

FACTORS LEADING TO MALNUTRITION IN CHILDREN UNDER FIVE
YEARS IN NYAMWAMBA DIVISION, KASESE MUNICIPALITY, KASESE
DISTRICT

BY

KABUGHO MARY CONSOLATA

REG.No: 17/A/BEH/1385/W

SUPERVISOR:

MS. KATUSIIME HOPE

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Declaration

I hereby declare that the information contained in this research proposal has been personally compiled by me and has never been submitted to any institute of higher learning for any academic award.

Signature:.....

KABUGHO MARY CONSOLATA

Student

Approval

This research proposal has been compiled under my supervision and now ready for submission to Kabale University School of Medicine, Department of Community Health.

Signature:

Ms. KATUSIIME HOPE

University Supervisor

Dedication

The Research proposal is dedicated to my dearest husband Bwambale Diadone for his overwhelming support, care and love. My beloved children Dan, Dianah, Dinah, Doreen and Bridget for enduring with those hard situations in my absence. My dear parents Mr. & Mrs. Constantine and Pauline Syauswa for their endless prayers and words of encouragement. In a special way I would like to thank my University Supervisor, Ms. Katusiime Hope for her guidance and technical support provided to me during the development of this document. Lastly Kasese Municipal Council for the permitting me, more especially madam Masika Grace the senior assistant town clerk for the care and financial support.

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This work has been a product of concerted effort of many people:

I wish to express my sincere thanks to almighty God for the support, strength and inspiration to undertake and complete this course.

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I extend my sincere gratitude to the administration of Kasese Municipal HCIII for allowing me to carry out this research in the Health Facility, the staffs for their cooperation during data collection as well as all my respondents who accepted to participate in the study.

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Abstract

Introduction: The study was carried out to assess the factors leading to malnutrition in children under-five years at Kasese Municipal HCIII, Kasese Municipality, Kasese District.

Malnutrition is regarded as the most important risk factor for illness and death globally and it is associated with 52.5% Of all deaths in young children (Lisanu Mazengia & Andargie Biks, 2018).

Methodology: This study used a cross-sectional descriptive research design which used quantitative approaches, researcher-administered questionnaire which was used to determine the factors leading to malnutrition in children under-five years. The study used a probability sampling technique which consisted of a systematic random sampling and 104 respondents were reached.

Results: More than half of the under-five children in the study were females (53) and majority were aged 37-59 months (57) and followed by those aged 13-36 months (36) respectively. Half of the children (52) were of birth order 1-2 with a few in the birth order of 3-4 (26) and 5+ order (26) respectively. The number and distribution of under-five children according to the education level of the mother indicates that majority of the mothers had received primary level education (76) and quite a few had never been to school (16). Findings show that 18(104) were wasted and 13 (104) were severely wasted. The highest prevalence of wasting was observed in children aged 24-35 months where 23 (104) and 8 (104) children were wasted and severely wasted respectively. Almost a third, 29 (104) were stunted and 13 (104) severely stunted. Children aged 6-11 month presented highest prevalence of moderate stunting 37 (104) while severe stunting was highest 19 (104) in children aged 6-11 months.

In conclusion, the study has shown there are some gaps in terms of knowledge towards nutrition. For example only 50 women out of the 104 had the correct knowledge on initiation of breastfeeding after birth. To reduce childhood Under-nutrition in Kasese Municipality which has been on the rise, emphasis should be given in improving the knowledge of mothers on appropriate infant and young children feeding.

Recommendations

1. To reduce childhood Under-nutrition in Kasese Municipality, emphasis should be given in improving the knowledge of mothers on appropriate infant and young children feeding.
2. Empowering women in terms of formal education as seen in the current study, education positively affects the correct timing of initiation of complementary feeds.
3. The study recommends exclusive breast feeding and proper supplementary feeding especially among children aged less than three years.

List of Acronyms

HCIII	Health Centre Three
DHO	District Health Officer
SNO	Senior Nursing Officer
UNICEF	United Nations International Children Emergency Fund
DHS	Demographic and Health Survey
UBOS	Uganda Bureau of Statistics
WHO	World Health Organization
UDHS	Uganda Demographic House Hold Survey
USAID	United States Agency For International Development
UKAID	United Kingdom Aid for International Development
GDP	Gross Domestic Product
EU	European Union
SAM	Severe Acute Malnutrition
MAM	Moderate Acute Malnutrition

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Chapter One: Introduction

1.0 Introduction

Malnutrition in childhood and pregnancy has many adverse consequences for child survival and long-term well-being. It also has far-reaching consequences for human capital, economic productivity, and national development overall. The consequences of malnutrition should be a significant concern for policy makers in Uganda, where 2.2 million children under 5 years (29 percent) suffer from stunting (low height-for-age), according to the most recent Uganda Bureau of Statistics Report (DHS)(UBS & ICF, 2017). Stunting is the result of growing under limited provision of food, health, and care. This study will seek to assess the factors leading to malnutrition in children under-five years in Kasese Municipal HCIII, Kasese Municipality, Kasese District. The independent variables to be examined will include child factors and maternal factors. Child Nutrition status as the dependent variable will be measured in terms of Nourished, Stunted, Wasted, and Underweight. Besides introduction of the study, this chapter presents the background to the study, statement of the problem, general objectives, specific objectives of the study, research questions, conceptual framework, significance, justification, scope, and operational definitions of terms and concepts.

1.1 Background to the study

Malnutrition is regarded as the most important risk factor for illness and death globally and it is associated with 52.5 % of all deaths in young children (Lisanu Mazengia & Andargie Biks, 2018). According to UNICEF, WHO and the World Bank, out of the 161million under-fives estimated to be stunted globally in 2015, over a third resided in Africa. In addition, about one-third of the 51 million under-fives who were wasted and the 99 million who were underweight were also from Africa (Khoushabi, Abadi, Shadan, & Bagheri, 2019). Furthermore, although there has been a global decline in underweight from 25 % to 15 %, Africa has experienced the smallest relative decrease in prevalence going from 23 % in 1990 to 17 % by 2014 (Troeger et al., 2017). An estimated 45 percent of deaths of children under age 5 are linked to malnutrition (Caulfield, de Onis, Blossner, & Black, 2018). In children, low birth weight, feeding problems, diarrhoea, recurrent illness, measles, pertussis, and chronic disease among others increase the risk of malnutrition (Tette, Sifah, & Nartey, 2015). These factors vary from locality to locality and children under five years are most at risk. Social factors also have an influence on malnutrition and in the 1990 s, malnutrition was associated with young mothers and low maternal socio-economic status (Tette et al., 2015).

Substantial global progress has been made in reducing child deaths since 1990. The total number of under-5 deaths worldwide has declined from 12.6 million in 1990 to 5.3 million in 2018 (Traeger et al., 2017). Malnutrition continues to be a serious public health concern especially in conflict and postconflict recovery situations. Children weakened by all forms of malnutrition often die from diseases which are both preventable and easy-to-treat, such as diarrhoea, pneumonia, and malaria. On average, 15 000 children under-5 die each day compared with 34 000 in 1990. Since 1990, the global under-5 mortality rate has dropped by 59%, from 93 deaths per 1,000 live births in 1990 to 39 in 2018. This is equivalent to 1 in 11 children dying before reaching age 5 in 1990, compared to 1 in 26 in 2018 (Hug, Alexander, You, Alkema, & for Child, 2019)

Despite the global trend for a reduction in nutritional deficit, this problem remains significant in some regions of the world. Worldwide there are about 60 million children with moderate acute and 13 million with severe acute malnutrition (Kalu & Etim, 2018). About 50% of the 10-11 million children under five years of age die due to preventable causes. Of all the children that die, 99% are in the developing world (Fongar, Godecke, & Qaim, 2019) (Laillou et al.; Vos et al., 2017). About 9% of sub-Saharan African children have moderate acute malnutrition and 2% of children in developing countries have SAM. Mortality is related to the severity of the malnutrition, where severe wasting has a mortality rate of 73-187 per 1000 children per year (Laillou et al.; Vos et al., 2017). Poor hospital care of severe acute malnutrition (SAM) contributes to high mortality rates and the case fatality rates in hospitals in developing countries is still about 20-30% and has changed little since the 1950s. This is despite the fact that protocols can reduce the fatality rates to 1-5% and have been available for the past 30 years (Walters, 2018). In addition, not all severely malnourished cases are reported as such in hospital statistics. Most of these cases are reported as diarrhea and pneumonia and therefore statistics are sometimes misleading (Grellety & Golden, 2018).

Africa still has a high prevalence of malnutrition. The World Health estimates that, there are 178 million children that are malnourished across the globe, and at any given moment, 20 million are suffering from the most severe form of malnutrition. Malnutrition contributes to between 3.5 and 5 million annual deaths among under-five children (Jain, 2015). UNICEF estimates that there are nearly 195 million children suffering from malnutrition across the globe. In 1997, the World Health Organization had observed that 60% of the deaths occurring among all the under-five children in developing countries were attributed to malnutrition (Kalu & Etim, 2018). Most of the damage caused by malnutrition occurs in children before they reach their second birthday, in the time when the

quality of a child's diet has a profound impact on his or her physical and mental development. For instance, about 5 million children, especially those under five, died worldwide directly or indirectly due to malnutrition and 9 children/minute die as a result of malnutrition. In this regard, World Health Organization has identified childhood malnutrition as the most dangerous form of malnutrition (USAID, 2018). Worldwide, it is estimated that there are nearly 20 million children who are severely acutely malnourished, most of them live in south Asia and in sub-Saharan Africa.

Malnutrition among under-five children is one of the most important public health problems in developing countries especially Sub-Saharan Africa (Abubakar, Holding, Mwangome, & Maitland, 2019) and about 35% of under-five deaths in the world are associated with malnutrition. In an estimated 230 million, 2 million under-five children are believed to be chronically malnourished in developing countries. Similarly, about 54% of under-five deaths are believed to be associated with malnutrition in developing countries. In Sub-Saharan Africa, 41 % of under-five children are malnourished and deaths from malnutrition are increasing on daily basis in the region. Malnutrition continues to be a significant public health problem throughout the low income countries, particularly in Sub-Saharan Africa and South Asia (Subramanian, Mejia Guevara, & Krishna, 2016). In the same year, wasting (deficit of weight for height), threatened the lives of 50million children globally, and it was most prevalent in South Asia. Among the under five years old of Angola the prevalence of stunting was 29 % (which 12% was severe), and the wasting prevalence was 8% in 2007. Stunting captures early chronic exposure to under nutrition while wasting captures acute under nutrition (Subramanian et al., 2016). Stunting and other forms of under nutrition are the- major contributing factors to child mortality, disease and disability. A severely stunted child faces four times higher risk of dying, and a severely wasted child is nine times higher risk. Children under two year sold with stunting are more likely to have irreversible intellectual disabilities that negatively affect future academic success, as well as the ability to generate income in the long term, with an average loss in adult annual income of 22% (Fentahun, Wubshet, & Tariku, 2016).

Malnutrition in Uganda starts at infancy and rises steeply, peaking at about two years when about 50% of toddlers are stunted and from the UDHS findings, Northern (40%) and South Western Uganda (50%) regions where Kasese district lies are more affected than other regions (UBS & ICF, 2017). Malnutrition among children is an outcome of many interrelated factors including environment, economics, education, and culture and food security. Among these, the ones that have immediate and direct effects on malnutrition are feeding practices and infections. Therefore the

nutrition levels of children can indicate the socio-economic development of a community. In Uganda, malnutrition remains a serious health and welfare problem affecting the under-five children to whom it contributes significantly to mortality and morbidity. According to Uganda Demographic and Health Survey of 2016, nearly four in ten Ugandan children under-five years of age (38 percent) are stunted (short for their age), six percent are wasted (thin for their height), and sixteen percent are underweight. Indeed, the story may not be different for the district of Kasese in Uganda.

In Uganda, the consequences of malnutrition are many and have been extensively documented and in Uganda, malnutrition is estimated to contribute to 40% of all child deaths (Tette et al., 2015; UBS & ICF, 2017). It includes increased risk of infection, death, and delayed cognitive development, leading to low adult incomes, poor economic growth and intergenerational transmission of poverty. In children, low birth weight, feeding problems, diarrhoea, recurrent illness, measles, pertussis, and chronic disease among others increase the risk of malnutrition(USAID, 2018). These factors vary from locality to locality and children under five years are most at risk. Social factors also have an influence on malnutrition and in the 1990 s, malnutrition was associated with young mothers and low maternal socio-economic status at Princess Marie Louise Children s Hospital (PML)(Kalu & Etim, 2018). Only 4% of children in Uganda are wasted (too thin for height), a sign of acute malnutrition. In addition, 11 % of children are underweight or too thin for their age. The nutritional status of Ugandan children has improved since 2000-01. Nearly half of children under five were stunted in 2000-01, compared to 29% in 2016 (Rahimov & Mekkawi, 2019). Malnutrition is an unbearable burden not only on the health systems, but the entire socio-cultural and economic status of all people in the district.

1.2 Problem Statement

In Uganda, 12% of the total population is chronically food insecure (FAO, 2018). Food insecurity causes poor population nutrition and inadequate dietary intake most especially at the household level. Inadequate dietary intake causes malnutrition among children either in the presence or absence of disease according to the UNICEF conceptual framework of malnutrition (UNICEF, 2018). In 2016, about 2.2 million (29%) children were stunted and 9 percent were severely stunted in Uganda(USAID, 2018). Approximately 10.5% of children under five were underweight (MOH, 2016). About 3.5% of the under-five were wasted at a national level (MOH, 2016). Interventions have been put in place by government and non-government organizations like World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF),

United States Agency for International Development (USAID) and Ministry of Health to ensure the healthy nutritional status of children in Uganda. For instance, nutritional supplements like vitamin A have been freely administered to children by government and non-government not-for-profit health facilities. Diarrheal diseases have been prevented through deworming and vaccination programmes. Despite the existing interventions in place, poor nutritional status among under-five children remains a public health problem that needs to be addressed. The rates of stunting, wasting and underweight among children under five indicated that nationally, the prevalence of malnutrition is at 40% with 38% of the children stunted and 16% wasted. In western Uganda, malnutrition was at 24% prevalence, being second only to Karamoja region with a prevalence of 45% respectively which signifies the problem of poor nutritional status in this age bracket (MOH, 2016). From community observations (done in July, 2018) by Kasese Municipal Health Inspectors, some children under the age of five years showed signs of malnutrition in Kasese Municipality. Signs observed include; swollen abdomens, breathing difficulties, thin and dry skin, depression, as well as dry and sparse hair. And yet the risk factors to malnutrition among children under five years in Kasese Municipality remain largely unknown or undocumented to guide decision making and appropriate interventions. Therefore the study assessed the factors leading to malnutrition in children under-five years at Kasese Municipal HCIII, Kasese Municipality, Kasese District.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

The Purpose of the study was to assess the factors leading to malnutrition in children under-five years at Kasese Municipal HCIII, Kasese Municipality, Kasese District.

1.3.2 Specific Objectives of the Study

1. To determine the prevalence of malnutrition among children below 5 years at Kasese Municipal HCIII, Kasese Municipality, Kasese District
2. To establish the level of knowledge of the mothers and caregivers on malnutrition of children under five years at Kasese Municipal HCIII, Kasese Municipality, Kasese District.
3. To establish whether maternal factors lead to malnutrition among children under-five years in at Kasese Municipal HCIII, Kasese Municipality, Kasese District.

1.4 Research Questions

1. What is the prevalence of malnutrition among children below 5 years at Kasese Municipal HCIII, Kasese Municipality, Kasese District?
2. What is the level-of knowledge of the mothers and caregivers on malnutrition of children under five years at Kasese Municipal HCIII, Kasese Municipality, Kasese District?
3. Does maternal factors lead to malnutrition among children under-five years in at Kasese Municipal HCIII, Kasese Municipality, Kasese District?

1.5 Scope of the Study

1.5.1 Geographical scope

The study was conducted from Kasese Municipal HCIII, Kasese Municipal Council, Kasese District, Uganda. The Division is located in Kasese Municipality, Kasese District in the Western region of Uganda. Kasese Municipality is one of the newly created urban centres and located in Busongora County in Kasese district. It covers a total of 14.2 km² with reasonable land for future extension in a very rich agriculture hinterland for extension. Kasese Municipality borders with Rukoki Sub County in the East, Central division in the West, Rukoki sub-county in the North and Queen Elizabeth National Park in the South. Kasese Municipality has 3 divisions, 19 wards and 59 Cells.

According to the population census of 2014, Kasese Municipality had a total population of 40,631 people (19,346 males and 21,285 females) but an average growth rate of 2.45% per annum; the projected population in 2018 stands at 44,762. Kasese Municipality is perceived to have 54% of this total which stands at 24,058. The Municipality has over 23 schools currently with 1 University, 1 nursing institution, 1 vocational training, 3 Nursery Schools, 13 Primary Schools, 4 Secondary Schools.

1.5.2 Time Scope

The study took a period of eight months from October, 2020 to February, 2021. This period enabled the researcher to draw up facts on the factors leading to malnutrition in children under-five years in Kasese Municipality.

1.5.3 Content Scope

The study assessed the factors leading to malnutrition in children under-five years in Kasese Municipal HCIII, Kasese Municipality, Kasese District. It established the prevalence of malnutrition

of children under-five years and level of knowledge of mothers and caregivers on malnutrition of children under five years. The study also established whether maternal factors lead to malnutrition among children under-five years in Kasese Municipality, Kasese District.

1.6 Significance of the Study

The study will provide information that may be used for nutritional surveillance and targeting programmes that may focus more on populations at risk particularly the under-five children.

The study also may lead to important contribution to future research by contributing to the existing literature particularly on nutrition among under-five children: · :

The study further avails information that may be used in policy planning and implementation particularly in vulnerable groups.

1.7 Justification of the study

According to UDHS report 2016, nutrition indicators for young children and their mothers have not improved much over the past 15 years all over the country(UBS & ICF, 2017). The WFP report of 2013 also indicated that Uganda loses about 899 million US dollars annually 5 due to the effects of hunger and malnutrition accounting for about 5% of the country s GDP. This comes at a time when the government and its outside partners such as USAID, UKAID, EU, etc. have put aside a lot of resources to address child malnutrition in Uganda(UBS & ICF, 2017; USAID, 2018). Available reports in Kasese Municipality are limited to prevalence and magnitude of malnutrition and do not capture their causes; therefore this study focused on assessing the causes of malnutrition and coming up with possible recommendations or suggestions which may be of help in addressing the causes of malnutrition in Kasese Municipality. The study also provided data to the stakeholders of the health facility as well as the leaders on setting up strategies to bring down malnutrition.

1.8 Conceptual frame work

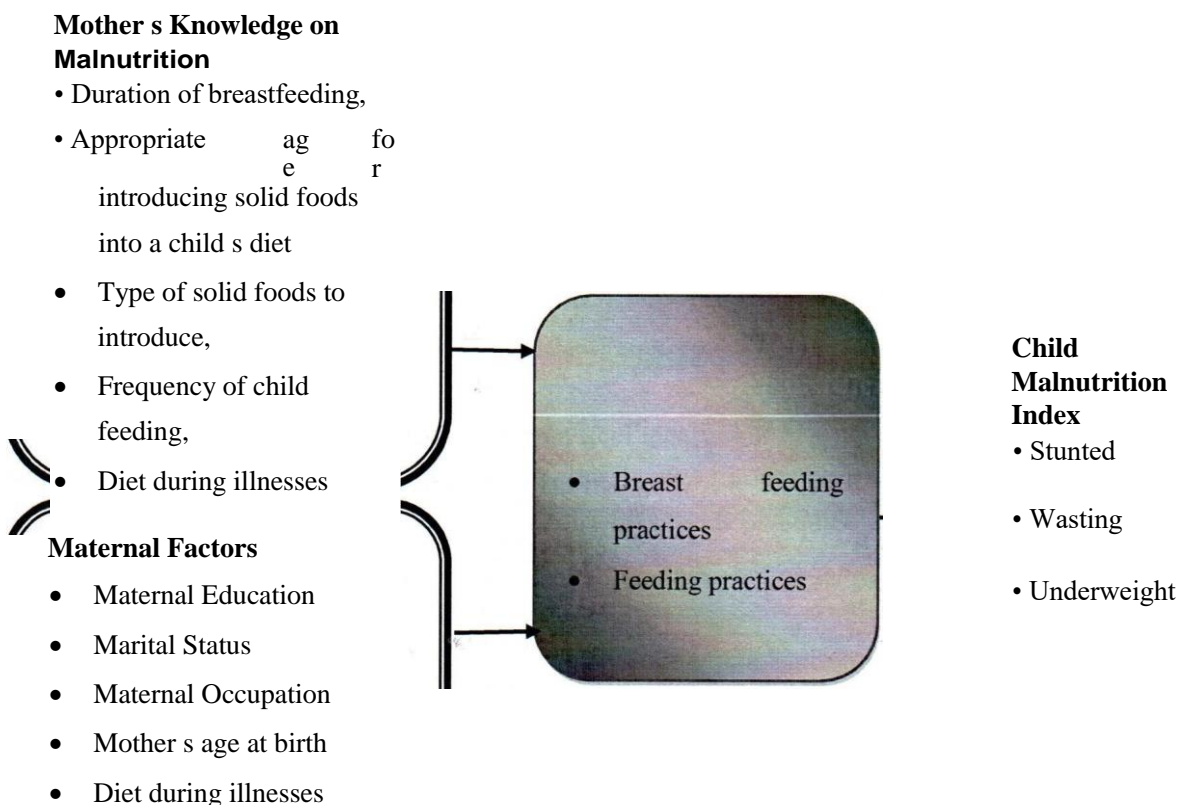
Figure 1.1 shows the conceptual framework on the factors leading to malnutrition in children underfive years, Kasese Municipal HCIII Kasese Municipality, Kasese District.

In developing countries and particularly in Sub-Saharan Africa, under-five child malnutrition is normally determined by a large number of factors to the extent that it sometimes becomes difficult to predict the risk factors(Haile, 2020). Such factors act through a number of interrelated proximate

factors to bring about under-five malnutrition that is stunting, underweight and wasting. Maternal factors such as birth order, mothers age at birth, mothers education level, marital status as well as the duration of breast feeding, sanitation and mothers health seeking behaviors .

Figure 1.1: Conceptual Framework showing the factors leading to malnutrition in children under-five years in Kasese Municipal HCIII, Kasese Municipality, Kasese District

Background Factors



Independent variables

Dependent variables

Figure 1: Conceptual framework developed for study variables

The conceptual framework on malnutrition identifies pathways through which malnutrition manifests in children less than five years. Maternal factors are considered the immediate risks factors. Mothers age at birth, maternal education, marital status, maternal occupation create vicious cycle condemning of malnutrition.

At the basic level are the intervening factors such as sanitation, health seeking behaviour, feeding practices, immunization status that work in tandem to influence households ability to access to good

nutrition(Fentahun et al., 2016). This study assessed the factors leading to malnutrition in children under-five years in Kasese Municipal HCIII, Kasese Municipality, Kasese District.

1.9 Definition of Terms

Malnutrition- A term used to describe under-nutrition and over-nutrition that refers to an insufficient, excessive or imbalanced consumption of nutrients resulting *in* a measurable adverse effect on body composition, function and clinical outcome

Nutritional status- Physiological condition that results from a balance between nutrient requirements and intake and the ability of the body to use these nutrients

Over nutrition- A condition where the body has excess of food, especially fats and sugars

Under nutrition- A condition in which the body does not have enough of the right kind of food to meet its energy, macronutrient and micronutrient requirement

Anthropometric measurement- Refers to physical measurement of the body parameters

Complementary feeding- Period during which other foods or liquids are provided along with breast milk which is recommended to begin after the sixth month.

Exclusive Breastfeeding- Period when all fluid, energy, and nutrients are provided by breast milk, with the possible exception of small amounts of medicine, vitamins, or minerals and exclude even water.

Under five children: In this study it refers to a young person whose age ranges from 6 months to 59 months old.

Chapter Two: Literature Review

2.0 Introduction

The first two years of life are a critical stage for child growth and development as nutritional deficiencies occurring during this time lead to irreversible damage (A. Rahman et al., 2016). Actions targeting this age group have the greatest benefits and have been viewed as a window of opportunity". This literature review attempts to discuss the various literature related to the factors leading to malnutrition in children under-five years in Kasese Municipality, Kasese District. The literature also identified gaps left by other researchers of similar studies. This chapter reviewed the appropriate literature from referenced books, journals, magazines, newspapers, reports, dissertations and other publications. It determined the prevalence of malnutrition among children under-five years, and also will establish the level of knowledge of mothers and caregivers on malnutrition among children under-five years. The third objective established whether maternal factors lead to malnutrition among children under five years. The chapter was arranged under the sub sections that include the Malnutrition among under-five Children, the literature review based on each of the themes derived from the objectives and then ends with a summary of literature review.

2.1 Prevalence of Malnutrition among under-five Children

Research related findings from other scholars indicate that poor nutrition during childhood is one of the most important conditions that impede the physical and the mental development of children which ultimately propagates the vicious cycle of intergenerational malnutrition (Jesmin, Yamamoto, Malik, & Haque, 2018). Consequently, the effects of under-five malnutrition are permanent and cross into the adulthood stage of the child. According to the trends on under-five children s nutritional status, there was a downward trend in the proportion of children stunted and underweight over the past two Uganda Demographic and Health Surveys of 2011 and 2016 but the proportion of children who are wasted has remained unchanged. There was a decline in the proportion of under-five stunted children in Uganda from 38% to 33% which is an indicator of improvement in under-five nutrition over the past five years (Kalu & Etim, 2018). A similar pattern is observed among the under-five children who were underweight due to a drop in the proportion from sixteen percent in 2013 to fourteen percent in 2018 (UBS & ICF, 2017).

Many studies reported the health and physical consequences of child malnutrition include delaying their physical growth and motor development, lower intellectual quotient (IQ), greater behavioral problems, deficient social skills, and susceptibility to contracting diseases. Child malnutrition may

also lead to higher levels of chronic illnesses in adult life which may have intergenerational effects, as malnourished females are more likely to give birth to low-weight babies (Darsene, Geleto, Gebeyehu, & Meseret, 2017; Mengistu, Alemu, & Destaw, 2013).

Malnutrition is not a simple problem with a single and simple solution. Multiple and hierarchically interrelated determinants are involved in causing malnutrition (Bantamen, Belaynew, & Dube, 2014; Mengistu et al., 2013). The most immediate determinants are inadequate dietary intake and disease which are themselves caused by a set of underlying factors: household food insecurity, poor maternal/child caring practices, and lack of access to basic health services including lack of safe water supply and unhealthy living environment such as open defecation (Abera, Dejene, & Laelago, 2017; Berhanu, Mekonnen, & Sisay, 2018). In turn, these underlying causes themselves are influenced by economic, political, and sociocultural conditions; national and global contexts; capacity, resources, environmental conditions, and governance (Tsedeke, Tefera, & Debebe, 2016). These findings generate a synthesis of the factors of malnutrition among under-five children in Kasese municipality, Kasese district.

Almost one-third of children under 5 years in Uganda are stunted. Stunting increases with age, peaking at 37 percent among children 18-35 months. Stunting is greater among children in rural areas (30 percent) than urban areas (24 percent) with some regional variations. Stunting ranges from a high of 41 percent in Tooro sub-region to a low of 14 percent in Teso sub-region (UBOS and ICF 2018). The prevalence of stunting decreases with increasing levels of the mother's education. About 4 in 10 children born to mothers with no education (37 percent) are stunted compared with 1 in 10 (10 percent) of children born to mothers with more than a secondary education. Similarly, stunting decreases with increasing wealth quintiles, from 32 percent among children in the lowest wealth quintile to 17 percent of children in the highest wealth quintile. Prevalence of wasting (low weight-for-height) nationally is 4 percent but in the regions of Karamoja and West Nile prevalence is 10 percent. Anaemia, which reflects several micronutrient deficiencies, infections and, even genetic traits in malaria-endemic areas, affects more than half of children under 5 years and 1 in 3 women. Regional differences in anaemia prevalence among women range from 17 percent in Kigezi subregion to 47 percent in Acholi sub-region (UBOS and ICF 2018). Moreover, even though coverage of iron supplementation for pregnant women (for at least 90 days) increased from 4 percent in 2011 to 23 percent in 2016, anaemia prevalence has increased in women from 23 percent in 2011 to 32 percent in 2016 (UBOS and ICF 2018).

The causes and determinants of children malnutrition are complex, interrelated and multidimensional

Jesmin et al., 2018). Therefore, if the factors leading to malnutrition among children under 5 years are to be identified, then it is important that the most important factors of malnutrition should be understood. Besides assessing these factors is an essential part of monitoring children's health status and providing data for accurate planning and implementation of interventions to reduce morbidity and mortality associated with malnutrition. Thus, this study will focus on assessing the factors of child malnutrition among children aged 6-59 months in Kasese Municipality, taking Kasese Municipal HCIII as a case study. This study also will provide evidence of a link between level of knowledge of mothers/caregivers and child malnutrition in the Municipality. This is important for planning because, it suggests another benefit of supporting women during pregnancy and childbirth.

2.2 Level of Knowledge of mothers and caregivers on malnutrition among children under-five years.

Mothers are the foremost providers of primary care for children (Imera, 2016). Their understanding of basic nutrition and health measures strongly influence the care they provide. The aspects of nutrition knowledge include: duration of exclusive breastfeeding, appropriate age for introducing solid foods into a child's diet and the type of solid foods to introduce, frequency of child feeding, diet during illnesses and the mother's perceptions of her own child's nutritional status. Mother's practical nutrition knowledge is important for the child's nutritional outcome.

A number of studies have been done to determine mothers' knowledge on malnutrition (ICF, 2016). Some of the studies have showed that 96% of the mothers had good knowledge that nutrition knowledge was good for the mother. But despite having the correct knowledge, only 68.6% practiced it (Mohsin, Shaikh, Shaikh, Haider, & Parkash, 2014). A study done in Kenya in Yatta division showed only 1.8% of the mothers breastfed their children for six months (Imera, 2016). The low percentages of reducing malnutrition among children under five years in some of the studies have been associated with lack of correct knowledge that is sufficient for the mothers to practice daily (Kruger & Gericke, 2018). When mothers do not practice and support their children, it can contribute to a high prevalence of malnutrition.

The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend that, there is also lack of knowledge on the correct time to initiate complementary foods with some mothers introducing complementary foods before or long after six months of age.

The complementary foods may be inadequate for the inappropriate frequency, quality or quantity. Majority of mothers introduce complementary foods before six months of age. In Uganda, complementary foods are introduced as early as the first month and by 6 months 84% of infants are already receiving complementary feeds. Unfortunately, these complementary foods which replace breast milk are low in energy and micronutrients (ICF, 2016). When complementary foods are started, there is a reduction in breast milk consumption, which can lead to a loss of protective immunity predisposing the child to infections.

Nutritious foods are considered to be expensive by some mothers, while traditional locally available foods can provide just as much nutritional value at affordable price (Abubakar et al., 2019). Source of knowledge also plays a role on the kind of information the mother receives. A study done in Kenya among the Maasai community indicated that only 5.9% of the mothers had received information on feeding their children from the Mother Child Health (MCH) clinic with 81.2% having received it from the relatives (Mugo, 2018).

2.3 Maternal factors leading to malnutrition among under-five children

A lot has been written about the socio-economic determinants of malnutrition among children under-five children by several researchers in both developed and developing countries (Opio, 2019). The study will focus on maternal education, marital status and maternal occupation. Some other variables like place of residence and region may also be included because the study will be conducted in an urban area of Kasese Municipality in Kasese district which is found in Western Uganda.

2.3.1 Maternal Education

Mother's education level affects child's nutrition through her choices and health seeking skills related to nutrition, hygiene, preventive care and disease treatment. Mother's responsibility to care for herself during pregnancy and her child through the most vulnerable stages of its life significantly affects under-five child malnutrition. Several studies have found out that mother's education is associated with good nutrition practices and particularly under-five child nutrition (Mtoi & Nyaruhucha, 2019). These studies have pointed out the facts why most women with low education spend more time in gardens and feed their children on less nutritious foods.

The education of mothers has several positive effects on care of children in comparison to mother with no education.

The educated mother utilizes the health care facility, discusses more about the 13

illness of the child with health care provider and follows the instructions about feeding and caring practices given by the health workers. They also take benefit of guidance and information of health **workers**. They are more likely to keep their environment clean. One study in Indonesia shows that mother's education plays a strong role to protect child malnutrition. It is found that, the educated mothers have less stunted children. A study in Malawi also supports the role of mother for better child nutrition to some extent. In a survey done in Nepal it was found that the children with literate mothers **have** less risk and severity of diarrhea (Mtoi & Nyaruhucha, 2019). However it also says that it is likely to be associated features rather than the literacy itself. In another survey done in Nepal has found the negative relationship between mother's education and child mortality that is higher the mother's education, lower the child mortality.

Women who spend more time in gardening get limited time to attend to their children and prepare for them nutritious meals unlike their educated counterparts who normally focus on good child nutrition practices even when they are absent from home most of the time (Mtoi & Nyaruhucha, 2019; Opio, 2019). Education helps mothers gain additional knowledge about the adequate intake of food for their children in terms of correct quantity, quality and frequency. It also determines her income and this helps her access proper nutrition for the child as well as health services. According to Mtoi and Nyaruhucha (2019), there is a negative association between the mother's education and under-five child malnutrition (Opio 2019). The higher the level of mothers education, the lower the percentage of under-five children classified as undernourished. According to the study done by Opio (2019), malnutrition was most prevalent among children whose mothers attended primary school. This was in line with Mtoi and Nyaruhukya (2019) who asserted that, it is important to note that the decline in the levels of malnutrition with increasing maternal education is not always gradual (Mtoi and Nyaruhucha 2019). In some countries, malnutrition levels are fairly similar among children whose mothers attended primary or secondary school while elsewhere there is a greater similarity with children whose mothers attended primary school or had no formal schooling.

With increasing level of mother's education, the proportion of children who are malnourished goes down as found out in the Uganda Demographic and Healthy Survey of 2006 (UBOS and Macro International Inc., 2007). This result is consistent with the findings of Webb and Block (2004) that highlighted the importance of human capital investment in improving child nutrition status. This implies that educated mothers are better aware about the nutrition requirements of their children by providing improved health care (Mtoi and Nyaruhucha 2019). In a similar study in Bangladesh,

children of mothers with no education and primary education were 28% and 33% respectively more stunted than children of mothers with secondary or higher education. Wasted and underweight children also showed similar results. Children whose mother had no education or had primary education were more times significantly stunted and underweight than children whose mothers had secondary or higher level. However for wasting, children whose mothers had primary or secondary education had 0.87 times lower odds of wasting than those of mothers with higher education (Haile, 2020).

According to Lisanu et al., (2018), education of a mother has several potentially positive effects on the quality of care of children and consequently malnutrition (Lisanu Mazengia & Andargie Biks, 2018). More educated women are better able to process information, acquire skills and model positive caring behaviors. More educated women tend to be better able to use healthcare facilities to interact effectively with health care providers, to comply with treatment recommendations and to keep their living environment clean. Education also increases women's ability to earn income but this increases the opportunity cost of their time which may mitigate against some important care giving behaviors for example breastfeeding. More to note is that mother's education is associated with more efficient management of limited household resources, greater utilization of available health care services, better health promoting behaviors, lower fertility as well as child centered caring practices (Arhin, 2019). All this consequently results into a reduction in malnutrition among under-five children. Indeed in a study done by Lisanu et al., (2018), children whose mothers had primary or no education were less likely to be stunted, underweight or even wasted perhaps because most of these mothers were unemployed and were able to stay home and care for their children (Lisanu Mazengia & Andargie Biks, 2018).

2.3.2 Marital Status

There's a growing awareness of the importance of both parents participating in child upbringing and the involvement of men in the feeding of young children (Moyo, 2019). However, the area of child care and nutrition has been characterized by limited inclusion of men in the majority of African communities (Eales, 2018). In a study about mothers' marital status and under-five child nutrition, findings in Ethiopia revealed that child's malnutrition is significantly associated with marital status. It was found out that under-five child malnutrition is higher among unmarried rural and divorced/separated women compared to married ones (Teller & Yimer, 2018). Being a married mother

was positively associated with good nutritional status among children below five years in the Volta region of Ghana (Nyaruhucha, Msuya, Mamiro, & Kerengi, 2016).

Contrary to the above, a study in Tanzania revealed that mothers who are married were more likely to have undernourished children unlike those that were unmarried perhaps because of the cost of maintaining families hence sometimes these families fail to produce nutritious supplements to the under-five children (Nyaruhucha et al; 2016). It is however important to note that there is scanty literature linking mothers marital status and malnutrition among under-five children in developing countries. In a study about mothers marital status and under-five child nutrition, findings in Ethiopia reveal that child's malnutrition is significantly associated with marital status. It was found out that under-five child malnutrition is higher among unmarried rural and divorced/separated women compared to married ones (Teller & Yimer, 2018). Similarly, being a married mother was positively associated with good nutritional status among children under five years in the Volta region of Ghana (Kalu & Etim, 2018).

Contrary to the above, a study in Tanzania revealed that mothers who are married were more likely to have undernourished children unlike those that were unmarried perhaps because of the cost of maintaining families hence sometimes these families fail to produce nutritious supplements to the under-five children (Nyaruhucha et al., 2016). It is however important to note that there is scanty literature linking mothers marital status and malnutrition among under-five children in developing countries. During the study done in Nakaseke and Nakasongola districts, marital status of the mother was also assessed in comparison to under-five malnutrition (Gilbert & MaK, 2014; Nabwire, 2019).

2.3.3 Maternal Occupation

Previous studies have found out that mother's occupation is one of the determinants of under-five malnutrition in most developing countries. A study in Vietnam revealed that children from mothers who were laborers or farmers and housewives had a greater prevalence of stunting, underweight and wasting than those from mothers who worked in office or were housewives (Opio, 2019). This is because working mothers rarely get time to take care of their children. They also leave their children at home with other siblings who may neglect feeding them following the right frequency and this sometimes worsens the problem of malnutrition. It is also common for mothers to fail to provide complementary feeds including protein foods since most of them cannot afford them (Habaasa, 2014; Olwedo, Mworoz, Bachou, & Orach, 2018). Such findings are true especially among peasant farmers in Kasere Municipality who spend most of their time in gardens leaving the under-five children under

ne care of other siblings or housemaids who are sometimes too young or illiterate on proper under-five nutrition practices.

Mother's occupation is one of the indicators for access to adequate food supplies, use of health services, availability of improved water sources, and sanitation facilities which are prime determinants of child nutritional status (UNICEF, 2018). A study done on most of the DHS surveys conducted in developing countries especially in the Southern Nations, Nationalities and Peoples Region (SNNPR) of Ethiopia showed that under-five children from low economic status households were the most affected by malnutrition (Gilbert & MaK, 2014). It is little wonder therefore that malnutrition was found to decrease with mother's occupation although the pattern is not uniform according to UBOS and Macro International Inc., 2012 study that conducted the Uganda Demographic and Healthy Survey in 2011. For working mothers, under-five child malnutrition could result from mothers neglect or care by a less skilled sibling or housemaid despite the fact that a wealthy family can hire a skilled and attentive nursemaid (Popkin & Solon, 2018).

According to a review of Demographic and Health Survey in selected African countries, malnutrition is more prevalent among children whose mothers did not work for instance according to DHS 2016, Burundi had 48% of stunted growth among children from non-working mothers while Zimbabwe had 31.0% of her children stunted among non-working mothers while 27.5% were among working mothers. Wasting and underweight were also more common among the children of non-working mothers (Sommerfelt & Stewart, 2015). The above findings contradict study results with other studies done by Olwedo et al., (2018); and Rahman et al., (2016) where working mothers particularly crop cultivators had more chances of having malnourished children than their counterparts particularly pastoralists because they spent the bigger part of the day at home which helped them feed their children.

In a study done in Botswana on the effect of maternal occupation on under-five malnutrition, it was found out that underweight occurred to a lesser extent among children whose mothers worked in agriculture (7.5% in livestock and 28.6% for those working in crops) than among children (40.0%) whose mother were involved in informal business (Nnyepi, Bandeke, & Mahgoub, 2016). Among mothers engaged in cultivation, a tendency of selling family food in a bid to get money has caused shortages and consequently increased cases of under-five child malnutrition (Zaramba, 2013)

Studies done in Uganda and Ethiopia found no association between mother's occupation and child nutrition. According to a study in Indonesia, non-working mothers had better nourished children than that of working mothers. The mothers working in the informal sector were found to have the highest risk factor for child malnutrition. The working mothers are able to earn money to fulfil the necessity of their own and of their children but its opportunity cost will be higher because they will not be able to give their time to look after the children.

2.3.4 Mothers age at birth

Mother's age at birth has been associated with malnutrition among under-five year old children for example it was found out in Bangladesh that children whose mothers were less than 20 years at the time of birth were 1.22 times more likely to be stunted, wasted and underweight compared to children whose mothers were 20 years and above at birth (Siddiqi, Haque, & Goni, 2011). Bachou, (2012) in the Ugandan settings identified some common risk factors for protein energy malnutrition, that is severely malnourished infants mostly from young mothers had low weight at birth with less access to breast feeding that is essential for the infants protein intake. Thirty four percent (34%) of children received supplementary food by three months and some mothers stopped breast feeding earlier. A number of studies have reported that mother's age at birth is one of the most important determinants of malnutrition among under-five children. It has been suggested that the risk is greater in younger mothers particularly those below 24 years because they are not ready to take care of the child including providing all the necessary attention required for the baby (Rahman, Howlader, Masud, & Rahman, 2016).

Similarly, under-five malnutrition is higher also among children whose mothers give birth when they are older especially after 35 years. This is attributed to the fact that giving birth at an older age is associated with a higher likelihood of giving birth to babies with a low birth weight (Opio, 2019). However, it is important to note that children of the younger mothers are traditionally cared for by their grandmothers in Kasese Municipality and this might be associated with low levels of malnutrition among children of younger mothers less than 24 years. Therefore the student assessed the factors leading to malnutrition in children under-five years at Kasese Municipal HCIII, Kasese Municipality.

Chapter Three: Research Methodology

3.0 Introduction

This chapter described the methods and procedures that were used to conduct the study. It illustrated the research design, study population, sample size and selection, sampling techniques and procedure, variable specification, anthropometric, analysis data collection methods, data collection instruments, validity and reliability, data collection procedure, data management and analysis, and ethical considerations when conducting the study.

3.1 Study design

This study used a cross-sectional descriptive research design which included both quantitative and qualitative approaches. For quantitative, a researcher-administered questionnaires was used to determine the factors leading to malnutrition in children under-five years at Kasese Municipal HCIII, Kasese Municipality. Specifically, the quantitative research approach was used in order to generate quantifiable data so as to explain the relationship between the dependent variable and independent variables. The use of quantitative methods is also recommended by Tarafdar et al., (2018) as an important form of approach to be used in a study which involves a large number of people that can be intervened in a shortest period of time (Tarafdar et al., 2018). The design allowed the researcher to collect data from several different categories of people in a relatively short period of time. The design also enabled the researcher to examine the diversity within the local government systems and to reveal the constraints connected to different outcomes of the study variables in order to provide a better understanding of the research problem.

3.2. Study population

The target population included all mothers with children in the age group of 2 to 59 months attending the OPD and all mothers with children in the age group of 2 to 59 months who have admissions in the pediatric ward at Kasese Municipal HCIV in Kasese Municipality, Kasese district

3.3 Sample Size and selection

The ever increasing need for a representative statistical sample in empirical research has created the demand for an effective method of determining sample size. To address the existing gap, Krejcie & Morgan (2016) came up with a table for determining sample size for a given population for easy reference.

Table 1: The Sample size 5.

Cate ories	Po ulation {Sample Size	Sampling strategy
Mothers with children in age] 140	104	Systematic random
group of 2 to 59 months		
Total	140	

Source: Morgan stable for sample size, 2016 (Appendix 111) 3.4

Sampling techniques and Procedures

3.4.1. Sampling respondents

Prior to the study, a meeting was held with the Municipal Health Officer (MHO). During this meeting, the researcher explains the purpose of the study to the MHO and request for his invaluable contribution and support towards the study. In this meeting, dates to carry out the survey/interviews was were set. The meeting also agreed on when to carry out the identification exercise of the study subjects. To select a representative sample, the researcher had a sampling frame as guided by(Choy, 2014). In this study therefore, the sampling frame was a list of Mothers with children in age group of 2 to 59 months among all OPD attendance and all health facility admissions in the pediatric ward. Therefore, the lists were obtained from the records department at the Municipal HCIV.

The sampling procedure was both probability sampling techniques which consisted of systematic random sampling techniques. A systematic random sampling technique was applied to select mothers with children in the age group of 2 to 59 months to ensure that all children stand equal chance of being selected to avoid sample bias and ensure that the results are reliable enough to be generalized. During this phase, a simple random start was used to decide the first respondent to be included in the study. All mothers with children in the age group of 2 to 59 months attending the OPD and all mothers with children in the age group of 2 to 59 months who had admissions in the health facility were numbered and a sampling interval, $n=2$ was used to select the first respondent in each department. Subsequent selection of every 2nd mother with children in the age group of 2 to 59 months was then be followed in same direction. Using this technique, about 104 mother with children in the age group of 2 to 59 months were selected.

3.5 Inclusion and Exclusion criteria

3.5.1 Inclusion criteria

- Mothers/caretakers with children 6-59 months who visited the health facility for routine health services were included in the study.
- Mothers/caregivers of children aged 6- 59 months who gave their consent to participate in the study.

3.5.2 Exclusion criteria

- Children aged 6-59 months whose mothers declined to participate in the study
- Mothers of children aged 6-59 months who did not give their consent to participate.
- Mothers of children aged 6-59 months whose children were ill during the time for data collection.

3.6 Measurement of Study Variable

This section presents the specifications of the variables that will be measured during the study.

3.6.1 Dependent variables

Dependent variables were defined as wasting, underweight and stunting measured by weight-forheight z-scores ($WHZ < -2SD$), weight-for-age z-scores ($WAZ < -2SD$) and height for age z-scores ($HAZ < -2SD$), respectively. The scores were calculated based on WHO growth standards on WHO Anthro, 2005 which was developed by World Health Organization in 2006 specifically to aid calculations of age specific z-scores of children below five years. The variables were interpreted according to the deviations from the median of reference population of children who were studied under optimal conditions

3.6.2 Independent variables

Mother s knowledge on malnutrition

A completion of maternal child nutritional knowledge questionnaire (CNKQ) was specifically developed for the purpose of this study. The aspects of maternal child nutritional knowledge that were studied included: - age for introducing semi-solid foods into a child s diet; duration of breast feeding; type of solid foods to introduce; frequency of child feeding; and diet during illness. Women

who scored below the sample mean score were classified as having low child nutritional knowledge, and women with a score of at least the sample mean score were classified as having high score.

Maternal factors

Maternal level of education

Maternal level of education was categorized as; no formal education, primary, secondary, and tertiary education.

Marital status

Marital status of the mother was categorized as; never married/separated and married/cohabiting.

Maternal occupation

Maternal occupation was categorized as; peasant farmers, civil servants/business, pastoralists, and handcrafts.

3.7 Anthropometric measurements

An anthropometric measurement was conducted by the researcher. The researcher took measurements of weight and height of every child while recording the measurements in the questionnaire.

Weight measurements

Infant electronic weighing scale model RCS-20 designed by WHO. to take baby weight of up to 20 kilograms was used to take weight of all the children. Every child was weighed while wearing only a vest and no dressing the child. A clean nappy/clothing was placed on the weighing scale. Children 6 to 12 months were weighed lying supine while older children (above 12 months) were weighed seated on the scale. The weight was taken to the nearest 0.1kg.

Height/Length measurements

With the measuring board placed flat on the surface, every child whose height was 85cm and below was made to lie down on the board. By supporting the child's head with one hand and the trunk of the body with the other hand, the child was gradually lowered onto the measuring board. With cupped hands over the child's ear, the head was placed against the base of the board to ensure that the child looks up straight with line of sight perpendicular to the ground. The researcher laid the child flat at the center of the board with the knee firmly pressed against the board and foot piece placed firmly against

the child's heel. Children whose height was above 85cm was measured standing on a height scale. The child stood straight on the board with knees firmly held against the measuring board. The head piece was lowered until the child head and measurements were taken. All the measurements were taken to the nearest 0.1cm.

3.8 Data collection methods

This study used quantitative data collection methods. Quantitative data was collected using self-administered questionnaires. Quantitative methods emphasize serious belief and trust in figures which are used to stand for opinions and concepts. The researcher used the questionnaire in the process of collecting data. A researcher administered structured questionnaire was used (Appendix II). The questionnaire was administered by the researcher.

3.8.1 Questionnaire

The researcher collected data using pre-tested standardized questionnaires to get information on the problem under study. This structured questionnaire was developed following recommended guidelines by various scholars that include (Choy, 2014). The first section of the instrument addressed issues of demographic data and other sections which included questions related to the study objectives. Then information on child malnutrition index related factors were collected through structured questionnaires whereby respondents were asked on issues related to stunting, wasting, and over-weight. The questionnaire method as instrument of data collection was used because it provided a wider coverage to the sample and also facilitated the collection of a large amount of data. The questionnaire contained closed ended questions with 5 Likert Scale from Strongly Disagree =1 to

Strongly Agree =5 and it was administered by the researcher. The questionnaire was administered to the mothers of children aged 2-59 months who gave their consent to participate.

3.9 Data Collection Instruments/Tools

This study use quantitative data collection instrument. This include:-

3.9.1 Questionnaire

A questionnaire guide was used to collect the data. The questionnaire was made up of two sections; the first section elicited information on demographic data of respondents. The second section comprised items related to the study objectives. These items allowed the respondents to indicate a frequency that best describes the topic under study. The questionnaire was administered to the

mothers with children in the age group of 2-59 months. This was preferred because the target population was experienced in responding to written questionnaires. The questionnaire allowed the researcher to assess the respondents attitude, what they think or feel, and also what they know about the subject under study.

3.10 Reliability and Validity

3.10.1 Validity of research instruments.

To ensure the quality of a data collection tool, it is important to establish its validity. Validity is the degree to which an instrument measures what it is supposed to be measuring (Bums & Grove, 2005; Cibangu, 2012). The validity of the instrument used in this study was maintained by ensuring that all aspects of variables pertaining to factors leading to malnutrition in children under-five years were included in the interview schedule for the respondents. The content validity formula by Bums & Grove, (2005) was used in line with other previous studies by Cibangu, 2012(Amaratunga, Baldry, Sarshar, & Newton, 2002). Therefore, an extensive literature review was also conducted before designing the tools. Experts/judges checked the questions and made corrections on the questionnaire. The correction that was done on the instruments was rephrased. Pre-testing of the instruments was also done to determine whether they bring out the desired information, then adjustments were made on the content and sequencing of questions. The questions were clearly constructed to avoid ambiguity. The instrument was subjected to rating by 10 experts and the content validity index (CVI) was computed as;

$$CVI= \frac{K}{N}$$

N

Where K = Total number of items in the questionnaire declared valid by experts or respondents
(Agreed items by all judges as suitable)

N = Total number of items in the questionnaire (Total numbers of items being judged) The
computed CVI of the instrument will be computed at a maximum of 0. 79 and above.

3.10.2 Reliability of the questionnaire

To establish the reliability, the questionnaire was administered twice (1 week interval) on equivalent respondents. The objective of this was to allow modification of various questions in order to rephrase, clarify and or clear up any shortcomings in the questionnaires before administering them to the actual

respondents. Reliability means repeatability or consistency, and a measure is considered reliable if it gives the same result over and over again. Reliability of the interview schedule was measured by pretesting the questionnaire. During the pre-test, respondents were asked if there are any questions they could not understand. This allowed room for alteration of questions on the interview schedule if necessary. Cronbach's alpha was computed to establish whether there could be internal consistency on the Likert scale questions. Cronbach's alpha was accepted and was considered to provide reliable and consistent information if it would produce results above 0.69. The researcher used the above formulae in SPSS program to generate the following reliability, product and reliability statistics attached in the appendices. In general terms a Cronbach's alpha of 0.8 is good, 0.7 is an acceptable range while if it is 0.6 and below, is poor.

3.11 Data Collection Procedure

After obtaining ethical authorization, the researcher introduced himself to the Town Clerk, the health In-charge, Municipal Health Officer, DPC and the DHO for Kasese district. The researcher conducted brief meetings to explain the purpose and procedures, of the study and obtain permission to conduct the study from them. Brief introduction to the prospective participants was done at individual level and consent forms were provided to the eligible participants. The researcher allowed the participants to have enough time to read the consent form and ask questions about the study. Signed consent forms were obtained from the participants willing to participate and then a copy of the questionnaire was given to each. Quantitative primary data was collected using the questionnaire. Data was collected over a period of one month.

3.12 Data Management

3.12.1 Quantitative

For quantitative data, all filled questionnaires were reviewed by the researcher for consistence and data quality, and then entered using Epi data 3.5.1 and exported to stata14.0 version for analysis. Categorical variables were summarized using frequencies and proportions. Results were presented by use of tables and charts. Descriptive statistics was used to describe the percentages and number of distributions of the respondents by socio-demographic characteristics, child factors, maternal factors and child malnutrition index.

3.13 Data Analysis

3.13.1 Quantitative

Socio-Demographic data for all children under-five years were entered in Epi Data software. and then exported to stata 14.0 for analysis. Anthropometry data of child s height and weight were entered in Epi Data to generate the nutrition indicators of stunting, wasting and underweight which were exported to STATA programme and then merged with the demographic and socio-economic data for analysis. Descriptive statistics on background characteristics of under-five children were generated and presented in frequency distribution tables. A binary logistic regression model was fitted to ascertain the determinants of malnutrition among children under-five years at multivariate analysis. Three indices of malnutrition that is stunting, wasting and underweight were taken as dependent variable taking a value of I for a malnourished child and O for otherwise.

Analysis was done at two levels namely; Univariate, and Bivariate. Analysis. At the Univariate level, simple descriptive statistics of the respondents was done. In order to determine relationships, and associations between the outcome variable and independent variables, cross-tabulations was used. Univariate and Bivariate were employed to test the level of significance and association between the dependent and exposure or explanatory variables. The dependent variable that was used in the during the analysis was child malnutrition index . The variable was measured as a dummy binary variable. Also, since the study was mainly descriptive, frequency/percentage distribution tables, graphs and cross-tabulations were the main form of presentation and analysis for the study. Quantitative data from the survey was analyzed using ST A TA 14 statistical package:

3.14 Conclusion

Child malnutrition still remains a persistent problem in Kasese Municipality, with children under the age of five years being more vulnerable to the condition than any other age group. Kasese Municipal HCIII which is the focus of this study experiences a significant number of child admission at the health facility with a diagnoses of severe acute malnutrition. This study was intended to bridge the gap between the health care system and the community, with regard to dealing with child malnutrition. The conceptual framework was utilized to define the body of knowledge concerning risk factors to child malnutrition. The following chapter presents the findings and results of the study.

Chapter Four: Analysis

4.0 Introduction

This chapter attempts to analyze the data collection and its interpretation in relation to the study objectives. The empirical findings of the study are presented, analyzed and interpreted. The collected data was organized from the responses on the questionnaires administered by the researcher. The study was to assess the factors leading to malnutrition in children under-five years at Kasese Municipal HCIII, Kasese Municipality, Kasese District to provide information that could be used for nutritional surveillance and targeting programmes that would focus more on populations at risk particularly the under-five children. The study findings were presented and analyzed chronologically based on the research objectives. This was done with the aid of computer statistical package that was used to analyze the data was stata14.0 version where by figures and tables were presented.

4.1 Social Demographic characteristics of children and care

This chapter highlighted the demographic characteristics of the children in terms of sex of the child, age of the child, birth order, birth interval (years), and age of mother at birth (years). The mother's demographic characteristics are education level, marital status of the mother, and maternal occupation. The reason for including the demographic data was that such variables would assist in generating varied information in all aspects hence helping the researcher to understand the impact the study variables on malnutrition among under-five children. The findings are presented as descriptive statistics, using percentages, and frequency distributions, as well as cross tabulations to describe the data. The background characteristics are divided into child and maternal factors as presented below.

4.1.1 Under-five Child factors

Under-five child demographic factors are presented in Table 4.1.

Table 2: Under-five Child factors

Child factors (n=104)	Frequency	Percentage(%)
Sex of Child		
Male		
Female	51	49
Age of the child(months)	53	51
< 12	11	10.6
13-36	36	34.6
37-59	57	54.8
Birth Order		
1-2	52	50
3-4	26	25
5+		
Birth Interval(years)	26	25
<2	46	44.2
3-4	43	41.3
5-6	15	14.5
Age of mother at birth (years)		
<20	16	15.4
20-29	34	32.7
30-39	42	40.4
40-49	12	11.5

More than half of the under-five children in the study were females (51%) and majority were aged 37-59 months (54.8%) and followed by those aged 13-36 months (34.6%) respectively. Half of the children (50%) were of birth order 1-2 with a few in the birth order of 3-4 (25%) and 5+ order (25%) respectively. Most of the children were of birth intervals equal or less than two years (44.2%). There was also quite a large number of children born in the birth interval of 3-4 years (41.3%). The delivery of majority of children within a birth interval of two years implies that child feeding brings about weaning off breast milk early to give room for the mother to take care of a possible new pregnancy. Basing on the above results, it is not by surprise that malnutrition of children under-five years has persisted in Kasese Municipality in Kasese district since short breast-feeding intervals subjects the child to early weaning.

On the age of the mother at birth, majority of the children had their mothers aged 30-39 years (44.4%) while quite a significant proportion was also from children whose mothers at birth were

aged 20-29 years (32.7%). Few of the children were from mothers aged less than 20 years (15.4%) and 40-49 years (11.5%) at birth respectively.

4.1.2 Maternal factors of malnutrition among under-five children

The maternal factors of malnutrition among children under five years in Table 4.2.

Table 4.2: Maternal factors of malnutrition among under-five children

Maternal factors(n=104)	Frequency	Percentage(%)
Education level		
No education	16	15.4
Primary	76	73.1
Secondary+	12	11.5
Marital status of the mother		
Never Married/Separated	35	33.7
Married/Cohabiting	69	66.3
Maternal Occupation		
Peasant farmer	52	50.0
Pastoralist	14	13.4
Business/ civil servant	32	30.8
Handcrafts	6	5.8

The percentage distribution of under-five children according to the education level of the mother indicates that majority of the mothers had received primary level education (73.1%) and quite a few had never been to school (15.4%). Findings further reveal that only 11.5% of the children had mothers with secondary education and above. The level of education could impact on child care as many of the mothers may lack the basic skills and knowledge to look after their children by offering nutritious feeding. Many of such mothers still believe in the traditional way of feeding and would ignore the recommended child feeding and health practices that encourages exclusive breast feeding for up to at least six months as well as provision of nutrition supplements and balanced diet.

The distribution of under-five children according to the marital status of their mother indicates that majority of the children were born to mothers who were married/cohabiting (66.3%). Quite a big number of the under-five children were born to never married/separated mothers (33.7%). There was quite a high number of children born to single mothers which could have serious implications on

under-five child malnutrition since the kind of care that the child receives from the single parent may be compromised compared to those with both parents who will always give their children undivided attention and care. Besides single mothers may not have advantage of receiving financial support from the father of the child especially in proper feeding.

The findings also indicate that majority of the under-five children had their mothers who were peasant farmers (50%) as their occupation. Children whose mothers were doing business or civil servants were also significantly many (30.8%) as well as the pastoralists (13.4%). followed by those whose mothers were doing business (17.3%). Most of the mothers who did business lived nearer within the town centres in Kasese Municipality in Kasese District. There were also a few children whose mothers did handcrafts as their occupation (5.8%).

4.2 Nutritional status of the children

The nutrition status of children was assessed using the indicators of weight -for age, (WA), weightfor- height (WH) and height- for -age (HA). The girls were 53 (51.0%) and boys were less than girls by two, 51 (49.0%). Anthropometric measurements of weight and height were collected upon discharge from the hospital.

4.2.1 The Prevalence of Malnutrition among Children below 5 Years

Findings show that 17.5% (n=104) were wasted and 1.5% (n=104) were severely wasted. The highest prevalence of wasting was observed in children aged 24-35 months where 22.2% (n=8) and 7.9% (n=5) children were wasted and severely. wasted respectively.

Almost a third, 28.5% (n=104) were stunted and 14.2% (n=104) severely stunted. Children aged 6-11 month presented highest prevalence of moderate stunting (36.4%, n=4) while severe stunting was highest (18.2%, n=2) in children aged 6-11 months.

The prevalence of moderate and severe underweight amongst children was 15.5% (n=104). Children aged 13-36 months exhibited the highest prevalence of underweight (19.4, n=7) while children aged <12 months (9.1%, n= 1) had the highest prevalence of severe underweight.

The rates of wasting and underweight were high in male children (38.3% and 18.1 % respectively) than female children (28% for wasting and 14.9%). However, the rates of stunting were lower in male children (10.7%) than in female children (12.3%) (Table 7). When the nutritional status was scored, 42.73% (147/344) were malnourished (figure 8).

Table 4: Results for statistical analysis of anthropometric measurements using WHOAntr Plus software

Variable measurement		F(%)	F(%)	F(%)
Weight-for-length/height				
Age (months)	Total	Severe wasting	Overall wasting	Normal
	104	11.5%	17.5%	70.8%
<12	11	1(9.1%)	2(18.2%)	8(72.7%)
13-36	36	5(7.9%)	8(22.2%)	25(69.4%)
57-59	57	10(17.5%)	7(12.3%)	40(70.2%)
Length/height for age				
Age(months)	Total	Severe stunting	Overall wasting	Normal
	104	14.2%	28.5%	57.3%
<12	11	2(18.2%)	4(36.4%)	5(45.6%)
13-36	36	5(13.9%)	7(19.4%)	24(66.7%)
57-59	57	6(10.5%)	17(29.8%)	34(59.7%)
Weight-for-age				
Age (months)	Total	Severe Underweight	Overall underweight	Normal
	104	5.7%	15.5%	78.8%
<12	11	1(9.1%)	2(18.2%)	8(72.7%)
13-36	36	1(2.8%)	7(19.4%)	28(77.8%)
57-59	57	3(5.3%)	5(8.8%)	49(85.9%)
Male Children	Total	Severe	Overall	Normal
	51	5(9.8%)	8(15.7%)	40(78.4%)
Weight-for-length/height	51	5(9.8%)	8(15.7%)	40(78.4%)
Length/height-for-age	51	9(17.7%)	11(21.6%)	31(60.8%)
Weight-for-age	51	4(7.8%)	18(35.3%)	29(56.9%)
Female Children	Total	Severe	Overall	Normal
	53	3(5.7%)	11(20.8%)	39(73.6%)
Weight-for-length/height (wasting)	53	3(5.7%)	11(20.8%)	39(73.6%)
Length/height-for-age (stunting)	53	5(9.4%)	8(15.1%)	40(75.5%)
Weight-for-age (underweight)	53	4(7.6%)	11(20.8%)	38(71.7%)

4.3 The Level of Knowledge of the Mothers and Caregivers on Malnutrition of Children Under-Five Years

The present study endeavored to document the Level of Knowledge of the Mothers and Caregivers on Malnutrition of Children under Five Years.

On the appropriate time for initiating breastfeeding, 52.0% of the respondents said within one hour of birth. The rest reported the time as after one hour (30.8%) and after one day (9.6%) while 11.5% said they were not sure or did not know. Further, 85.6% of the respondents

knew that infants should be breastfeed exclusively for the first six months of life. On the frequency of breastfeeding, 88.5% of the mothers said it should be done on demand while 5.8% said there should be a schedule that should be followed while breastfeeding. The study also sought to assess whether the respondents had the knowledge of the minimum recommended duration of breastfeeding following initiation of complimentary foods. The responses were as follows; Less than 18 months (13.5%), 18 months (16.3%) and more than 18 months up to 24 months (49.0%). Moreover, 75.9% of the study participant reported 6 months as the recommended time for initiating to complimentary foods and 9.6% of the study participant reported after 6 months as the recommended time for initiating to complimentary foods (Table 4.4).

The knowledge levels were good (scores >70%) for 63 respondents (60.6%) while 41 respondents (39.4%) had poor knowledge with regard to a child's nutrition.

Table 5. Assessment of knowledge of the respondents

Attribute	Number (n=104)	%
Time of initiating breastfeeding		
Within 1 hour after birth	50	52.0
After one hour	32	30.8
After 1 day	10	9.6
Don't know/Not sure	12	11.5
Infants exclusive breastfeeding for the 1st 6 months of life		
Yes	89	85.6
No	15	14.4
Frequency of breastfeeding		
On demand	92	88.5
According to the timetable	6	5.8
Don't know/Not sure	6	5.8
Duration of b/feeding after initiating complimentary foods		
Less than 18 months	14	13.5
18 months	17	16.3
>18-24 months	51	49.0
>24 months	22	21.2

Time to initiate to complimentary foods		
<6 months	15	14.4
6 months	79	75.9
After 6 months	10	9.6
Level of knowledge		
Good	63	60.6
Poor	41	39.4

The key sources of information on children's nutrition and related aspects for the respondents were majorly from health workers (77.9%) and family members (21.2%) as presented in **Table 4.5**.

Table 6 Source of information

Source of information	Number (n=104)	%
Health workers	81	77.9
Family members/Relatives	22	21.2
Media	1	0.9

4.4 Relationship between child and maternal factors with malnutrition among underfive children

Results on the relationship between child and maternal factors with malnutrition among underfives children are presented in **Table 4.6**.

A comparison of stuntedness between males and females showed that slightly more females (30.2%) were stunted compared to 29.4% of the males. For wasting and underweight, females were equally more wasted and underweight respectively than their male counterparts. However, there was no significant relationship between sex of child and malnutrition.

On the age of a child, there was a significant relationship between age of child and underweight. There were few children underweight from 12 months (six) unlike those aged 13-36 months and above as shown in **table 4.6**. Also children aged 37-59 months were more stunted and wasted than those younger from 36 months and below.

For birth order, stunting was more among children of birth order 1-2 than those of order 3 and above. Children of birth order 3-4 were more wasted than those of birth order 1-2 or 5+. Similarly, underweight was highest among children of birth order 3-4.

On the birth interval, stunting was highest among under-five children with birth interval of 3-4 years than those of 2 or even 5-6 years. For wasting, however, more children of birth interval ≥ 2 years were wasted. On underweight, only few cases of children with birth interval 4 years and below were underweight. There was however no significant relationship between birth interval and all the malnutrition indices that is *stunting*, wasting and underweight.

Results also indicate that there were more stunted children among mothers aged 30-39 years (21.4%) than those 20-29 years or even 40-49 years. There was however no significant relationship between age of mother at birth and stunting. However, there were more wasted children among mothers aged < 20 years unlike other age groups. It is indicated that majority of underweight children were from mothers aged < 20 years. There was no significant relationship between age of mother and malnutrition among under-five children.

On mother's level of education, most of the children had mothers with primary education. Stunting was less among children of mothers with no formal education (18.8%). There was no significant relationship between mother's education level and malnutrition.

On the marital status, majority of the stunted children were from mothers who were married or cohabiting (15.9%). Similarly, there were more wasted children among married or cohabiting couples. There was however no significant relationship between marital status and malnutrition.

There was a significant relationship between mother's occupation and malnutrition. More stunted children were from mothers who were making handcrafts as well as business/civil servants. In the same vein, wasting and underweight was common among peasant farmers and pastoralists.

Table 7: Associations between child and maternal factors with malnutrition among under-five children

		Stunting			
	Total Children		Wasting	Underweight	Normal
Explanatory Variable		Stunted (%)	Wasted (%)	Underweight (%)	Normal %)
Sex of the child					
Male	51	15(29.4)	3(5.9)	2(3.9)	31(60.8)
Female	53	16(30.2)	11(20.8)	7(13.2)	19(35.8)
Age of child(months)					

<12	11	1 (9.1)	3(27.3)	2(18.2)	5(45.5)
13-36	36	4(11.1)	2(5.6)	3(8.3)	27(75.0)
37-59	57	6(10.5)	2(3.5)	5(8.7)	44(77.2)
Birth Order					
1-2	52	19(36.5)	3(5.8)	3(5.8)	27(51.9)
3-4	26	8(15.4)	4(15.4)	4(15.4)	10(38.5)
5+	26	6(11.5)	3(11.5)	1(3.9)	16(61.5)
Birth Interval years)					
<2	46	10(21. 7)	6(13.0)	4(8.7)	26(56.5)
3-4	43	11(25.6)	2(4.7)	2(4.7)	28(65.1)
5-6	15	1(6.7)	1(6.7)	0	13(86.7)
Age of mother at birth(years)					
< 20 Years	16	3(18.8)	2(12.5)	2(12.5)	9(56.3)
20-29 Years	34	7(20.6)	4(11.8)	3(8.8)	20(58.8)
30-39 Years	42	9(21.4)	3(7.1)	3(7.1)	27(64.3)
40-49 Years	12	2(16.7)	0	0	10(83.3)
Mother s education level					
No education	16	3(18.8)	3(18.8)	2(12.5)	8(50.0)
Primary	76	15(19.7)	6(7.9)	4(5.3)	51(67.1)
Secondary+	12	3(25.0)	2(16. 7)	0	7(58.3)
Marital Status					
Never married/Separated	35	6(17.1)	3(8.6)	3(8.6)	23(65.7)
Married/Cohabiting	69	11(15.9)	7(10.2)	3(4.4)	48(69.6)
Mothers occupation					
Peasant farmer	52	10(19.2)	6(11.5)	4(7.7)	32(61.5)
Pastoralist	14	1 (7. 1)	2(14.2)	0	11(78.6)
Business/civil servant	32	9(28.1)	3(9.4)	0	20(62.5)
Handcraft	6	2(33.3)	0	0	4(66.7)

Chapter Five: Discussion, Conclusion and Recommendations 5.0

Introduction

This chapter presents the discussion of results of the study in relation to the study specific findings. These include; determining the prevalence of malnutrition among children below 5 years, establish the level of knowledge of the mothers and caregivers on malnutrition of children under five years, and establish whether maternal factors can lead to malnutrition among children under-five years in at Kasese Municipal HCIII, Kasese Municipality, Kasese District.

5.1 Discussions

The demographic and socioeconomic characteristics identified in the study population were; marital status of the mothers, age composition of the study population, Mothers occupation (employment), birth interval, birth order and education level of the mothers. The study has shown that the majority of the women were married (66.3%) hence upholding the moral values of the family and this creates a conducive environment for upbringing of children.

5.1.1 The Prevalence of Malnutrition among Children below 5 Years

The prevalence of severe wasting was 11.5% and 17.5% for overall wasting among the study children which was higher than that of a similar study done by (Kalu & Etim, 2018) which was 9%. In the current study, the overall prevalence of underweight was 15.5%. This was equal to the study by (Subramanian et al., 2016) with a prevalence rate of 16%. And in the current study, the finding for severe stunting was 14.2% and 28.5% for overall stunting among the study children. This too was higher compared to the similar study done in Siaya District Hospital which had a prevalence of 18% (Subramanian et al., 2016).

5.1.2 The Level of Knowledge of the Mothers and Caregivers on Malnutrition of Children Under Five Years

Mother's practical nutrition knowledge is important for the child's nutritional outcome. On initiation of complementary feeding, majority had the correct knowledge at 79(75.9%) and presented that complementary feeding should be started at six months compared to a study done in Nairobi-Kenya where the percentage was high. The study was on maternal knowledge on complementary feeding practices and nutritional status of children aged 6- 59 months. It was conducted at a public health centre in Kahawa west Nairobi, which showed that 90.9% of the mothers had the correct knowledge on when to initiate complementary feeding. The lower knowledge level in the current study could be

attributed to the fact that our study was in a rural setting while the Nairobi study was in an urban setting. People in rural areas generally have less access to health care compared to their urban counterparts. Urban population has better access to hospitals, primary care and other health services in terms of geographical distribution and professional personnel, which in turn reflects favorably in the provision of health information to the mothers (Imera, K. 2016). The mothers in the rural areas are also **more** likely to have limited infrastructure accessing health care information. For example, lack of electricity in some areas of Kasere Municipality limits the access to health information/promotions passed through the media via television, radio and internet. In the current study majority of the respondents 81 (77.9%) reported health workers to be their source of information. This reflects positively in terms of the knowledge the mother has because chances of getting the correct information on how to feed their children will be correct compared to information obtained from the relatives.

5.1.3 Establishing Whether Maternal Factors Lead To Malnutrition among Children Under Five Years

Results in table 4.6 indicate that children aged 13-36 months were less likely to be underweight 3(8.3%) than their counterparts who were aged 12 months and below (18.2%) in Kasere Municipality. The above findings agree with similar findings at national level that the proportion of underweight children is lowest among children 13-36 months old and highest among those 6-8 months old (UBOS and ICF International Inc., 2018). Similar findings have been observed by several scholars in Vietnam, India, Nigeria and Kenya (Kalu & Etim, 2018, Rahimov & Mekawi, 2019). The findings are however contrary to the study in Ethiopia that found out that underweight had a positive linear relationship with age of a child (Berhanu, G., Mekonnen, S., & Sisay, M. 2018).

Findings indicate that there is a significant relationship between woman's occupation and stunting among under-five children in Kasere Municipality. Children whose mothers were pastoralists (7.1%) were less likely to be stunted unlike their counterparts whose mothers were peasant farmers (19.2%). Mothers engaged in pastoralism are believed to supplement the nutrition value of their children with cow milk and other milk products which consequently reduces the risk of stunting unlike the peasant farmers and business people. According to Kalu & Etim, (2018), crop cultivators were more likely to have stunted children. Similarly, a study done in Vietnam found out that children from mothers who were crop cultivators had an increased risk of stunting

because they rarely get time to care for their children hence end up leaving them under the care of elder siblings or inexperienced maids (Eales, B. 2018). In another study, it was found out that some mothers especially peasant farmers in most cases fail to provide supplementary feeding to their children because they cannot afford (Haile, A. 2020).

5.1.4 Conclusion

The study found out that malnutrition is one of the major challenges affecting under-five children Kasese Municipal HCIII, Kasese Municipality. The common form of malnutrition included stunting, wasting and underweight. Children aged 13-36 months were less likely to be underweight than those aged *less than twelve* months. Stunting was majorly common among children of peasant farmers than those from pastoralist mothers or even those doing business.

Level of education achieved has shown to have an influence on initiation of complementary feeds, with mothers who had failed to complete primary school education or had no formal education being more likely to initiate inappropriate complementary feeding. This in turn reflects poorly on the nutritional outcome of the children.

The study has shown there are some gaps in terms of knowledge towards nutrition. For example *only* 50 women out of the 104 had the correct *knowledge* on initiation of breastfeeding after birth.

Results from the analysis confirm that age of a child and maternal occupation are one of the most significant determinants of malnutrition in Kasese Municipality. The study therefore underscores the age groups prone to malnutrition challenges as well as the particular occupations among women that could pose a risk of malnutrition to the under-five children. This then gives a focus to policymakers in the designing of strategies aimed at combating malnutrition among children below five years.

5.1.5 Recommendations

1. To reduce childhood Under-nutrition in Kasese Municipality which has been on the rise, emphasis should be given in improving the knowledge of mothers on appropriate infant and young children feeding. For example by, giving key messages on the promotion of appropriate IYCF practices by the Ministry of Health through outreach campaigns at the community level ,health facilities and through the media (for example local radio stations).
2. Empowering women in terms of formal education as seen in the current study, education positively affects the correct timing of initiation of complementary feeds.

3. The study recommends exclusive breast feeding and, proper. supplementary feeding especially among children aged less than three years. 'In line with UNICEF and WHO recommendations, there is need for exclusive breast feeding during **the** first six months of life and thereafter semi-solid complementary foods are introduced up- to at least-two years or more. This will consequently reduce on the underweight children who are mostly aged less than three years in Kasese Municipality.
4. The study also recommends a special arrangement for mothers engaged in cultivation to have their children breastfed regularly by having their babies brought to the gardens at regular intervals. The mothers could also visit their babies at home regularly from their gardens to ensure that proper nutrition is given to their children. This may .contribute to a reduction in stunting especially among children of peasant farmers who were found to have increased levels of malnutrition than the rest of the children with mothers of other occupations.
5. There is need for a bigger study to be carried out **in** Kasese District covering more mothers/caregivers and children to establish the detenninarits of under-five malnutrition. Perhaps another study may establish significant determinants like education of mother, sex

of child, birth order, birth interval, age of mother and marital status. These factors were found significant in the literature review despite the fact that they were insignificant in this study.

5.1.6 Areas for further studies

There is need for a comprehensive study on the impact of climatic variability on the malnutrition of under-five children in Ugandan cattle corridor. This is an environmental aspect that was not particularly studied at length yet it is an important phenomenon that has not been widely studied by several researchers.

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APPENDIX 1: CONSENT FORM FOR RESPONDENTS

FACTORS LEADING TO MALNUTRITION IN CHILDREN UNDER FIVE YEARS IN

NY AMWAMBA DIVISION, KASESE MUNICIPALITY, KASESE DISTRICT

Introduction

Good morning/afternoon. My name is **Mis. Mary consolata Kabugho**. Am a student at **Kabale university**, I am undertaking a Research Study Entitled **Factors Leading to Malnutrition in Children under Five Years in Nyamwamba Division, Kasese Municipality, Kasese District**. The purpose of this study is to determine the factors leading to malnutrition among children under five years at Kasese Municipal HCIII, Kasese Municipality, and to establish the level of knowledge of mothers/caregivers on malnutrition under children 2-59 months. The study will also establish whether maternal factors lead to malnutrition among children 2-59 months, I believe that you are the right person to be involved in this study since you have a child/children under the age of five and can provide me with the information I need.

Your participation is entirely voluntary and the questionnaire is completely anonymous. I do not expect that you are at any risk by participating in this interview. I will ask you to respond honestly and to the best of your ability. There is no need to worry if you do not know the answer to a question. I will not discuss your responses with anyone.

I will measure the weight and height/length of your child which will help me to determine his/her nutritional status. I will also interview you so that I get more information for this study. Finally, I confirm to you that, the information that you share with me will be kept **confidential** and only used for the academic purpose.

You are free to decide if you want to participate in this interview or not. **If** there is a question you do not feel comfortable while answering, you can tell me and I skip it. You may also stop the interview at any time. Do you understand all I have just told you and do you agree to participate in this study? If you agree to participate in this study, you will need to sign this form.

Yes

No

RESPONDENT AGREEMENT

PARTICIPANT: I have read the study information/ the study information has been read to me. I have been asked if I have any questions, and these have been answered to my satisfaction. I freely agree to participate.

Name Signature or Thumb Print

Date

INTERVIEWER: I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual, and the individual has consented to participate.

Name Signature

Date

APPENDIX 2: STUDY QUESTIONNAIRE

ASSESSING THE FACTORS LEADING TO MALNUTRITION IN CHILDREN UNDER FIVE YEARS AT KASESE MUNICIPAL HCIII, KASESE MUNICIPALITY, KASESE DISTRICT

	Question	Coding category	Code	Skip
	[Interviewer			
	Respondent ID Number			
	Relationship of the respondent to the child	a) Mother b) Caregiver	0 1	
A) Demographic Factors To start, I would like to ask you some questions about yourself and your background				
AO1	Sex of the child	a) Male b) Female	0 1	
IA	Weight at birth _____	a) Low birth weight (<2500grams) b) Normal birth weight (> or = 2500grams)	0 1	
	Age of child (months)	<12() 12-36 () 37 59 ()	If more than five [Years of age, END"	
[A04	Birth order of the child (referring to the biological mother of the child)	1-2) 3-4() 5+()		
[A05	Birth interval between the child and older sibling (if Any in years)	F2) 3-4() 5+()		
IA06	What is the Measles immunization status of the Child?	a) immunized up to date according to O EPI b) Has measles immunization scar, c) fully immunized according to the 3 mother, d) Not immunized (>9 months), e) Less than 9 months old (Not yet 5 immunized), f) I do not know	1 p 6	
IA07	What is the BCG Immunization status of the child?	a) immunized up to date, b) Has BCG scar, c) immunized according to the mother, d) Not immunized, e) I do not know	0 1 3 1 4	

8	Vitamin A supplement administered to the child?	a) administered according to EPI card b) administered according to the mother's report c) Not immunized d) I do not know	0-3	
9	Did the child get very ill in the last 3 months that you thought he/she could die?	a) Yes b) No c) I do not know	1-3	
B) The Level of Knowledge of the Mothers and Caregivers on Malnutrition of Children Under Five Years				
	Have you ever heard of Malnutrition among children under five years in this area?	a) Yes b) No	0-1	(If no, skip question B6)
	What is malnutrition?	a) Yes b) No	0-1	(If no, skip question B6)
	Is any of your children suffering from malnutrition?	a) Yes b) No	0-1	
	Did the child have one of the following conditions (persistent cough, measles, diarrhoea, vomiting, on and off fever, ear problems or disability) 2 weeks prior to the time of the diagnosis of underweight for the case or the corresponding date for the control?	a) Yes b) No c) Not	0-1	
	How many times does the child know the causes of malnutrition in children?	Knowledgeable (gives at least one cause) = 0 Not knowledgeable (fails to give at least one cause) = 1		
11.11	How many times does the child feed, eat solid, semi-solid or soft food other than water per 4 hours?	Adequate = 0 (at least 8 times for infants 0-6 months old; at least 5 times for infants and children 7-59 months old) Small = 1 (<8 times for infants 0-6 months old; < 5 times for infants and children 7-59 months old)		
	How can you prevent malnutrition in children?	Knowledgeable (gives at least one preventive measure) = 0 Not knowledgeable (fails to give at least one preventive measure) = 1		

Maternal Factors				
B01	Age of mother at birth (years)	a) <20 b) 20-29 c) 30-39 d) 40+	0 2 3 4	
B02	Is the child's biological mother alive?	a) Yes b) No c) I do not know	0 1 2	
B03	Is the child's biological father alive?	a) Yes b) No c) I do not know	0 1 2	
B04	Parents Marital status	a) Never lived together as a couple b) In relationship c) Married/ cohabiting d) Divorced/separated e) Widowed	0 1 2 3 4	
B05	What is the highest level of education for the child's mother?	a) Not gone to school at all b) Primary education c) Secondary d) Tertiary/University	0 1 2 3	
B06	What is the occupation for the child's mother?	a) Peasant farmer b) civil servant c) NGO staff d) Pastoralist e) Business f) Handcrafts g) Other, specify ..	0 1 2 3 4 5 6	
CHILD ANTHROPOMETRY				
	What is the weight of child? (Kgs)	Kgs		
	What is the height/length of the child? (CM)	CM		
	What is the mid Upper arm circumference of the child? (CM)	CM		

Maternal Factors				
B01	!Age of mother at birth (years)	a) <20 b) 20-29 c) 30-39 a) 40+	0 p 3 H4	
'B02	Is the child's biological mother alive?	a) Yes b) No k) I do not know	0 I b	
B03	Is the child's biological father alive?	la) Yes lb) No) I do not know	0 I b	
B04	Parents Marital status	la) Never lived together as a couple lb) In relationship c) Married/ cohabiting kl) Divorced/separated e) Widowed	0 I 2 3 4	
B05	What is the highest level of education for the child's mother?	a) Not gone to school at all b) Primary education c) Secondary d) Tertiary/University	0 I 2 3	
B06	What is the occupation for the child's mother?	a) Peasant farmer b) civil servant c) NGO staff d) Pastoralist e) Business f) Handcrafts g) Other, specify ..	0 I p 3 l 5 6	
CHILD ANTHROPOMETRY				
	!What is the weight of the child? (Kgs)	Kgs		
	/What is the height/length of the child? (CM)	CM		
	/What is the mid Upper arm circumference of the child? (CM)	.CM		