PREVENTION OF MALNUTRITION IN CHILDREN BELOW FIVE YEARS IN KERICHO COUNTY REFFERAL HOSPITAL

A RESEARCH THESIS SUBMITTED TO DEPARTMENT OF NURSING IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE IN NURSING IN THE UNIVERSITY OF KABIANGA KAPKATET CAMPUS

DECLARATI ON

This is a proposal that will be done for academic purpose and it will be as a result of the group members' independent investigat has never been submitted for the award of a degree or any other purpose thereof by any other person or any other group.

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ABSTRACT

Malnutrition in children below the age of five years remains a huge public health problem in Africa as a whole and Kenya is not excluded. One of the strategies to prevent malnutrition is the implementation of exclusive breast feeding for children below six months, breastfeeding until two years and regularly monitoring growth in the antenatal clinic for children up to five years. The study aimed to assess prevention of malnutrition among children below five years in Kericho County Hospital. The study employed a cross- section design. The study was conducted in Kericho county hospital. The population of this study comprised 40 pediatric malnutrition patients and their respective parents or caregiver. Simple random sampling technique was employed for this study. Structured questionnaires were used for data collection. The study was approved by Kabianga institutional Review committee, approval number is ISERC/2023/0014. Confidentiality and privacy of study participants was ensured. The informed consent was obtained from eligible study participant. Participation was voluntary. The study findings reveal that a significant proportion of participants showed awareness of key preventive measures for malnutrition. Specifically, 60% recognized the importance of exclusive breastfeeding and 57.5% acknowledged the need for appropriate introduction of complementary foods. Additionally, 57.5% understood the significance of proper hygiene and sanitation practices, while 75% recognized the importance of adequate intake of nutritious foods. Furthermore, 70% of participants adhered to exclusive breastfeeding, but 30% supplemented their infants' diet with other foods. The duration of breastfeeding varied, with 25% breastfeeding for 6-12 months, 17.9% for 12-18 months, and 14.3% for 18-24 months. The pediatric ward demonstrated the integration of preventive measures, including routine growth monitoring (87.5%), nutritional counseling (72.5%), provision of nutritious meals and snacks (92.5%), hygiene and sanitation protocols (95%), and availability of immunizations (80%). In conclusion, the study findings demonstrate a significant level of awareness among participants regarding preventive measures for malnutrition, including exclusive breastfeeding, appropriate introduction of complementary foods, hygiene practices, and adequate intake of nutritious foods. Additionally, the study highlights the importance of adherence to exclusive breastfeeding and the integration of preventive measures in the pediatric ward, emphasizing the role of routine growth monitoring, nutritional counseling, provision of nutritious meals, hygiene protocols, and immunizations in preventing malnutrition.

LIST OF ABBREVIATIONS AND ACRONYMS

WHO:	World health organization
UNICEF	United Nations Children Fund
MUAC:	Mid upper arm circumference
MAM:	Moderate acute malnutrition
SAM:	Severe acute malnutrition
GMP:	Growth monitoring and promotion
MCH:	Mother Child health
CDC:	Center for Disease Control and prevention

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CHAPTER ONE: INTRODUCTION

1.1 Background Information

Malnutrition refers to deficiencies, or imbalances in a person's intake of energy and/or nutrients, malnutrition addresses 3 broad groups of conditions: under nutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age); micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; and overweight, obesity and diet-related non-communicable diseases such as heart disease, stroke, diabetes and some cancers (Dipasquale et al. 2020).

There are 4 broad sub-forms of under nutrition as identified by Wells et al. (2021) are wasting, stunting, underweight, and deficiencies in vitamins and minerals. Under nutrition makes children in particular much more vulnerable to disease and death. Low weight-for-height is known as wasting. It usually indicates recent and severe weight loss, because a person has not had enough food to eat and/or they have had an infectious disease, such as diarrhea, which has caused them to lose weight. A young child who is moderately or severely wasted has an increased risk of death, but treatment is possible. Low height-for-age is known as stunting (Govender et al. 2021). It is the result of chronic or recurrent under nutrition, usually associated with poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, and/or inappropriate infant and young child feeding and care in early life. Stunting holds children back from reaching their physical and cognitive potential.

Children with low weight-for-age are known as underweight. Fan et al. (2022) indicate that a child who is underweight may be stunted, wasted, or both. Inadequate intake of vitamins and minerals often referred to as micronutrients, can also be grouped together. Micronutrients enable the body to produce enzymes, hormones, and other substances that are essential for proper growth and development. Norman et al. (2021) concurs by indicating that malnourished children are prone to more deficiency diseases due to the low immunity. Malnutrition can be prevented by plenty of fruit and vegetables, plenty of starchy foods such as bread, rice, potatoes, some milk and dairy foods or non-dairy alternatives, some sources of protein, such as meat, fish, eggs and beans It can also be prevented by monitoring weight of a child by visiting the antenatal clinic.

Malnutrition is the leading cause of mortality and morbidity in children below five years in Kenya. Mertens & Peñalvo (2021) estimated number of malnutrition globally is 2020 globally; 45.4 million children under five were wasted of which 13.6 million were severely wasted. This translates into a prevalence of 6.7 per cent and 2.0 per cent, respectively. In 2020*, more than half of all children affected by wasting lived in South Asia and nearly one quarter in sub-Saharan Africa, with similar proportions for children affected by severe wasting. The burden of malnutrition in South Asia as identified by Karim et al. (2021) is corresponding to the global figures. The authors indicate that 14.7% of South Asia's wasting prevalence represents a situation requiring a serious need for intervention with appropriate treatment programs. Under-five wasting and severe wasting are highly sensitive to change. Thus, estimates for these indicators are only reported for the latest year (Center for Disease Control and prevention, 2020).

Malnutrition in Kenya shows that as of November 2021, 26.2 percent of children under five years suffered from chronic malnutrition in Kenya (WHO, 2021). The lack of adequate nutrients over a long period leads the infants to growth failure. At the same period, 4.2 percent of the children were affected by acute malnutrition, which concerns a rapid deterioration in the nutrition (Fufa & Laloto, 2021).

These include the implementation framework for securing a breastfeeding friendly environment at workplaces (2020-2024) and the Kenya Nutrition Action Plan (2018-2022), both supported by UNICEF (2021). The action plan, which will now be fully implemented, is an ambitious, cross-sectoral strategy designed to tackle malnutrition throughout the stages of life.

Good nutrition at every stage of life is part of the foundation of a prosperous society," Cabinet Secretary, Ministry of Health, Mutahi Kagwe said. "For the first time, five Ministries and the Council of Governors are working hand in hand with a range of partners on a Multi-Sectoral Nutrition Action Plan to stamp out malnutrition in Kenya once and for all" (Obasohan et al. 2020. p. 345)

The Kenya Agri-Nutrition Strategy (2020 to 2024): This focuses on securing access to safe, diverse and nutritious food, by strengthening the national food chain and community production (Ewune et al. 2022). The Scaling Up Nutrition (SUN) Business Network Kenya Strategy (2019 to 2023). This recognizes the role of the private sector in making safe and nutritious food

available and affordable. The Kenya Nutrition Monitoring and Evaluation Framework (2018 to 2022). This ensures Government and partners can monitor the progress and success of the KNAP. National Nutrition Fact Sheet, Programmatic Guidelines and Policies on Maternal, Infant and Young Child Nutrition (Mutoro et al. 2022). These explain a range of supportive measures authorities and communities can take, from breastfeeding-friendly workplaces to vitamin A supplementation. Although the efforts the government has put in place in prevention malnutrition it's still the leading cause of morbidity and mortality in children below five years and little is known about the ways of preventing malnutrition (Kiarie et al. 2021). This study will seek to determine to promote understanding and appropriate ways of prevention malnutrition in Kericho county referral hospital.

1.3 Problem Statement

In an ideal environment, children should experience an uninterrupted growth and development process that is characterized by minimal or no disease. However, this is not the case. In many countries, children especially those who are under 5 years old, experience growth disruptions as well as adverse outcomes such as disease. Ngare & Muttunga (1999) indicate that the adverse outcome at times go beyond the effect of disease to such effects as death. UNICEF indicatedd that malnutrition contributes to more than half of deaths in children under five years old globally (Gudu et al. 2020). Although the WHO provides statistics that indicate a smaller number, the 45% approximated deaths due to malnutrition in children under 5 years is still significant.

In Kenya, the problem of malnutrition among under 5 children has not only been high but has also been experiencing an upward trajectory. According to the Kenya Health Demographic Survey KDHS (Kenya Nutrition Action Plan, 2018), approximately 1.9 million children in the country were experiencing malnutrition in the country in 2014. UNICEF (2021) indicated that over 2 million under-5 children were experiencing malnutrition in Kenya in 2021. Data extracted from the Ministry of Health (2022) indicated that 26.2% of children under 5 years old were experiencing chronic malnutrition while 4.2 percent were experiencing acute malnutrition. 28.7% of children under 5 years old were experiencing malnutrition (Kericho County, 2015). While the data for Kericho was 28.7%, the national statistics in that year was 26.0% In Kericho county hospital, a research done on the magnitude of malnutrition among under-5 children in Kericho hospital by Wesley et al. (2015) indicated that 39.5% of children in that age-group were co-

infected with HIV and malnutrition. Based on these statistics, the magnitude of malnutrition and its impact can be appreciated. Therefore, a solution proposed herein is research on measures that can be taken to prevent malnutrition from occurring in children below the age of 5 years.

1.4 Justification

The study addresses the problem of malnutrition in Kericho county referral hospital from a preventive approach. As indicated in preceding sections, the magnitude of malnutrition among children under the age of five years is still high and significant. Sequentially, the problem has been shown to be of an increasing trajectory from developed countries, global statistics, low-income countries, Kenya, the county of Kericho and culminating in Kapkatet sub-county hospital. By preventing malnutrition in the county, the effects such as death and poor health will be avoided. Findings of the study are also as are essential to the Kericho healthcare authorities in formulation of policy that can be used in fighting the problem of malnutrition. The findings can also be inferred and be generalized to the county of Kericho where Kericho hospital is located. Findings are applicable to the population such as dietary advice will also be implemented to prevent the problem at the community level.

1.5 Objectives

1.5.1 Research Objectives

1.5.1.1 Broad Objectives

To assess prevention of malnutrition among children below five years in Kericho County Hospital.

1.5.1.2 Specific Objectives

i. To assess the level of awareness regarding preventive measures for malnutrition among caregivers of children below five years old in the pediatric ward of Kericho County Referral Hospital.

ii. To evaluate the adherence to breastfeeding practices among mothers of children admitted to the pediatric ward at Kericho County Referral Hospital.

iii. To examine the preventive measures implemented in the pediatric ward of Kericho County Referral Hospital to mitigate the occurrence of malnutrition in children below five years old.

iv. To investigate the predominant dietary patterns of children below five years old in the pediatric ward of Kericho County Referral Hospital.

1.6. Research questions

i. What is the level of awareness among caregivers of children below five years old in the pediatric ward of Kericho County Referral Hospital regarding preventive measures for malnutrition?

ii. To what extent do mothers of children admitted to the pediatric ward at Kericho County Referral Hospital comply with breastfeeding practices?

iii. What measures have been implemented in the pediatric ward of Kericho County Referral Hospital to prevent the occurrence of malnutrition in children below five years old?

iv. What are the main dietary patterns followed for children below five years old in the pediatric ward of Kericho County Referral Hospital?

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the current literatures written and published about the state of malnutrition prevention. It focuses on finding out the most prevalent preventive measures as per the published work. In addition, it also purposes to review the written literature, to evaluate the state of the pediatric wards including the mattresses patient use, the state of aeration, slipperiness of the floor and the occupants per ward cube. Finally, the chapter will address the level of awareness and patient education on effective preventive measures as per the researcher's findings.

2.2 The level of awareness of preventive measures on malnutrition for children below five years

The following initiative has been put across following the increasing rate of malnutrition in children below five years for the past 10 years as the research shows below there is minimal awareness of the measures as discussed below

2.2.1 Exclusive Breast Feeding

Exclusive breastfeeding is associates with prevention of many malnutrition diseases, but it is mostly associates with stunted growth in Indonesia, International agencies recommend exclusive breast-feeding for 4-6 months followed by continued partial breast-feeding into the second year of life in order to promote infant and child health and minimize the damage caused by the malnutrition-infection cycle (Vassilakou, 2021).

Breastfeeding is recommended because breast milk contains the ideal mix of nutrients for infants, because it contains factors which promote development of the infant's gut and immune system and which prevent pathogen invasion, and because exclusive breast-feeding prevents intake of pathogens in food or water children who are breast-fed tend to growth falter relative to those fed formula (Gebretsadik et al. 2022).

WHO and UNICEF recommend:

- Early initiation of breastfeeding within 1 hour of birth;
- Exclusive breastfeeding for the first 6 months of life; and

- Introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond (Katoch, 2022).

2.2.2 Growth and development monitoring

Growth monitoring and promotion (GMP) it is used to compares the growth of a healthy well-fed child with a sick, poorly fed child. It can identify children who do not have adequate growth and who are at increased risk of severe malnutrition and infection this will result in earlier detention and provision of the required interventions. This can be done by; an initial assessment of the childs growth for signs of growth faltering. 2. An analysis of the causes of the growth faltering. 3. Actions to promote better growth. Mothers attending growth and development clinic will help identify nutrition problems their child may have and this it will promote earlier treatment of the condition to promote health of the child. The GMP program can promote learning to the parents since they can ask for questions and get clarity about the nutritional requirements of their children and the appropriate feeding methods (Mark et al. 2020).

In 1980s, the concept of Growth Monitoring and Promotion (GMP) was introduced. It emphasized linking the results of monitoring with follow-up promotional actions (including nutrition counseling and provision of supplements, and early disease detection and treatment) in order to improve individual child nutritional outcomes, improve health and reduce child deaths (Caulfield 2006)

Growth and management being a key to prevent malnutrition it shows that it has little effect in the year 2020 the average children that completed the growth and monitors chat were 40% in Kenya 60% of the children did not finish the growth and monitors clinic of this children 0.9% of the children that attended suffered from malnutrition and it was treated at an earlier stage. Among children who did not attend clinic 30% of them suffered from malnutrition. Of the 30%, 5% of the children died of malnutrition. The research shows that the parents who don't take the children for clinic is due to lack of knowledge or negligence (Pearson 1995).

2.2.3 Ensuring balanced diet

Balanced diet in children promotes proper growth in children below five years this ensures that the child gets all the nutrients required for growth and development. Upon wearing a child, the

parent is encouraged to ensure that the child gets a balanced diet of the food and also to continue breast feeding until the child is about two years to prevent the risk of developing nutritional complications (Cena & Calder, 2020).

Most children have different adaptive technique to other foods it is only 20% of the children who are weaned adopt well to the food that they are given this happens because the parents do not provide the right amount, type and temperature, Children's first foods too often lack diversity and are low in energy and nutrients. Globally, one in three children aged 6–23 months is eating the minimum diverse diet needed for healthy growth and development (Wilson & Bendich, 2022). When most of the children refuse to eat the normal food well the parents tend to stop breast feeding as a way of forcing the child to eat food this results in almost 30% of the children being malnourished at the meaning age, 10% of the children will suffer from deficiency of other minerals or vitamins this is due to feeding the child the food that he or she likes only (Neufeld et al. 2020).

The research conducted by Jayawardena & Misra (2020) showed that 50% of the parents have little knowledge on the food that the child should eat that promote health and growth this results to a lot of malnutrition problems in children. The MOH has promoted program of education parents on the appropriate age of weaning, amount of food and type, since the program started 50% of the parents have responded positively living other 50%

2.2.4 Ways of diagnosing malnutrition in children below five years

Malnutrition in children is diagnosed by observing the child and identifying the following; a child not growing or putting on weight at the expected rate (faltering growth), changes in behavior, such as being unusually irritable, slow or anxious, low energy levels and tiring more easily than other children. Underweight can be diagnosed by measuring the weight of the child, measuring MUAC of a child, MUAC less than 110 mm (11.0cm), RED COLOUR, indicates Severe Acute Malnutrition (SAM). The child should be immediately referred for treatment (Gebremaryam et al. 2022).

MUAC of between 110mm (11.0cm) and 125 mm (12.5cm), RED COLOUR (3-colour Tape) or ORANGE COLOUR (4-colour Tape), indicates Moderate Acute Malnutrition (MAM). The child should be immediately referred for supplementation. MUAC of between 125 mm (12.5cm) and

135mm (13.5cm), YELLOW COLOUR, indicates that the child is at risk for acute malnutrition and should be counseled and followed-up for Growth Promotion and Monitoring (GPM). MUAC over 135mm (13.5cm), GREEN COLOUR, indicates that the child is well nourished (WHO, 2021).

2.3 Compliance of breastfeeding among mothers in pediatric ward

Exclusive breastfeeding (EBF) is the practice of feeding the infant for the first six months of life on breast milk only. This is the standard way of feeding the infants six months and below as per WHO/ UNICEF recommendations. Globally, many studies have shown that there is increasing number of mothers who do not follow this practice for the full period of six months with, rates of as low as 13% in America, 20% in West and Central Africa and 32% in Kenya. Despite the serious consequences associated with low uptake of EBF such as increased morbidity and mortality of children, the compliance to EBF in central Kenya is not well documented.

Breastfeeding can be affected by various factors, including psychological and environmental factors, which all influence decision to breastfeed. Mgongo et al, (2013), highlighted that women who are married, educated, older, wealthier and those with a positive opinion about breastfeeding are more likely to initiate breastfeeding early. Studies suggest that if social networks do not provide enough support, they have a negative effect on the initiation and continuation of breastfeeding. Al-sahab et al, (2010) found out that maternal and paternal grandmothers of the child together with physicians were the ones who most influenced exclusive breastfeeding, but in contradiction, it is the same people who disrupted its continuity. Similarly, healthcare providers' support and the general social atmosphere in which a woman lives both influence the initiation and maintenance of breastfeeding. Exclusive breastfeeding practices and the duration of breastfeeding are also influenced by similar factors as the initiation of breastfeeding, but also by breastfeeding education programmes, breastfeeding support, previous experience and other emotional elements (Mgongo et al 2013)

2.4 State of the pediatric wards in prevention of malnutrition.

2.4.1 General state of the wards

Most patients admitted in the hospital requiring skilled Nursing care are at risk for adverse events or complications from their conditions and treatments. They require close observation during their hospital stays, and care providers must be prepared to detect and intervene quickly when complications occur. Pediatric patients are a unique patient since their immunity might have been affected by their health hence should have proper care to prevent contacting other infections or their health deteriorating (Chawla et al. 2022).

40% of the general ward have really tried to make the environment of the child conducive in the hospital by painting attractive colors on the wall attractive to the children for the recovering process of the children. In this hospital 80% of the children find the environment friendly and respond to the recovery process which takes a short period. 50% of the children who are not in a children friendly ward then to take a long period of time to adapt to the new environment which lengthens the recovery process in children, also in untidy hospital 20% of the children tend to acquire hospital infections (Sallow, 2020).

2.4.2 Staffing

Just like any other department of the public hospitals in our country, the pediatric wards too are understaffed. However as noted earlier, it's imperative that these awards are given a special consideration since the patients require more care. The malnourished children require observation of the nutritionist to recommend the required nutrients to promote health to the normal condition. Good-quality inpatient care in a rural district in Kenya has been estimated to have averted up to 60% of childhood deaths in the surrounding population, there is limited diagnostic and treatment options available in most district hospitals have led in recent years to the development of syndromic-based guidelines for care. 20% of the children admitted in the pediatric ward report to have been seen by the doctor the next day they are admitted this puts the condition of the critical ill patients at risk of the 20%, 5% die before being diagnosed by the doctor (Brits et al. 2020).

2.5 Diet of Children below Five Years Old

Dietary intake has an important role in a child's growth and development for the first three years of life in a child, inadequate dietary intake can negatively influence the growth and development of a child, making the child more vulnerable to diseases and illnesses such as malnutrition. (Mohseni et al. 2019) associated inadequate dietary intake with the consumption of foods with deficient essential nutrients and vitamins, such as iron, calcium, zinc, folic acid, vitamin A, and vitamin B12. The consumption of foods that lack essential nutrients and vitamins often results in protein-energy malnutrition (PEM), which can result in development of kwashiorkor, marasmus, and kwashiorkor-marasmus. Mohseni et al. 2019 further state that inadequate dietary intake is associated with all types of malnutrition. Mohseni et al. 2019 revealed that inadequate dietary intake by children results in impaired child growth and delayed cognitive development, and thus affects poor nutritional status.

2.6 Conceptual Framework

The dependent variable for this study was extent of malnutrition prevention among children below five years. The independent variables are factors that affect or influence the dependent variable. For this study they include level of awareness on malnutrition prevention, compliance with breastfeeding instructions, type of main diet and measures put in place in the pediatric ward.

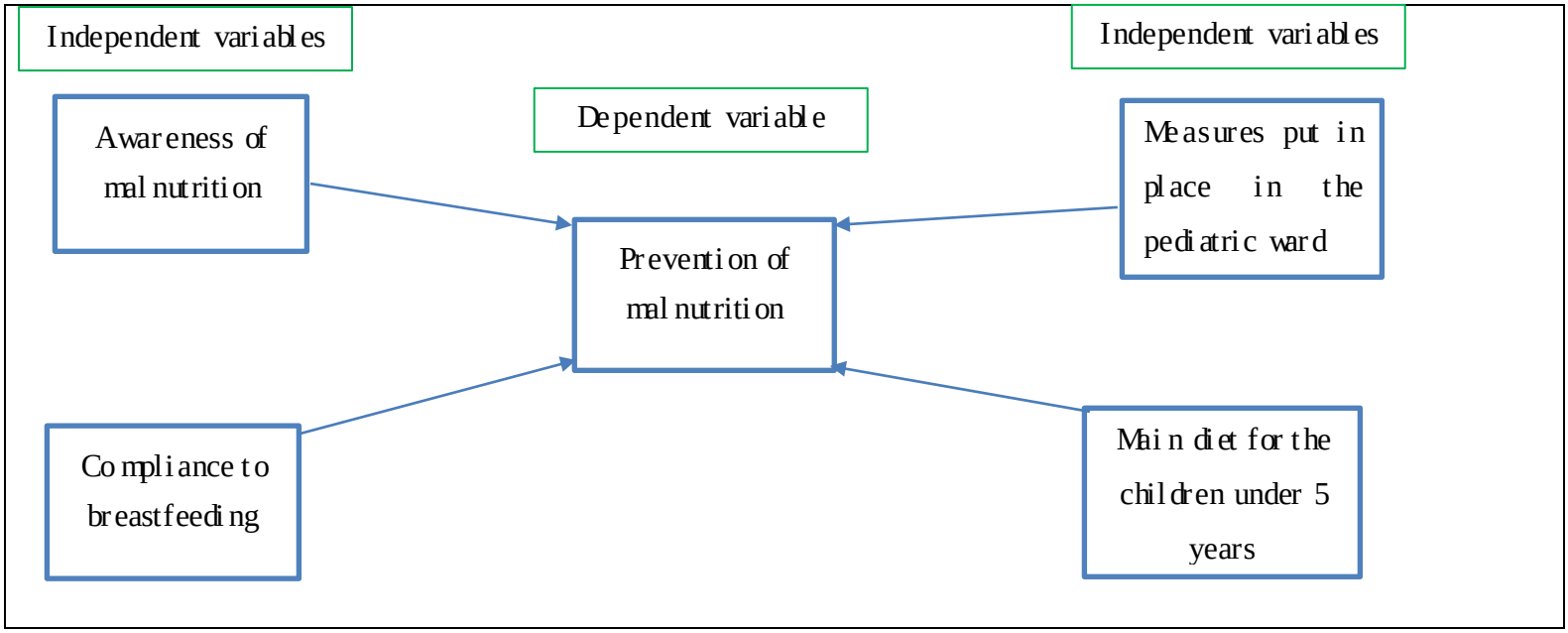

Figure 1: Conceptual framework of the study

CHAPTER THREE: RESEARCH METHODOLOGY

3.0. Introduction

This chapter discusses the scientific research methods for the study which includes: the study design, study area, the study population, the sampling method, sample size determination, data collection method and tools and inclusion and exclusion criteria.

3.1. Study Design

The study employed a cross- section design. The design was chosen because it aimed to achieve an intensive description of the phenomena. According to (Tromp and Kombo, 2006) the design facilitates a detailed assessment of a single instance which for this study is the prevention of the challenge faced. The study gave space for collection of information on facts on challenges faced.

3.2 Study area

The study was conducted in Kericho county hospital which is located in Kericho town, Ainamoi constituency, The hospital has an approximate 500 beds with a bed occupancy of an average of 120%. The hospital serves as primary catchment population of about 1 million of Kericho and secondary catchment population of the surrounding county, Bomet county. The pediatric ward has at least 50 hospitalized patients (Rotich et al. 2020).

3.3 Study Population

According to Mugenda and Mugenda (2003), a study population represents the entire number of units under the study. The population of this study comprised pediatric patients in Kericho county hospital; who are residents of Kericho county and its environs either as indigenous or reside in Kericho as service providers. The study population involved 5 years and below as these are the ages in pediatric ward that are mostly affected by malnutrition. This was the nature of this particular study which will seek to assess the preventive measures of malnutrition in children below five years in Kericho county hospital.

3.4 Eligibility Criteria

3.4.1Inclusion Criteria

All pediatric children admitted in Kericho county hospital for malnutrition whose guardians and parents will be willing to consent and available during study period.

3.4.2 Exclusion Criteria

Pediatric patients who are not suffering from malnutrition or who are not at risk of development malnutrition who are seriously ill during data collection period and those who were admitted the day we administered the questionnaire are to be excluded from the study.

3.6 Sample Size Determination

Fisher's formula was used to determine the sample size, considering that the prevalence of malnutrition in the target population was unknown and assumed to be a proportion of 50%. The study aimed for a 5% margin of error and a 95% confidence level.

Where;

n = desired sample size (if the target population is greater than 10,000).

z = the standard normal deviate at the required confidence level (1.96).

p = the proportion in the target population estimated to have characteristics being measured;

q = 1-p.

d = the level of statistical significance set; 0.05

Therefore;

= 384

Since the entire population (N) was less than 10,000, the required sample size was smaller. Hence the final sample estimate (nf) was adjusted by using Fisher's adjustment formula:

Where;

nf =the desired sample size (if the target population is less than 10,000)

n=the desired sample size (when the target population is more than 10,000)

N=the estimate of the population size = 40

nf = 36

To account for potential dropouts or non-response rates, an additional 10% of the desired sample size (nf) was added, resulting in a total final sample size of 40 participants.

3.7 Sampling

Simple random sampling technique was employed for this study to obtain information from among pediatric patients below five years' inpatients in Kericho county referral hospital.

3.8 Data Collection and Management

The use of questionnaires was employed in the process of data collection. Objective data were obtained from hospital records. In this process, quantitative data were obtained through the questionnaires administered while quantitative data were obtained from the hospital records. Data privacy was ensured by using passwords for those on the computer, and the hard copy

questionnaires were given numbers to represent the respondent and were kept safe from unauthorized personnel.

3.9 Data Collection Tools

The study involved administration of questionnaires and use data abstraction sheets to obtain information.

3.9.1 Validity of the data collection tool

Validity refers to the extent to which a research instrument accurately measures what it is designed to measure. In our study, we aimed to ensure the validity of the instruments using various approaches, including content validity, construct validity, and predictive validity (Saunders, 2009). To establish content validity, we enlisted the expertise of researchers in the field. These experts were consulted to review the instruments and assess their validity. They provided valuable insights and verified whether the instruments were appropriate and relevant for measuring the intended variables. Each statement and question in the instruments were carefully examined in collaboration with the experts to ensure they were aligned with the research topic. By involving experts and conducting a thorough review process, we took measures to enhance the content validity of the instruments. This helped us ensure that the instruments accurately measured the variables they were intended to assess.

3.9.2 Reliability of the data collection tools

Reliability refers to the consistency of results obtained from an instrument when used with the same individuals at different points in time. Mugenda and Mugenda (2012) defined reliability as the extent to which a research instrument produces consistent outcomes. In our study, we employed the test-retest technique to assess the reliability of the research instruments. The test-retest method involved administering the same instruments on two occasions to the same groups of subjects. This approach enabled us to evaluate the consistency of responses over time. After collecting the data, we computed the reliability coefficient using the Cronbach's alpha formula. This coefficient helped us quantify the degree of reliability in the instruments. By employing the test-retest technique and calculating the reliability coefficient, we aimed to determine the extent to which the research instruments yielded consistent and reliable results. This process ensured

that the instruments could be relied upon to provide stable and consistent measurements for the variables under investigation.

3.10. Ethical considerations

Ethical considerations play a crucial role in research, governing the behavior and actions of researchers. In this study, we adhered to research ethics by implementing various measures. These measures included ensuring voluntary participation, maintaining anonymity, and upholding confidentiality for all respondents involved in the study. Prior to their participation, potential participants were provided with detailed information about the study's purpose and objectives. They were given the opportunity to make an informed decision on whether to voluntarily participate in the research (informed consent). The participants' identities were strictly protected, and their personal information was kept confidential throughout the reporting process. To uphold academic integrity, proper citation and acknowledgment of all resources utilized in the study were ensured. We obtained an authorization letter from the University of Kabianga, which granted us permission to collect data from the field, IREC approval number is ISERC/2023/0014. This letter served as official documentation and was presented to the respondents and relevant institutions upon request, ensuring transparency and compliance with ethical guidelines.

CHAPTER FOUR: FINDINGS

Table 1: Socio-demographic characteristics of the study participants

Variable	Frequency	Percentage
Religion		
Christianity	34	85.0
Muslim	4	10.0
Other e.g, Hindu	2	20.0
Marital Status		
Single	6	15.0
Married	25	62.5
Divorced/separated	5	12.5
Widow	4	10.0
Education level		
No formal education	5	12.5
Primary education	16	40.0
Secondary education	12	30.0
Tertiary education	7	17.5
Employment status		
Student	3	7.5
Unemployed	18	45.0
Employed	10	25.0
Self employed	9	22.5
Household monthly income		
< Ksh. 5, 000	17	42.5
Ksh. 5, 001- 15, 000	10	25.0
Ksh. 15, 001- 25, 000	8	20.0
Above Ksh. 25, 000	5	12.5
Child's Age (in years)		
< 1	9	22.5
1-2	11	27.5

3-4	13	32.5
5	7	17.5
Gender		
Female	23	57.5
Male	17	42.5
Birth order		
First	13	32.5
Second	12	30.0
Third or more	15	37.5

The majority of participants (85%) identified as Christians, while a small percentage (10%) identified as Muslims. A minority of participants (5%) belonged to other religions, such as Hindu. The largest group of participants (62.5%) were married. Single participants accounted for 15% of the sample, while divorced/separated individuals represented 12.5% and widows accounted for 10%. The highest proportion (40%) had completed primary education, while 30% had completed secondary education. Approximately 17.5% of participants had tertiary education, and 12.5% had no formal education. Among the participants, 45% were unemployed, while 25% were employed. Those who were self-employed represented 22.5% of the sample, and students accounted for 7.5%. The majority of participants (42.5%) had a household monthly income of less than Ksh. 5,000. About 25% had an income between Ksh. 5,001-15,000, and 20% had an income between Ksh. 15,001-25,000. Only 12.5% of participants had a monthly income above Ksh. 25,000.

In terms of the age distribution of the children, 22.5% of the sample consisted of children below 1 year old. Children aged 1-2 years represented 27.5% of the sample, while those aged 3-4 years accounted for 32.5%. Children aged 5 years old made up 17.5% of the sample. Among the

participants, 57.5% were female, while 42.5% were male. Approximately 32.5% were first-born, 30% were second-born, and 37.5% were third-born or from higher birth orders.

Table 2: Age of Parent or Caregiver

Variable	Mean	Mode	Standard deviation
Age	29.775	29.0	3.588

The age of the parents or caregivers in the study had a mean value of 29.775 years. The mode, which represents the most frequently occurring age, was found to be 29.0 years. The standard deviation, which indicates the variability or spread of the age data, was calculated to be 3.588 years.

Table 3: Level of Awareness Regarding Preventive Measures for Malnutrition

Variable	Frequency	Percentage
Knowledge Rating		
Excellent	8	20%
Good	15	37.5%
Fair	8	20%
Poor	9	22.5%
Preventive Measures		
Exclusive breastfeeding for the first six months	24	60%
Introduction of complementary foods at the appropriate age	23	57.5%
Proper hygiene and sanitation practices	23	57.5%
Adequate intake of nutritious foods	30	75%
Regular growth monitoring and check-ups	29	72.5%
Education/ Counseling Received		
Yes	24	60%

No	16	40%

Among the participants, 20% rated their knowledge about preventive measures for malnutrition as excellent, while 37.5% considered their knowledge to be good. 20% rated their knowledge as fair, and 22.5% rated it as poor. Regarding specific preventive measures, 60% of the participants were aware of the importance of exclusive breastfeeding for the first six months. Similarly, 57.5% were aware of the need to introduce complementary foods at the appropriate age. Proper hygiene and sanitation practices were recognized by 57.5% of the participants. Furthermore, 75% of the participants were aware of the significance of adequate intake of nutritious foods. Regular growth monitoring and check-ups were acknowledged by 72.5% of the participants. Among the participants, 60% reported receiving education or counseling regarding preventive measures for malnutrition. On the other hand, 40% indicated that they had not received any education or counseling in this regard.

Table 4: Adherence to Breastfeeding Practices

Variable	Frequency	Percentage
Exclusive breastfeeding		
Yes	28	70
No	12	30
Reason for not exclusive breastfeeding		
Insufficient milk supply	5	12.5
Difficulties latching or breastfeeding problems	7	17.5
Lack of support or guidance	10	25
Belief that complementary foods were needed	4	10
Duration taken beyond		
6-12 months	7	25.0

12-18 months	5	17.9
18-24 months	4	14.3
More than 24 months	1	3.6
Did not breastfeed beyond six months	11	39.3

A majority of the participants (70%) reported adhering to exclusive breastfeeding, which involves feeding the infant only breast milk without the introduction of any other liquids or solid foods. However, 30% of the participants did not practice exclusive breastfeeding and supplemented their infants' diet with other food sources.

Among the participants who did not practice exclusive breastfeeding, various reasons were identified. Approximately 12.5% mentioned insufficient milk supply as the primary reason for not exclusively breastfeeding, indicating that they may have struggled with producing enough breast milk to meet their child's needs. Additionally, about 17.5% experienced difficulties with latching or encountered breastfeeding problems, which posed challenges to exclusively breastfeeding their infants. Lack of support or guidance was another significant factor mentioned by 25% of the participants, suggesting that they may have lacked the necessary assistance and encouragement to sustain exclusive breastfeeding. Furthermore, 10% believed that introducing complementary foods alongside breastfeeding was necessary, possibly due to cultural or personal beliefs about infant feeding practices.

In terms of the duration of breastfeeding, the findings indicate that 25% of the participants breastfed their children for a period ranging from 6 to 12 months. Around 17.9% continued breastfeeding for 12 to 18 months, indicating a slightly longer duration of breastfeeding. A smaller proportion, approximately 14.3%, extended breastfeeding for 18 to 24 months, demonstrating a commitment to breastfeeding beyond the first year. Interestingly, only 3.6% of

the participants breastfed their children for more than 24 months, indicating a relatively small number of participants who practiced extended breastfeeding. It is notable that a significant portion, 39.3% of the participants, did not breastfeed beyond the recommended six-month exclusive breastfeeding period, suggesting that they may have discontinued breastfeeding or introduced complementary foods earlier than recommended.

Table 5: Preventive Measures Implemented in the Pediatric Ward according to respondents

Variable	Frequency	Percentage
Specific Measures in Place in the Pediatric Ward		
Routine growth monitoring	35	87.5%
Nutritional counseling for caregivers	29	72.5%
Provision of nutritious meals and snacks	37	92.5%
Hygiene and sanitation protocols	38	95.0%
Availability of immunizations	32	80.0%
Effectiveness of Preventive Measures		
Highly effective	12	30.0%
Moderately effective	22	55.0%
Slightly effective	4	10.0%
Not effective	2	5.0%

A significant majority of the participants (87.5%) reported that routine growth monitoring is conducted in the pediatric ward, ensuring regular assessment of children's growth and development. Nutritional counseling for caregivers was also provided in the pediatric ward, as reported by 72.5% of the participants, indicating that educational guidance on proper nutrition is offered to parents or caregivers. The provision of nutritious meals and snacks was acknowledged by 92.5% of the participants, highlighting the importance of offering healthy food options to

children in the pediatric ward. The implementation of hygiene and sanitation protocols was reported by 95% of the participants, indicating that measures are in place to maintain a clean and safe environment. Additionally, 80% of the participants noted the availability of immunizations in the pediatric ward, ensuring that children receive necessary vaccinations to prevent vaccine-preventable diseases.

In terms of the perceived effectiveness of the preventive measures, 30% of the participants considered the measures highly effective in preventing malnutrition and promoting child health. A majority of the participants (55%) regarded the measures as moderately effective, indicating that while there is room for improvement, the implemented measures are making a positive impact. A smaller proportion (10%) viewed the measures as slightly effective, suggesting that further enhancements may be needed. Only 5% of the participants expressed that the measures were not effective, indicating a need for reevaluation or reinforcement of the preventive measures in the pediatric ward.

Table 6: Predominant Dietary Patterns

Variable	Frequency	Percentage
Main Source of Nutrition for Children Below Five Years Old		
Breast milks	18	45%
Formula milk	10	25%
Solid foods	8	20%
Combination of breast milk and solid foods	4	10%
Typical Foods Included in Children's Diet		
Fruits and vegetables	35	87.5%
Grains and cereals	32	80.0%
Meat, poultry, or fish	25	62.5%
Dairy products	30	75.0%

Legumes and pulses	18	45.0%
Sugary or processed foods	12	30.0%
Other;	5	12.5%
Dietary Restrictions or Special Considerations		
Yes	15	37.5%
No	25	62.5%

The majority of children (45%) relied on breast milk as their main source of nutrition, highlighting the importance of breastfeeding in early childhood. Formula milk served as the main source of nutrition for 25% of the children, indicating the use of alternative feeding methods. Approximately 20% of the children's diets consisted of solid foods, suggesting a transition from milk to more solid-based nutrition. A smaller proportion (10%) had a combination of breast milk and solid foods in their diet, showcasing a mixed approach to feeding.

The findings revealed that a significant majority of children had a diet that included fruits and vegetables (87.5%), indicating a positive emphasis on consuming these essential food groups. Grains and cereals were part of the diets of 80% of the children, providing important sources of carbohydrates and dietary fiber. Approximately 62.5% of the children's diets included meat, poultry, or fish, contributing to their protein intake. Dairy products were consumed by 75% of the children, offering sources of calcium and other vital nutrients. Legumes and pulses were included in the diets of 45% of the children, further diversifying their protein sources. A smaller proportion (30%) consumed sugary or processed foods, indicating the presence of less nutritious options in their diets. Additionally, a small percentage (12.5%) mentioned other foods not specified in the provided options, showcasing individual dietary variations.

Among the participants, 37.5% reported having dietary restrictions or special considerations for their children's diets, indicating specific needs or preferences that impact their food choices. The

majority (62.5%) did not have any dietary restrictions or special considerations, suggesting a more flexible approach to their children's diets.

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Discussion

A study conducted by O'Connor et al. (2016) investigated maternal knowledge about complementary feeding practices in Bangladesh and found that mothers' self-rated knowledge was positively associated with their actual knowledge and practices. This supports the notion that self-assessment can be indicative of individuals' knowledge levels. Regarding specific preventive measures for malnutrition, the findings indicate that a significant proportion of the participants were aware of certain key measures. For example, 60% of the participants recognized the importance of exclusive breastfeeding for the first six months. This finding aligns with the World Health Organization (WHO) recommendations, which emphasize exclusive breastfeeding during this period (WHO, 2017).

Similarly, 57.5% of the participants were aware of the need to introduce complementary foods at the appropriate age. The WHO recommends introducing nutritionally adequate and safe complementary foods at around 6 months, while continuing breastfeeding (WHO, 2003). This awareness among the participants suggests a relatively good understanding of this preventive measure. Proper hygiene and sanitation practices were recognized by 57.5% of the participants. This finding highlights the importance of hygiene in preventing malnutrition, as unhygienic conditions can contribute to the spread of diseases and infections that can lead to malnutrition. It aligns with the WHO's emphasis on hygiene and sanitation as essential components of preventing malnutrition (WHO, 2019).

Furthermore, 75% of the participants were aware of the significance of adequate intake of nutritious foods. This finding underscores the importance of a balanced and nutritious diet in preventing malnutrition. Adequate intake of essential nutrients is crucial for maintaining proper

health and preventing malnutrition (Black et al., 2013). Regular growth monitoring and check-ups were acknowledged by 72.5% of the participants. Regular monitoring of children's growth and development can help identify any signs of malnutrition or other health issues at an early stage. This aligns with the WHO's recommendation for regular growth monitoring to prevent malnutrition (WHO, 2017).

Finally, in terms of education and counseling, 60% of the participants reported receiving education or counseling regarding preventive measures for malnutrition. Education and counseling play a vital role in disseminating knowledge and raising awareness about preventive measures. This finding suggests that a considerable proportion of the participants had access to such information. On the other hand, 40% of the participants indicated that they had not received any education or counseling on preventive measures for malnutrition. This highlights a potential gap in information dissemination and the need for targeted interventions to reach a broader audience.

According to the data, a majority of the participants (70%) reported adhering to exclusive breastfeeding, which involves feeding the infant only breast milk without introducing any other liquids or solid foods. This finding aligns with the World Health Organization's recommendation of exclusive breastfeeding for the first six months (WHO, 2017). However, 30% of the participants did not practice exclusive breastfeeding and supplemented their infants' diet with other food sources. The introduction of complementary foods before the recommended age can increase the risk of malnutrition and other health problems among infants (WHO, 2003). It is essential to understand the reasons behind this non-adherence to exclusive breastfeeding.

Among the participants who did not practice exclusive breastfeeding, several reasons were identified. Approximately 12.5% mentioned insufficient milk supply as the primary reason. This

suggests that these participants may have faced challenges in producing enough breast milk to meet their child's needs. Insufficient milk supply can result from various factors, including hormonal issues, improper breastfeeding technique, or inadequate stimulation (Neifert et al., 1990). About 17.5% of the participants experienced difficulties with latching or encountered breastfeeding problems. These challenges can hinder the establishment of successful breastfeeding and contribute to the decision not to exclusively breastfeed. Breastfeeding difficulties can arise due to issues such as incorrect latch, nipple pain, or inadequate suckling (Neville et al., 2002). Lack of support or guidance was another significant factor mentioned by 25% of the participants. This finding highlights the importance of adequate support systems for breastfeeding mothers. Support from healthcare professionals, family members, and communities can play a crucial role in promoting and sustaining exclusive breastfeeding (Pérez-Escamilla et al., 2012).

Furthermore, 10% of the participants believed that introducing complementary foods alongside breastfeeding was necessary. This belief may be influenced by cultural or personal beliefs about infant feeding practices. It is important to address misconceptions and provide accurate information about the benefits of exclusive breastfeeding for the recommended duration. Regarding the duration of breastfeeding, the findings indicate a range of practices among the participants. Approximately 25% breastfed their children for 6 to 12 months, which is within the recommended timeframe for exclusive breastfeeding. This suggests that a quarter of the participants adhered to the guidelines. Around 17.9% continued breastfeeding for 12 to 18 months, indicating a slightly longer duration of breastfeeding. This finding aligns with the WHO's recommendation of continued breastfeeding alongside appropriate complementary feeding up to two years of age or beyond (WHO, 2017).

A smaller proportion, approximately 14.3%, extended breastfeeding for 18 to 24 months, demonstrating a commitment to breastfeeding beyond the first year. Extended breastfeeding can provide additional health and developmental benefits for both the child and the mother (Horta et al., 2007). Only 3.6% of the participants breastfed their children for more than 24 months, indicating a relatively small number of participants who practiced extended breastfeeding. Extended breastfeeding practices can vary across different cultures and communities, influenced by various factors such as social norms, cultural beliefs, and personal preferences (Bentley et al., 2002). It is notable that a significant portion, 39.3% of the participants, did not breastfeed beyond the recommended six-month exclusive breastfeeding period. This suggests that they may have discontinued breastfeeding or introduced complementary foods earlier than recommended. Early cessation of breastfeeding or inadequate adherence to exclusive breastfeeding guidelines can impact infant health and increase the risk of malnutrition

According to the data, a significant majority of the participants (87.5%) reported that routine growth monitoring is conducted in the pediatric ward, ensuring regular assessment of children's growth and development. Growth monitoring is a vital component of preventive measures for malnutrition, as it allows healthcare professionals to identify early signs of growth faltering and intervene appropriately (World Health Organization, 2009). This finding suggests that the pediatric ward has established mechanisms for monitoring children's growth, which is crucial for preventing malnutrition. Nutritional counseling for caregivers was also provided in the pediatric ward, as reported by 72.5% of the participants. Nutritional counseling plays a key role in educating caregivers about proper nutrition, feeding practices, and age-appropriate dietary requirements for children (Black et al., 2013). This finding indicates that the pediatric ward recognizes the importance of offering educational guidance on nutrition to parents or caregivers.

The provision of nutritious meals and snacks was acknowledged by 92.5% of the participants. This finding emphasizes the significance of offering healthy food options to children in the pediatric ward. Adequate nutrition is essential for growth, development, and prevention of malnutrition (World Health Organization, 2003). Providing nutritious meals and snacks in the pediatric ward contributes to meeting children's nutritional needs during their stay. The implementation of hygiene and sanitation protocols was reported by 95% of the participants. Hygiene and sanitation practices are critical in preventing the spread of diseases and infections that can lead to malnutrition (World Health Organization, 2019). Maintaining a clean and safe environment in the pediatric ward is essential for promoting child health and preventing the occurrence of malnutrition-related complications. Additionally, 80% of the participants noted the availability of immunizations in the pediatric ward. Vaccinations play a crucial role in preventing vaccine-preventable diseases and their associated complications, which can contribute to malnutrition (Victora et al., 2008). This finding suggests that the pediatric ward ensures children receive necessary immunizations to protect their health.

In terms of the perceived effectiveness of the preventive measures, the findings indicate varying perspectives among the participants. Thirty percent of the participants considered the measures highly effective in preventing malnutrition and promoting child health. This indicates a positive perception of the implemented preventive measures and their impact on child well-being. A majority of the participants (55%) regarded the measures as moderately effective. While there is room for improvement, this finding suggests that the implemented measures are making a positive impact on preventing malnutrition. It highlights the importance of continuous evaluation and refinement of preventive measures to enhance their effectiveness. A smaller proportion (10%) viewed the measures as slightly effective, suggesting that further enhancements may be needed

to strengthen the impact of the preventive measures in the pediatric ward. This feedback emphasizes the need for ongoing assessment and adjustments to ensure the effectiveness of interventions. Only 5% of the participants expressed that the measures were not effective. This minority view indicates a potential need for reevaluation or reinforcement of the preventive measures in the pediatric ward. It underscores the importance of addressing any gaps or deficiencies identified to optimize the prevention of malnutrition.

According to the data, a majority of the children (45%) relied on breast milk as their main source of nutrition. This highlights the importance of breastfeeding in early childhood, as breast milk provides essential nutrients and supports optimal growth and development (World Health Organization, 2003). Breastfeeding is recommended as the ideal feeding method for infants, providing numerous health benefits (Victora et al., 2016). Formula milk served as the main source of nutrition for 25% of the children. Formula feeding may be necessary in situations where breastfeeding is not possible or as a supplement to breast milk (American Academy of Pediatrics, 2012). It provides a viable alternative to meet the nutritional needs of infants. Approximately 20% of the children's diets consisted of solid foods, indicating a transition from milk to more solid-based nutrition. The introduction of complementary foods at the appropriate age is an important step in a childs diet (World Health Organization, 2003). This finding suggests that a significant proportion of the children have reached an age where complementary feeding is appropriate. A smaller proportion (10%) had a combination of breast milk and solid foods in their diet, indicating a mixed approach to feeding. This approach may reflect individual preferences or cultural practices related to infant feeding.

The findings reveal that a significant majority of children had a diet that included fruits and vegetables (87.5%). This indicates a positive emphasis on consuming these essential food groups,

which are rich in vitamins, minerals, and dietary fiber. A diet rich in fruits and vegetables supports overall health and helps prevent nutrient deficiencies (World Health Organization, 2015). Grains and cereals were part of the diets of 80% of the children. These food groups provide important sources of carbohydrates and dietary fiber, contributing to energy and digestive health (Slavin, 2013). Approximately 62.5% of the children's diets included meat, poultry, or fish. These food sources are valuable for their protein content, which is essential for growth and development (World Health Organization, 2007). Adequate protein intake is crucial for meeting nutritional needs during early childhood.

Dairy products were consumed by 75% of the children, offering sources of calcium and other vital nutrients. Calcium is necessary for bone health and plays a role in various physiological functions (World Health Organization, 2004). Legumes and pulses were included in the diets of 45% of the children, further diversifying their protein sources. Legumes are a good source of plant-based protein, fiber, and other essential nutrients (Tharanathan & Mahadevamma, 2003). A smaller proportion (30%) consumed sugary or processed foods. This finding suggests the presence of less nutritious options in their diets. High consumption of sugary or processed foods can contribute to adverse health outcomes, including dental problems and increased risk of chronic diseases (World Health Organization, 2015).

5.2. Conclusion

The findings of the study indicate a generally positive level of awareness among participants regarding preventive measures for malnutrition. These measures include exclusive breastfeeding, introduction of complementary foods at the appropriate age, hygiene and sanitation practices, adequate intake of nutritious foods, and regular growth monitoring and check-ups. The pediatric ward demonstrated the implementation of routine growth monitoring, nutritional counseling,

provision of nutritious meals, hygiene and sanitation protocols, and availability of immunizations. The perceived effectiveness of the preventive measures varied among participants, with a majority considering them moderately effective. However, there were also participants who believed that further enhancements were needed or expressed that the measures were not effective. The study also highlighted the importance of breastfeeding and the diversity of children's diets, with an emphasis on fruits and vegetables, grains and cereals, meat/poultry/fish, dairy products, and legumes/pulses. Some participants reported dietary restrictions or special considerations for their children's diets. These findings underscore the need for continuous evaluation, education, and support to improve the effectiveness of preventive measures and promote optimal nutrition for children.

In conclusion, the study provides valuable insights into the knowledge, practices, and perceptions related to preventive measures for malnutrition, as well as the dietary patterns and challenges faced by caregivers. Further research and interventions can be conducted to address the identified gaps and improve the implementation and effectiveness of preventive measures, ultimately contributing to better child health and nutrition outcomes.

5.3. Recommendations

Based on the findings of this study, the following recommendations were suggested in order to ensure minimized or prevention of malnutrition among the under five children in Kericho Hospital;

1. Strengthen breastfeeding support: Address the challenges faced by mothers who reported insufficient milk supply or difficulties with latching. Provide comprehensive breastfeeding support services, including lactation consultations, counseling, and education, to help mothers overcome barriers and promote successful exclusive breastfeeding.

2. Enhance education and counseling: Increase the reach and accessibility of education and counseling programs on preventive measures for malnutrition. Target both caregivers and healthcare providers to ensure comprehensive and accurate information dissemination. Emphasize the importance of exclusive breastfeeding, appropriate complementary feeding, hygiene practices, and the significance of nutritious foods.
3. Improve support systems: Establish robust support systems for breastfeeding mothers, including healthcare professionals, family members, and communities. Encourage peer support groups and create platforms for sharing experiences and knowledge. This can help address challenges and provide the necessary guidance and encouragement to sustain exclusive breastfeeding.
4. Emphasize the importance of complementary feeding: Provide education and guidance on the appropriate age to introduce complementary foods alongside continued breastfeeding. Highlight the benefits of a diverse and nutritious diet for children's growth and development. Dispel misconceptions and cultural beliefs that may influence early introduction of complementary foods.
5. Enhance availability of nutritious meals: Ensure the provision of nutritious meals and snacks in pediatric wards and childcare settings. Collaborate with nutrition experts to develop menus that meet the dietary needs of children. Implement food safety and quality control measures to maintain the nutritional value of meals provided.

5.4. Study limitation

Time and financial constraints were one of major factors that influenced the study. the study is the reliance on self-reported data. The findings are based on participants' self-assessment of their knowledge, practices, and perceptions regarding preventive measures for malnutrition. Self-

reported data can be subject to biases such as social desirability bias, where participants may provide responses, they believe are socially acceptable or expected. However, this study aimed to achieve generalizable findings that reflect the true status of malnutrition prevention among under five years children in Kericho Hospital.

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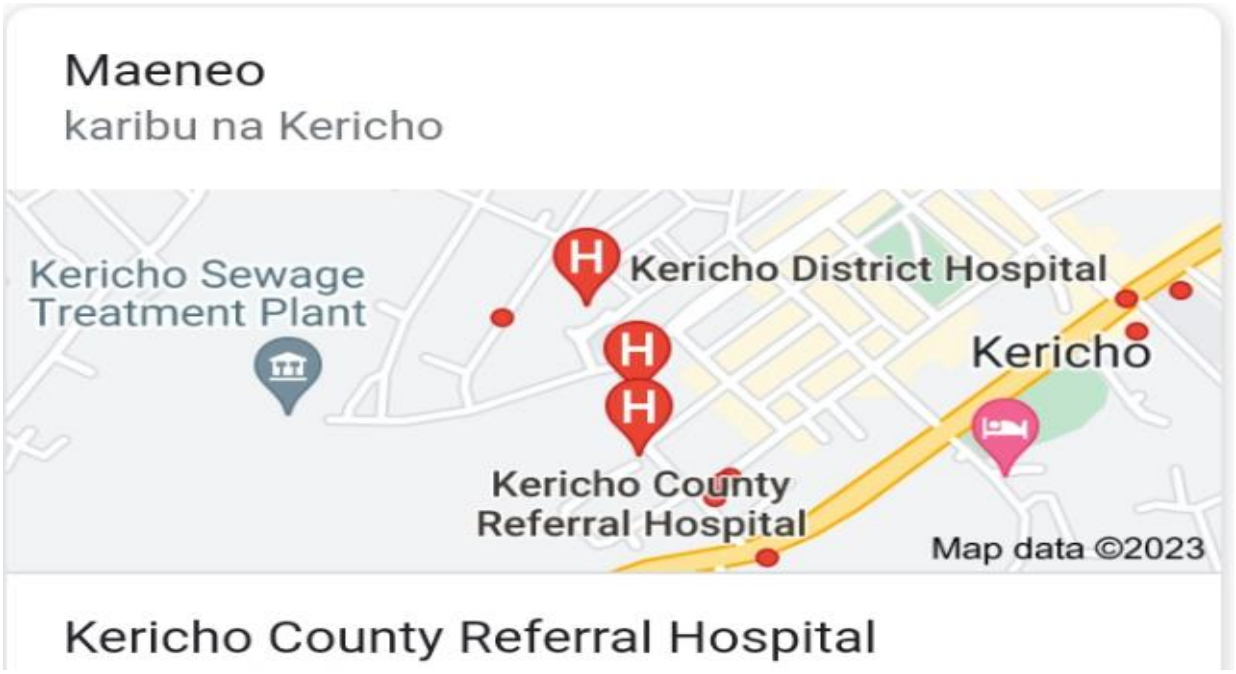
APPENDICES

Appendix 1: Study Area



Map of Kericho county referral hospital (extracted from Saunders & Smith, 2010)

Appendix 2: Consent Form

CONSENT FORM

Researchers' statement Study Title: PREVENTION OF MALNUTRITION IN CHILDREN BELOW FIVE YEARS IN KERICHO COUNTY REFFERAL HOSPITAL

Name of Principal Investigator(s):

PHILES ORINA NUR/K/0020/2019.

PROTUS OKUTOYI. NUR/K/0027/2019.

WELDON KIBITOK NUR/K/0013/2019.

GIDEON RONO NUR/K/0031/2019.

NAHASHON KIPTUM. NUR/K/0010/2019.

Co Investigators: Madam Irine K Lumonje

Name of Organization: University of Kabianga, Kapkatet campus.

This Informed Consent Form has two parts:

• Information Sheet (to share information about the study with you)

• Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the signed Informed Consent Form

Part I: Information Sheet

Introduction: You are being asked to take part in a research study. This information is provided to tell you about the study. Please read this form carefully. You will be given a chance to ask

questions. If you decide to be in the study, you will be given a copy of this consent form for your records.

Taking part in this research study is voluntary. You may choose not to take part in the study. You are also free to withdraw from this study at any time. If after data collection you choose to quit, you can request that the information provided by you be destroyed under supervision- and thus not used in the research study.

If you decide to be in the study, you will be given a copy of this consent form for your records.

Taking part in this study is voluntary.

Purpose of the study:

Prevention of malnutrition in children below five years in Kericho County hospital.

e of Research Project/Intervention

The research will involve asking you to fill the questionnaire.

Why have I been identified to Participate in this study?

You have been identified to participate in this study because you willingly accepted to give information about your child

How long will the study last?

You will in the study for one month

What will happen to me during the study?

We are asking you to assist us to know more on prevention of malnutrition in children below five years in Kericho County. If you accept, you will be asked questions and you will answer as we record in a paper.

What side effects or risks I can expect from being in the study?

There will be no risks involved in the study.

What are the benefits of participating in the study?

You will get to know some of the ways that you can prevent malnutrition in your child

Reimbursements'

There will be no reimbursements if you participate in the study.

Who do I call if I have questions about the study?

Questions about the study: call 0743214557or 0715472388 email

nurk0020/2019@students.kabianga.ac.ke@gmail.com

Questions about your rights as a research subject: You may contact Institutional Review Ethics Committee (IREC) 053 33471 Ext. 3008. IREC is a group of people that reviews studies for safety and to protect the rights of study subjects.

Will the information I provide be kept private?

All reasonable efforts will be made to keep your protected information (private and confidential). Protected Information is information that has been, collected, maintained and can be linked back to you.

Part II: Consent of Subject:

I have read or have had read to me the description of the research study. The investigator or his/her representative has explained the study to me and has answered all of the questions I have at this time. I have been told of the potential risks, discomforts and side effects as well as the possible benefits (if any) of the study. I freely volunteer to take part in this study.

_____ _____

_____

Name of Participant Signature of subject/thumbprint Date & Time

(Witness to print if the

Subject is unable to write

_____ _____

Name of Representative/Witness Relationship to Subject

_____ _____ _____

Name of person Obtaining Consent Signature of person Date

Obtaining Consent

_____ _____ _____

Printed name of Investigator Signature of Investigator Date

Appendix 3: Questionnaire

We are 4th year nursing students from University of Kabianga. we are seeking your assistance in filling this questionnaire. It is meant to aid data collection and only required for academic studies. The information you give will be treated with the confidentiality it deserves and the findings of this study will be purely for academic purposes and instance will your name feature anywhere as a source of any specific data unless your permission is sought and granted. Please kindly answer the questions below either by ticking and/or writing a brief statement in the spaces/ boxes provided as will be applicable.

TITLE OF THE STUDY:

Section 1: Demographic Information

1. What is your age? ……..

2. What is your religion?

   Christian [ ] Muslim [ ] Hinduism [ ] Other (Specify) ……

3. What is your marital status?

   Single [ ] Married [ ] Separated/divorced [ ] Widow [ ]

4. Educational Level?

   No formal education [ ] Primary education [ ] Secondary education [ ]

   Tertiary education [ ]

5. Employment Status?

   Employed [ ] Unemployed [ ] Self-employed [ ] Student [ ]

6. Monthly Income?

   Below poverty line [ ] Low income [ ] Middle income [ ]

   High income [ ] Not applicable [ ]

7. Gender of the child?

   Male [ ] Female [ ]

8. Age of the child?

   Under 1 year [ ] 1-2 years [ ] 3-4 years [ ] 5 years [ ]

9. Relationship to the child:

   Mother [ ] Father [ ] Guardian [ ]

10. Number of children below five years old in your care: _____

Section 2: Level of Awareness Regarding Preventive Measures for Malnutrition

11. How would you rate your knowledge about preventive measures for malnutrition in children below five years?

    a) Excellent [ ] b) Good [ ] c) Fair [ ] d) Poor [ ]

12. Which of the following preventive measures for malnutrition are you aware of? (Check all that apply)

    a) Exclusive breastfeeding for the first six months [ ]

b) Introduction of complementary foods at the appropriate age [ ]

c) Proper hygiene and sanitation practices [ ]

d) Adequate intake of nutritious foods [ ]

e) Regular growth monitoring and check-ups [ ]

f) Other (Specify: _____)

13. Have you received any education or counseling regarding preventive measures for malnutrition?

a) Yes [ ] b) No [ ]

Section 3: Evaluation of Adherence to Breastfeeding Practices

14. Did you breastfeed your child exclusively for the first six months?

a) Yes [ ] b) No [ ]

15. If you did not exclusively breastfeed, what were the reasons? (Check all that apply)

a) Insufficient milk supply [ ] b) Difficulties latching or breastfeeding problems [ ]

c) Lack of support or guidance [ ] d) Belief that complementary foods were needed [ ]

e) Other (Specify: _____)

16. If you breastfed your child beyond six months, for how long did you continue breastfeeding?

a) 6-12 months [ ] b) 12-18 months [ ] c) 18-24 months [ ]

d) More than 24 months [ ] e) Did not breastfeed beyond six months [ ]

Section 4: Examination of Preventive Measures Implemented in the Pediatric Ward

17. Are there any specific measures in place in the pediatric ward to prevent malnutrition in children below five years? (Check all that apply)

    a) Routine growth monitoring [ ]

    b) Nutritional counseling for caregivers [ ]

    c) Provision of nutritious meals and snacks [ ]

    d) Hygiene and sanitation protocols [ ]

    e) Availability of immunizations [ ]

    f) Other (Specify: _____)

18. How would you rate the effectiveness of the preventive measures in the pediatric ward?

    a) Highly effective [ ]

    b) Moderately effective [ ]

    c) Slightly effective [ ]

    d) Not effective [ ]

Section 5: Investigation of Predominant Dietary Patterns

19. What is the main source of nutrition for your child below five years old?

    a) Breast milk [ ]

    b) Formula milk [ ]

c) Solid foods (Specify: _____)

d) Combination of breast milk and solid foods [ ]

20. What are the typical foods included in your child's diet? (Check all that apply)

a) Fruits and vegetables [ ] b) Grains and cereals [ ] c) Meat, poultry, or fish [ ]

d) Dairy products [ ] e) Legumes and pulses [ ] f) Sugary or processed foods [ ]

g) Other (Specify: _____)

21. Are there any dietary restrictions or special considerations for your child's diet?

Yes [ ] No [ ]

22. If yes, please provide details.

……..

Thank you for your participation!

APPENDIX 3: BUDGET

DESCRIPTION	UNIT COST (KSH)	TOTAL COST (KSH)
Printing	500	500
Transport	300	1500
Lunch	200	1000
Stationeries	100	100
Internet and browsing	200	200
Miscellaneous	100	100
TOTAL	1400	3400

APPENDIX 4: WORK PLAN

ACTIVITY	TIME
Topic selection	Week 1
Proposal writing	Week 2-3
Defending proposal and corrections	Week 4
Data collection	Week 5
Data analysis and writing	Week 6-7
Report submission	Week 8