018 where the confirmed case of patients having gastritis was 9,440 corresponding with 3.2% of the total patients. The study also found that in 2019, the confirmed case of patients having gastritis were 1,118patients corresponding with 2.6%. This indicates that number of patients having gastritis reduced.

Similarly, the found that in 2020, the confirmed case of gastritis also reduced where they became 859patients that were corresponding g with 1.8% according to the confirmed cases. However, in 2021 the confirmed cases of gastritis were 829patients corresponding to 1.5%. Despite, the number of patients attending Kibogora district Hospital that were confirmed, the number of confirmed cases is still high which can also affect the community living standard. This also shows that there is a need to find out the mitigation measures associated with preventing gastritis.

4.1.2.2 Factors associated with gastritis among patients

The second objective of the study was to determine factors associated with gastritis among patients attending Kibogora District hospital in Nyamasheke district in Rwanda. On the other hand, Multivariate analysis was performed to identify the contributing factors associated with gastritis among patients attending Kibogora District hospital in Nyamasheke district in Rwanda.

Association between Socio-demographic Characteristics and gastritis among patients

The analysis to verify whether there is the relationship between socio-economics demographics characteristics and gastritis among patients. The summary of findings was presented in Table 4.5.

Table 6: Association between Socio-economic Demographic Characteristics and gastritis among patients

Variables	gastritis among patients				χ^2 value	Df	P- value
	Yes		No				
	N	%	N	%			
Age group of respondents in years							
15years and below	6	23.0	20	77.0	0.74	2.00	0.692
16-40years	62	70.45	45	57.9			
41years	20	57.1	15	42.9			
Education level							

No formal	4	66.7	2	33.3	0.28	3.00	0.023
Primary	34	35.1	61	64.9			
Secondary	30	75.0	10	25.0			
Higher education	20	57.1	15	42.9			
Social class							
First	46	92.0	4	8.0	12.49	2.00	0.002
Second	20	31.3	44	68.7			
Third	22	35.3	40	64.7			

Source: Field data (2022)

The proportion of gastritis among patients was significantly more among first social class (92.0%) than third social class category (35.3%) with the p value of $0.002 < 0.05$ as the level of significant that confirmed to have gastritis. On the other hand, it was also found the proportion of gastritis among patients was significantly more among patients of no formal education (75.0%) than that of higher level of education (57.7%) with the p value of $0.023 < 0.05$ as level of significant that confirmed to have gastritis.

4.1.2.3 Relationship between the life style of patients with gastritis and associated factors among patients

The analysis to verify whether there is the relationship life style of patients with gastritis and associated factors among patient attending Kibogora District Hospital in Nyamasheke district. The summary of findings was presented in Table 4.6.

Table 7: life style of patients with gastritis and associated factors among patients

Variables	gastritis among patients				χ^2 value	Df	P- value
	Yes		No				
	N	%	N	%			
Taking alcohol							
Yes	75	85.2	8	10.0	0.56	2.00	0.001
No	13	14.8	72	90.0			
Frequency of eating							

Once a day	36	40.9	10	12.5	0.14	3.00	0.011
Twice	32	36.4	20	25.0			
Thrice	20	22.7	50	62.5			
Having stress							
Yes	66	75.0	23	28.8	1.49	2.00	0.000
No	22	25.0	57	71.2			

Source: Field data (2022)

The Table 4.6 indicates the relationship between the relationship life style of patients with gastritis and associated factors among patient attending Kibogora District Hospital in Nyamasheke district. The study found that there was a statistical significant relationship between taking alcohol, the frequency of eating and having stress where the study shows the P-values of 0.001, 0.011 and 0.000 respectively. This implies that taking alcohol, having stress and ineffective way of eating or taking food need to be prevented to avoid the level gastritis among patients attending Kibogora District Hospital in Nyamasheke district.

4.1.3 Discussion of Findings

Basing on the prevalence of gastritis among patients attending Kibogora District Hospital, it was found that the number of confirmed cases is still high which can also affect the community living standard. This found from the data recorded by the Hospital about the confirmed cases of having gastritis counted from 2018 to 2021. According to Ahmad, Ali and (Musa 2018), people with lower class level are highly associated with gastritis. (Kimanga et al. 2015) also added that a high prevalence level of gastritis could be associated with lower socioeconomic status, unclean water, overcrowding and taking cigarette smoking which also significantly considered being one the risk factors related to gastritis.

Basing on the factors associated with having gastritis among patients attending Kibogora district Hospital, it is clear that the most factors that can lead to having gastritis are level of education and social classes where the socio-economic status of people and knowledge level could significantly lead to having gastritis. (Allaker, *et al.*, 2016) established that the major risk factor associated to gastritis acquisition is lower level of economic status as it take easily to the spread of gastritis at large group of people without protection by the oral to oral or by fecal to oral routes. According to(Forman et al. 2018), lower level of socioeconomic status is highly noted to the risk factor H. pylori infection due to the fact that it enhances poor environmental sanitation, crowding situation and fecal contamination of water source as for domestic use.

Regarding to the relationship between life style and having gastritis, it was noted that the frequency of eating, having stress and taking alcohol among patient bring a significant relationship and indicated by the obtained findings. Alcohol is one the most popular psychoactive substances in the world and it can have a powerful effects on the consumer's mood and mental state (Binge, 2018). According to (Sagawa 2018), taking alcohol can lead to liver disease and other severe and chronic diseases. (Sagawa 2018) also added that alcohol may trigger emotional or past traumatic experiences and increases depression and anxiety.

(Ogihara, *et al.*, 2017) conducted the study to examine the relationship between alcohol consumption and having gastritis in Germany and the researchers indicated that there is an inverse association between alcohol consumption and gastritis disease.

4.2 SUMMARY OF FINDINGS

4.2.1 Prevalence of gastritis among patients attending

Basing on the first specific objective, the study found that majority of patients was in 2018 where the confirmed case of patients having gastritis was 9,440 corresponding with 3.2% of the total patients. The study also found that in 2019, the confirmed case of patients having gastritis were 1,118patients corresponding with 2.6%. Despite, the number of patients attending Kibogora district Hospital that were confirmed, the number of confirmed cases is still high which can also affect the community living standard. This also shows that there is a need to find out the mitigation measures associated with preventing gastritis.

4.2.2 Factors associated with gastritis among patients

Basing on the second specific objective, the study found that among of the factors associated with gastritis, social class, educational background where considered to be significant. This was proven by the proportion of gastritis among patients was significantly more among first social class (92.0%) than third social class category (35.3%) with the p value of $0.002 < 0.05$ as the level of significant that confirmed to have gastritis and indicated to be most significant among the tested variables.

4.2.3 Relationship between the life style of patients with gastritis and associated factors among patients

Basing on the third specific objective, the analysis done based on relationship life style of patients with gastritis and associated factors among patient attending Kibogora District Hospital in Nyamasheke district. The study found that alcoholism, frequency of eating and

having stress were considered to be one of the life styles of patients with gastritis and associated factors among patient attending Kibogora District Hospital in Nyamasheke district. The study found that there was a statistical significant relationship between taking alcohol, the frequency of eating and having stress where the study shows the P-values of 0.001, 0.011 and 0.000 respectively.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.0 Introduction

This section of this study covers conclusion and recommendations as well as suggestions for further studies. The conclusion of the study is also established regarding to the research questions highlighted due to the specific study objectives.

5.1 Conclusions

This study was guided by the general objective which was to assess the prevalence and factors associated with gastritis at Kibogora District Hospital in Rwanda. The effective prevention of the factors associated with gastritis could significantly reduce the prevalence rate in community. However, the malpractices associated with such prevention could negatively affect the life style of patients as well as increasing the prevalence rate.

5.2 Recommendation

The recommendations of the study were addressed to the Ministry of Health, health care providers and Kibogora District Hospital.

1. Researcher recommends to the Ministry of Health to continuously work with Ministry of Public Service and Labour to ensure that people in community have sufficient knowledge that help them to prevent various diseases including gastritis.
2. Researcher recommends to the health care providers to be close with patients having various diseases to give them advice that could help them to prevent various diseases in that can affect their living standard.

5.3 Suggestion for Further Study

The current study refers to assessment of prevalence and factors associated with gastritis among patients attending kibogora district hospital in Rwanda. The study suggests that the further study can conduct the study related with the prevalence and risk factors for helicobacter pylori in gastroduodenal diseases in Rwanda.

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APPENDICES

APPENDIX 1: Consent form

Dear Respondents,

We, Nshuti Monique and Nyinawumuntu Consilie, students of Kibogora Polytechnique. we are conducting a research study titled “**Assessment factors associated with gastritis among patients attending Kibogora district Hospital in Rwanda**”.

You are one of the selected participants to provide the necessary information by answering the indicated questions. Therefore, your voluntary participation is requested. The provided responses will be managed confidentially and complete anonymity is guaranteed. There are no direct or indirect risks to you. If you have any questions, feel free and contact us.

we would be most grateful if you kindly accept to fulfill this questionnaire.

Thanks

Nshuti Monique and

Nyinawumuntu Consilie

APPENDIX 2: QUESTIONNAIRE FOR PATIENTS WITH GASTRITIS

A questionnaire to collect information from respondents of the study

By assessing prevalence and the factors associated with gastritis among patients attending Kibogora district Hospital in Rwanda.

Tick in the box provided to meet the statement and level of occurrence

Section I. Demographique data

1. Indicate your age group

Age group	Tick appropriately
15years and below	
16-40years	
41years and above	

2. indicate your gender: Male [], Female []

3. Where your residence are located

Urban	Sub urban	Rural

Section II. Socio economic factors

1. Indicate your highest level of education (tick appropriately)

None	Nursery	Primary	Secondary	University

2. What is your care?

Employed	Self employed	No any

3. What is your ubudehe category?

1	2	3

4. Are you alcohol consumer?

Yes		No	
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4. Do you have a stress?

Yes		No	

6. How often do you get what to eat?

Never	Sometime	Always

7. Has any one of your family members been treated for gastritis

Yes		No	
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8. Do you use regular pain relievers?

Yes		No	
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9. Where do you get water for home usage and drinking?

Tap	Bore hole	River	lake

IBIBAZO BIZABAZWA ABARWAYI BATORANYIJWE

Urajya wifashisha inyuguti ya V ugaragaza igisubizo nyacyo wahisemo

1. Garagaza icyiciro cy' imyaka yawe

Ikiciro cy'imyaka	Subiriza hano
Guhera kumyaka 15 gusubiza hasi	
Hagati yimyaka 16-40	
Guhera kuri 41kuzamura	

2. Garagaza igitsina. Gabo [], gabo[]

3. Utuye hehe?

Mu mugi	Mu cyaro

4. Garagaza icyiciro cy'amashuli wize

Ntabwo wize	Amashuli y'inshuke	Amashuli abanza	Amashuli yisumbuye	Kaminuza
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5. Ubwoko bw'umurimo ukora

ndakoreshwa	ndikorera	Ntakazi ngira

6. uri mukiciro cyakangahe cy'ubudehe?

1	2	3

7. unnywa inzoga (ibisindisha)?

Yego		Oya	
------	--	-----	--

8. wumva wiyumvamo umuhangayiko udashira (stress)?

Yego		Oya	

9. ese ku muni urya kangaha?

Nta narimwe	Inshuro 2 ku muni	Inshuro eshatu cg nkazirenta

10. Ese unnywa itabi?

yego		Hoya	
------	--	------	--

11. ese ukunda gukorsha kenshi imiti igabanya ububabare?

Yego		hoya	
------	--	------	--

12. ese amazi mukoresha mu rugo ndetse nayo kunnywa muyakura he?

Robine	Ku mireko	Mu migezi itamba	Mu kiyaga