FACULTY OF HEALTH SCIENCES

DEPARTMENT OF GENERAL NURSING

ASSESSMENT OF FACTORS CONTRIBUTING TO MALNUTRITION AMONG CHILDREN UNDER FIVE YEARS OLD AT KIBOGORA HEALTH CENTER

Undergraduate thesis presented in partial fulfillment of the requirements for the Bachelor's Degree with honor in A0 in General Nursing at Kibogora Polytechnic.

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DECLARATION

We do hereby declare that this is our own original work and not a duplication of any similar academic work. It has therefore not been previously or concurrently submitted for any other Degree, Diploma or other Qualification to Kibogora Polytechnic or any other Institution. All materials cited in this paper which are not my own have been duly acknowledged.

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DECLARATION BY THE SUPERVISOR

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

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ABSTRACT

BACKGROUND: Malnutrition is one of the most common cause of both morbidity and mortality rate which increases in among I children under five years old throughout the world(Augiani et al,2015). Malnutrition can occur as result of consumption of dietary nutrients either insufficient or exclusively (Habyarimana et al,(2016). In addition, Mohsen et al (2019) define it as deficiencies, excesses, or imbalances in person's intake of energy or nutrients.

OBJECTIVES : To Assessing Factors contributing Malnutrition among children under five years old at Kibogora health center. they are three research questions: 1. what are factors contributing to malnutrition of children under five years old attending Kibogora health center?, 2. what are knowledge levels of mothers to wards malnutrition of children under 5 years attending Kibogora health center? And what are Pathological diseases that contributing to malnutrition of children under five years attending Kibogora health center.

This study involved mother with children under five year are treated and diagnosed of malnutrition.

METHODS: This study used A quantitative Descriptive cross sectional study, was used as well as non-probability sampling convenience method. Among parents whose children had diagnosed and treated malnutrition at Kibogora health center from ……

Different Data were collected through the use of questionnaires. Parents were asked different factors contributing to malnutrition among children under five years. The total number of respondents who returned questionnaires in this study were 60 mothers/fathers.

  RESULT: Data analysis were analyzed by using statistical tool for data analysis (SPSS20). The findings showed that 60 patients are participated 56.7% are females 43.3% are males and most patients were in age between 1 and 2 years are 65% according the findings knowledge level of mothers showed that mothers have high level are greater than poor knowledge 75%, 25% respectively.

CONCLUSION: The findings of this current study have shown that poverty, feeding difficult, lower level of mother's education, lower birth weight, and gender, age of children, poor sanitation, and number of living

People to family and infection diseases, lower level knowledge were most causes of undernutrition as among the three groups of malnutrition. Based on the results from the study,

Kibogora health center to help mothers how can prepare balance diet encourage people to attend school.

RECOMMENDATIONS: Based on the results from the study, we have encouraged people to have waste disposal. To avoid infectious transmitted by insect like houseflies from wastes to food. And practice exclusive breastfeeding and enhance complementary feeding after six months. The future researcher will use other study approach and design.

DEDICATION

We, researchers, dedicate this work to Almighty God for guiding us throughout our study. We also dedicate this work to our families for guidance, support and love. Our teachers for their knowledge given to us and friends for advices.

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LIST OF ABREVIATIONS AND ACRONYMS

MOH: Ministry of health

BMC: Biomedical Center.

BMI: Body Mass Index.

CBHPP: Community-Based Health Promotion Program.

DHS: Demographic and Health Survey.

DRC: Democratic Republic of Congo.

HIV: Human Immuno-Deficiency Virus.

IMCI: Integrated Management of Childhood Illness.

KP: Kibogora Polytechnic

LBW: Low Birth Weight.

MRRH: Mubende Regional Referral Hospital

NISR: National Institute of Statistic of Rwanda.

RDHS: Rwanda Demographic and Health survey.

SSA: Sub-Saharan Africa.

UNAIDS: United Nations Program on HIV/AIDS.

UNICEF: United Nations Children's Education Fund.

USA: United States of America.

WHA: World Health Assembly.

WHO: *World Health Organization.*

CHAPTER ONE: GENERAL INTRODUCTION

1.0 Introduction

This Chapter will cover the background of the study, problem statement, and justification of the study, significance of the study, the aim of the study, research objectives, and the structure of research and also scope and limitation of the study will also be emphasized on in this chapter.

1.1 Background of the study

Worldwide , Malnutrition continues to be a major public health problem and it increases global health burden which affects physical growth, morbidity, mortality, cognitive development, reproduction, and physical work capacity (Habimana & Biracyaza, 2019).

condition of malnutrition is still a widespread threatened condition around the world(Najwa Zakaria et al., 2019)Furthermore, malnutrition is due to disease, poverty, hunger, war, and natural catastrophe again it is a fate suffered by greater than 1 billion of the world's population. Historically, starvation and famine were prevalent causes of malnutrition (Fang & Cao, 2019).

A study done by Mohsen in Iran in 2019 on factors contributing to malnutrition showed that more than 238 million of children around the world were suffered from malnutrition every year, among these approximately 149 million children under 5 years suffered from stunting, over 49 million children under 5 wasted and nearly 17 million severely wasted (Mohseni et al., 2019).

A study conducted in Africa had ruled out that factors contributing to malnutrition as poverty and ignorance, both are accompanied with the main elements which are Scarcity of food, in terms of both quantity and quality, Inadequate health services, poor water sanitation, and poor feeding practices. Gonzalez-Torres et al., 2018.

A study conducted In Sub-Saharan Africa, progress of fighting hunger over the years is still problem. This region still holds the highest prevalence of undernourishment for any region, having the number of undernourished people even increased from 44 million in 1990 to 92 million in 2016 (Mawa & Lawoko, 2018). Despite extensive global economic growth in recent decades, including in some of the poorest countries in Africa, millions of people remain locked in a vicious cycle of hunger and poverty which means parents cannot feed their

families with enough nutritious food, living children malnourished again malnutrition leads to irreversibly stunted development and shorter, less productive lives (Kishoyian et al., 2017).

A study conducted in Eastern region of Africa especially in Tanzania by Chirande et al., (2015) revealed that the main factors contributing to malnutrition were age of the child, child's sex, maternal level of education, child's length of birth, mother's age at child's birth, place of delivery, maternal consultation, breastfeeding state, household wealth index. Moreover, in Democratic Republic of Congo (DRC), infections, sub optimal feeding practices, and environmental factors including maternal nutritional status, accessibility to safe water, hygiene and sanitation were found to contribute to stunting (Kismul et al., 2018).

A Study conducted in Uganda by DOUGLAS Mugarura have shown that in 2016 had high prevalence number at least 3 in 10 children under 5 years was stunted but western Uganda has high prevalence rate at 34.8% compare to other region the high levels of malnutrition 89% of Uganda are caused by food insecurity and ignorance about balanced diet.

A study conducted in Rwanda didn't contradict with other study , malnutrition is still a problem in rural areas of country, Referring to Rwanda national statistics done from 2015 to 2018, stunting prevalence rate have significantly decreased from 24.8 percent in 2015 to 12.9 percent in 2018 in the City of Kigali but remains serious and the highest in the Western Province at 44 percent (Health, 2020). Whereas A cross sectional study done about risk factors associated with malnutrition in Western and Eastern province showed that there is high prevalence of stunting in Eastern compared to Western province. In Nyamasheke district is considered as the most-affected district in western province by malnutrition and is followed by Karongi district (Habimana & Biracyaza, 2019).

According to MOH and NISR reported that in Nyamasheke District had 35% of children who have malnutrition and the main cause was poverty, parent's poor education and insufficient land for foaming (WFP, 2016). Also at Kibogora health center malnutrition is there and they manage it by giving child Shisha Kibondo, RUTF, and Inyange's milk, but still now there is children under five years struggling due to malnutrition.

1.2 Problem statement of study

Worldwide, food insufficient in quantity and quality is responsible of 800 million of hunger and more than 2 billion suffer from micronutrient deficiency globally in 2013. The 149 million of children under five are stunted in 2018. The period of 1000 first days was identified as an opportunity window to build good health of children. The period of 6 to 23 months is very critical because of shift to ordinary food of children who breastfeed from birth until 6months without mix with anything .The preparation of foods require serious measures of hand hygiene to avoid food contamination, This period is characterized by the increases of foods intake and many children under five years of age fail to satisfy the needs.

 A study conducted in western Africa In 2018, the number of children with malnutrition reduce but the burden remains a barrier for developing countries. The nutrition problem due to food insecurity is frequent in Africa and south Asia. The fulfillment of MAD for children and young infant age of 6 to 23 months is less than 25 %.

In West Africa region, the prevalence of MAD was between 11% and 29%, the one over 3 cases of death due to undernutrition can be prevented if adequate feeding is apply to all children. The adequate intake of food for children is very important as it provides energy, promotes growth and maintains life of infant and young children. The mothers or care givers feed children not appropriate diet which lack essential nutrients. The inadequate feeding practice is associated with social beliefs and culture even the children from educated and high wealth index of family.

 WHO set strategies need to increase awareness for infants and children feeding practice. Better nutrition improve child health and reduce the risk of illness death at early childhood. But the introduction of soft foods to breast milk cover the nutritional needs and accelerate growth of child.

In Rwanda malnutrition under five years children is still problems in Study conducted by BIGIRIMANA Jean Bosc showed in 2021 malnutrition is one of main challenges in high child mortality and morbidity thought out the world especially in many developing countries including Rwanda prevalence rate is 38% of children under 5 years in Rwanda (bigirimana, 2021).

Due to a lot of observation in clinical placement done at Kibogora health center in 2019 and 2020, we had observed that they admitted high number of malnourished children with in under five years old who diagnosed and treated for malnutrition, And by referring to secondary data observation from Kibogora health center documents from 2017 to 2018 showed that there is high rate of stunted and wasting children account 9.4% in 2017 and 8.67% in 2018. From these statistics we have been encouraged to conduct our study at Kibogora health center because there is no other study being conducted before in assessment of factors contributing to malnutrition among under five years old children from 2019 to May, 2022 and published. Therefore, there is a need to conduct this study to assess those factors and assessing if this problem of malnutrition is still a big challenge to this sector and also to Nyamasheke district.

1.3 Purpose of study

The purpose of this study is to assess the factors contributing to malnutrition among children under five years old at Kibogora health center.

1.4 Specific objectives

1. To identify factors contributing to malnutrition of children under five years attending Kibogora Health Center

2. To identify knowledge level of mothers towards malnutrition among children of under five years attending Kibogora Health Center

3. To enumerate pathological diseases contributing to malnutrition of children under five years attending Kibogora Health Center

1.5 Research questions

1. What are the factors contributing to malnutrition of children under five years attending Kibogora Health Center?

2. What are knowledge levels of mothers towards malnutrition among children of under five years attending Kibogora Health Center?

3. What are pathological diseases that contributing to malnutrition of children under five years attending Kibogora Health Center?

1.6 Significance of study

Assessing factors contributing to malnutrition among children under five years old. Will help to take some measures of reducing prevalence of malnutrition in population after understanding well the causes of malnutrition. It will also help in reduction of mortality and morbidity rate of children who died due to malnutrition. After getting the result of my study, community health workers will be encouraged to increase the effort in providing health education to different families, and community about condition of malnutrition and how to prevent it .this education not only consider on those above stated factors but also will balanced diet preparation as the way of preventing malnutrition. This study will be serving as source of information for future research in the same fields.

1.7 Limitation of Study

There is limitation that we have met, is conducted this research with clinical setting was big challenge to combine with clinical, Another limitation to the study, as students it is financial related issues because it requires some budget.

1.8 Scope of Study

This study was evaluated the factors contributing to malnutrition among children under five years and will be conduct in Rwanda, western providence, Nyamasheke district, Kanjongo sector, Kibogora cell, Nyagacaca   village, and we will finish this thesis in July 2022 with collection and final submission   within expected time in frame work, This study will use cross sectional and was limit to the determination of factors contributing to malnutrition of children are under 5 years

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter will describe the key term with appropriates definition, related to, literature relating to all objectives and any other relevant literature to support this study will be mentioned.

This chapter reviews literature related to factors contributing to malnutrition among under five years old children, this chapter is divided in two main parts namely theoretical and empirical literature review. In addition, it describes factors contributing to malnutrition among under five years old children globally. Simply it comprises introduction to malnutrition, causes and risk factors contributing to malnutrition including family and households, demographic factors, feeding practices socioeconomic, and environmental then pathological diseases. (Fang & Cao, 2019)

2.1 Definitions of key concept/ terms

A Child: Refers to someone who is not adult or a human being between the stages of birth and puberty . According to the study child refer to some whose stages of birth is between 0- 60 months. (USAID, 2019).

Malnutrition : is a consequence of consumption of dietary nutrient either insufficiently or exclusively by especially children (ETIM, 2017)

Nutrition: Nutrition is the intake of food, considered in relation to the body's dietary needs. it is also nourishment or energy that is obtained from food consumed by people or from process of consuming the proper amount of nourishment and Energy From the study nutrition is defined us consumption of food. (Health, 2020).

2.2. Factors that contributing to malnutrition among children of under five years

2.2.1. Extreme poverty

Defined by the United Nations (1995) as a daily income of less than 1USD/day per individual is associated with inability to afford sufficient food. Although poverty and extreme poverty often go hand in hand with other socio-economic factors of malnutrition such as poor hygiene, its role has been emphasized by some researchers.

A study conducted in Nigeria 2015 on Prevalence and Determinants of Malnutrition among Under-five Children of Farming Households has shown that children from households with the higher incomes had less prevalence of stunting (23.6%) and severe stunting (6.3%) compared to those from households with less incomes (21.4%) and 0.0% respectively.

2.2.2. Insufficient cultivation land

Is Demographic factors including population growth and leading to progressive reduction of agriculture land and deforestation play a role in food insecurity and prevalence of malnutrition (Goudet et al., 2011). According to one experimental study done in Guatemala,2012 distribution of agriculture land to a group of families with children suffering from malnutrition reduced significantly the prevalence of child malnutrition over the following years compared with those who did not receive it (control group)

Before the study, 37 percent of children aged less than 38 months had moderate malnutrition, with 7 % severely malnourished, and then the researchers distributed agriculture land to one group. After 20 months, prevalence of malnutrition prevalence reduced significantly among children belonging in the same age category. 19 % had moderate malnutrition, and 5 % had severe malnutrition. For the control group (children of families who did not receive land and remained in initial settlements demonstrated even worse malnutrition prevalence (Agulnik, 2011).

2.2.3. Food trade issues

Inadequate distribution of food within and between communities are also caused by poor transport infrastructures and food trading policies all contributing to inaccessibility of food (Cannella and Costa, 2005).

The association of household rice expenditure (as the most common food in the area) with child nutritional status, there were no significant changes between rice consumption of households between periods when prices were highest and lowest.

2.2.4 Environment

Climate changes, nature of soil and degree of soil care influence food production and food safety through various mechanisms ranging from direct impact on plants production such as insufficient rainfall causing droughts or excessive rainfall causing floods, abnormally hot or cold weather temperatures causing changes in growth of plants to disruption in food commerce (United states agriculture department, 2001)

Children from households with improved environment including water, sanitation and cooking fuel were less prone to develop malnutrition while the regions with less rainfalls of the country had the most malnourished children (Pongou, Ezzati and Salomon, 2006).

2.2.5. Political issues

In sub-Saharan Africa, recurrent wars and other political instabilities lead to displacements of population, reduced productivity, hunger and enhanced susceptibility to diseases (Satterthwaite, 2014). Corruption, inadequate use of public funds are other political factors that may aggravate poverty and hunger analyzed nutritional status of children in Andhra Pradesh region of India during the period of conflicts and again after the war was ended (Luchuo, Paschal et al., 2013) (Tranchant, Justino and Müller, 2014)

2.2.6. Gender inequality

Gender disparities in some societies of Africa and Asia where agriculture livestock activities directly related with food production is reserved for females may play a big role in inadequate food production and food insecurity (Yetunde, 2008) while gend based violence between male and female parents have also been associated with poor child care (Scaglioni, Salvioni and Galimberti, 2008). Gender discrimination has also been discussed as a possible factor in societies where male children are more valued and fed better than females or are prioritized for feeding either breastfeeding of complementary feeding especially when the families think there are no enough quantities for both (Angadi and Jawaregowda, 2015). Disadvantages in breastfeeding and child food distribution and their impact on higher mortality of female children has shown that girls consumed less fresh milk, less breast milk and their breastfeeding was

withdrawn months earlier than males (Choudhury et al., 2000). The that female children had more probability of developing severe malnutrition than boys (Fledderjohann et al., 2014)

2.2.7. Cultural beliefs

Culture may have important implications in selection of foods, their preparation and feeding. Restriction of some foods in communities may reduce food choices (Alonso, 2015). The effects of cultural beliefs and forbidden food on nutritional status of children found that food restrictions and prohibition were strongly involved in under nutrition of children with mainly those living in the rural regions (Onyesom et al., 2008). In fact choices of foods are guided by what is available, and what is preferred or forbidden by the family's culture. When it comes to giving children balanced diet , beliefs that some foods or others are banned in the culture or harmful to children , especially those of animal origin like fish, poultry or eggs as well as vegetables and fruits (Kruger and Gericke, 2003; Onyesom et al., 2008),

It is important to mention though that acquisition of knowledge in parents throughout their life experiences improves food selection through better understanding of good nutrition 9 concept rather than being guided by just cultural views. Researchers have identified many controversial practices Vis child feeding some of which starting right at birth. The same author has identified an example of such practice in Ethiopia and Kenya whereby before administering breast milk to a newborn or child, parents first gave him/her some butter or warm water and sugar to humidify vocal cords. (Aboud, 2011).

In some urban settings newborns are fed with bottles of artificial milk instead of breastmilk for mothers to keep the shape of breasts, (Stevens, Patrick and Pickler, 2009) while in some rural societies, they give them cows' milk, in addition to breastmilk under pretext that "mothers do not have enough quantities of breastmilk to meet nutritional requirements of the baby who needs more to grow" which further contributes to reduction of breastmilk secretion since babies do not get opportunities to stimulate breastmilk production (Alice Ayawine, 2015) They are many taboos surrounding maternal and child nutrition in Africa.

In many societies they avoid such as Masai, Fulbe, Nuba milk is thought to represent a particularly wholesome food for children and think they do not need more food.

In mid-west Nigeria they do not feed children with meat and eggs, because parents believe it would make their children thieves while in some tribes of south Uganda, female children are exclusively fed with milk until they are 5 years old yet at this age breast milk is not sufficient to meet all nutritional requirements (Meyer-rochow, 2009). Likewise some Asian cultures believe that children should be breastfed exclusively until they develop teeth and it is when they can get complementary feeding (Alonso, 2015).

2.2.8. Religious beliefs

Some religious beliefs include restriction of foods and beverages. The restriction can be closed or wide depending on religion. Some religions for instance ban consumption of animal products including cows' milk, all forms of meat etc. When there are no adequate options to replace them, this may be a factor contributing to malnutrition.

A multi country study done by (Tan, Chan and Reidpath, 2013) on the impact of religious and spiritual beliefs on consumption of fruits, vegetables and fats revealed that there was a significant correlation between religious beliefs with fruit, vegetable, and fat consumption since some religions consumed much fruits and vegetables but less fats than others and this can affect nutritional status of children.

2.2.9. Family size

According to study done in Nigeria for identifying socioeconomic characteristics of farming households, larger households were likely to suffer food insecurity (Pongou, Ezzati and Salomon, 2006).

2.3. Knowledge of mothers about malnutrition among children of under five years

2.3.1 Care of pregnant mothers

Care of pregnant mothers including healthy nutrition has implications on nutrition status of children. According to one study done in Nigeria, has shown that children born from mothers who did 4 antenatal care visits were less likely to have malnutrition than those of mothers who didn't. In the same study it was seen that children born from mothers who rarely or never discussed with husband on pregnancy issues was more likely to get malnutrition compared to those of mothers who regularly discussed with their spouses (Hamel et al., 2015)

2.3.2. Maternal education

Higher maternal education improves ability of mothers to select, prepare and administer nutrition correctly to the child. In a study conducted in Tanzania, Malawi and Zambia revealed that children born from mothers who completed secondary school were less likely to get malnutrition and those who never attended school (Makoka, 2013)

2.3.3. Breastfeeding practices

Exclusive breastfeeding is recommended by to mothers during the first 6 months after birth. At that time, mothers are advised to start initiating complementary feeding since nutrition requirements of the older infants can no longer be met by just breastfeeding

In Rwanda, only 93.5% of mothers respected exclusive breastfeeding during the first 6 months of life (National Institute of Statistics of Rwanda, 2014). Many societies have various cultures vis–a-vis breast feeding and children feeding that can compromise good child nutrition. (Kimani-Murage et al., 2011). Researchers have seen some cultural practices whereby mother's restricted breastfeeding infants only during the night and giving fluids in addition to breastmilk during the first six months of life even right after birth under pretext that there is no enough breastmilk (Goudet et al., 2011).

2.3.4. Weaning practices

The weaning period is a critical time when the child should be strictly cared for and closely observed in order to maintain health .Mothers are advised to wean children gradually between the 6th month to 2nd year of life. This enables children to continue enjoying advantages of breastfeeding, while also eating the required nutrients from the complementary diets (Amini et al., 2013). With inadequate practices of weaning as well as a child's poor appetite and vulnerability to diseases malnutrition occur (Kruger and Gericke, 2003).

In a study done in Tanzania to identify factors contributing to malnutrition among children aged less than 2 years, it was seen that 62% of children had been withdrawn from breastfeeding earlier than 2 years of age. The same study said that there had been abrupt drop of growth curves in those children right after cessation of breastfeeding (TA Ogunlesi, VA Ayeni, AF Adekanmbi, 2014)

2.3.5 Sign of malnutrition

Malnutrition affect the children who are under five years due to immature immune system those include Lack of energy/weakness: cannot work, study or play as normal (disability) , they did not cooperate with others and they did not receive adequate balanced diet as reason why they lack energy .

Weakness of the immune system (becomes ill easily or becomes seriously ill) as you know balanced diet , consuming vegetables and fruit play important roles in immune system development , if the child didn't consume balanced diet there isn't any booster of immune system reason why almost the child who doesn't eat well get malnutrition Loss of weight/thinness Children do not grow as they should (growth faltering). (Nützenadel, 2011)

2.3.6 Causes malnutrition

The major causes of high levels of malnutrition includes severe food deficits, childhood diseases, poor hygiene, lack of access to water, low agricultural productivity and scarcity of land, resource shortages resulting to inadequate health care services, and lack of popular education or sensitization programs as indicated in the report of Common Country Assessment – Rwanda (1999-2000).

Malnutrition is directly linked to inadequate food intake and to infectious diseases as immediate causes and the underlying causes are 13 household food insecurity (Food availability, food accessibility, national food distribution and household food distribution); inappropriate care for children and women (inadequate feeding practices, inadequate primary healthcare) and inadequate access to clean water and hygienic facilities. Underlying the root causes of malnutrition are economic imbalances and weaknesses, inadequate institutional support to nutrition interventions, adverse climate changes, lack of arable land, ownership and control over family resources and, low literacy rates particularly among women. (steve miller et al , 2019)

2.3.7 Consequence of malnutrition

Malnutrition affects all development sectors and has high social and economic costs such as increased mortality and morbidity, loss of human potential, decrease in skills and qualifications, lower productivity, and higher poverty. Malnutrition leads to stunting and reduces physical work capacities. Malnutrition particularly affects women, who form the majority of the agricultural workforce, thus leading to decreased productivity. (Namusoke & Atuhaire, 2019).

2.4. Pathological diseases that contribute to malnutrition among children under five year

2.4.1. Diseases

Diseases affect child nutrition through a series of mechanisms from malabsorption of ingested food to excessive loss of nutrients by the body and excessive calorie expenditures.(Stephan U Goebel, Francisco Talavera, 2016)

2.4.2. Malabsorption

The term "malabsorption" refers to errors occurring in digestion and absorption of nutrients from ingested food. It can be traced from both congenital and acquired abnormalities and conditions. (Stephan U Goebel, Francisco Talavera, 2016)

According to the same authors, congenital abnormalities that are associated with malabsorption are those which involve deficiencies of digestive enzymes and anatomical defects of the digestive track. Acquired disorders include various infectious and non-infectious diseases of the Gastro intestinal tract. Bacterial growth, Giardia are examples of infectious while noninfectious etiologies include Crohn diseases, lymphomas etc (Fan and Sellin, 2009). investigated the role of malabsorption as a cause severe malnutrition of children. He found out that 2% of children had other underlying conditions including pancreatic disorders causing malabsorption and failure to thrive. (Nützenadel, 2011)

2.4.3 Intestinal parasites

The number of parasitic infestations which are common in tropical regions have been found to be associated with child malnutrition through deprivation of child from nutrients. Ascaris Lumbriocoides, Trichirus Trichiura, Hookworm infestations, the relatively common helminthes all consume nutrients from the child's digestive tract (Feleke, 2016). One study investigated the prevalence of intestinal parasitic infestation among children with severe acute malnutrition. The results showed that 20% of children had 1 or more intestinal parasites

. The most common were Ascaris lumbriocoides (8%), hookworms (4%) and Entamoeba coli (8%). (Kesetyaningsih et al., 2015)

2.4.4. Chronic diseases

Chronic diseases especially febrile conditions, HIV can cause excessive calorie expenditures which can lead to malnutrition status especially if the losses are not recovered. Unfortunately many of these conditions also cause a decrease in appetite and therefore make it difficult to make adequate calorie replacements causing a negative balance (Correia et al., 2016) noted high rates of malnutrition among long term care patients. Up to 15% of all patients with chronic conditions were affected. Among outpatients visiting for chronic care, 25% were undernourished versus 355%–65% among hospitalized patients receiving long-term care. Since the study was done in the United States which is a rich country, we would expect it to be even worse in our low income setting(Fan and Sellin, 2009)

2.5 CONCEPTUAL FRAME WORK

Figure 1: conceptual frame work

(Namusoke & Atuhaire, 2019)

Independent variables

Factors associated with malnutrition

- Marriage status of parent mothers

- Education level of mothers

- Age of children

- Occupation of parents

- Land and livestock ownership of the family

- Family size

Dependent variables

Factors contributing to malnutrition among children under five years

Intervening Factors

- Government policy on nutrition

- Nutrition Guidelines

- Government strategies to fight malnutrition

CHAPTER THREE: RESEARCH METHODOLOGY

3.0. Introduction

The chapter three described   study area, design, size, sampling technique, data collection, management and analysis are we are going to explain. As well as ethical consideration for this study are detailed.

3.1. Research Approaches and Study Design

3.1.1. Study Design

The study design is expected to outline the critical approaches that the researcher intends to apply to answer the research question at hand (Polit & Beck, 2017). A cross–sectional descriptive design, as described by LoBiondo –wood &Haber (2006) will be used in this study. A cross sectional study refers to data collection by surveying many subjects at the same point of time, or without regard to differences in time.

3.1.2. Study Approach

Study approach   is plan and procedure that consists of the steps of broad assumptions to detailed methods collections , analysis and interpretation. (chetty, 2016).A quantitative approach was used in the study because it uses statistical analysis for data collected through questionnaires administered to the respondents.

3.2. Target population

Target population refers to a group of individuals taken from the general population who shared a common characteristic, such as age, sex, or health condition. The target population refers to the

entire group of individuals to which researchers are interested in generalizing the conclusions (Kishoyian et al., 2017).

 On this study target population All children under 5 years will be attending at Kibogora health center within the specified time for data collection will be included in the study at Kibogora health center' nutrition services who met inclusion criteria and 70 parent's mothers will be targeted from secondary data collected in data base about malnourished children who diagnosed and treated about malnutrition during period of 2019 up to may, 2022

3.3. Sampling Procedure

The research was used convenient sampling (Haphazard sampling or accidental sampling) method; it is a type of nonprobability or non-random sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time or the willingness to participate are included for the purpose of the study (Etikan *et al.*,2017).

3.4. Sample Size

Sample size is account of individual samples or observations in statistical setting like scientific experiment or public opinion survey (Augiani et al., 2015).In quantitative research it is recommended that the sample size calculation should be at the stage of study designing. According to Yamane, when the original sample collected is more than 5% of the population size the sample size is determined as follow; $n= N/ \{1+N (e) 2\}$ whereby n is the sample, N the Target population, and e is a constant equal to 0.05 (Tarleton State University, 2013). By applying this formula, $n= 70/\{1+70 (0.05)2\}$ the study sample is approximately 60 parent mothers whose children aged under five years old had diagnosed and treated malnutrition from 2019 up to may,2022.

3.5. Data collection tolls And Procedures

The process of data collection will be start by obtaining permission from Institutional Review Board of ethical committee of Kibogora Polytechnic

The participants who will be identified we will give the consent forms to sign and we will tell them that no names we will be written on the questionnaire in order to ensure respondents anonymity. We were used a self-administered questionnaire to collect the data. Hence, participants we will give them research questionnaire and give enough time to read, understand, ask for some clarifications where it is not understandable, and answer to the questionnaires.

3.6 Inclusion Criteria

The study will involve all mothers whose children was 0-59 months old and was diagnosed and treated malnutrition during period from 2019 up to May, 2022 at Kibogora Health Center in nutrition services. In addition, also those who signed voluntarily the consent form of participation in this study.

3.7. Exclusion Criteria

All parent mothers who had refused to sign a consent form and these whose children doesn't been diagnosed and treated malnutrition from 2019 up to May, 2022. In addition, the parent mothers who had children within range of 0-59 months without malnutrition.

3.8 Ethical consideration

Before conducting our research project, we will have ethical clearance from the research ethical committee of Kibogora polytechnic and we will present it to Kibogora health center's administration. We will request a permission from Kibogora health center's administration to conduct the research in this institution. Prior involvement participants in this study we will explain to them about significances of the study before signing the consent forms for participation. Furthermore, participants we will ensure that no names would be provided on the Questionnaires to ensure their anonymity as well as motivating them to participate in the research study. Participants they will ensure that the information that would be provide and confidential will be use in this study only where a consent form allowing the researchers to conduct the research could also be sign voluntarily. Participants may withdrawal from the research study during data collection will be agree without further complication.

3.9. Data analysis

According to Shamoo and Resnik (2003) data analysis is process of systematically applying statistical or logical techniques to describe and illustrate, condense, recap , evaluate data.

Data entry and data analysis is completed in SPSS version 20. The description of the research results will be provide in terms of the frequency and the percentage of the dependent variable.

The mean of the median, and the standard deviation guide the researcher's conclusions about the dependent variable studied, and displays a table or number to represent the finding.

3.10 RELIABILITY AND VALIDITY MEASURE

3.10.1 Reliability

In quantitative research Reliability basically focuses on consistency and stability (Polit and Beck 2010).

3**.10.2 validity** Refers to how accurately a method measures what it is intended to measure (Jones & Rattray, 2010). A content validity test on the other hand, ensures that only asked questions are relevant and enough, thus covering all study areas being studied (Parahoo, 2006).

CHAPTER FOUR: DATA PRESENTETION, INTERPRETATION, ANALYSIS, AND SUMMARY

4.0 Introduction

This chapter describes data presentation, Interpretation Analysis and Summary

4.1 Presentation of Findings and Interpretation.

This point presents the data gathered in Kibogora Health center. It focuses on the socio-demographic characteristics of respondents, associated factors that contribute to malnutrition for the children of under five years old, mother's knowledge about malnutrition for the children of under five years old, and pathological diseases that contribute to malnutrition of children under five years

4.1.1 Sociodemographic data of participants

Table 1:Sociodemographic data of participants (n=60

Independent variables		frequency	%
Ages of the child	0-12 month	12	20.0
	12-24month	39	65.0
	24-59 month	9	15.0
Sex of child	Male	26	43.3
	Female	34	56.7
Marital status of mother	Single mother	3	50.0
	cohabiting	3	5.0

| | | Divorced | 7 | 33.3 |
| | | married | 7 | 11.7 |

Independent variables		frequency	%
Occupation Of mother	No occupation	24	40.0
	Agriculture activity	18	30.0
	Livestock	3	5.0
	Commercial	1	1.7
	Salaried employment	9	15.0
	Casual employment	3	5.0
	Self-employment	2	3.3
Education level of the mother	Higher education school	8	13.3
	Attended secondary	12	20.0

	school		
	Primary level	25	41.7
	No education	15	25.0

Table 4.1. 1 above shows that of children 65.0 % (N=60) were aged between 1 year and 2 years while those aged less than 1 year and more than 2 years were 20% and 15.0% respectively.

Most of the respondents' mothers their child was females 56.7% and followed by male occupies 43.3%, according to the marital status of respondents' mothers for the children of under five years old was single mothers 50%, followed by mothers who was done divorced with husband 33.3%, married was 11.7%, and the last was cohabiting 5.0%.

Majority of the respondents' parents the occupations was have greatly effect to contributions of malnutrition for the children of under five years old as evidence by this percentage where a huge numbers was respondents who have no occupation due to no really job 40%, and followed by 30.0 % who was done agriculture activity, followed by salaried employment at rate of 15%.

Attended secondary school was at 20%, and others who attends higher education at rate of 13.3%.

Educational level of mothers we have seen that this it can be the factors that can contribute to malnutrition as evidenced by most of the respondents was on primary levels 41.7, followed by respondents who doesn't attends school 25.0% .

Social demographics characteristics of the respondents (n=60)

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Figure 4.1.1 Ages of the Children of Respondents Mothers (N=60)
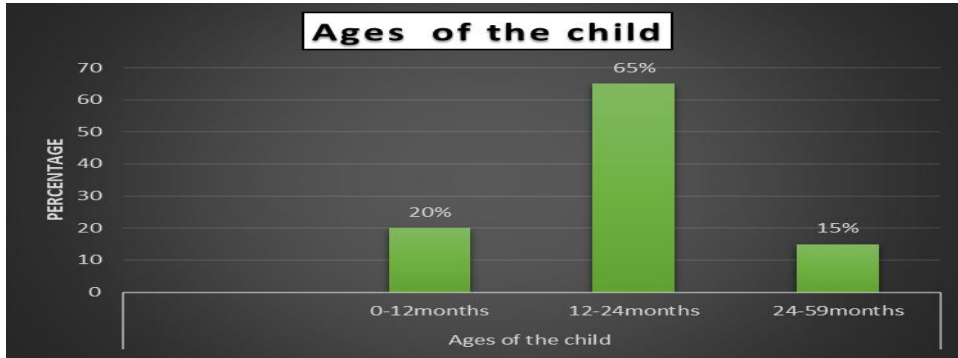
The figure 4.1.1above shows the ages of the respondent's mothers to their child 65.0 % (N=60) were aged between 1 year and 2 years while those aged less than 1 year and more than 2 years were 20% and 15.0% respectively

Figure 2:Sex of the Child Among Respondents (N=60)
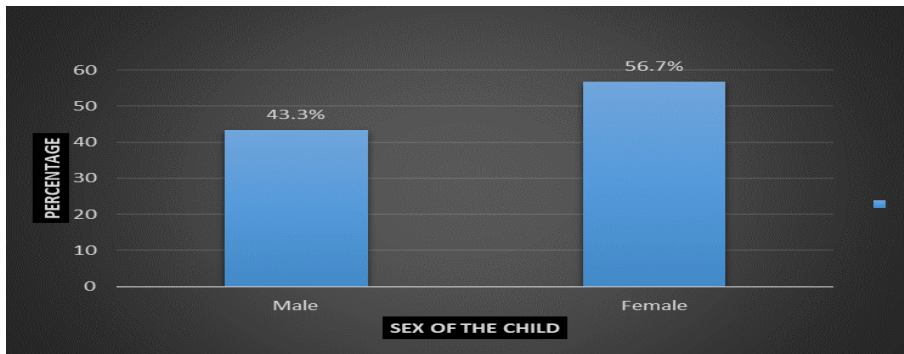
The figure 4.1.2. Above shows the ages of the respondent's mothers to their children Most of the respondents' mothers their child was females 56.7% and followed by male occupies 43.3%,

Figure 3:Marital Status of Mothers (N=60)
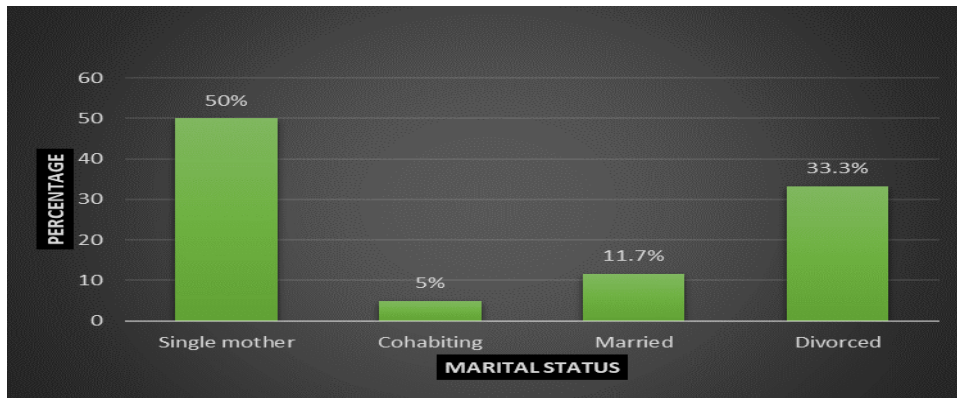
The figure 4.1.3. Above shows the marital status of the respondents (n=60) This figure shows that according to the marital status of respondents' mothers for the children of under five years old was single mothers 50%, followed by mothers who was done divorced with husband 33.3%, married was 11.7%, and the last was cohabiting 5.0%

Figure 4:Occupation of The Respondents (N=60)
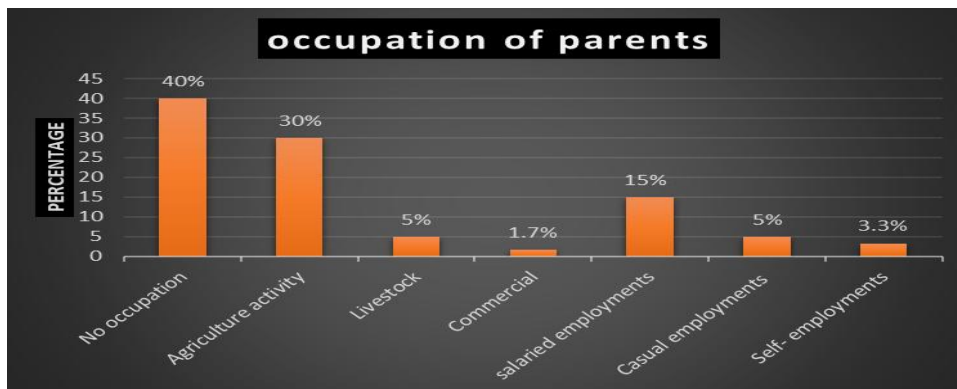
The figure 4.1.4 above shows the occupations of the parents participants (n=60)

Majority of the respondents' parents the occupations was have greatly effect to contributions of malnutrition for the children of under five years old as evidence by this percentage   where a huge numbers was respondents who have no occupation 40%, and followed by 30.0 % who was done agriculture activity , followed by salaried employment at rate of 15%

**Figure 5:Educational Levels of Mothers (N=60)**
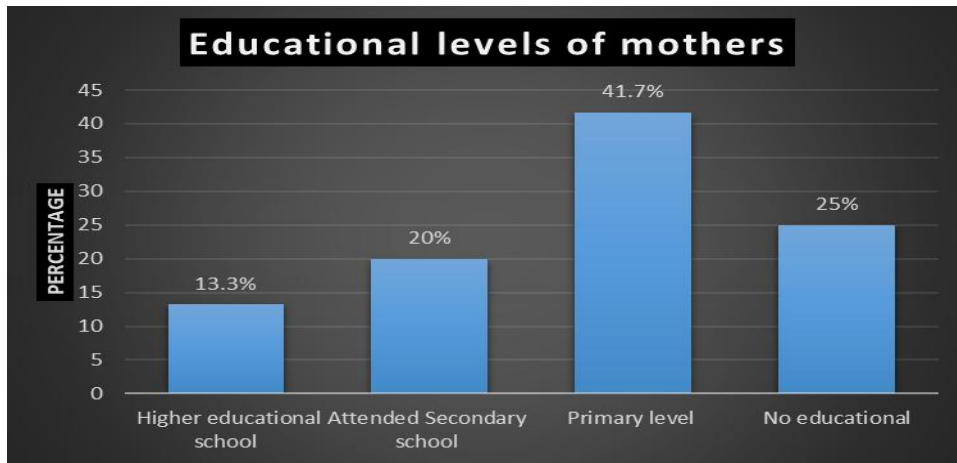
The figure above shows the educational levels of the respondents ,The majority of participants Attended secondary school was at 20%, and others who attends higher education at rate of 13.3%, 41.7% attended primary levels and were 25% was have no education

4.1.2 Factors that contributing to malnutrition among children of under five years old
Table 2: Factors that contributing to malnutrition among children of under five years old (n=60)

Factors contributing to malnutrition		Frequency	Percent
1. persons live in household	less than 4	5	8.3
	4-6 people	16	26.7
	6-8 people	21	35.0
	8-10 people	9	15.0
	more than 10	9	15.0
2.the main source of money in the family	Business	9	15.0
	Farming	22	36.7
	No Answer	29	48.3

3.Foodrestriction by faith or culture of the parents	Yes	2	3.3
	No	58	96.7
Food restricted	Meat	1	1.7
	Milk	11	1.7
	None	58	96.7
4.most common food menu of the family	Caloric food & vegetable protein	10	16.7
	Caloric food only	20	33.3
	Just what is available	30	50.0
5.How often does the child eat fruits or vegetables	1-3 times a week	20	33.3
	Never	40	66.7
7. How many meals of the child per day	2-3 times a day	15	25.0
	2-3 times a day	15	25.0
	1 per day	41	68.3
	often after one day	4	6.7
1.Hasthe household receive supplementary food through a food	Yes	10	16.7
	No	50	83.3

program during the last 6 months?			
2.If the child is on breastfeeding: how often do you breastfeed your child in 24 hours?	12 times or more	10	16.7
	8-12	20	33.3
	4-7	5	8.3
	Less than 4 times	5	8.3
	Weaned	20	33.3
3.At what age did you begin complementary feeding of the child?	4-6 months	29	48.3
	Not yet	31	51.7
What is the main livestock of family	Goats/sheeps	21	35.0
	Rabits/chickens	9	15.0
	None	30	50.0
4.what are the main crops grown by family	Beans	5	8.3
	Banana	21	35.0
	Soya bean	5	8.3
	Maize	20	33.3
	No answer	9	15.0

5.How do you rate the quantity of crop produced by the family?	Insufficient just for sale	5	8.3
	Just survival but enough for family consumption	10	16.7
	Insufficient for family consumption	20	33.3
	Just for sale	25	41.7

According to table 4.2 above show that 26.7% of children were from family of 4-6 people members, while those coming from families of less than 4 members whose 8.3% and those of 6-8 members or 8-10 people or more represented 35.0% ,15.0% and15.0% respectively.

Most participants the main source of money in the family are from Farming at rate of 36.7% followed by participant's mothers who does a business at rate of 15.0%, and participants who doesn't have any source of money at rate of 48.3%. The participant have the Food restriction by faith or culture of the parents at rate of 3.3% and the rest participants doesn't have the restricted food by culture or faith at rate of 96.7%, most restricted food was Milk and meat at the same intensity at rate of 1.7% . Most of the respondents' most common food menu of the family they feed   just what is available at rate of 50.0%.

 According to this table where most of the participants their child doesn't eat fruits or vegetables at 66.7% due to lack of source of income to their family, where other children eat fruit or vegetable 1-3 times a week was 33.3%, followed by child eat fruit or vegetables 2-3 times a day at rate of 25.0% respectively. Due to lack of source of income to the family among participants reduce the numbers of meals per day for their child where the most eat 1 per day at rate of

68.3%, and followed by the child eat 2-3 times a day at rate of 25%, and the least was the child eat after one day at 6.7%.

Majority of the respondents doesn't received supplementary food through a food program during the last 6 months at rate of 83.3% where the rest received it at percentage of 16.7% and the numbers their breastfeed their child majority was 8-12 times and weaned at rate of 33.3%, 12 times or more at rate of 16.7%, Less than 4 times and 4.7 was have the same percentage of 6.7%

.Most of the participants their child start complementary food at 4-6 months as represented by this 48.3% and the rest doesn't mentioned when they was started complementary food at rate of 51.7% , and the main livestock of the family among participants was Goats/sheeps at rate of 35%, followed by rabbit/chicken 15.0% , most of the respondent doesn't have any kind of livestock to their family at rate of 50.0%, and the crops produced was Banana, Maize, 35.0%,33.3% , respectively, and beans and soya was have the same percentage of 5%, and 9% of respondents doesn't have any kinds of crops produced by their family. And the quantity produced are low due to Insufficient for family consumption at rate of 33.3% and what they get they sell at rate of 41.7%.

4.1.3 Mother's Knowledge level of factors associated with malnutrition among respondents

Table 3: Mother's Knowledge level of factors associated with malnutrition among respondents (n=60)

VARIABLES	Correct responses n=60		%	
	YES	NO	YES %	NO %
The presence of diseases and infections that cause diarrhea can lead to malnutrition	49	11	81.7	19.3
.Mother's poor understanding of nutritious diet can predispose their children to malnutrition	48	12	80.0	20.0

.Inadequate food intake can predispose a child to malnutrition	46	13	76.7	23.3
There is a link between breastfeeding and optimal growth of the children	48	12	80.0	20.0
Living in a large household family setting can restrict mothers' ability to monitor her children's feeding habit?	45	15	75.0	25.0
Lack of immunization to specific disease can lead to malnutrition	38	22	63.3	36.7
Inadequate financial resources limiting access to healthy food can result in malnutrition?	40	20	66.7	33.3
Long term breastfeeding without complementary feeding contributes to malnutrition?	41	19	68.3	31.7
Fruits can protect your child from malnutrition?	47	13	78.3	21.7
Children who were not exclusively breastfed can be malnourished?	41	19	68.3	31.7
Overeating starchy food can cause malnutrition?	35	25	58.3	41.7
Overall knowledge grading Good knowledge Poor knowledge	45 15		75.0 25.0	

The tables 4.3 above shows that the majority of the participants   was have Good knowledge at 75.0%, despite adequate knowledge, a high proportion of the mothers knew that having children in a large household family as represented by 75% could affect the mothers' ability to monitor the feeding of their children. However, knowledge seems not to be translated to practice as it is common for people in Kibogora health center to have lots of children in a polygamous setting.

 Empirical evidence shows that having more children tend to increase competition for childcare resources within the household such that a child is denied adequate nutritional care.

Most of the mothers were aware that there is a link between breastfeeding and optimal growth of their children at rate of 80%. And also most of participant mothers was aware that inadequate financial resources limiting access to healthy food can result in malnutrition at rate of 76.7%, and also mothers was aware that Mother's poor understanding of nutritious diet can predispose their children to malnutrition at rare of 80.0 %, This finding is encouraging, as it has been shown that mothers' knowledge of feeding and full immunization is vital for a positive nutritional outcome for the child.

Figure 6:Knowledge of Mothers Towards Malnutrition (N=60)
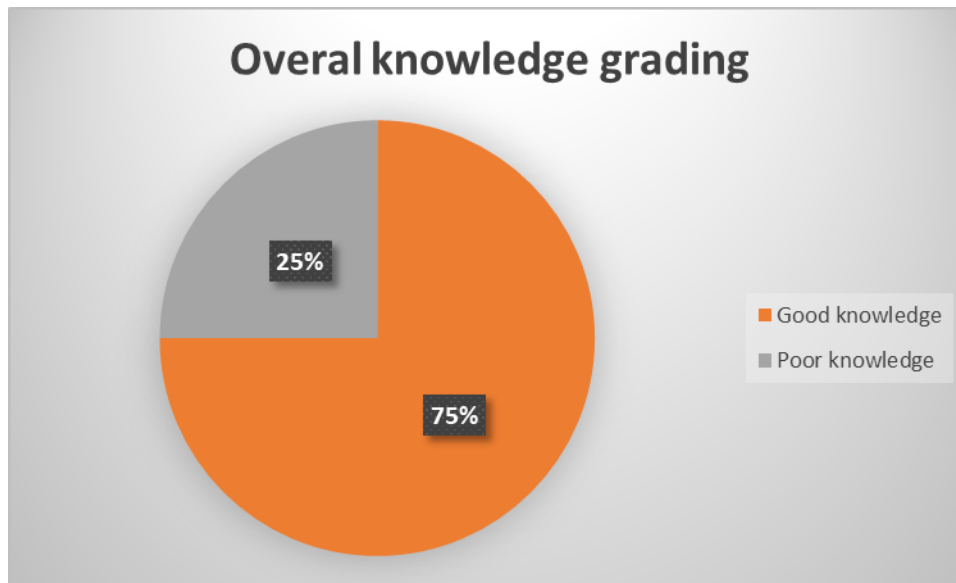
Figure above shows that the most participants have good knowledge to malnutrition at rate of 75% where 25% have poor knowledge about malnutrition .

Table 4: Pathological diseases contribute to malnutrition of children under five years (n=60)

Variables		Frequency	Percent
1. How often has the child fallen sick over the last 6 months or before diagnosed with malnutrition?	1-3 times	10	16.7
	4 -5 times	24	40.0
	More often	26	43.3
2. Have your child fallen sick over the last 6 months or before diagnosed with malnutrition?	Yes	42	70.0
	No	18	30.0
yes specify to this pathological disease	Diarrhea	25	41.7
	Respiratory infection	3	5.0
	Intestinal worms	19	31.7
	Typhoid fever	5	8.3
	Vomiting	8	13.3
Is the routine child immunization updated?	Updated	25	41.7
	Vaccine missing	29	48.3
	Don't know	6	10.0
When the child was last dewormed?	within the last six months	11	18.3
	6-12 months	14	23.3

	More than 12 months	28	46.7
	Don't know	7	11.7

The table 4.4 above reveals that child fallen sick over the last 6 months or before diagnosed with malnutrition was at this percentage respectively but most majority of the child was fallen sick more often at rate of 43.3% and followed by 4-5 times at rate of 40.0%, and least was 1-3 times at rate of 16.7%%. Majority of the participant have shown that most of the child fallen sick over the last 6 months or before diagnosed with malnutrition was 70% and children who doesn't fallen sick was at rate of 30% .

By referring to the Table above, the most illness among children under five years was diarrhea which counts 41.7 %, followed by intestinal warm which account 31.7%, and followed by vomiting which account13.3%, and followed by typhoid fever at rate of 8.3%, the least percentage was occupied by respiratory infection at rate of 5.0%,However, the untended preventive measures of children infection result through routine immunization 41.7% was Updated, followed by participant who was have vaccine missed at rate of 48.3%, and the rest participants they didn't know vaccinations schedule at rate of 10.0%.

Majority of the participant their children was last dewormed More than 12 months at rate of 46.7%, followed by the child dewormed 6-12 months at rate of 23.3%, and 18.3% was dewormed within the last six months, and mothers who doesn't know if the child was dewormed last six months was at rate of 11.7%.

Figure 7:Pathological Disease That Contribute To Malnutrition (N=60)
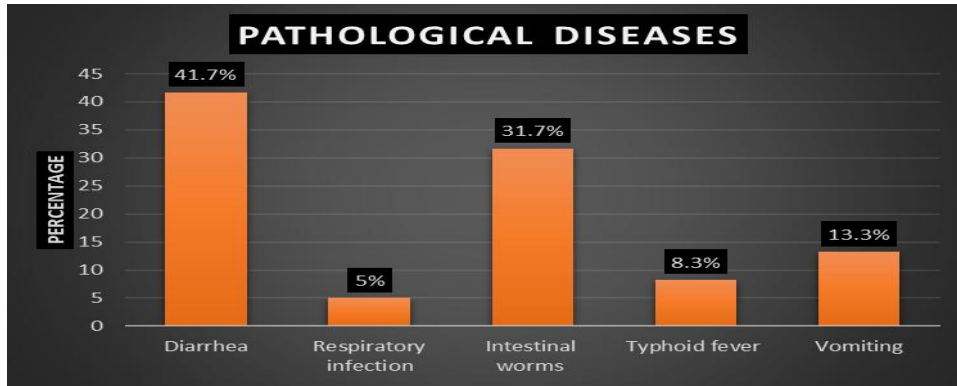
This figure above shows the pathological diseases the child had suffers overs the six months or before diagnosed with malnutrition (n=60)

he most illness among children under five years was diarrhea which counts 41.7 %, followed by intestinal warm which account 31.7%, and followed by vomiting which account13.3%, and followed by typhoid fever at rate of 8.3%, the least percentage was occupied by respiratory infection at rate of 5.0%,

4.2 Discussion of findings

4.2.0 Introduction

This   point of discussion addresses the findings from chapter four. On this   the researcher discusses the findings of other researchers regarding   factors contributing to malnutrition and the literature review by focalization on objectives

4.2.1 Demographics characteristics of the respondents (n=60)

The finding of this study represent that the more respondents was female at 56.7% The study shows that female were more affected than Male at rate of 56.7%, contrary to the study conducted in Ethiopia, Gojam zone revealed that girls are more likely to experience malnutrition than boys with a total rate of 44.3% (Teshome et al., 2015). And according to the age, the most respondent was aged between 1 year and 2 years 65% while those aged less than 1 year and more than 2 years were 20% and 15.0% respectively. . In a study done in Nigeria it had been observed that child with malnutrition was experienced during the first and second year of life While there are no known direct link between age and Malnutrition, high rates of malnutrition in that age group are considered to be due complementary feeding practices Anguzu *et al.,* 2014

Regarding the marital status, the findings of this study reveals that the most participants, mothers for the children of under five years old was single mothers 50%, followed by mothers who was done divorced 33.3%, married was 11.7%, and the last was cohabiting 5.0%. the current study doesn't contradict the similar study conducted in Nairobi revealed that 56% of children under five born on mothers who were not married was malnourished (Gloriose, 2018).

Current study showed that the most participants had low level of education, was on primary levels 41.7, followed by respondents who doesn't attends school 25.0% of illiteracy. The similar study conducted in Ethiopia showed that the majority of children who born to the mothers with the lower educational status had the high percentage of malnutrition, 69.7% hadn't attended school whereas 25.5% attended elementary education (Zeleke, 2014).

Other the study conducted in Zambia in 2018 found that children whose mothers had higher education showed a 75% reduction of odds compared to children whose mothers had no education (Mzumara et al., 2018). He concluded that mothers who are more educated are more likely to be more conscious about their children's health. Moreover, due to exposure to media they are likely to have better child and healthcare knowledge of nutrition leading to better feeding practices (Mzumara et al., 2018).The same study conducted in Rwanda, Kigali city and Northern province found that most of the parents who have stunted under five children had at least primary school education 73% (Nshimyiryo et al., 2019).

Results of this study found that 48.3% family feed their children twice a day and 28.3% family feed them thrice a day. In Rwanda, the family feed their children less than twice a day are considered as poor family. In many families they use milk and porridge as 29%,25% centrally to the study done in Tanzania showed that the most families feed their child one a day at rate of 43% (Nsereko et al., 2018).In the study 56.7% stands for family that introduce feeding their children early because difference reasons 23.4% of availability of food, culture 21.7% and 18.3% of pregnancy in the same way the study conducted in Uganda showed that reason of feeding children early was availability of food stands 26.7%,24.4% of culture and 21.9% of early pregnancy (Chirande et al., 2015).

4.2.2 Factors that contribute to malnutrition among the child of under five years old (n=60)
Large families can be associated with child malnutrition because available food in families has to be shared among many members resulting in lack of sufficient quantity and appropriate quality

of food to weak family members, usually young children (Donald W. Mac Corquodale, 1977).The current study shows that 26.7% of children were from family of 4-6 people members, while those coming from families of less than 4 members whose 8.3% and those of 6-8 members or 8-10 people or more represented 35.0% ,15.0% and15.0% respectively, the more the persons lives in the households ,   A study conducted in Nigeria to assess the effects of family size on household food security in Osun state, Nigeria, doesn't contradict the current study because the results suggested that family size had negative influence on food security manifested by decrease of number of meals served in the family and satisfaction of members with quantity served which appears to be partially conflicting with this study findings.

Moreover this study Most participants the main source of money in the family are from Farming at rate of 36.7% followed by participant's mothers who does a business at rate of 15.0%, and participants who doesn't have any source of money at rate of 48.3% The result of the study reveal that 48.3% respondents show the poverty as most causes of malnutrition among under-five year children followed by 36.7% who are farming who has low source of money due to lack of productivity , 15% who do local business ,The similar study in Ethiopia showed that the majority of children who born to the mothers with the lower level of feeding practices, poverty and (Zeleke, 2014). A similarly study conducted in Zambia in 2018 found that children whose mothers from poor family increase odds compared to children whose mothers from richest family (Mzumara et al., 2018). However there is link between poverty and malnutrition as study represent only 48.3% of families who lock of food for feeding their children.

Due to lack of source of income to the family among participants reduce the numbers of meals per day for their child where the most eat 1 per day at rate of 68.3%, and followed by the child eat 2-3 times a day at rate of 25%, and the least was the child eat after one day at 6.7%.

Results of this study found that 68.3%% family feed their children once per a day and followed by the child eat 2-3 times a day at rate of 25%, and the least was the child eat after one day at 6.7%. a similar study conducted in Rwanda had showed that the family feed their children less than twice a day are considered as poor family. A study conducted in Tanzania showed that the most families feed their child one a day at rate of 43% (Nsereko et al., 2018).

This study found that the participants who stop breastfed their children within less than 12 months are 33.3% likely to develop malnutrition compared to the mother who stop breast feed their child above 12 months. This study showed that the children who did not breastfed during 1000 days had the highest percentage of developing malnutrition compared to the ones who breastfed in 1000 days. The different findings were indicated in the study conducted in Ethiopia where children who received feeding below 12 month were 3.8 times more likely to be malnourished than children who did not receive feeding up to above 12 months (Asfaw et al., 2015). Authors concluded that as compared with children who started complementary feeding at 6 months, the risk of stunting was 3.3 times. (Namusoke & Atuhaire, 2019).

Similar findings for the study conducted in Ethiopia, where it was observed to be likelihood of being malnourished was significantly higher for children who started complementary feeding before the age of 6 months. The study conducted by Zeleke found that 46% of long term breastfeeding mostly from 6-24 months impairs the infant's appetite and diminishes the infant non breast milk nutritional foods hence resulting in lower energy intake (Zeleke, 2014). Furthermore, the same study conducted in Rwanda by Nsereko et al. (2018) suggested that 40.1% of prolonged breastfeeding contributes to stunting as it increases the risk of nutrients deficit as the child's appetite to non-breast milk food decreases. (Namusoke & Atuhaire, 2019).

4.2.3 Knowledge levels of mothers towards malnutrition for the children of under five years old

This study assessed the knowledge of mothers toward malnutrition among under-five children and to also identify factors that predict their knowledge. We found that almost all the mothers knew that disease conditions that cause diarrhea could lead to malnutrition.

This study the overall knowledge was 75% means they was have good knowledge because almost of them we get correct responses and 25% was have bad knowledge. This finding is of significant public health importance because, mothers can take appropriate early actions when their babies are sick with diarrhea – a disease that is quite common in our environment. However, it has been shown that having such knowledge does not always translate into practice. We also found in this study that the majority of mothers of under-five children knew that inadequate intake could predispose a child to malnutrition.

We found that more than 75% of mothers had good overall knowledge of factors contributing to malnutrition among under-fives. This finding is encouraging because a high proportion of the mothers do not have formal education. This finding is similar to what was reported in a study in Ethiopia, where most of the respondents had good knowledge regarding child with malnutrition. However, the result contradicts the findings of a study conducted in Ghana, where only 31.8% of the respondents had good knowledge regarding child malnutrition. People in Nyamasheke district have better access to hospitals, health professionals and other health care services where health talks and health education are given more attention. These could reflect favorably in terms of the type and quality of health information provided to mothers in the rural settings and thus their knowledge levels.

In addition, the higher proportion of mothers with good knowledge observed in this study may be due to better access to transportation (which increases their access to health facilities and health workers) and electricity which increases their access to health information passed through mass media such as radio, television and internet. The higher proportion of good knowledge observed in this study may also be attributable to the previous efforts of government of Rwanda and partners in raising public awareness about malnutrition and its causative factors through mass media. It is impressive that a high proportion of the mothers had good knowledge of factors contributing to malnutrition; however, this does not reflect the nutritional status in district with one of the worst nutritional indices in Rwanda.

4.2.4. **Pathological** **diseases** **that** **contributing** **to** **malnutrition** **(n=60)**
The findings from this study shows that the 70% children experienced severe infectious diseases in previous two weeks before they diagnosed malnutrition where 30.0% have not experience pathological diseases.

the current study reveal that the most illness among children under five years was diarrhea which counts 41.7 %, followed by intestinal warm which account 31.7%, and followed by vomiting which account13.3%, and followed by typhoid fever at rate of 8.3%, the least percentage was occupied by respiratory infection at rate of 5.0%, The results showed that the children who suffered from diseases mainly was diarrhea 41.7% and intestinal worm 31.7 had the higher percentage of malnutrition.

Similarly study conducted in Andean and central Latin America as in tropical and southern Latin America (Harding et al., 2018) diarrhea was contributing to almost three times the burden of malnutrition . The same results were found in the study from Bule, South Ethiopia, where the most frequent child health problem was diarrhea. However, the untended preventive measures of children infection result through routine by participant who was have vaccine missed at rate of 48.3%, and the rest participants they didn't know vaccinations schedule at rate of 10.0%.

The authors concluded that malnutrition among under five years old children is led by infections through the increase of needs and high energy use, anorexia, dehydration that results from vomiting and lead to loss of nutrients, poor digestion, mal-absorption, and disruptions of metabolic equilibrium. Besides to that, the study conducted in showed that children experiencing diarrhea were 2.3 times more likely to be stunted compared to the reference category. (Namusoke & Atuhaire, 2019).

4.3 Summary of Findings

Total of precipitant were 60 patients most are females than males 56.7%, 43.3% respectively. And most patients were in age between 1 and 2 years than below 1years and above 2 years 65%, 25%, 15% respectively, according results patients have not occupation they have rate 40% and followed by 30% who was done agriculture activity, followed by salaried employment at rate of 15%. And education level affect nutrition the who respondents people attend primary level have more rate 41.7% than others levels. The most children not eat fruits or vegetables due to lack of source income of their family. According results from research the knowledge of mothers level showed mothers have good knowledge were high than poor knowledge 75%, 25% respectively

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.0 Conclusion

Our study was research about factors that contributing malnutrition among five years old children at Kibogora health center"

Demographic characteristics contributing to malnutrition among under five years old children are female sex 56.7%, children aged 12-24months was 65%, large size of household, low education level of household head, single mothers and unmarried marital status. Factors that contributing to malnutrition among under five years old children including, lack of source of income to the family, many persons live in the household make insufficiency food intake to child in family, eating what are available with regardless of balanced diet, lack of livestock to the family, low dietary intake, pathological diseases contributing to malnutrition among under-five years' children includes severe intestinal worms and diarrhea 31.7%, 41.7% respectively. The mothers of under-five children in Kibogora health center had a high level of knowledge of factors contributing to child malnutrition at 75%, low level knowledge was 25%. We recommend that government at all levels, as well as healthcare workers at all levels of healthcare delivery, increase their effort in reinforcing mothers knowledge on the common health problems of children including malnutrition, and the factors contributing to its causation. Health talks should also include session incorporating education of mothers on elemental food compositions and how to combine locally available food products to achieve a balanced meal.

5.1 Recommendation

Before close our study recommend Kibogora health center, mothers, future researchers, Government

5.1.1 To Kibogora Health center is recommendation to:
- Encouraging people to attend school because low level of education was found greatly to contribute malnutrition among children under five years old.
- Encourage people you use tap water and safe water for drinking which would help to reduce infection diseases such as diarrhea.
- Encourage mothers to prepare balanced diet

5.1.2 To mothers is recommendations to:
- Perform handwashing with soap before and after food preparation, before feeding the child, after toileting, and after cleaning child bottom.
- Encourage people to have waste disposal, to avoid infectious diseases transmitted by insect like houseflies from wastes to food.

5.1.3 To future Researchers is recommendations to:

- .Research should be used up by other future researchers for more exploring more about assessment of factors contributing to malnutrition among children under five years in different health center in order to get the overall picture in whole country , as this study don't represent the whole population

5.1.4 To Government is recommendations to:

- conduct the public health education among this population and regular screening of malnutrition especially children under 5 years.

  5. 3 Suggestion of further study

- Conduct more related studies in order demonstrate the factors contributing malnutrition of children under five years.

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APPENDICES 1:QUESTIONNAIRE FOR RESPONDENTS

Dear Respondents

MANIRAFASHA Emmanuel and MUSABYIMANA Collete are   our names. We are students enrolled for program of Bachelor   in General Nursing Sciences in Kibogora Polytechnic. We have prepared this questionnaire in order to produce information for research topic of the "Assessment of Factors Contributing to Malnutrition among Children under Five Years Old at Kibogora Health Center". The information given will be used for academic purpose and confidentiality will be observed. Could you please kindly feel free to fill and answer the question below.

1. SOCIAL DEMOGRAPHIC OF THE RESPONDENTS

1. Age of the child

1. ☐   0-12 months

2. ☐   12-24 months

3. ☐   24-59 months

2. Sex of the child

1. ☐   Male

2. ☐   Female

4. What is your marital status?

1.☐ Single mother

2.☐ Cohabiting

3.☐ Married

4.☐ Divorced/separated

5. What is your occupation?

1. ☐ No occupation nor employment

2. ☐ Agriculture (crop production)

3. ☐ Livestock (animal production)

4. ☐ Commercial activities

5. ☐ Salaried employment

6. ☐ Casual employment

7. ☐ Self-employment

2. FACTORS CONTRIBUTING TO MALNUTRITION AMONG CHILDREN OF UNDER FIVE YEARS OLD

2.1. How many persons live in the household?

1. ☐ Less than 4

2. ☐ 4-6 people

3. ☐ 6-8 people

4. ☐ 8-10 people

5. ☐ More than 10

2.2. What is the highest education level of the mother?

1. ☐ Higher education

2. ☐ Attended secondary school

3. ☐ 4 -6 years of primary school

4. ☐ 4 years of primary school

5. ☐ None

2.3. What is the main source of money in the family?

1. ☐ Business

2. ☐ Public employment

3. ☐ Farming

4. ☐ Private employment

5. ☐ No answer

2.4. A is there any food restriction by faith or culture of the parents?

1.☐ Yes

2.☐ No

2.4. B If yes, what food do you restrict?

1.☐ Meat

2.☐ Eggs

3.☐ Milk

4.☐ Vegetables

5.☐ None

6.☐ No answer

2.5. What is the most common food menu of the family?

1.☐ Caloric food, vegetal or animal protein, vegetables / fruit

2.☐ Caloric food, vegetal & animal protein

3.☐ Caloric food & vegetable protein

4☐. Caloric food only

5.☐ Just what is available?

2.6. How often does the child eat fruits or vegetables?

1.☐ More than once a day

2.☐ Every day

3.☐ 3-5 times a week

4.☐ 1-3 times a week 5. Never

2.7. How many meals of the child per day?

1.☐ 4-5 times a day

2.☐ 2-3 times

3.☐ 1 per day

4.☐ Often after 1 day

5.☐ after more than 1 day

2.8 Has the household received supplementary food through a food program during the last 6 months?

1.☐ Yes

2.☐ No

2.9. If the child is on breastfeeding: how often do you breastfeed your child in 24 hours?

1. ☐ 12 times or more

2.☐ 8-12

3.☐ 4-7

4.☐ Less than

5. ☐ 4 times

6.☐ Weaned

2.10. At what age did you begin complementary feeding of the child?

1.☐ < 4 months

2.☐ 4-6 months

d

3.☐ > 6 months

4.☐ Not yet

2.11. What is the main livestock of family?

1.☐ Cows

2.☐ Goats/sheeps

3.☐ Rabits/chickens

4.☐ None

5.☐ No answer

2.12. A .what are the main crops grown by family?

1.☐ Beans

2.☐ Banana

3.☐ Soya bean

4.☐ Maize

5.☐ No answer

2.12 B. How do you rate the quantity of crop produced by the family?

1.☐ Enough for consumption and sale

2.☐ Insufficient just for sale

3.☐ Just survival but enough for family consumption

4.☐ Insufficient for family consumption

5.☐ Just for sale

3. THE KNOWLEDGE OF MOTHERS ON MALNUTRITION AMONG CHILDREN OF UNDER FIVE YEARS OLD

3.1. Signs of malnutrition (undernutrition)

1. How can you recognize that someone is not having enough food?

☐ Lack of energy/weakness: cannot work, study or play as normal (disability)

☐ Weakness of the immune system (becomes ill easily or becomes seriously ill)

☐ Loss of weight/thinness

☐ Children do not grow as they should (growth faltering)

☐ Other

☐ Don't know

3.2. Causes of malnutrition (undernutrition)

3.2.1. What are the reasons why people are undernourished?

1. ☐ Not getting enough food

2. ☐ Food is watery, does not contain enough nutrients

3. ☐ Disease/ill and not eating food

4. ☐ Other

5. ☐ Don't know

3.3. Seeking growth monitoring for infants and young children

How can you (caregiver) find out if the baby is growing well or not?

Who can help the mother to find out if the baby is growing well? Where can she go?

1. ☐ Go to the health centre/ask a doctor or nurse (health professional) (seeking health-care services for growth monitoring)

2. ☐ Other …………………………………………………………………………..

f

3.☐Don't know

3. 4. If the baby is not gaining weight, what does that mean?

1.☐The baby is not eating well/the baby does not want to eat

2. ☐The baby may be sick often

3. ☐Other

4. ☐Don't know

3.5. Prevention of malnutrition (undernutrition)

What should we do to prevent undernutrition among infants and young children (below 6 years of age)?

1. ☐ Breastfeed exclusively/give only breastmilk

2.☐ Go to the health Center/hospital and check that the child is growing (growth monitoring services) Young children (6–23 months)

3.☐ Give more food

4.☐ Feed frequently

5. ☐.Give attention during meals

6. ☐Go to the health center/hospital and check that the child is growing (growth monitoring services)

8. ☐Don't know the baby is not eating well/the baby does not want to eat

9. ☐.The baby may be sick often

10. ☐Other

11. ☐ Don't know

4. PATHOLOGICAL DISEASES CONTRIBUTE TO MALNUTRITION OF CHILDREN UNDER FIVE YEARS

4.1. How often has the child fallen sick over the last 6 months or before diagnosed with malnutrition?

1.☐ Never

2.☐ 1-3 times

3.☐ 4 -5 times

4. ☐ More often

5.☐ No answer

4.2. Have your child fallen sick over the last 6 months or before diagnosed with malnutrition?

1. ☐ Yes

2.☐ No, if yes specify to this pathological disease

1.☐ Diarrhea

2☐ Respiratory infection

3. ☐ Intestinal worms

4.☐ Typhoid fever

5. ☐ Vomiting

6. ☐ Other ………………….

4.3. Is the routine child immunization updated?

1.☐ Updated

2.☐ Vaccine missing

3.☐ Don't know

4.4. When the child was last dewormed?

1. ☐ within the last six months

2. ☐ 6-12 months

3. ☐ More than 12 months

4. ☐ Don't know

QUESTIONNAIRE Adapted to UNICEF Feeding practice of infant and children for malnutrition prevention.

APPENDICES 2:Questionnaire Kinyarwanda version

1. Imyaka y'umwana

1.☐ Amezi 0-12

2.☐ Amezi 12-24

3. ☐Amezi 24-59

2. Igitsina cy'umwana

 1. ☐Gabo

2. ☐Gore

3. Murubatse?

1.☐ Umubyeyi wibana

2. ☐Turabana ariko ntitwasezeranye

3.☐ Narasezeranye

4. ☐Narahukanye/naratandukanye

4. Mukora iki?

1.☐ Nta murimo mfite

2. ☐Ndahinga

3. ☐Ndorora

4.☐ Ndi umucuruzi

5. ☐Mfite akazi gahemba

6.☐ Akazi k'ibiraka

7. ☐Ndikorera (Rwiyemezamirimo)

2. IBINTU BISHOBORA GUTUMA HABAHO IMIRIRE MIBI MU BANA BARI MUNSI Y, IMYAKA ITANU

2.1. Mu rugo haba abantu bangahe?

 1.☐ Mu nsi ya 4

 2. ☐ Hagati ya 4-6

3.☐ Hagati ya 6-8

 4.☐ Hagati ya 8-10

5.☐ Barenze 10

2.2 Umubyeyi w'umugore yize amashuri angahe?

 1. ☐ Kaminuza/amashuri makuru

2. ☐ Ayisumbuye

3.☐ 4 -6 abanza

4.☐ Mu nsi ya 4 abanza

5.☐ Ntayo

2.3 Umuryango utungwa n'iki?

 1.☐ Ubucuruzi

 2.☐ Akazi ka leta

3.☐ Ubuhinzi

4.☐ Akandi kazi

5. Nta kazi kazwi

k

2.4. a. Hari ibiribwa muziririza guha umwana kubw'umuco cg idini?

1. ☐ Yego

2. ☐ Oya

2.4. B Niba ari yego Ni ibihe?

1. ☐ Inyama

2. ☐ Amagi

3. ☐ Amata

4. ☐ Imboga

5. ☐ Ntayo

2.5 Niki mukunda kugaburira umwana?

1. ☐ Ibitera imbaraga, ibyubaka umubiri biva ku matungo n'ibihingwa, imboga n'imbuto

2. ☐ Ibitera imbaraga, ibyubaka umubiri biva ku matungo n'ibihingwa

3. ☐ Ibitera imbaraga, ibyubaka umubiri biva bihingwa,

4. ☐ Ibitera imbaraga

5. ☐ Ibibonetse (birahindagurika cyane)

2.6 Umwana arya imbuto cg imboga nka kangahe mu cyumweru?

1. ☐ Birenze 1 ku munsi

2. ☐ Buri munsi

3. ☐ 3-5 mu cyumweru

4. ☐ 1-3 mu cyumweru

5. ☐ Gacye cyane

2.7. Umwana arya kangahe ku munsi?

1. ☐ 4-5 ku munsi

2.☐ 2-3 ku munsi

3.☐ 1 ku munsi

4.☐ Ajya amara umunsi atariye

5.☐ Ajya amara iminsi irenga 1 atariye

2.8 Umuryango wigeze uhabwa imfashanyo y'ibiribwa mu mezi 6 ashize?

1.☐ Yego

2.☐ Oya

2.9 Umwana yonka kangahe ku munsi (amanywa n'ijoro)?

1. 12 cg karenze

2. 8-12

3. 4-7

4. Munsi ya 4

5. Yaracutse

2.10 Yahawe imfashabere angana iki?

1. ☐ Amezi < 4

2. ☐ Amezi 4-6

3. ☐ Amezi > 6

4. Ntakayifata

2.11. Mufite ayahe matungo?

1. Inka

2. Ihene/intama

3. Inkwavu/inkoko

4. Ntayo

2.12Ni iki mweza kurusha ibindi?

1. ☐ Ibishyimbo

2. ☐ Ibitoki

3. ☐ Soya

4. ☐ Ibigori

5. ☐ Nta byo

2.13 Ubona bingana iki ugereranyije n'ibyo mukeneye?

1. ☐ Birahagije dusagurira Isoko

2. ☐ Turagurisha gusa

3. ☐ Biradutunga gusa ariko biraduhagije

4. ☐ Nti biduhagije

3. UBUMENYI BWA BABYEYI KU MIRIRE MIBI MU BANA BARI MUNSI Y, IMYAKA ITANU

3.1 Ibimenyetso by'imirire mibi

Ni gute mumenya KO umuntu atari gufata ifunguro rihagije? (Ni ibihe bimenyetso by'imirire mibi?)

Ibisubizo

☐ Kubura ingufu mu mubiri/Gucika intege

☐ Ubudahangarwa bw'umubiri buragabanuka (kurwaragurika)

☐ Gutakaza ibiro cg kunanuka

☐ Abana ntibakura (kugwingira)

☐ Ibindi,…………………………………….

☐ Simbizi

3.2. Ibitera imirire mibi

Ni izi he mpamvu zitera abantu kugira imirire mibi?

Ibisubizo

☐ Kutabona amafunguro ahagije

☐ Amafunguro arimo amazi menshi, adafite intungamubiri

☐ Indwara no kutarya bihagije

☐ Ibindi,……………………………………………………

☐ Simbizi

3.3 Gukurikirana imikurire y'umwana

3.1. Ni gute umenya cg Ubona KO umwana ari gukura neza cyangwa nabi?

Ibisubizo

☐ Kujya Kwa Muganga

☐ Ibindi,……………………………………………………

☐ Simbizi

3.4 Niba umwana atari kwiyongera ku biro, bishatse kuvuga iki?

Ibisubizo:

☐ Umwana ntarya neza/ ntashaka kurya

☐ Umwana arwara inshuro nyinshi

☐ Ibindi

☐ Simbizi

o

3.5 Kwirinda imirire mibi

Ni iki gikwiye gukorwa kugira turinde impinja n'abana (bari munsi y'imyaka kugira imirire mibi? Kuva ku mezi 0-6

Ibisubizo

1. ☐ Konsa umwana gusa

2. ☐ Kujya Kwa Muganga Gukurikirana imikurire y'umwana Abana b'amezi 6-23

3. ☐ Kumwongerera amafunguro

4. ☐ Kugabura kenshi

5. ☐ Kumwitondera mu gihe cy'ifunguro

6. ☐ Kujya Kwa Muganga Gukurikirana imikurire y'umwana

7. ☐ Ibindi

8. ☐ Simbizi

4.INDWARA ZIKUNZE KUZAHAZA ABANA BARI MUNSI Y, IMYAKA ITANU BIKABA BYATUMA BAGIRA IKIBAZO KI MIRIRE MIBI

4.1Umwana yarwaye kangahe mu mezi 6 ashize? Mbere yuko asangwaho cg akaba ari kuvurwaho imirire mibi

1. ☐ Nta Na rimwe

2. ☐ 1-3

3. ☐ 4 -5

4. ☐ Inshuro zirenze 5

5. ☐ Simbizi

4.2 Ese umwana wawe yaba yarigeze kurwara mumezi atandatu ashize

1. ☐Oya

2. ☐Yego, niba ari yego garagaza iyo ndwara muri izi zikurikira

1. ☐Impiswi

2. ☐Infegisiyo

3. ☐Umusonga

4. ☐ Inzoka zomunda

5. ☐Tifoyide

6. ☐Kuruka

4.3 Umwana yaba yarafashe inkingo zose uko biteganywa (Reba ku ifishi y, ikingira)

1. ☐Yego

2. ☐Oya

3. ☐Simbizi

4.4Umwana aheruka ikinini cy'inzoka ryari?

1. ☐Mu mezi 6

2. ☐Amezi 6-12

3. ☐Amezi arenga 12

4. ☐Simbizi

Imana ibafashe kubw, umwanya wanyu muduhaye muri uru rugendo rw, ubushakashatsi!!!!!!

APPENDICES 3:Concert form

RESEARCH CONSENT FORM

Manirafasha Emmanuel and Musabyimana Collete we are students at Kibogora Polytechnic , school of nursing and midwife , General nursing department I am conducting my academic Research Project on Assessment of factors contributing to malnutrition among children under five years old attending Nyamasheke Health Center's Under the supervision Uwamariya Therese of Lecturer at Kibogora polytechnic , in Nursing Department. I, agree to participate in this research study. I am aware that to participate in this study is voluntary and no payment for those who participant in my study. In addition all information given by participant will be kept secret and privacy will be maintained.

APPENDICES 4: AMASEZERANO

Amasezerano y'uwemeye kugira uruhare mubushakashatsi

Izina ry'ubushakashatsi: Gusuzuma impamvu zishobora kuba zitera Imirire mibi mubana Bari munsi y'imyaka itanu bivuriza ku kigo nderabuzima cya Nyamasheke.

Njyewe…………………………………………………….

Nyuma yo gusobanurirwa icyo ubushakashatsi bugamije ku" Gusuzuma impamvu zishobora kuba zitera Imirire mibi mu bana Bari munsi y'imyaka itanu bivuriza ku kigo nderabuzima cya Nyamasheke " niyemeje kubugiramo uruhare.Nsobanukiwe ko kugira uruhare mubushakashatsi

ari ubushake bwange kandi ko ntagihembo ntegereje

Nijejwe ko ibisubizo ntanga bizabikanwa ibanga rikomeye kandi ko izina ryange ritazatangazwa .Nijejwe ko ndamutse mbangamiwe n'impamvu iyo ariyo yose itanturutseho nahagarika gutanga uruhare rwange murubu bushakashatsi.

APPENDICES 5:Authority letter

KIBOGORA POLYTECHNIC

Granted Accreditation and Legal Personality by The Ministerial Order N°7/2018 Official
P.O Box 50, Nyamasheke, Rwanda Tel:(+250)788778384 E-mail:info@kp.ac.rw

RESEARCH LETTER

June, 10th, 2022

To whom it may concern;

We write this letter to humbly request you to allow Ms. /Mr **MANIRAFASHA** Emmanuel and **MUSABYIMANA** Collete **(REG N°:** 1800058& 1800334) to conduct research in your organization/ institution/territorial entity.

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

These Candidates are currently conducting a research entitled " **Assessment of Factors Contributing to Malnutrition Among Children Under Five Years Old at Kibogora Health Center".** "We are convinced that your organization/institution/territorial entity will constitute a valuable source of information pertaining to their research. The purpose of this letter is to humbly request you to avail them with the pertinent information they may need. We pledge to ensure that all provided information will be used in the strict academic purpose.

Any assistance rendered to the candidates will be highly appreciated.

Yours,

Dr NDABARORA Eléazar
Dean of Health Sciences Faculty
Kibogora Polytechnic

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APPENDICES 6: Map of Kibogora health center