

**ASSESSMENT OF THE RELATIONSHIP BETWEEN SOCIOECONOMIC
AND DEMOGRAPHIC FACTORS TO MALNUTRITION AMONG
CHILDREN AGED 0 TO 59 MONTHS ATTENDING LIRA
REGIONAL REFERRAL HOSPITAL**

**BY
ADONG COLLETA
BMS/0038/133/DU**

**A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF
CLINICAL MEDICINE AND DENTISTRY IN PARTIAL FULFILMENT
FOR THE AWARD OF A BACHELOR DEGREE IN MEDICINE AND
SURGERY OF KAMPALA INTERNATIONAL UNIVERSITY
WESTERN CAMPUS**

APRIL, 2019

DECLARATION

DECLARATION

I do hereby declare that this dissertation has never been presented to any institution of higher learning here or abroad for an academic award and the work contained in it is original unless otherwise stated.

Researcher: **ADONG COLLETA, BMS/0038/133/DU**

Signature..........

Date...21/05/2019.....

APPROVAL

APPROVAL

This is to certify that this research dissertation has been prepared under my supervision and has never been presented anywhere for any other purpose and is now ready for submission to the Faculty of Clinical Medicine and Dentistry of Kampala International University for further consideration.

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Signed.....*Vincent*.....

Date.....*21/05/2019*.....

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LIST OF ABBREVIATIONS

CAR	: Central African Republic
IREC	: Institutional Research and Ethics Committee
KIU	: Kampala International University
LMICs	: Low- and Middle- Income Countries
LRRH	: Lira Regional Referral Hospital
MAM	: Moderate Acute Malnutrition
MDGs	: Millennium Development Goals
MoH	: Ministry of Health
MUAC	: Mid Upper Arm Circumference
NGO's	: Non-Governmental Organizations
OR	: Odds Ratio
PEM	: Protein Energy Malnutrition
RR	: Relative Risk
SAM	: Severe Acute Malnutrition
SDGs	: Sustainable Development Goals
UBOS	: Uganda Bureau of Statistics
UNICEF	: United Nations International Children's Emergency Fund
WHO	: World Health Organization

KEY DEFINITIONS

Mortality	: The measure of death in a particular population, scaled to the size of that population per unit time.
Morbidity	: It refers to the proportion of people in a specific location that are subjected to illness and diseases.
Stunting	: Is when height for age of a child 0 to 59 months is below two standard deviations.
Underweight	: Being of a low weight-for-age
Wasting	: Is the gradual reducing of the fullness and strength of the body.

ABSTRACT

Under-five malnutrition is still a global child health and public health problem with low- and middle- income countries especially in Africa bearing most of the brunt. Despite several strategies and objectives set to combat malnutrition in the world, not a single country is on track in achieving the set objectives this far. Varying progress has been reported from region to region with countries in sub-Saharan WHO region lagging way behind. Uganda is among the countries which has record high under-five malnutrition despite being labeled the pearl and Africa's fruit and food basket by some. So many factors could explain this worrying trend; demographic and socioeconomic being among them. Little data exists on this subject matter in Lira, a District presumed to be among those with high malnutrition rates in Uganda. The study set out to assess the prevalence, socioeconomic and demographic factors associated with under-five malnutrition at Lira Regional Referral Hospital. This descriptive cross-sectional study involved 1,080 under-fives admitted at LRRH out of which 196 malnutrition cases were reported within the 3-month study period from January to March 2019. This gave a global prevalence of 18.02%, 6.99% being moderate and 11.04% being severe. Factors associated with under-five malnutrition were child age, male sex, rural family residence, young maternal age, low education status of mother, peasant existence, short birth interval and being the first or last born in the family. The high under-five malnutrition prevalence demands urgent intervention.

Key words: Under-fives, Prevalence, Malnutrition, Demographic & socioeconomic factors

Table of Contents

DECLARATION	i
APPROVAL	ii
ACKNOWLEDGEMENT	iii
LIST OF ABBREVIATIONS.....	iv
KEY DEFINITIONS	v
ABSTRACT.....	vi
LIST OF FIGURES	xi
LIST OF TABLES	xii
CHAPTER ONE: INTRODUCTION.....	1
1.0. BACKGROUND	1
1.1. STATEMENT OF PROBLEM.....	1
1.2. STUDY OBJECTIVES.....	2
1.2.1. GENERAL OBJECTIVES	2
1.2.2. SPECIFIC OBJECTIVES.....	2
1.3. RESEARCH QUESTIONS	2
1.4. JUSTIFICATION	2
1.5. STUDY SCOPE.....	3
1.5.1. CONTENT SCOPE	3
1.5.2. GEOGRAPHICAL SCOPE	3
1.5.3. TIME SCOPE	3
1.6. CONCEPTUAL FRAMEWORK	3
2.0. INTRODUCTION	5
2.1. PREVALENCE OF MALNUTRITION IN CHILDREN AGED 0 – 59 MONTHS	5
2.2. DEMOGRAPHIC FACTORS	6

2.2.1. Sex of the child	6
2.2.2. Age of the child.....	7
2.2.3. Birth order	7
2.2.4. Age of the mother at birth of child.....	7
2.2.5. Birth interval and child spacing	8
2.3. SOCIO ECONOMIC FACTORS	8
2.3.1. Rural areas Vs urban areas.....	8
2.3.2. Maternal education.....	8
2.3.3. Maternal occupation.....	8
CHAPTER 3: METHODOLOGY	9
3.0. INTRODUCTION	9
3.1. DESIGN OF THE STUDY	9
3.2. STUDY POPULATION	9
3.3. SAMPLE SIZE	9
3.4. SAMPLE POPULATION.....	9
3.5. SAMPLING TECHNIQUE	9
3.6. INCLUSION CRITERIA.....	10
3.7. EXCLUSION CRITERIA	10
3.8. DATA COLLECTION METHODS	10
3.9. RESEARCH INSTRUMENTS.....	10
3.10. DATA ANALYSIS.....	10
3.11. DATA PRESENTATION.....	10
3.12. DATA QUALITY CONTROL.....	10
3.13. ETHICAL CONSIDERATIOIN.....	10
3.14. LIMITATIONS.....	11

CHAPTER FOUR: STUDY FINDINGS	12
4.0. INTRODUCTION	12
4.1. PREVALENCE OF MALNUTRITION IN 0 – 59 MONTH OLDS IN LRRH.....	12
4.2. DEMOGRAPHIC FACTORS ASSOCIATED WITH MALNUTRITION	12
4.2.1. SEX OF THE CHILD.....	12
4.2.2. AGE OF CHILD	13
4.2.3. AGE OF THE MOTHER.....	13
4.2.4. MOTHER’S MARITAL STATUS.....	14
4.2.5. FAMILY RESIDENCE	14
4.3. SOCIOECONOMIC FACTORS	14
4.2.5. MOTHER’S EDUCATION LEVEL AND OCCUPATION.....	14
4.2.6. BIRTH ORDER AND BIRTH INTERVAL	15
CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS	17
5.0. INTRODUCTION	17
5.1. DISCUSSION	17
5.1.1. PREVALENCE OF MALNUTRITION IN UNDER-FIVES	17
5.1.2. DEMOGRAPHIC FACTORS ASSOCIATED WITH UNDER-FIVE MALNUTRITION	17
5.1.3.SOCIOECONOMIC FACTORS ASSOCIATED WITH UNDER-FIVE MALNUTRITION	18
5.2. CONCLUSIONS.....	18
5.3. RECOMMENDATIONS.....	19
References.....	19
APPENDICES	23
APPENDIX I: CONSENT FORM.....	23
APPENDIX II: DATA COLLECTION INSTRUMENT	25

APPENDIX III: MAP OF UGANDA SHOWING THE LOCATION OF LIRA DISTRICT	28
APPENDIX IV: CLASSIFICATION OF MALNUTRITION USING MUAC VALUES	29
APPENDIX V: APPROVAL LETTER FROM IREC KIU	31

LIST OF FIGURES

Figure 1: Conceptual Framework showing the determinants of malnutrition among under-five Children: Researcher's own View	Error! Bookmark not defined.
Figure 2: Risk of malnutrition by age (N=196)	13
Figure 3: Prevalence of malnutrition in 0-59 month children by mother's age (N=196).....	14
Figure 4: Mother's Education & Occupation in Association with Under-five Malnutrition (N=196)	15
Figure 5: Birth order and Child spacing as Determinants of under-five Malnutrition (N=196)15	

LIST OF TABLES

Table 1: 3-month period admissions and malnutrition cases (N=1088)	12
Table 2: Odds of malnutrition by sex (N=1088).....	12
Table 3: Relative risk of severe malnutrition by sex (N=196)	13

CHAPTER ONE: INTRODUCTION

1.0. Background

Child undernutrition is a global public health problem especially in low and middle income countries; it is an underlying cause in more than a third of all infant and child deaths annually (Akombi, Agho, Merom, Hall, & Renzaho, 2017). Child malnutrition is associated with morbidity and mortality among children and also hampers their mental development, educational performance and intellect (Willows, Barbarich, Wang, Olstad, & Clandinin, 2011).

The World Health Organization (WHO) defines malnutrition as the cellular imbalance between supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions (WHO, 2017). Malnutrition comprises of both; over-nutrition and undernutrition. Over-nutrition is the pathological state resulting from the consumption of excessive quantity of food over an extended period of time. Undernutrition is depletion of energy (calories) resulting from insufficient food intake over an extended period of time (Bhutta, 2016).

Malnutrition is usually measured by impairment in growth in height and weight. There is a global acceptance that children have almost equal possibility to grow before they attain the age of 7, thus social economic and demographic factors seem to be more persistent than hereditary features in growth disparities among children (Chirande et al., 2015).

There is thus considerable evidence in the health economics literature that suggests that child nutritional status is related to a number of social economic factors such as household wealth, rural or urban residence, mother's education, demographic factors and access to health care services. It's argued that children from the poorest households are stunted as compared to those from the richest households (Jesmin, Yamamoto, Malik, & Haque, 2011).

8% of the households in Lira are experiencing moderate to severe hunger and also there is low consumption of animal products that is in about 21% of the households these all are due to poverty (Agaba, Ghosh, & Griffiths, 2017). Practically speaking, malnutrition in Lira is equivalent to undernutrition thus the area of interest in this study is undernutrition, rather than over-nutrition, among children aged between 0 and 59 months.

1.1. Statement of Problem

Malnutrition include undernutrition and over-nutrition, it kills, retards, cripples, blinds and impairs human development on a truly massive scale worldwide (Ibrahim, Zambruni, Melby, & Melby, 2017).

Uganda as a country and particularly Lira in northern part of the country has been faced with malnutrition challenges. Several studies and interventions have been carried out by both the government and Non-Governmental Organizations (NGO's) but despite all these; there is still increase of malnutrition, particularly, in the conflict-ravaged Northern Uganda, Lira included.

By 2012, the total population of Uganda was 33.6 million people with children under 59 months estimated to be 6.5 million. Stunting in the under 59 months by 2011 was 38% and underweight was 14% (USAID-DHS, 2018). However, the relationship between socioeconomic and demographic factors to malnutrition has not been fully studied in Lira District.

1.2. Study Objectives

1.2.1. General Objectives

To assess the relationship between socioeconomic and demographic factors to the nutrition status of the children between 0 to 59 months attended to at LRRH.

1.2.2. Specific Objectives

- 1) To assess the 3-month prevalence of malnutrition in children 0 - 59 months attended to at LRRH.
- 2) To describe how socioeconomic status is associated with malnutrition in children 0 - 59 months attended to at LRRH.
- 3) To describe how demographic factors are associated with malnutrition in children 0 - 59 months attended to at LRRH.

1.3. Research Questions

- 1) What is the 3-month prevalence of malnutrition in children 0 - 59 months attended to at LRRH?
- 2) What are the socioeconomic factors associated with malnutrition in children 0 - 59 months attended to at LRRH?
- 3) What are the demographic factors associated with malnutrition in children 0 - 59 months attended to at LRRH?

1.4. Justification

Malnutrition is rampant in Lira District with a prevalence of 38% (Kamara, Cyril, & Renzaho, 2017). However, the association of demographic and socioeconomic factors to malnutrition in children aged 0 to 59 months is not fully known in Lira District. This study therefore intends to describe the demographic and socioeconomic factors associated with malnutrition among children

aged 0 to 59 month in Lira District. The study findings will be helpful at various important levels. First and foremost, when the prevalence of malnutrition is known, interventions can be planned and implemented thus reducing the suffering caused by malnutrition both among the under-fives and their caregivers. Secondly, this will help the region, and Uganda as a country, make headway towards achieving the MDGs and SDGs especially in matters concerning child health and mortality prevention. Last, but most definitely not the least, other researchers may find the information obtained in this study useful in carrying out their own studies either on the same or other topic, in the same or another study population.

1.5. Study Scope

1.5.1. Content Scope

This study focused mainly on household characteristics with more particular attention to parents. These characteristics include socio demographic and economic factors and their relation to malnutrition in the children of 0 to 59 months of age in Lira District. The study focused on malnutrition because despite interventions made, children are still malnourished. It was conducted among children between 0 to 59 months because they are most affected by malnutrition.

1.5.2. Geographical Scope

Lira Regional Referral Hospital is in Lira District located north of Uganda on the north-eastern shores of Lake Kyoga. It comprises of four counties that is; Erute North county, Erute South county, Moroto county and Lira town council. The area of the district is estimated at about 7,200sq.km of which 4620sq.km is estimated to be arable. Lira District chosen because it's been through conflicts and hence its economic status is not as good hence it the best choice in a study that assesses the relationship between social economic factors and malnutrition.

1.5.3. Time Scope

The study was conducted from January 2019 to March 2019, a period of three months.

1.6. Conceptual Framework

The conceptual framework adopted, and which is my own work informed by reviewed literature and personal experience as a resident of Lira District, is as shown in the figure below. Such factors act through interrelated proximate determinants to bring about malnutrition, that is, stunting, underweight and wasting. The demographic (child factors) and socio-economic factors (maternal factors) such as age of child, birth order, mother's age at birth, mother's education level, marital

status as well as maternal occupation work through proximate variables like the duration of breast feeding, sanitation and mother's health seeking behaviors to determine under-five malnutrition.

DEPENDENT

INDEPENDENT

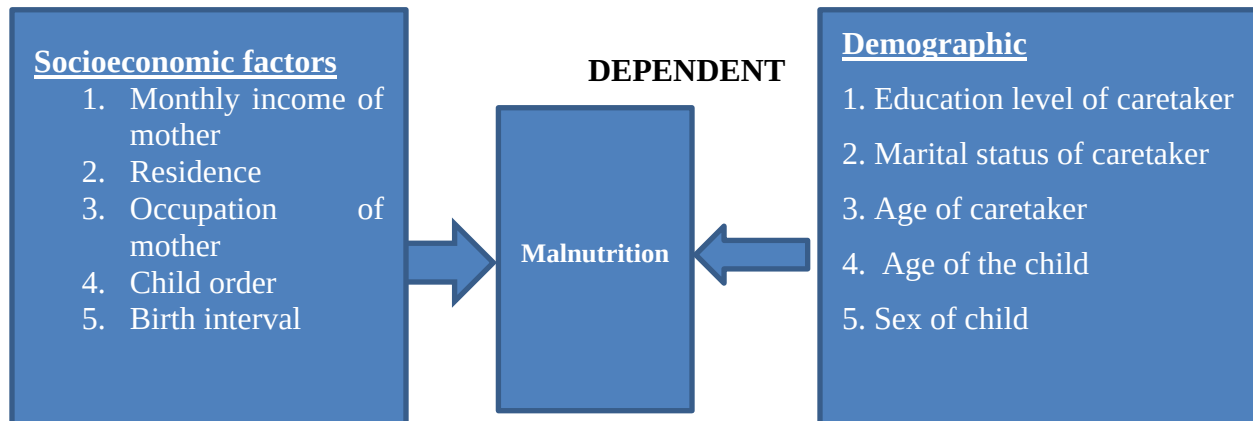


Figure 1: Conceptual Framework showing the determinants of malnutrition among under-five Children: Researcher's own view

CHAPTER TWO: LITERATURE REVIEW

2.0.Introduction

The section presents a synthesis of the reviewed literature on the determinants of malnutrition among children 0 to 59 months in Lira District. Research finding indicates that socioeconomic factor such as maternal income, occupation and education level greatly has impact on nutritional status of a child. Also demographic factors like; age, sex, order of birth has impact on the nutritional status of a child.

2.1. Prevalence of Malnutrition in Children Aged 0 – 59 Months

The global burden of malnutrition is tremendous as evidenced by the fact that almost half of all deaths in children under the age of 5 are attributable to undernutrition. This translates into the loss of almost 3 million young lives a year (UNICEF, 2017). Global statistics have it that in 2017, 22.2% and 7.5% of the world's under-fives were stunted and wasted respectively, and most of these cases were from sub-Saharan Africa and South Asia (UNICEF, WHO, & World Bank Group, 2017). About 51 million under-fives were wasted, 16 million of which were severely wasted. This translates into a prevalence of 7.5 per cent and 2.4 per cent, respectively.

South Asia's wasting prevalence of 16.0% is the highest demanding serious interventional strategies (UNICEF et al., 2017).

Studies conducted in various regions of the globe paint a picture of the heavy burden vividly. What comes out clearly is that undernutrition plagues mainly low- and middle-income countries in Africa and South Asia. It follows therefore, that most statistics should be about countries in these regions, though other countries such as Brazil still have to grapple with malnutrition problems, especially in the semi-arid regions where 10.9% of its under-fives are stunted (Ramos, Dumith, & César, 2015).

A clear disparity exists though, on the prevalence values between Brazil and African countries-the African values being far much higher. In Bangui Central African Republic, for example, a staggering 36% of its population under-five were stunted, 51% of them moderately while 49% severely so (Vonaesch et al., 2017). Bangladeshi under-fives are not better of either in as far as malnutrition is concerned. Almost half (41%) of them are malnourished (Sarma et al., 2017).

Studies conducted among under-fives admitted at Mother of Christ Specialist Hospital Ogui, Enugu, Nigeria clearly showed that malnutrition is a problem among children in that area. The prevalence of malnutrition (wasting, stunting and underweight) was high within the ages of 0-11

months and 12- 17 months due to rampant inadequacy in child feeding practices (Anoshirike, Ejeogo, Nwosu, Maduforo, & Nnoka, 2014).

Things are not okay in Mozambique either! In a rural district in the southern parts of that country, almost half of the pediatric cases attended to comprising under-fives had some malnutrition problem. 47% to be exact had some indication of malnutrition with 6% severely malnourished (Nhampossa et al., 2013).

There is a humongous burden of stunting and wasting among children below five years in Uganda that has been so much so as to draw concern from policy makers and public health practitioners alike (Mawa & Lawoko, 2018). According to recent studies, 5% and 33.5% of Uganda's under-fives are wasted and stunted respectively (Mawa, 2019).

Most of the regions hardly hit in Uganda are those in North-western side where the overall malnutrition prevalence is 5.6% (4.2-7.4 95% C.I.) and that of severe acute malnutrition (SAM) is at 1.1% (3.2-5.8 95% C.I.) and with boys more affected than girls (Legason, Atiku, Ssenyonga, Olupot-olupot, & Barugahare, 2017).

2.2. Demographic Factors

2.2.1. Sex of the child

Studies have found a slightly lower PEM in females, 102 (45.9%) of females were malnourished, compared to 120 (54.1%) of males, but the difference was not statistically significant (Tiwari, Bandi, Awasthi, & Sharma, 2016).

According to a study done in Kwara state Nigeria, (Babatunde, Olagunju, Fakayode, & Sola-Ojo, 2011), reported that there was a significant relationship between sex of a child and malnutrition. Male children were more likely to be malnourished than their female counterparts.

Another study done in Botswana revealed that stunting, wasting and underweight specific differences in child malnutrition revealed that there is a significant decline among males (Novignon, Aboagye, Agyemang, & Aryeetey, 2015). This empirical result is also shown in their description of patterns in child malnutrition stratified by sex. The result may reflect mere differentials by sex as a demographic factor as would other socioeconomic factors such as maternal education and urban rural differences and not a deliberate effort by families to favor boys underweight were also significantly more prevalent among boys than girls (Novignon et al., 2015).

In Ghana, child malnutrition was also highest in the three northern regions (namely; Northern, Upper East and Upper West regions) and more in males. The Greater Accra region recorded the lowest child malnutrition (Amugsi, Mittelmark, & Lartey, 2013).

2.2.2. Age of the child

In Mumbai, India PEM was more common in 13 to 24-month age group 64 (66.7%), compared to 3-5 years' age group. Up to 6 months, the babies thrive well on breast milk which is adequate for normal growth and development, thereafter the baby needs supplementary feeds in addition to breastfeeding. Most mothers delay the weaning in young children and secondly the quantities of foods given are quite inadequate for normal growth and development (Tiwari et al., 2016).

Results from another study indicate that children aged 37-59 months were less likely to be underweight (OR=0.76) than their counterparts who were aged 12 months and below in Nakaseke and Nakasongola districts (Habaasa, 2015a).

Malnutrition has been shown to increase with the age of the child through the first three years of life before declining in the fourth and fifth year. The increase is especially rapid during the first two years of life, as evidenced in the rise from 13 percent among children aged 6-8 months to 45 percent among children aged 18-23 months. It is expected that parents give less attention to older children when they give birth to a new child who needs much attention and care (Mawa, 2019).

Similar findings have been reported in different countries for instance in Kwara state of Nigeria (Babatunde et al., 2011), in (Grace, Davenport, Funk, & Lerner, 2012), and rural India (Borooah & Borooah, 2018).

2.2.3. Birth order

In a study carried out among 6939 children under five years in Bangladesh, the prevalence of stunting increased with birth order hence most of the children who were of birth order more than two had malnutrition (Fakir & Khan, 2015).

2.2.4. Age of the mother at birth of child

Research has it that, mothers who have their children at a tender age say between 16 to 18 have their children at a higher risk of malnutrition, this is because the mothers are young and do not have good knowledge of child care (Reinbott & Jordan, 2016). Studies in Kenya by (Masibo, 2013) also reported increased under-five malnutrition with younger maternal age.

2.2.5. Birth interval and child spacing

Research has it those children who have got a small time difference in their birth often get malnourished. Malnourishment is often on the older child as the mother shifts attention to the younger one ignores the older ones and they become malnourished (Wong, Moy, & Nair, 2014).

2.3. Socio Economic Factors

Households with higher socioeconomic status are usually financially better off. After spending on food and other basic necessities (e.g. water, electricity), remaining income is spent on purchasing household products (e.g. televisions, radios, washing machines, DVD players) and on motor vehicles. Households with higher socioeconomic status are likely to have children with a higher weight for age z-score (Kien et al., 2016). These socioeconomic factors include; maternal education level, maternal occupation,

Maternal education and health insurance for children, and living environment were found important in enhancing rural children's nutritional status in China (Zhang, Bécares, & Chandola, 2016).

2.3.1. Rural areas Vs urban areas

The results show that child malnutrition was prevalent in rural areas compared to urban areas. About 71.9 % of children who were stunted were from rural communities. Similarly, about 79.1 % of underweight children and 76.2 % of wasted children were from rural areas (Novignon et al., 2015).

2.3.2. Maternal education

In Nepal, the education level of mothers seems to be relevant in helping reduce the double burden of malnutrition at least in some regions (Sarki, Robertson, & Parlesak, 2016). This should be taken into consideration when designing programmes to prevent both chronic undernutrition and non-communicable diseases.

2.3.3. Maternal occupation

Children whose mothers work in the farm or quarrying jobs are often too busy to cater for their children thus they end up not being properly fed, not feeding in time thus become stunted and underweight as compared to the children whose mothers work in offices (Sarki et al., 2016).

Research has shown children from low socio economic status homes, and whose parents are unemployed or are in low paying occupations tend to more malnourished than their counterparts of same age from the better socio economic back ground (Kien et al., 2016).

CHAPTER THREE: METHODOLOGY

3.0.Introduction

This chapter presents the methodology used in the study. This has been divided into; design of the study, population, population size, sampling technique, data collection methods, instruments, data analysis method and study limitations on the influence of socioeconomic and socio demographic factors in children between 0 to 59 months on malnutrition.

3.1. Design of the Study

The study was conducted at Lira Regional Referral Hospital (LRRH). A descriptive cross-sectional study design was used.

3.2. Study Population

The estimated population by 2012 was 403,100. Majority of the population are ethnic Langi and the predominant language spoken is Luo. The study included children between 0 to 59 months diagnosed with malnutrition at LRRH.

3.3. Sample Size

Sample size was obtained using Kish Leslie 1970.

Kish Leslie 1970

$$n = \frac{z^2 P(1-P)}{E^2}$$

n- Required sample size

z – Confidence interval (1.95 for 95% confidence)

N-population size

P- Population proportion (0.06 for 6%); from previous research by UNICEF and ACF internal in Lira District done in 2009

E- Margin of error (0.05 for 5%)

The sample size was 86

3.4. Sample Population

All children aged 0 to 59 months attending LRRH.

3.5. Sampling Technique

Simple random sampling, with a consecutive sampling approach was used. Study participants were recruited as they met the inclusion criteria.

3.6. Inclusion Criteria

All children aged 0 to 59 months with moderate to severe malnutrition in Lira Regional referral hospital, whose caregivers offered consent.

3.7. Exclusion Criteria

All children aged 0 to 59 months without moderate to severe malnutrition, or those with malnutrition but whose caregivers refused consent.

3.8. Data Collection Methods

Data was collected using Questionnaires consisting of both open and closed question. Questions included both demographic and socioeconomic factors.

Anthropometric measurements such as weight and height were taken for each child using the standard techniques by WHO. For children less than 24 months, recumbent length was used instead of standing height. Weight measurements was taken for all children below 59 months using the salter hanging scale.

3.9. Research Instruments

A researcher-administered questionnaire that consisted of both open ended and closed ended questions was used. This was supplemented by tools for anthropometric measurements such as MUAC tape, weighing scales and stadiometers.

3.10. Data Analysis

The data was analyzed using SPSS software version 17.

3.11. Data Presentation

Data was presented in the form of statements, charts, tables and graphs which represented the statistical data collected from the respondents.

3.12. Data Quality Control

The quality of data was enhanced by using pretested and pre-checked questionnaires administered with the help of trained research assistants. Translation into the native language and back translation was also done.

3.13. Ethical Consideration

1. An introductory letter was obtained from KIU faculty of clinical medicine and dentistry after an approval of the dissertation by the KIU-IREC.
2. A well written consent was sought from the administration of LRRH.

3. Informed consent from the respondents was sought and they were assured of confidentiality for all the given information prior to the study.
4. Confidentiality of study subjects was ensured through the use of special codes to conceal their identity.

3.14. Limitations

The study was anticipated to miss out some variables of interest on child malnutrition that included duration of breast feeding and mothers body mass index.

Despite the limitations, an attempt was made to present the real picture of malnutrition among the under-fives in Lira District.

CHAPTER FOUR: STUDY FINDINGS

4.0. Introduction

This chapter presents the results obtained in the study as per objective and in the form of narratives, tables, charts and graphs.

4.1. Prevalence of Malnutrition in 0 – 59 month olds in LRRH

Over the 3-month period of the study the total numbers of admissions in the pediatric ward were 1,088. 653 of the admissions were male whereas 435 were females. The total number of those diagnosed with malnutrition was 196. The monthly breakdown is shown on Table 1 below.

Month in 2019	Total Admissions	Malnutrition Cases
January	481	89
February	446	61
March	161	46
Totals	1088	196

Table 1: 3-month period admissions and malnutrition cases (N=1088)

January had the highest number of admissions and higher malnutrition cases were reported with March reporting the least in terms of both admissions and malnutrition cases. The global 3-month malnutrition prevalence was 18.02%. 120 of the malnutrition cases were SAM whereas 76 were MAM making MAM prevalence 6.99% and SAM prevalence 11.04%.

4.2. Demographic Factors associated with Malnutrition

4.2.1. Sex of the Child

SEX	MALNOURISHED	GOOD NUTRITION	TOTAL
Male	119	534	653
Female	77	358	435
TOTALS	196	892	1088

Table 2: Odds of malnutrition by sex (N=1088)

As shown in Table 2 above, malnutrition was high among male children compared to the female ones. The male child had a slightly increased chance of getting malnourished compared to the female counterpart (OR: 1.04). Also, more male children were severely malnourished compared to the female children. The relative risk of severe malnutrition is shown on table 3 below.

Sex	Sam	Mam	Total
Males	74	45	119
Females	46	31	77
Totals	120	76	196

Table 3: Relative risk of severe malnutrition by sex (N=196)

Other than the raw values for SAM in the males being higher than those in the female children, the male child with malnutrition has an increased risk of being severely malnourished compared to the risk of the female counterpart (RR: 1.04).

4.2.2. Age of Child

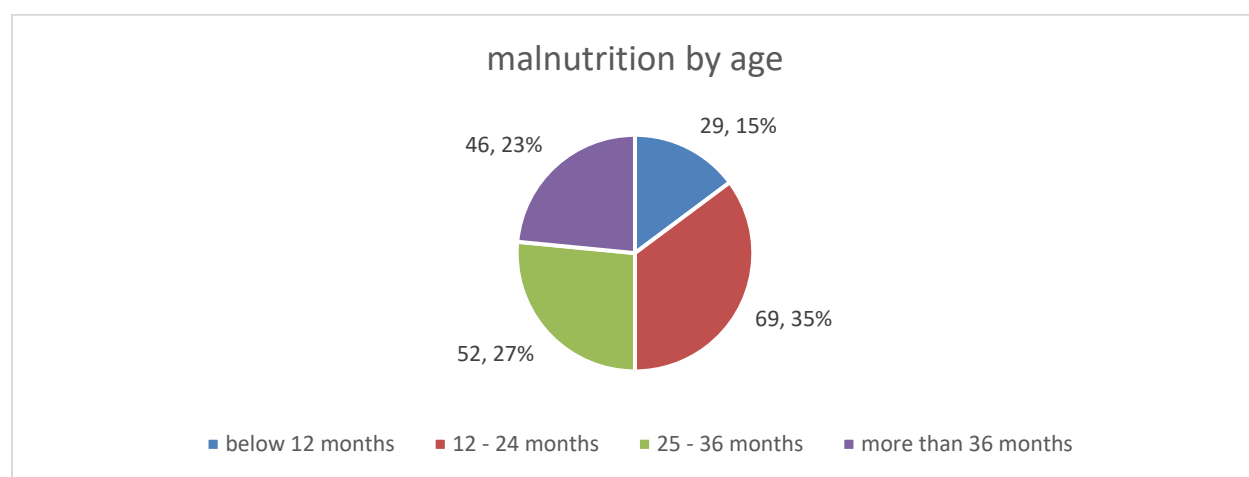


Figure 2: Risk of malnutrition by age (N=196)

From figure 2 above, it is apparent that being older than 12 months was associated with higher prevalence of acute malnutrition. More specifically, age between 12 – 24 months (35%) markedly raised the risks, followed by the 25 – 36 age group (27%), older than 36 months (23%), and lastly those below 12 months being of lowest risk at 15%.

4.2.3. Age of the Mother

The mothers were categorized into three age clusters; those below 20 years (low maternal age), 20 – 34 years (acceptable maternal age) and 35 years and above (advanced maternal age). The malnutrition cases were then assessed in these clusters to see which group of mothers had rampant malnutrition in their under-five children.

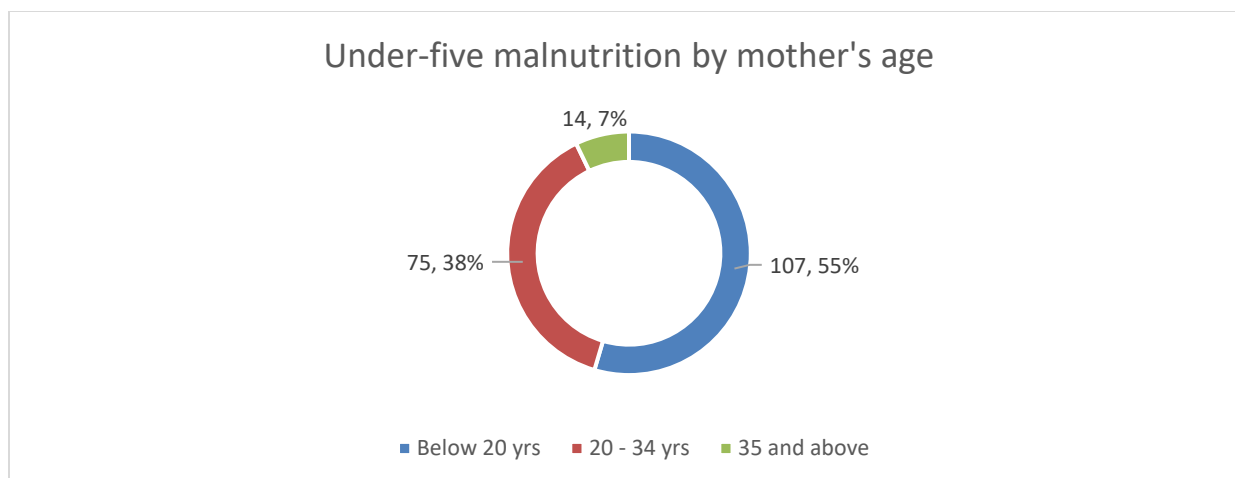


Figure 3: Prevalence of malnutrition in 0-59 month children by mother's age (N=196)

The younger the mother, the higher the chances of child malnutrition. The number of malnourished under-fives was higher in children whose mothers were below 20 years (55%), followed by those between 20 – 34 years (38%) Children of mothers 35 years or older contributed only 7% of the cases.

4.2.4. Mother's Marital Status

132 (67.35%) of the mothers to malnourished children were married whereas 64 (32.65%) were single. This shows that other than marital status, there other factors that could be more significant in as far as under-five malnutrition is concerned.

4.2.5. Family Residence

172 (87.76%) of the families of malnourished under-fives lived in a rural area whereas 24 (12.24%) lived in an urban setup. It follows, therefore, hailing from a rural background increased the likelihood of under-fives being malnourished.

4.3. Socioeconomic Factors

Three socioeconomic factors assessed were mother's education, mother's occupation and family dynamics such as child birth order and birth interval.

4.2.5. Mother's Education Level and Occupation

The mother's education level and occupation were assessed as a rough indicator of socioeconomic status. The findings are represented in Figure 4 below.

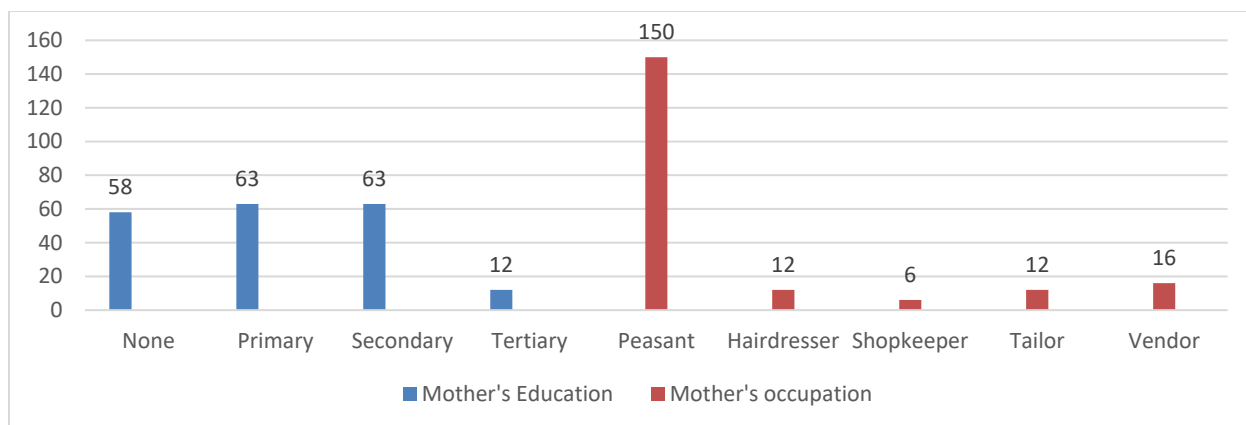


Figure 4: Mother's Education & Occupation in Association with Under-five Malnutrition (N=196)

From Figure 4 above, it is evident that an education lower than the tertiary level, and leading a peasant way of life by the mother, was associated with acute malnutrition among the under-fives. In fact, the risk was significantly raised if the mother's education level was only as high as primary (121, 61.73%) and who led a peasant way of life (150, 76.53%).

4.2.6. Birth order and Birth Interval

All the malnutrition cases came from a family with more than one child. The birth order of the child and their birth interval were assessed so as to find out the existence of any correlation with malnutrition.

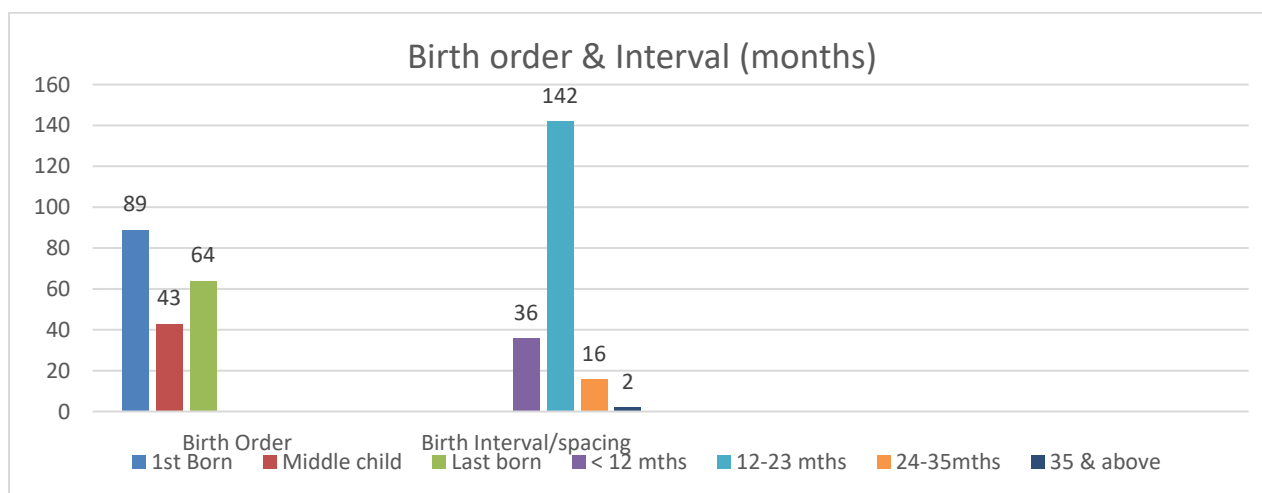


Figure 5: Birth order and Child spacing as Determinants of under-five Malnutrition (N=196)

As shown in Figure 5 above, being the first born child (89, 45.41%) and with an interval of between 12 and 24 (142, 72.45%) months between two births was associated with under-five malnutrition.

Last born children were also at an increased risk of malnutrition as we that 64 (32.65%) of the malnourished under-fives were last born. Being a middle child seemed to be protective to some extent.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0. Introduction

This chapter presents the discussions of the various findings per objective, the conclusions drawn from these findings and the recommendations made based on the findings and conclusions.

5.1. Discussion

5.1.1. Prevalence of Malnutrition in Under-Fives

The global prevalence of under-five malnutrition was 18.02%, 11.04% being SAM and 6.99% MAM. This prevalence was high despite it being slightly lower than the world estimate of 22.2% by (UNICEF, 2017). This values emphasizes the fact that no country is on track in as far as meeting the 9 objectives set for combating global malnutrition and that the under-five malnutrition burden is still heavy in low- and middle- income countries (LMICs) (GNP, 2017).

Malnutrition prevalence values have been reported to vary greatly depending on whether the country in question is resource-rich or resource-poor. These variations are vividly evident in the lower values of 10.9% reported in Brazil by (Ramos et al., 2015) and the relatively higher values reported in resource-poor countries such as Bangui Central African Republic (CAR) (Vonaesch et al., 2017), 41% in Bangladesh (Sarma et al., 2017) and 47% in Mozambique (Nhampossa et al., 2013). Differences in population dynamics and in study population size could also be an attributable factor for these variations.

Of specific importance though, is the fact that this study's value falls within the 5% and 33.5% prevalence values of wasting and stunting, respectively reported in Uganda by (Mawa, 2019). Significant factors at play for this difference that is apparent between these two studies is the population size difference involved in the two studies; (Mawa, 2019)'s being an average of the whole Ugandan population of under-fives whereas in this study, the value represents just 3-month's attendance in a referral unit in Northern Uganda.

5.1.2. Demographic Factors associated with Under-Five Malnutrition

Sex of child, age of child, age of the mother, and family residence were found to be of statistical significance as far as under-five malnutrition was concerned. Mother's marital status also showed an association with malnutrition being higher in married families.

Malnutrition was more in the male child whose risk of being severely malnourished was also higher compared to their female counterpart. It was also higher in children older than 12 months

(with highest risk being among those aged between 12-24 months), and a low maternal age (below 20 years). Children from rural areas had more malnutrition than their urban counterparts.

The male child being more vulnerable agrees with (Tiwari et al., 2016), (Babatunde et al., 2011), (Amugsi et al., 2013), and (Novignon et al., 2015) who also reported that children from rural areas were at an increased risk of malnutrition.

Malnutrition being higher in those aged 12 – 24 months old agrees with the reports by (Tiwari et al., 2016) but is not in agreement with (Habaasa, 2015) who reported that it is those age 12 months and below who were most at risk. This again goes back to the regional differences stated earlier since that particular study was conducted in Nakaseke and Makasongola Districts in Central Uganda, a more urbanized population compared to Lira District in Northern Uganda.

Low maternal age as a risk factor agrees with (Reinbott & Jordan, 2016) who reported that mothers who have their children at a tender age have their children at a higher risk of malnutrition due to their lack of knowledge on child care. (Masibo, 2013) had a similar report in Kenya.

5.1.3. Socioeconomic Factors associated with Under-Five Malnutrition

Mother's education and occupation together with birth order and spacing were assessed as socioeconomic indicators and factors associated with under-five malnutrition. Low education status and a mother leading a peasant way of life were associated with under-five malnutrition for obvious reasons. Education level affects knowledge of good nutrition practices while occupation affects affordability of foods labelled as nutritious which might be expensive for a peasant to be using them regularly.

Birth order and birth interval results agree with reports by (Wong et al., 2014) that children having a small time difference in their birth often get malnourished. In this study, first born children and last born children were more at risk of malnutrition compared to middle children. This could be as a result of the short birth intervals recorded that could have led to shift of attention and care from the first born to the second born. The last born could be vulnerable because of being left in the care of their older siblings or being made to eat from the same plate as the older ones and are unable to compete with them.

5.2. Conclusions

The prevalence of malnutrition among under-fives at Lira Regional Referral Hospital was high at 18.02% with 11.04% being SAM and 6.99% being MAM. This demands urgent interventional measures.

The factors associated with under-five malnutrition were child age older than 12 months, male sex, young maternal age, rural residence, low education level of the mother, mother leading a peasant existence, married mother, being the first or last born of the family with a short birth interval.

5.3. Recommendations

5.3.1. To the Mothers of Under-fives in Lira

Stay in school to secure a better occupation and uplift their socioeconomic status while at the same time avoiding early marriages and pregnancies. Embrace family planning so as to correctly plan the birth intervals of their children and be in control of the family size. Pay special attention to the feeding habits of their under-fives making sure they supervise them at every meal time and feed them separately.

5.3.2. To Administration and Staff at Lira Regional Referral Hospital

Upscale of education on family planning and the importance of having a manageable family size. Revamp the fight against under-five malnutrition through education on cheap, highly nutritious foods the mothers can plant and give their children, which would be very possible since they were already into subsistence farming.

5.3.3. To the Local Leadership and Administration in Lira through the Ministry of Health

Introduction of cheap, highly nutritious food crops that can grow well within the area given and suited to the climate there. Put up and enforce strict legislation against early marriages and emphasize on the girl child staying in school.

5.3.4. to Fellow Researchers

Under-five malnutrition was recorded as high among married families, not in a single mother family as one would have thought given lack of support and the difficulties of raising a child alone. This forms a good hypothesis-based study that can go ahead and try to reject the null hypothesis that under-five malnutrition is higher in single parent families compared to a family with both parents participating in child care.

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APPENDICES

APPENDIX I: CONSENT FORM

STUDY TITLE: ASSESSMENT OF THE RELATIONSHIP BETWEEN SOCIOECONOMIC AND DEMOGRAPHIC FACTORS TO MALNUTRITION AMONG CHILDREN AGED 0 TO 59 MONTHS ATTENDING LIRA REGIONAL REFERRAL HOSPITAL.

I am **ADONG COLLETA, BMS/0038/133/DU**, a final year medical student at KIU School of Medicine, and the principal researcher. I am here to conduct a study on the influence of socio economic and socio demographic factors on malnutrition among children 0 to 59 months. The study is trying to understand the influence of socioeconomic and socio demographic factors on

nutritional status of children 0 to 59 months. Since the child is too young to decide on his/her own, I would like to interview you (the mother or care taker)

I have few questions about malnutrition and related issues. Your answers will be written and then used for analysis. All information you provide will be handled as confidential and your individual answers will not be known, excepting the interviewer and the coordinator of this study. The results will be used only to improve strategies for prevention of malnutrition, one of the most common diseases among children in the community.

We will need at least 10-15 minutes to discuss and record the information. You can withdraw from the interview at any stage without any consequence if you do not wish to continue.

Compensation: You will not receive any money by joining this study.

Your rights as a participant: This research has been reviewed and approved by the Faculty of clinical medicine and dentistry research and ethics committee at Kampala International University, western campus, Ishaka Bushenyi.

Whom to contact: If you ever have questions about this study, you should contact the study Coordinator or the Principal Researcher **Adong Colleta, Kampala International University, western campus, Ishaka Bushenyi. P.O. Box 71 Bushenyi, Mobile: 0776071681.** Will you participate in this study? Yes ☐ No ☐

Do you have any question?

Signature of caretaker.....

Witness.....

Leb Luo.

An abedo ngat ame tye atimo recach aya Kampala International University western campus, Ishaka Bushenyi. Atye kan me nyangokit ame lonyo adano kede kwo atin kelo two neroo ikom otino me dwete 0-59.

Pien atini pwod titidi, amito penyi yin agwoke.

Atye kede apeny mogo anonok ikom two neroo kede gin orumu. Ngo igamo, abino coyo ping eka ote tic kede me nyang atat. Lok ducu ame ibino miyo obino gwoko imung dang jami me imungi pe bino ngeye akwango ka I recachi en.

Adwogi mere bino yubu yoo me gengo two neroo ame dwong iyie akina paco.

Amito dakika 10-15 me penyi kede coyo agami ping. Itwero weko gamo apeny magi icaa moro kiken dang abongo pwodoro ka pe imito mede kede.

Cul;pe obino miyi cul moro onyo cente pi gamo apeny.

Tweroni calo ngat ma tyeagamo apeny;rechaci oyeeni wot anyim, jo ame loo kop ikom rechachi I kampala international university western campus, Ishaka Bushenyi.

Ngat ame iromokubere kede;ka itye kede apeny moro amako rechaci,peny an **Adong Colleta me Kampala internationaluniversity western campus ishaka busenyi P.O Box 71 Bushenyi. Namba cim;0776071681**

Dong ibino gamo apeny magi? Aye pe

Itye kede apeny moro?

Cing ngata tye agwoko atin..... acaden.....

APPENDIX II: DATA COLLECTION INSTRUMENT

STUDY QUESTIONNAIRE

STUDY TITLE: ASSESSMENT OF THE RELATIONSHIP BETWEEN SOCIOECONOMIC AND DEMOGRAPHIC FACTORS TO MALNUTRITION AMONG CHILDREN AGED 0 TO 59 MONTHS ATTENDING LIRA REGIONAL REFERRAL HOSPITAL

Serial number.....

NO	Question	Response
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01	Age of the child	1= below 12 months 2=12 to 24 months 3=24 to 36months 4= 36 to 59 months
02	Sex of the child	1=male 2=female
03	Type of residence	1=town 2= slum 3=village 4=others
04	Birth order of the child (refer to the biological mother of child)	1=first 2=second 3=third 4=fourth 5=others
05	Birth interval between the child and other sibling (if any) (years)	1=2years 2=more than 2
06	Caretaker's age	1=less than 15years 2=between 15 to 25 3=25 to 45 4=greater than 45
07	Is the child's biological mother alive?	1=yes 2=no 3=I don't know

08	Is the child's biological father alive?	1=yes 2=no 3= I don't know
09	What is the marital status of the parents if both are alive?	1=Never lived together as couple 2=Married 3=Separated/divorced
10	Did the caretaker go to school?	1=yes 2=no
11	If yes, level of education attained?	1=tertiary institution 2=completed A'level 3=completed O'level 4=completed primary 5=none
12	Occupation	1=civil servant 2=business 3=peasant 4=none
13	Estimated family level of income per month	1=0 to 100,000 2=100,000 to 500,000 3=>500,000 4=I don't know
14	Family type of the participant	1=nuclear

		2=extended 3=others
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THANKS

APPENDIX III: MAP OF UGANDA SHOWING THE LOCATION OF LIRA DISTRICT



APPENDIX IV: CLASSIFICATION OF MALNUTRITION USING MUAC VALUES

Children	>13.5 cm	Normal
	12.5 to 13.5 cm	At risk of acute malnutrition
	11.0 to 12.5 cm	Moderate acute malnutrition
	<11.0 cm	Severe acute malnutrition

Red:	0 – 11.5 cm
Yellow:	11.5 cm – 12.5 cm
Green:	from 12.5 cm

Latest recommendations - UNICEF



APPENDIX V: APPROVAL LETTER FROM IREC KIU

KIU UNIVERSITY - WESTERN CAMPUS
EXPLORING THE HEIGHTS
Tel: +256 206921534
www.kiu.ac.ug

**OFFICE OF THE DEAN
FACULTY OF CLINICAL MEDICINE & DENTISTRY**

19/03/2019

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: ADONG COLLETA (BMS/0038/133/DU)

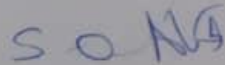
The above named person is a fifth year student at Kampala International University pursuing a Bachelor of Medicine, Bachelor of Surgery (MBChB) Programme.

He wishes to conduct his student research in your community.

Topic: Assessment of the relationship between social economic and demographic factors to malnutrition among children of age 0-59 months in Lira district

Supervisor: Dr. Kayina Vincent

Any assistance given will be appreciated.

Yours Sincerely,


Dr. Akib Surat
Deputy Executive Director/Assoc Dean FCM&D



"Exploring the Heights"
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Dr. Akib Surat Associate Dean FCM & D 0752574899 email: doctorakib@yahoo.com