

# Factors associated with Under Nutrition among Children less than Five years in Iganga General Hospital, Iganga District. A Cross-sectional Study.

Agatha Nakimuli<sup>a,1</sup>

<sup>a</sup> Medicare Health Professionals College, P.O Box 16476, Kampala-Uganda.

## Abstract



### Introduction

Malnutrition refers to a state of either under nutrition or over nutrition. Under nutrition manifests as wasting or low weight for height (acute malnutrition), stunting or low height for age (chronic malnutrition), underweight or low weight for age, and mineral and vitamin deficiencies or excessiveness.

### Objectives:

The main objective of the study was to determine the factors associated with undernutrition among children less than five years in Iganga Hospital. The specific objectives were to determine the socio-demographic factors such as residence, age, identify the economic factors such as mother's occupation and to determine the knowledge of parents/caregivers on factors associated with under nutrition among children less five years in Iganga Hospital in Iganga district

### Methodology:

A cross-sectional descriptive study design was used, using both qualitative and quantitative approaches in Iganga General Hospital. The researcher conveniently sampled 100 respondents from 5th January 2022 to 11th January 2022. Data collection was by using self-administered questionnaires which were filled and later analyzed using tables, graphs, and pie charts.

### Results:

Out of the 100 respondents, the majority; 73(73%) resided in rural areas while 27(27%) resided in urban areas. The majority; 68(68%) knew that diarrheal diseases lead to under nutrition. The majority; 95(95%) knew how to encourage the child to eat while 5(5%) did not know. Majority;80(80%) of the children's mothers' occupation was agricultural work while 9(9%) had formal employment.

### Conclusion:

Majority (82%) reported that residence influenced the nutrition status of the child. The majority (74%) of the participants had average knowledge about under nutrition

### Recommendation:

Channels of communication like televisions, and radios should be intensely used by health workers with the help of the ministry of health to spread the message about under nutrition, factors associated with it, and nutrition services available so that the incidences of delayed seeking of treatment and severe forms of the disease are reduced.

**Email:** nakimuliagatha12@gmail.com **Date submitted:** 14<sup>th</sup>/05/2022 **Date accepted:** 29<sup>th</sup>/05/2022

## 1 Background of the study

Malnutrition refers to a state of either undernutrition or overnutrition. Undernutrition occurs when the diet a person consumes does not meet their body's requirements for growth and development whereas overnutrition occurs when a person consumes too many calories (GUDU, 2020).

Undernutrition manifests as wasting or low weight for height (acute malnutrition), stunting or low height for age (chronic malnutrition), underweight or low weight for age, and mineral and vitamin deficiencies or excessiveness. Overnutrition includes overweight, obesity, and diet-related non-communicable diseases (NCDs) such as diabetes mellitus, heart disease, some forms of cancer, and stroke (Dukhi, 2020).

Malnutrition results from the interaction between poor diet and diseases which leads to nutritional deficiencies observed among the under-five children. Social-economic, biological, and environmental factors are the underlying causes for the insufficient food intake or ingestion of food with proteins of low nutritional quality that leads to protein-energy malnutrition (PEM)(Menalu MM, 2021).

A study carried out in Pakistan about factors associated with undernutrition revealed that the mother's age and maternal education lower than primary school were the main factors for childhood malnutrition. Other factors were household food insecurity, birth interval; socioeconomic status, father's educational level and initiation of complementary feeding at the age of 6 months were important determinants of undernutrition among children (Pravana NK, 2017).

A study done in Sub-Saharan Africa about risk factors associated with malnutrition among children under five years showed that the child-related factors included child's age, sex, birth weight, type of birth, birth type, diarrheal diseases, and place of delivery. Other factors related to parental/household included mother's education, breastfeeding status, BMI, birth interval, mother's health-seeking status, mother's age, household wealth status, sanitation, number of children under 5 years in the household, maternal health insurance, type of toilet facilities and cooking fuel, while among the area-related variables were forest cover lost, community region, and community illiteracy rate (Phillips Edomwonyi *et al*, 2020).

Similar studies done in South Africa about the prevalence and factors associated with malnutrition among the under-five years old children revealed that factors that have been implicated in the aetogenesis of childhood malnutrition include insufficient diet or calorie intake, frequent infections, sociocultural taboos that exclude certain food elements, poor psychosocial care, neglect, abnormal mealtimes and financial problems (Makanda *et al*, 2020).

A study done in Tanzania about risk factors associated with undernutrition among the children showed that malnutrition was associated with the young age of mothers/caregivers, early age of initiating complementary foods, diarrheal related disease in the past one month, large family size, low frequency of feeding, low birth weight and source of drinking water (Mdimu *et al*, 2017).

According to a study done in Uganda, Karamoja about factors associated with malnutrition among children less than five years showed maternal factors which included age, less than two live births, poor nutritional status of caregivers, low maternal educational level, widowed marriage status, occupation like livestock, and low /no knowledge of the caregiver about nutrition. Household factors showed factors which included household heads' sex more so males, maternal and household heads' no educational level, low wealth index, low or no livestock ownership, failure to access land for cultivation and unstable seasons of cultivation, lack of latrines and contaminated sources of drinking water.

Similar studies done in Uganda about factors associated with undernutrition showed that socio-demographic characteristics of child and household, child health and caring practices as well as environmental factors were significantly associated with under nutrition. The specific objectives were to determine the socio-demographic factors such as residence, age, identify the economic factors such as mother's occupation and to determine the knowledge of parents/caregivers on factors associated with under nutrition among children less five years in Iganga Hospital in Iganga district

### Study Methodology

#### Research Design

A cross-sectional study was used to investigate factors associated with under nutrition among children less than five years in Iganga hospital, Iganga district. The researcher used this study design to

collect qualitative and quantitative data within a short period to explain the relationship between undernutrition and, socio-demographic factors of patients with undernutrition, knowledge of caretakers about undernutrition, and economic factors. The study design was selected because it was to help the researcher easily convert the data obtained into percentages. The study design also disproved assumptions that were to arise during the study.

### Study Area

The study was carried out in Iganga General Hospital, Eastern Uganda, a public health care facility in the Pediatrics ward.

Iganga General Hospital is located approximately 119.5km east of Kampala. Its catchment area includes; Bugiri, Kamuli, Iganga, Musita, Luuka, Namutumba, Kaliro, Buyende and Namayingo.

The hospital is a general hospital with an outpatients' department (OPD), Antenatal department, pediatric department, TB clinic, maternity, a medical and surgical department with a theatre, and special clinics such as dental clinic, eye clinic, ear nose and throat (ENT) clinic, nutrition clinic and mental health clinic. Laboratory services and radiological services are also provided.

### Study Population

The study population was children of 0-<5 years. The researcher used this population in the study because it was where undernutrition was most prevalent.

### Sample size determination

The sample size of the respondents to participate in this study was generated using a statistical formula by Kish and Leslie (1965)

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Where

n=Sample size, Z=1.96 (standard normal deviation at 95% confidence interval=proportion of the population was estimated to have a particular characteristic (in this case undernutrition).

In the absence of a known estimate I used, p=prevalence (0.5) since it gives the most conservative sample size

$$d = \text{acceptance marginal error of } 9.8\%$$

$$N = \frac{(1.96)^2 \times 0.5(1-0.5)}{(0.098)^2}$$

$$N \approx 100 \text{ respondents}$$

Therefore, the total number of respondents that were interviewed in the study was 100 respondents

due to limited resources and period of research for the research study.

### Sampling Technique

A purposive sampling technique where every parent of a child under five years who consented to participate was considered making it easy and precise to conduct, and it minimized bias as every nth name was taken.

### Sampling Procedures

The researcher determined the study population (N), then the sample size (n), and then obtained a sample frame

$$\text{Determined interval} = \frac{\text{study population (N)}}{\text{sample size (n)}} = \text{nth person}$$

Then determined the start point between 1 and N and then took every nth name.

### Data Collection Method

The researcher used the questionnaire method to collect data from the caretakers of children aged 0-5 years after the daily ward rounds where the caretakers were identified and consent gotten from them. This enabled data collection in a short period at relatively low costs and it was also easy to quantify the data for analysis.

### Data Collection Tool

A self-administered questionnaire was used to collect data from the caretakers because would enable the researcher to collect data from many respondents in a short period. The questionnaire contained a chapter of both closed and open-ended questions on socio-demographic information, economic factors, and knowledge of caretakers of children less than five years about undernutrition. Other tools like pens, calculators, and papers were also used to record data from respondents.

### Data Collection Procedures

The researcher would introduce herself to the caretakers of children aged 0-<5 years, then explain the procedure, the meaning of the study, the level of confidentiality, and the purpose of the study. The researcher would seek consent by offering a consent form to voluntary participants who were administered the questionnaires after. The researcher then asked the respondents to fill the gaps where necessary or tick in the box with appropriate answers for (yes or no), those respondents who were unable to read and write were helped to read and interpret questions in Lusoga or Luganda

and also guided when answering by research assistants.

### **Piloting the Study**

The study tool was initially tested on 10 caretakers of under-five children from Iganga General Hospital to answer to check the effectiveness of the questionnaires and rectify any errors before actual data collection was done. This was because the population was easily accessible.

### **Quality Control**

The researcher assured quality by pre-testing of the research tool. Pre-testing of the questionnaire was carried out in Busesa in Busesa health center IV because of similar facilities and services that the village shares in common with the study area. The questionnaire was pretested for time, cost-effectiveness, flexibility, reliability, and validity.

The researcher also ensured quality by having clear inclusion and exclusion criteria for the respondents. Caretakers/ parents of patients of age 0-<5 years were included in the study and those greater than 5 years were excluded from the study.

The researcher trained the research assistants on how to use the questionnaire for two days.

## **2 Data Analysis and Presentation**

Data were recorded, categorized, coded, and analyzed manually tallying using summarized data master-sheet and reviewed for accuracy, consistency, and completeness. Later data were analyzed using Microsoft excel and results were presented using graphs, and tables.

### **Ethical Considerations**

A letter of introduction to the facility was obtained from Medicare Health Professional's College; Permission was sought from the DHO Iganga district and medical superintendent to carry out a study in their areas of jurisdiction.

The researcher consented to each caretaker by giving a consent form attached to the questionnaire. In the consent form, caretakers were given a right to deny or withdraw from participation in the study.

The information obtained from the caretakers was kept with utmost confidentiality by the researcher by not disclosing the caretakers' information to anyone during and after the study and in the same way, the information obtained was only used for study purposes.

The welfare of caretakers was assured by explaining the research procedure, the purpose of the study, and the level of confidentiality to them before issuing a consent form.

The caretakers were assured anonymity, as no names of the respondents would be taken by the researcher, and the data that data to be collected would only be used for statistical purposes.

### **Study Limitations and possible solutions**

Some questions were hard for the respondents to give expected opinions and used to consume time. To do away with this challenge, the researcher read and translated the questions for the respondents.

The study time available was insufficient for the study since it involved reading and translating the question to cater to illiterate respondents. As a solution to this challenge, only valid and important questions were contained in the questionnaires to save time.

At the time of carrying out the research, it was still a time of the COVID-19 pandemic. As a solution to this, the researcher put hand washing equipment and give masks to respondents as the social distance was also observed for the caretakers.

The money needed to carry out the study, especially for data collection and analysis was much for the researcher. To solve this challenge, the researcher requested assistance from parents.

### **Selection criteria**

This showed the different qualities the respondent needed to have to participate in the study or not participate.

### **Inclusion criteria**

All caretakers of children less than five years at Iganga General Hospital consented to participate in the study.

### **Exclusion criteria**

All caretakers at Iganga General Hospital without fluency in English, Luganda, Lusoga, and who had not consented to participate were not considered to be part of this study.

### **Study variables**

**Dependent and independent variables were involved in the study.**

### **Dependent variable**

Children less than five years at Iganga General Hospital, Uganda.

### **Independent variables**

Factors associated with undernutrition among the children less than five years, that is to say, socio-

demographic factors, knowledge of patients, and economic factors.

The researcher carried out a pilot study to test the data collection tool and checked how much time would be required for the sampling procedure and the reaction of the respondents to the question procedure.

### 3 Results:

#### 4 Respondent's particulars data:

From table 1 above, out of the 100 respondents, most, 43(43%) of the respondents were between the age group 18-24 years, 27(27%) were between 25-35, 20(20%) were <18 years while the minority 10 (10%) were above 35 years Majority, 60(60%) of the respondents were Basoga, 26(26%) were Baganda ,16(16%) were Itesots and minority 08(08%) were other tribes Majority, 80(80%) of the respondents were females, 20 (20%) were males. The majority, 50 (50%) had stopped in secondary, 26 (26%) had stopped in primary, 16(16%) had stopped in tertiary institutions and 8(8%) had stopped at university. Most,36 (36%) were married, 29 (29%) were single, 25(25%) were divorced and a few 10(10%) were widowed. Most, 40(40%) were farmers, 25(25%) were shopkeepers, 20(20%) were unemployed,10 (10%) had other kinds of jobs and 5(5%) were government workers. Most, 40(40%) were Protestants, 25(25%) were Muslims, others were 20(20%) and a few 15(15%) were Catholics.

Furthermore, most of the respondents; 36 (36%) thought that under nutrition was common among children aged 1year, 24 (24%) thought it was common among children aged 2 years, 15(15%) thought under nutrition was common among children aged 3 years, 15 (15%) thought it was common among children aged 4 -<5 years and 10 (10%) thought that it was common in those aged some months.

The household family size of most respondents; was 1045(45%) was 6-10, then 40 (40%) was 0-5 for 10(10%) was 11-15 and 5(5%) were above 15.

Majority, 73(73%) of the respondents, resided in rural areas and the minority, 27(27%) of them resided in urban areas.

The majority,82(82%) of the respondents, reported that residence influenced the nutrition status of the child, and the rest, 18(18%) reported that

residence did not have any influence on the nutrition status of the child.

The majority, 90(90%) of the respondents reported that they started their supplementary feeds for their children between 6 and 9 months, and the rest 10 (10%) reported that they started their supplementary feeds for their children before 6 months.

Knowledge of caretakers of children less than five years about undernutrition

Majority of the respondents: 74(74%) reported that undernutrition is a condition that results from eating a diet in which nutrients are either not enough to meet the baby's needs to maintain good health, 21(21%) reported that undernutrition is a condition that results from eating a diet in which nutrients are not enough, 5(5%) reported that it is a condition that is a result of witchcraft.

Thereafter, majority of the respondents;68(68%) respondents knew that diarrheal diseases lead to malnutrition, 32(32%) respondents did not know that diarrheal diseases lead to malnutrition.

Most, 93(93%) knew that deworming protects a child from under nutrition, 7(7%) did not know that deworming protects a child from under nutrition.

Majority;57 (57%) of the respondents reported that over eating starchy foods does not cause malnutrition while 43(43%) of the respondents reported that over eating starchy foods causes malnutrition.

Most respondents:95(95%) reported yes to knowing how to encourage their children to eat ,5(5%) replied no to knowing how to encourage their children to eat.

Majority; 97(97%) of the respondents responded that they breast fed their children on demand and 3(3%) breast fed their children when hungry.

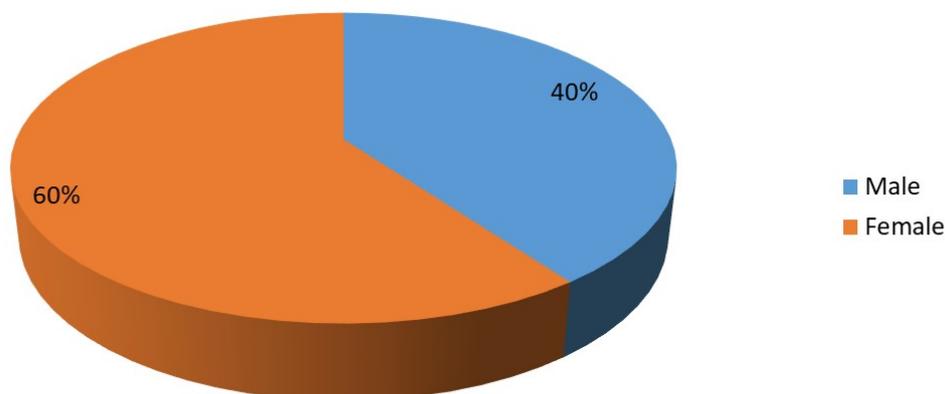
Furthermore, the majority: the 55(55%) of the respondents did not know the importance of colostrum to the newborn while 45(45%) of the respondents knew the importance of colostrum to the newborn.

Economic factors associated with undernutrition

Most ; 40(40%) of the respondents reported that low household income offered little or no opportunity to provide good quality food and good health services, 25(25%) reported that poverty led to failure to get family planning programs and failure to improve sanitary facilities , 20(20%) reported that limited time for children since the main source of income for most families was working as casual

**Table 1.** Showing the respondents' social demographic data. (n=100)

<b>FACTORS</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age (years)</b>		
<18	20	20
18-24	43	43
25-35	27	27
Above 35	10	10
<b>Total</b>	<b>100</b>	<b>100</b>
<b>TRIBE</b>		
Musoga	60	60
Muganda	26	26
Itesot	08	08
Others	16	16
<b>Total</b>	<b>100</b>	<b>100</b>
<b>SEX</b>		
Male	20	20
Female	80	80
<b>Total</b>	<b>100</b>	<b>100</b>
<b>LEVEL OF EDUCATION</b>		
Primary	26	26
Secondary	50	50
Tertiary	16	16
University	08	08
<b>Total</b>	<b>100</b>	<b>100</b>
<b>MARITAL STATUS</b>		
Married	36	36
Single	29	29
Widowed	10	10
Divorced	25	25
<b>Total</b>	<b>100</b>	<b>100</b>
<b>OCCUPATION</b>		
Farmers	40	40
Government worker	05	05
Shopkeeper	25	25
Unemployed	20	20
Others	10	10
<b>Total</b>	<b>100</b>	<b>100</b>
<b>RELIGION</b>		
Catholic	15	15
Muslim	25	25
Protestant	40	40
Others	20	20
<b>Total</b>	<b>100</b>	<b>100</b>



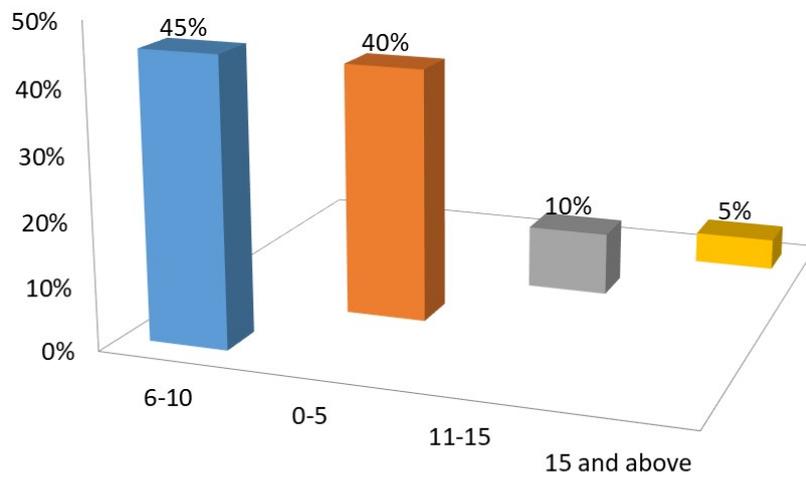
**Figure 1.** The majority of the respondents’ children; 60(60%) were females and only 40(40%) of the children were males.

**Table 2.** Showing the age groups in which undernutrition is thought to be common (n=100)

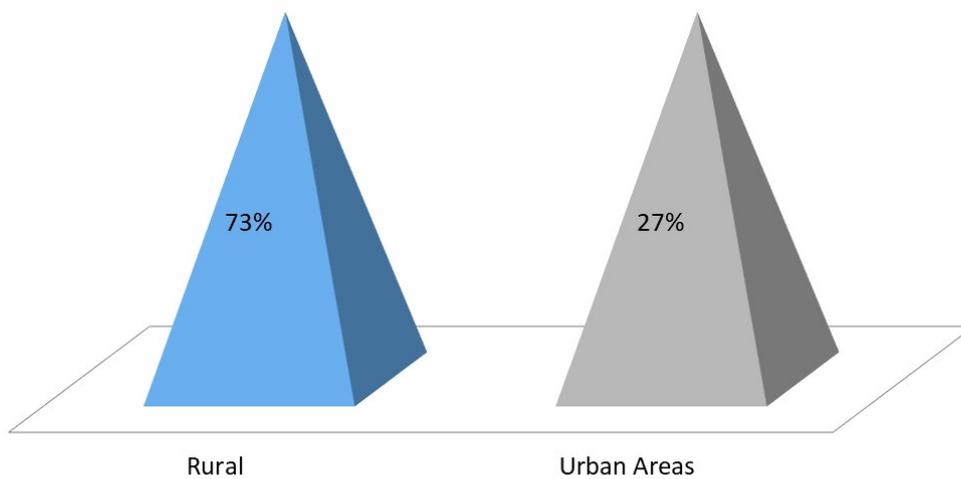
Age group	Frequency	Percentage
Some months	10	10
1 year	36	36
2 years	24	24
3 years	15	15
4-<5 years	15	15
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 3.** Showing how respondents defined undernutrition among children under five years (n=100)

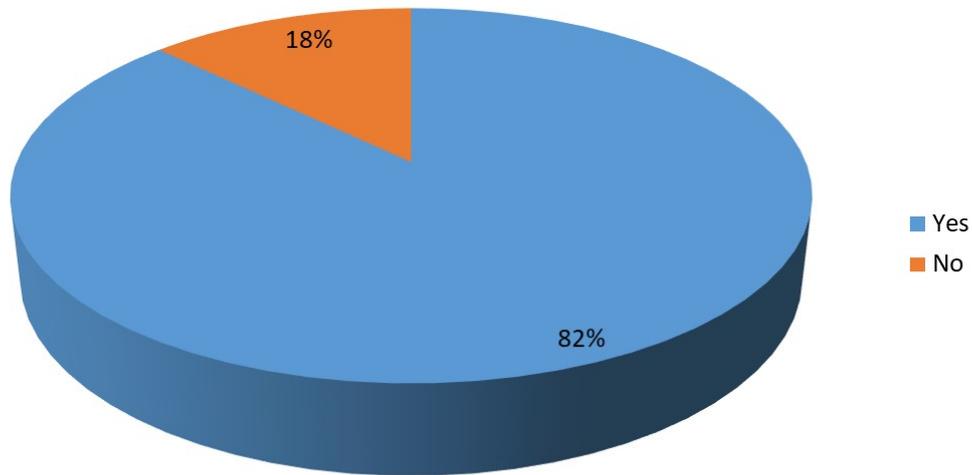
Response	Frequency	Percentage
(a) Is a condition that results from eating a diet in which nutrients are not enough to meet the baby’s needs to maintain good health.	21	21
(b) Is a condition that results from eating a diet in which nutrients are not enough	74	74
(c) It is a condition that is a result of witch craft	5	5
<b>Total</b>	<b>100</b>	<b>100</b>



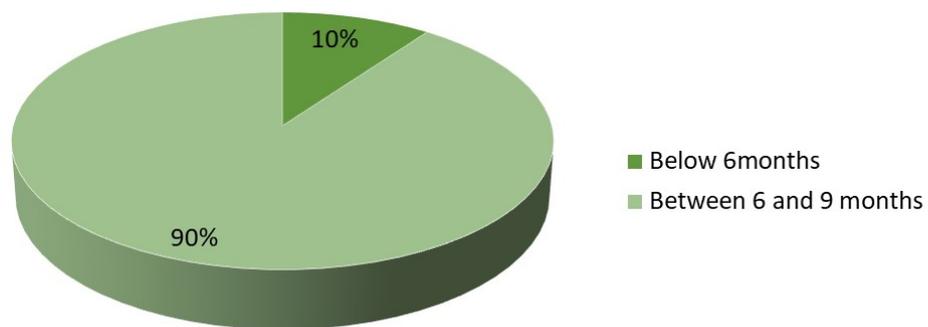
**Figure 2.** Showing the house hold family size (n=100).



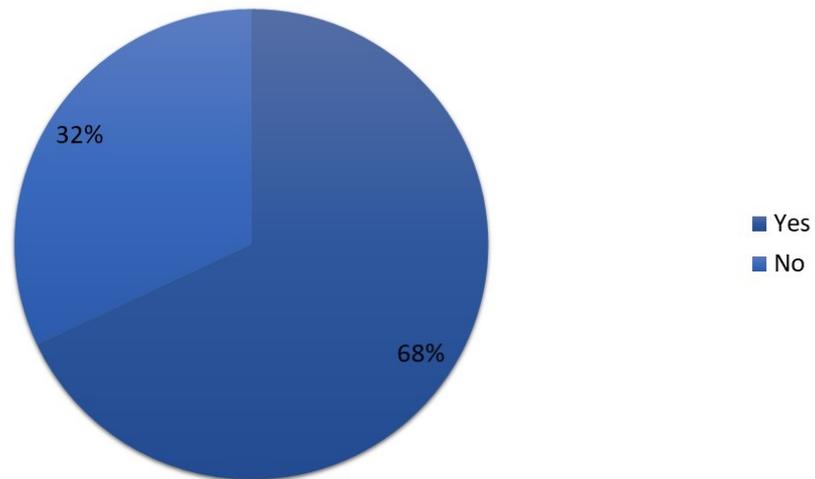
**Figure 3.** Showing the residence of respondents. (n=100)



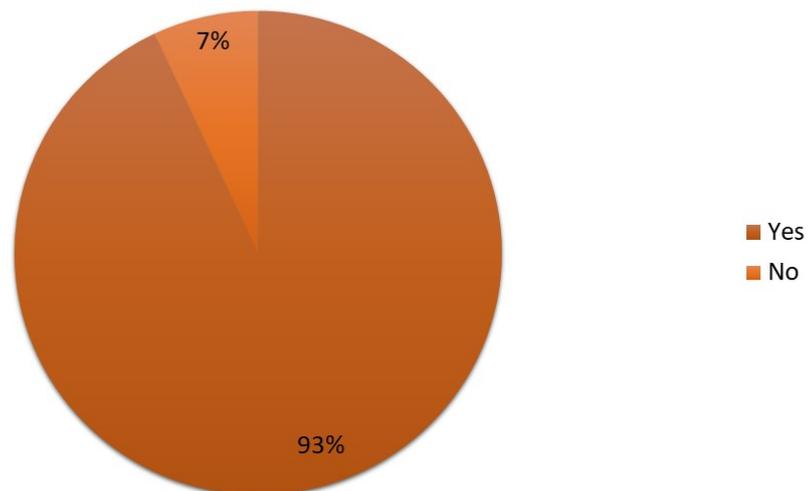
**Figure 4.** Showing whether residence influences the nutrition status of the child. (n=100)



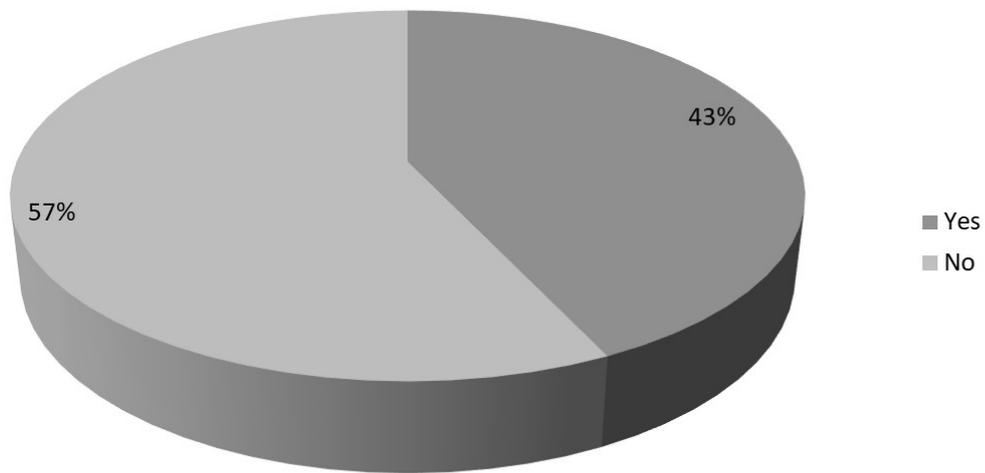
**Figure 5.** Shows when respondents started supplementary feeds for the child (n=100)



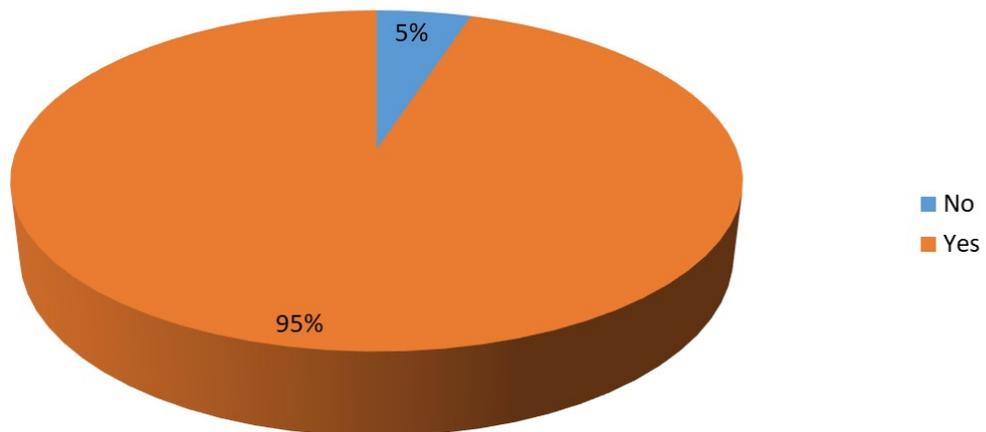
**Figure 6.** Showing whether diarrheal diseases led to malnutrition (n=100)



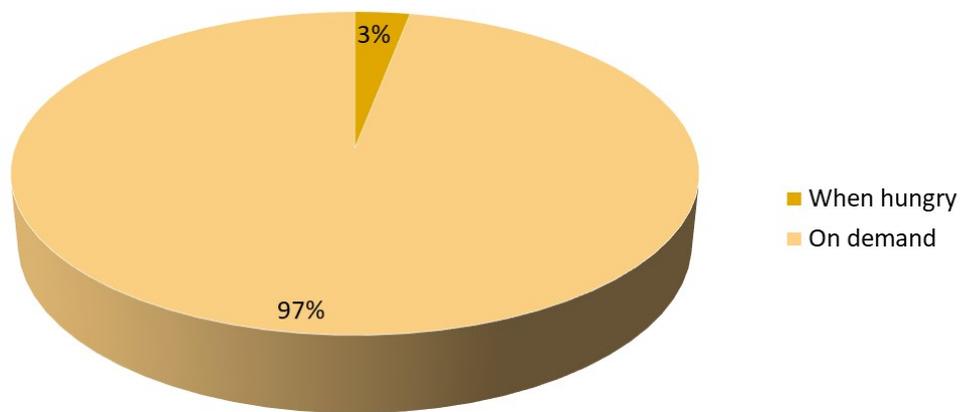
**Figure 7.** Showing respondents' response on whether deworming protected a child from under nutrition (n=100)



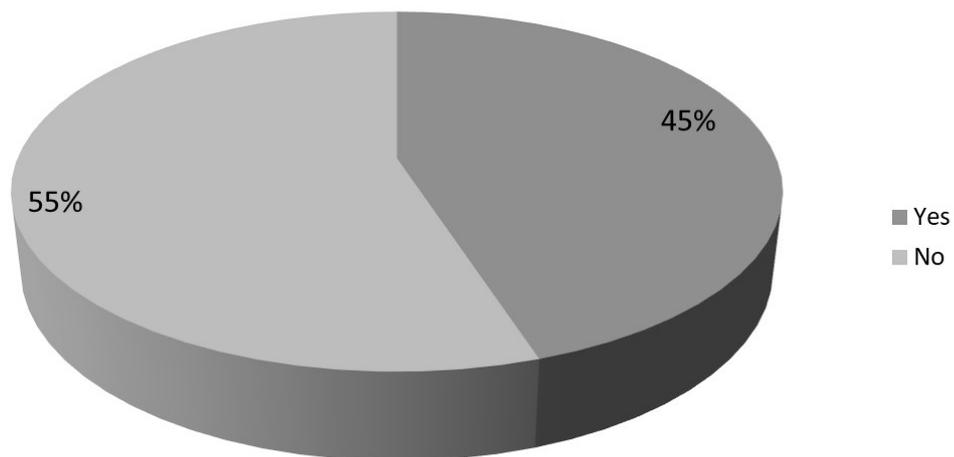
**Figure 8.** Showing whether over eating starchy foods causes malnutrition (n=100)



**Figure 9.** Showing respondents response on whether they knew how to encourage their children to eat (n=100)



**Figure 10.** Showing respondents response about when to breast feed the child (n=100)



**Figure 11.** Showing whether the respondents knew the importance of colostrum to the newborn (n=100)

**Table 4.** Showing the effects of low household income that are associated with malnutrition. (n=100)

Response	Frequency	Percentage
It offers little or no opportunity to provide good quality food and good health services.	40	40
It leads to inadequate dietary intake, infections, poor hygienic habits and environment and low education status.	05	05
Poverty leads to failure to get family planning programs and failure to improve sanitary facilities	25	25
Limited time for children since the main source of income for most families is working as casual workers on day to day basis.	20	20
<b>Total</b>	<b>100</b>	<b>100</b>

workers on day to day basis, 5(5%) reported that it leads to inadequate dietary intake, infections, poor hygienic habits and low education status.

Majority; 80(80%) of the respondents reported agricultural work, 11(11%) of the respondents reported self-employment, 9(9%) of the respondents reported formal employment (professional and cleric jobs).

Most ; 45(57.0%) reported that ignorance and food security had age long adverse effects on the children’s growth and led to malnutrition , 19(24.0%) reported that high level house hold poverty led to infections where health services are unaffordable, 15(19%) reported that care givers neglect due to high demand occupations.

The majority; 80(80%) of the respondents reported agricultural work, 11(11%) of the respondents reported self-employment, and 9(9%) of the respondents reported formal employment (professional and cleric jobs).

Majority; 83(83%) reported that husbands decided on how to spend family income, 17(17%) reported that mothers decided on how to spend family income.

## 5 Discussion of the Study Findings

This section presents the discussions of findings based on the specific objectives of the study.

### Social Demographic Factors

The study established that majority, 60(60%) of the respondents’ children were females, and 40 (40%) were males. This is possible because of the greater reluctance among parents to invest money and time in the treatment of daughters over sons.

In the communities, the girls are expected to leave homes after marriage while the boys are expected to go on to provide financial and non-financial support to their parents in later years. Hence faster action is taken when they are sick and the need for admission will be less compared to the girls who are reluctantly cared about and eventually brought to the hospital with the severity of the conditions they have. This agrees with a study done in Pakistan by Dilshad Ahmad et al, (2020) about the effects of socioeconomic factors on malnutrition among children in Pakistan where 47.78% were male and 52.22% were female children.

The study revealed that most respondents;36(36%) thought that undernutrition was common among children aged 1 year, 24(24%) thought that it was common among children aged 2 years, 16(16%) thought that it was common among children aged 4-<5 years, 15(15%) thought it was common among children aged 3 years and 10(10%) thought it was common among children aged some months. This was probably because this is the time when active growth takes place much first-time interaction with the environment making the child prone to diarrheal diseases which can cause undernutrition. However, this is contrary to a study done in Pakistan by Dilshad Ahmad et al, (2020) about factors associated with malnutrition among children where 23.395 were aged some months, 18.5% children aged 1 year, 19.18% children aged 2 years, 20.14% children as of 3 years and 18.78% children were aged 4 years or above while below 5 years.

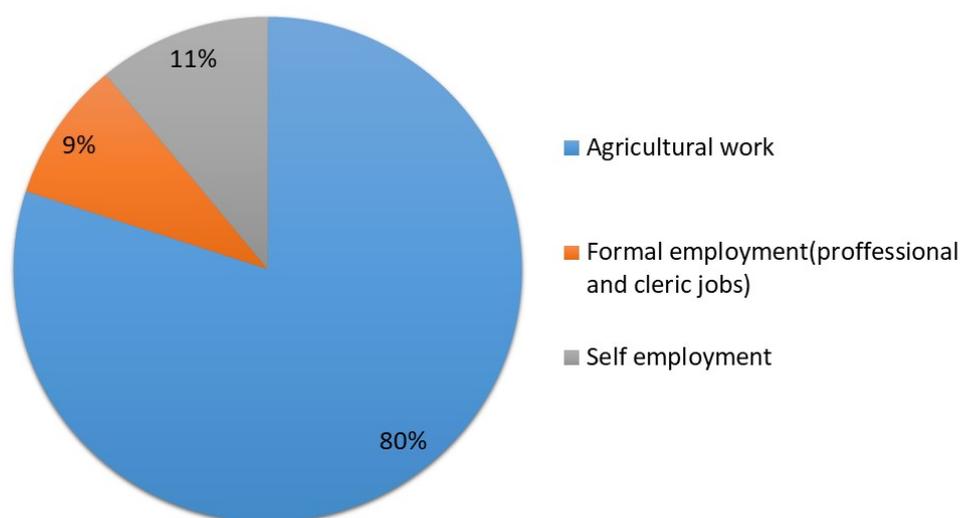
The household family size of most respondents;45(45%) was 6-10, then for 40 (40%) was 0-5 then for 10(10%) was 11-15 and for 5(5%) were

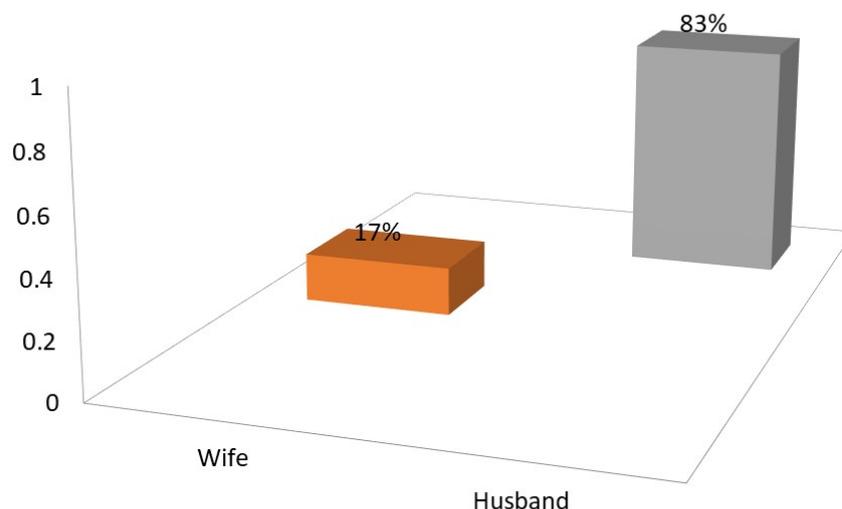
**Table 5.** Showing factors that attribute to high prevalence of under nutrition.(n=100)

Response	Fre- quency	Per- cent- age
(a)Unnecessary high food prices	62	62
(b)Inability to access affordable food	28	28
(c)Lack of clean and safe water for drinking plus water for irrigation purposes which affect farming and food insecurity especially in locations with low rainfall	10	10
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 6.** Showing respondents' response to who decided on how to spend family income (n=100)

Response	Fre- quency	Percentage (%)
(a) High level house hold poverty leads to infections where health services are unaffordable.	19	24.0
(b) Care givers neglect due to high demand occupations.	15	19
(c) Ignorance and food security.	45	57.0
<b>Total</b>	<b>100</b>	<b>100</b>

**Figure 12.** Showing the children's mothers' occupations (n=100)



**Figure 13.** Showing respondents' responses to who decided on how to spend family income (n=100)

above 15. This is probably because most of the respondents resided in rural areas where access to knowledge about family planning and family planning services themselves were not easily accessible leading to high birth rates. This is in agreement with a study done in Pakistan by Dilshad Ahmad et al, (2020) about factors associated with malnutrition among children where 39.49% of the children were living in household family size of less than 5 while almost 54.14% of children in household family size (6–10). 7.25% of children were living in household family size (11–15) and 0.36% of children with household family size (above 15).

Findings revealed that the majority, 73(73%) of the respondents, resided in rural areas and the minority, 27(27%) of them, resided in urban areas. This is most probably due to the nature of the main source of income for most of them which are farming and it needs vast land that is available in rural areas. This agrees with a study done in Pakistan by Dilshad Ahmad et al, (2020) about factors associated with malnutrition among children where 42.13% of children were inhabited urban areas while 57.8% from rural areas.

Furthermore, the majority, 82(82%) of the respondents, reported that residence influenced the nutrition status of the child, and the rest, 18(18%)

reported that residence did not have any influence on the nutrition status of the child. This is probably due to the nature of the land and seasonality in the rural areas determines crop growth and food availability. This agrees with a study done in Pakistan by Dilshad Ahmad et al, (2020) about factors associated with malnutrition among children where 42.13% of children were in inhabited urban areas while 57.8% were from rural areas and led to increased malnutrition among under-fives in those areas.

The majority 90(90%) of the respondents reported that they started their supplementary feeds for their children between 6 and 9 months, and the rest 10 (10%) reported that they started their supplementary feeds for their children before 6 months. This is likely to be because nutrients in breast milk alone are no longer adequate for proper child growth at 6 months. This agrees with a study done in South Africa by Makanda B et al, (2020) about the prevalence and factors associated with malnutrition among the under 5-year-old children hospitalized in three public hospitals which revealed that 73.6% were started on supplementary feeds between 6 and 9 months of age, 19.1% were on supplementary feeds before the age of 6 months.

## 6 Knowledge of caretakers of under-five children about undernutrition

Majority of the respondents: 74(74%) reported that undernutrition is a condition that results from eating a diet in which nutrients are either not enough to meet the baby's needs to maintain good health (which is average knowledge),

21(21%) reported that undernutrition is a condition that results from eating a diet in which nutrients are not enough (which is good knowledge), 5(5%) reported that it is a condition that is a result of witchcraft (which is poor knowledge). This is probably due to the residence of most respondents being rural where access to knowledge about malnutrition is scarce or only accessed occasionally when visiting the few health facilities in the rural areas. This agrees with a study done in India by Kalpana Ganesh Sawane,(2019) about mothers' knowledge of nutrition and incidence of malnutrition which noted that 34%of the mothers of under-five children had average knowledge regarding nutrition of under-five children, 34% of them had good knowledge and 3%of them had poor knowledge regarding nutrition of under-five children.

Furthermore, the majority of the respondents;68(68%) respondents knew that diarrheal diseases lead to malnutrition, and 32(32%) respondents did not know that diarrheal diseases lead to malnutrition. This is probably due to observations made in the change in the children's weight when they are suffering from diarrhea. This is in agreement with a study done in Nigeria by A.U. Abubakar et al, (2020) about knowledge on factors contributing to child malnutrition among mothers of under-five children noted that 93.9% of the respondents knew that diarrheal diseases could lead to malnutrition.

The majority of the respondents; 93(93%) knew that deworming protects a child from undernutrition, and 7(7%) did not know that deworming protects a child from undernutrition. This is probably due to the availability of Village Health Teams that move from door to door while administering deworming tablets to children above 1 year while teaching the importance of the tablets too. This agrees with a study done in Nigeria by A.U. Abubakar et al,(2020) about knowledge on factors

contributing to child malnutrition among mothers of under-five children noted that 64.0% knew that deworming could protect a child from malnutrition.

Most; 57 (57%) of the respondents claimed that overeating starchy foods do not cause malnutrition while 43(43%) of the respondents claimed that overeating starchy foods cause malnutrition. This is probably because of the deficiency of other nutrients from other foods and is not found in starchy foods yet they are meant to help in bodybuilding. This is in agreement with a study done in Nigeria by A.U. Abubakar et al,(2020) about knowledge on factors contributing to child malnutrition among mothers of under five children that 48.7% did not know that overeating starchy food can cause malnutrition.

The majority of the respondents;95(95%) reported yes to knowing how to encourage their children to eat, and 5(5%) replied no to knowing how to encourage their children to eat. This is probably because most of the respondents had had other children before the ones that had been admitted by then as evidenced by the biggest household size of 6-10 which gave them experience in child care and feeding. This agrees with a study done in Ghana by Kingsley Appiah Bimpong et al, (2020) about mothers' knowledge and attitudes regarding child feeding recommendations, complementary feeding practices, and determinants of adequate nutrition which revealed that 81% of mothers /caregivers knew ways of encouraging young children to eat.

The majority; 97(97%) of the respondents breast-feed their children on demand, and 3(3%) breast-feed their children when hungry. This is probably because most of the respondents had had other children before the ones that had been admitted by then as evidenced by the biggest household size of 6-10 which gave them experience in child care and feeding. This is in agreement with a study done in Uganda by Wanyenze Rita, (2018) about a study carried out in Uganda about knowledge, attitudes, and practices of lactating mothers on nutrition which showed that 100% of the respondents knew that the baby should be breastfed on demand.

Majority: 55(55%) of the respondents did not know the importance of colostrum to the newborn while 45(45%) of the respondents knew the importance of colostrum to the newborn. This is probably because most of the respondents were farmers and resided in rural areas where such information

about colostrum is hard to access due to the few health facilities available. This is in line with a study done in Nigeria by Olusegun Fadare, (2019) about mothers' nutrition-related knowledge and child nutrition outcomes which showed that 38% of mothers knew importance of colostrum to the newborn.

#### **Economic factors associated with undernutrition**

Most; 40(40%) of the respondents reported that low household income offered little or no opportunity to provide good quality food and good health services, and 25(25%) replied that poverty led to failure to get family planning programs and failure to improve sanitary facilities, 20(20%) reported that limited time for children since the main source of income for most families was working as casual workers on day to day basis, 5(5%) reported that it led to inadequate dietary intake, infections, poor hygienic habits, and low education status. This is probably because most of the respondents resided in rural areas and practice farming which yielded less income. However, this is contradicting a research study done in Sri Lanka by Lahiru Sandaruwan Galgamuwa et al, (2017) about the nutritional status and correlated socio-economic factors among children cited that 73% had limited time to care for children since the main source of income for most families were working as laborers in tea plantations on a day-to-day basis. 12% reported that the low household income of the family offered little or no opportunity to provide good quality food and good health services. 15% noted low household income led to inadequate dietary intake, infections, poor hygienic habits, and the environment and low education status which contributed to children under nutrition among low-income groups. 34% noted that poverty also led to failure to get family planning programs, and failure to improve sanitary facilities leading to malnutrition.

The majority;62(62%) reported unnecessary high food prices, 28(28%) reported that inability to access affordable food, and 10(10%) reported that lack of clean and safe water for irrigation purposes which affects farming and food insecurity, especially in locations with low rainfall attributed to the high prevalence of undernutrition. This is probably due to the low-level income of most of the respondents evidenced by the big number of farmers among the respondents. This is in line with a study done in Gicumbi district, Rwanda, and Kitgum district, Uganda by Blessing J et al,( 2019)about

childhood undernutrition in three disadvantaged East African Districts which showed that the 45% noted a high prevalence of undernutrition was also attributed to the unreasonably high food prices, 16% noted inability to access affordable food, while 34% noted lack of clean and safe water for drinking plus water for irrigation purposes affected farming leading to low food production and food insecurity, especially in locations with low rainfall.

Most of the respondents; 45(57.0%) reported that ignorance and food security had age-long adverse effects on the children's growth and lead to malnutrition, 19(24.0%) reported that high-level household poverty leads to infections where health services are unaffordable, 15(19%) reported that caregivers neglect due to high demand occupations. This is probably due to most of the respondents being farmers whose occupation is affected by season hence creating food insecurity. However this is contrary to a study done in Sub-Saharan Africa by Godson Tudeme et al,(2020) about socioeconomic inequalities in nutrition and overweight among under-five children which showed that 84 % noted high levels of household poverty led to infections where health services were unaffordable, 18% noted caregiver neglect due to high demand occupations, and 21 % ignorance and food insecurity could have an age-long adverse effect on children's growth hence high levels of malnutrition.

The majority of the respondents;80(80%) the respondents reported agricultural work, 11(11%) of the respondents reported self-employment, 9(9%) of the respondents reported formal employment (professional and cleric jobs). This was probably due to the availability of enough land in the rural areas where most respondents resided hence practicing agricultural work. However, this was contrary to a study done in Uganda by Olivia Nankinga et al, (2019) about maternal employment and child nutritional status which showed that over half of the women (56%) of the women were engaged in agricultural work, and only 9% were informal employment (professional and clerical jobs), 69% were self-employed.

Most;83(83%) reported that husbands decide on how to spend family income and 17(17%) reported that mothers decide on how to spend family income. This was probably because the man was the head of the family and he was the one with a job. This is in agreement with a study done in Uganda by Duncan Ongeng et al,(2018) about the status of

nutritional knowledge, attitude, and practices associated with complementary feeding which showed that more than half of the men made decisions on how family income which was spent in the household.

## 7 Conclusions

The study sought to determine the social demographic factors associated with undernutrition among the children less than five years in Iganga General Hospital, Iganga District and it established that majority(60%) of the children were female, and undernutrition was commonest among children of 3 years (36%), most(45%) household family sizes were 6-10, the majority (73%) resided in rural areas, the majority(82%) reported that residence influenced the nutrition status of the child and majority of the respondents(90%) started supplementary feeds for their children between 6 and 9 months. Therefore age, household size, and residence are associated with undernutrition among children less than five years.

The study also sought to determine the knowledge of caretakers of children less than five years and it established that majority (74%) of the participants had average knowledge about undernutrition; the majority (68%) knew that diarrheal diseases lead to malnutrition; the majority (93%) knew that deworming protects a child from undernutrition. The majority (57%) did not know that overeating starchy foods cause malnutrition, the majority (95%) knew how to encourage the children how to eat and most (55%) did not know the importance of colostrum to the newborn.

The study also sought to determine the economic factors associated with undernutrition among children less than five years and it established that most (40%) associated low household income with offering little or no opportunity to provide good quality food and good health services. The majority (62%) attributed unnecessary high food prices to undernutrition and most (45%) reported that ignorance and food insecurity could have led to age-long adverse effects on children's growth and led to malnutrition, the majority(80%) of the children's mothers' occupation was agricultural work and majority; the majority(83%) replied that husbands decide on how to spend family income. Therefore low household income, high food

prices, ignorance and food security, and mothers' occupation are associated with undernutrition.

The ministry of health should provide clear guidelines about the management of undernutrition to the health workers to equip them with more knowledge about the management of undernutrition.

The ministry of health should also assign enough health workers with the duty of monitoring the implementation programs of undernutrition prevention practices.

Channels of communication like televisions and radios should be intensely used by health workers with the help of the ministry of health to spread the message about undernutrition and nutrition services available so that the incidences of delayed seeking of treatment and severe forms of the disease are reduced.

The medical superintendent should ensure health education about undernutrition among children less than five years of age through outreaches to enrich communities with more knowledge about the condition.

Village health teams should be employed to help and teach communities in their respective villages about under nutrition.

## 8 Acknowledgement

I humbly express my sincere gratitude to the Almighty God who has brought me thus far. I am indebted to the academic body of the Faculty of Clinical Medicine and Community Health, Medicare Health Professionals College which provided this initiative of the research report. Especially I acknowledge my supervisor Mr. Kasujja Henry for the hot-brained purpose of this project. My special thanks go to my colleagues in the DCM program especially Achola Robinah, Tino Flavia Hillary, Kintu Julius, Sanyu David, and Muwonge Ibrah Kainos for the moral corrective and encouraging support towards the completion of the work.

## 9 List of abbreviations and acronyms

<b>ANC:</b>	Antenatal care
<b>DHO:</b>	District Health Officer
<b>EBF:</b>	Exclusive breastfeeding
<b>IYCF:</b>	Infant and young child feeding
<b>LC1:</b>	Local Council 1
<b>MUAC:</b>	Middle upper arm circumference

**NCDs:** Noncommunicable diseases  
**OPD:** Outpatients' department  
**ORS:** Oral Rehydration Solution  
**PEM:** Protein-energy malnutrition  
**UNICEF:** United Nations Children's Fund  
**WAZ:** Weight-for-age Z score  
**WHO:** World Health Organization  
**WHZ:** Weight-for-height Z score

#### Operational Definitions

**Malnutrition:** This is the cellular imbalance between the supply of nutrients, and energy and the body's demand for them to ensure growth, maintenance, and specific functions.

**Stunting:** This is a state of being too short for age, it measures linear growth and is thus an indicator of chronic malnutrition, which is reflective of cumulative effects of long-standing nutritional inadequacy and/or recurrent chronic illness.

**Undernutrition:** Occurs when there is insufficient food intake sometimes accelerated by repeated infections leading to inadequate intake and utilization of nutrients that maintain good health and proper body function.

**Underweight:** This is a state of being too thin for one's age.

**Wasting:** Is a state of being too thin for one's height, this occurs when there is inadequate nutrient intake relative to body requirements and/or episodes of illness in the short term lead to wasting, also referred to as acute malnutrition, which is reflected by a low Weight for Height

#### Recommendations

Channels of communication like televisions, and radios should be intensely used by health workers with the help of the ministry of health to spread the message about undernutrition, factors associated with it, and nutrition services available so that the incidences of delayed seeking of treatment and severe forms of the disease are reduced.

## A References:

1) Ahmad, D., Afzal, M., & Imtiaz, A. (2020). Effect of socioeconomic factors on malnutrition among children in Pakistan. *Future Business Journal*, 6(1), 1-11. <https://doi.org/10.1186/s43093-020-00032-x>  
 2) Ekholuenetale, M., Tudeme, G., Onikan, A., & Ekholuenetale, C. E. (2020). Socioeconomic inequalities in hidden hunger, undernutrition, and overweight among under-five children in 35 sub-Saharan Africa countries. *Journal of the Egyptian*

*Public Health Association*, 95(1), 1-15. <https://doi.org/10.1186/s42506-019-0034-5> PMID:32813085  
 PMCID:PMC7366309

3) Gudu, E., Obonyo, M., Omballa, V. et al. Factors associated with malnutrition in children < 5 years in western Kenya: a hospital-based unmatched case control study. *BMC Nutr* 6, 33 (2020). <https://doi.org/10.1186/s40795-020-00357-4> PMID:32742713  
 PMCID:PMC7389647

4) Kingsley Appiah Bimpong, Ernest Kaa-Emabong Cheyuo, Alhassan Abdul-Mumin, Martin A Ayanore, Clement K Kubuga, Victor Mogre. (2020) Mother's knowledge and attitudes regarding child feeding recommendations, complementary feeding practices and determinants of adequate diet. *BMC nutrition* 6(1), 1-8 <https://doi.org/10.1186/s40795-020-00393-0> PMID:33292706  
 PMCID:PMC7706028

5) Kingsley E Agho, Blessing J Akombi, Akhi J Ferdous, Irene Mbugua, Joseph K Kamara (2019) Childhood undernutrition in three disadvantaged East African Districts: a multinomial analysis. *BMC paediatrics* 19(1), 1-11 <https://doi.org/10.1186/s12887-019-1482-y> PMID:31014298  
 PMCID:PMC6477742

6) Lahiru Sandaruwan Galgamuwa, Devika Id-dawela, Samath D Dharmaratne, GLS Galgamuwa. (2017) Nutritional status and correlated socio economic factors among pre-school and school children in plantation communities, Sri Lanka. *BMC public health* 17(1), 1-11 <https://doi.org/10.1186/s12889-017-4311-y> PMID:28464868  
 PMCID:PMC5414369

7) Makanda B Itaka, Olufemi B Omole. (2020) Prevalence and factors associated with malnutrition among under 5 year old children hospitalized in three public hospitals in South Africa. *African Journal of Primary Health Care and Family Medicine* 12 (1), 1-7 <https://doi.org/10.4102/phcfm.v12i1.2444> PMID:33354983  
 PMCID:PMC7736651

8) Mdimu, E. L., Massaga, J. J., Sembuche, S. L., Abade, A. M., & Leyna, G. H. (2020). Risk factors associated with under nutrition among children aged 6-59 months in Ngorongoro, Arusha region, Tanzania: a case-control study, 2017. *The Pan African medical journal*, 37, 315. <https://doi.org/10.11604/pamj.2020.37.315.21726> PMID:33654534  
 PMCID:PMC7896528

9) Mulat Mossie Menalu, Alebachew Deme-lash Bayleyegn, [...], Nakachew Sewnet Amare. (2021). Assessment of prevalence and factors associated with malnutrition among under five children

in Debre Berhan Town, Ethiopia. *International Journal of General Medicine* 2021;14:1683-1697 <http://doi.org/10.2147/IJGM.S307026> PMID:33976568 PMCID:PMC8104975

10) Natisha Dukhi. (2020). Global prevalence of malnutrition. Human Sciences Research Council, Cape Town, South Africa:6-10

11) Nilesh Kumar Pravara, Suneel Piryani, Surendra Prasad Chaurasiva, Rasmila Kawan, Ram Krishna Thapa, Sumina Shrestha.(2017) Determinants of severe acute malnutrition among children under 5years of age in Nepal : a community based case-control study.BMJ Publishing Group Ltd.

12) Olivia Nankinga, Betty Kwagala, Eddy J Walakira. (2019) Maternal employment and child nutritional status in Uganda. *PLOS ONE* 14 (12), e0226720 <https://doi.org/10.1371/journal.pone.0226720> PMID:31856209 PMCID:PMC6922416

13) Olusegun Fadare, Mulubrhan Amare, George Mavrotas, Dare Akerele, Adebayo Ogunniyi. (2019) Mother's nutrition -related knowledge and child nutrition outcomes: Empirical evidence from Nigeri . *PLOS ONE* 14(2) <https://doi.org/10.1371/journal.pone.0212775> PMID:30817794 PMCID:PMC6394922

14) Phillips Edomwoyi Obasohan, Stephen J Walters, Richard Jacques, Khaled Khatab.(2020) Risk factors associated with malnutrition among children under five years in Sub-Saharan African countries . *International Journal of environmental research and public health* 17 (23), 8782 <https://doi.org/10.3390/ijerph17238782> PMID:33256022 PMCID:PMC7731119

15) Prossy Nassanga, Ipolto Okello-Uma, Duncan Ongeng. (2018) The status of nutritional knowledge, attitude and practices associated with complementary feeding in a post conflict development phase setting: The case of Acholi sub-region of .... *Food science & nutrition* 6 (8), 2374-2385 <https://doi.org/10.1002/fsn3.829> PMID:30510738 PMCID:PMC6261170

16) Raji, I. A., Abubakar, A. U., Bello, M. M., Ezenwoko, A. Z., Suleiman, Z. B., Gada, A. A., ... &Kaoje, A. U. (2020). Knowledge of Factors Contributing to Child Malnutrition among Mothers of Under-five Children in Sokoto Metropolis, North-West Nigeria. *Journal of Community Medicine and Primary Health Care*, 32(2), 17-26. <https://doi.org/10.4314/jcmphc.v32i2.2>

17) Rita Wanyenze. (2018) Knowledge, Attitudes, And Practices Of Lactating Mothers Towards Complementary Feeding At Kateete Health Centre II,

Ntunda Sub-County, Mukono District. *International Health Sciences University*. 2018

## B Publisher details:

**Publisher: Student's Journal of Health Research (SJHR)**  
**(ISSN 2709-9997) Online**  
**Category: Non-Governmental & Non-profit Organization**  
**Email: [studentsjournal2020@gmail.com](mailto:studentsjournal2020@gmail.com)**  
**WhatsApp: +256775434261**  
**Location: Wisdom Centre, P.O.BOX. 148, Uganda, East Africa.**

