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# FACTORS INFLUENCING THE NUTRITION STATUS OF CHILDREN UNDER 5 YEARS AT NUTRITION AND PAEDIATRIC WARD IN IGANGA HOSPITAL; A CROSS-SECTIONAL STUDY.

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## ABSTRACT

### Introduction:

The main objective of the study was to assess the factors influencing nutrition status among children under 5 years at the nutrition and pediatric wards in Iganga General Hospital.

The specific objectives were to assess the level of knowledge of caregivers of children, to assess the practices of caregivers of children, and to find out the maternal factors; influencing nutrition status among children under 5 years at the nutrition and pediatric wards in Iganga General Hospital.

### Methodology:

A cross-sectional descriptive study design was used, using both qualitative and quantitative approaches at the nutrition and pediatric wards in Iganga General Hospital. The researcher conveniently sampled on 100 respondents from 6th January 2023 to 25th January 2023. 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; 89(89%) knew the importance of exclusive breastfeeding to the children for at least 6 months. Majority; 79(79%) practiced appropriate complimentary feeding while 21(21%) did not. The majority; of maternal factors like age and education levels had some effect on the factors that influence on the nutrition status of the under 5 years children in Iganga General Hospital.

### Conclusion:

The study showed that despite the caretakers knowing exclusive breastfeeding and complementary feeding of the children, a number of them adhere not to the practices and application of the knowledge and this was affiliated to the limited resources to do so. The study further identified that maternal age, marital status, education level and occupation had a significant influence on the nutrition status of the children under 5 years.

### Recommendation:

There is a need for the caretakers to adhere to the practices and knowledge acquired to effect results concerning the improvement of the nutrition status of children.

***Keywords:*** *Exclusive Breasting Feeding, Malnutrition, Nutrition, Weaning*
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## Background of the study

Nutrition status is the degree to which the individual's physiological need for nutrients is being met by the food that an individual is eating. It is the state of a balanced diet in the individual between nutrient intake and nutrient expenditure (Simon Arnold Mwesigwa, et al, 2019).

Malnutrition refers to deficiency, excess, or imbalance in a person's energy and or nutrient intake (WHO, 2020).

Globally 144 million children under five years were estimated to be stunted (too short for age) 38.9 million were overweight or obese (too heavy for height) and 149.2 million were wasted (too thin for height). Around 45% of the deaths among children under

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5 years of age are linked to undernutrition. Those mainly occur in middle-income and low-income countries, at the same time in these countries the rate of child overweight and obesity is on the rise (WHO, 2021).

In Africa, the experience of malnutrition burden among children under 5 years of age has an average prevalence of overweight at 4.7% and stunting at 29.1% (Global Nutrition Report, 2021).

A study in Sub-Saharan Africa about factors associated with malnutrition among children under 5 years showed that the child-related factors include the child's age, sex and birth weight, type of birth, diarrheal diseases, and place of delivery. Other factors related to parental/household included the mother's education, breastfeeding status, BMI, birth interval, mother's health-seeking status, sanitation, household wealth, number of children under 5 years, etc. Among the areas related were forte cover loss, community region, and community illiteracy rates (Phillips Edomwonyl, et al, 2020).

The pooled prevalence of chronic undernutrition among children under 5 years in East Africa is 33% ranging from 29.1% in Kenya to 53% in Burundi (Getayeneh Antehunengn Tesema, 2021).

In Uganda, 29% of the children aged 6-59 months are stunted (too short for age), 4% are wasted (too thin for height), and another 4% are overweight (too heavy for height), 11% are underweight (UBOS, 2016).

However, there are no current researches conducted in the Iganga district on factors influencing nutrition status among children under five years in the nutrition and pediatric ward in Iganga hospital.

Specific objectives:

To assess the knowledge, practices, and maternal factors of caregivers of children under five years at the nutrition and pediatric ward in Iganga Hospital about the factors influencing nutrition status

## Methodology

## Study design

The research design was cross-sectional descriptive and experimental and these helped to gain more information about characteristics within the particular field of study. The descriptive study addressed the knowledge of caretakers of children under 5 years while the experimental addressed the practice of caretakers influencing the nutrition status of children under 5 years.

## Study area

The study was carried out at the nutrition and pediatric ward in Iganga Hospital in Iganga district, Eastern Uganda.

The study focused on children under 5 years who sought treatment from the hospital at the time of study.

The study was carried out between July 2023 and August 2023

The study was conducted in Iganga hospital nutrition and pediatric units in Iganga

District located on the Jinja-Tororo highway, northern division, Iganga municipality, Iganga district, Eastern region, Uganda.

## Study population

The study included all parents or guardians living with children under five years being managed in Iganga Hospital nutrition and pediatric units in Iganga District. It excluded any children above five years of age. The population comprised several people of different ethnicities like Basoga, Bagwere, and Baganda. Religions like Muslims, Catholics, Anglicans, Born gains Population included in the study not only come from the vicinity of Iganga hospital or Iganga municipality but also from areas 10km within an inclusion of those from nearby districts of Mayuge, Kaliro, Namutumba, Bugweri, Luuka.

## Sample Size Determination

To determine a sample size needed to find out factors influencing the nutrition status of children under 5 years in Iganga Hospital nutrition and pediatric units in Iganga, Kish and Leslie formula was used.

$N=Z^2 (p\ q) /d^2$

N= the desired sample size

Z=the standard normal deviation usually set at 1.96 which corresponds to 95% confidence level

P= the proportion in the target population estimated to have a particular characteristic and in thisstudy, p was 79%.

q=1-p d= the degree of accuracy desired, usually set at

0.1 level

Thus $N= (1.96)^2(0.79)\ (1-0.79)/\ (0.08)^2$

N= (3.8416) (0.79) (0.21)/0.0064

N=99.5 which is approximately equal to 100

A sample size of 100 respondents was included

## Sampling technique

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Simple Random sampling method was used to select the 100 respondents. This sampling method was used because the researcher wants to give equal opportunity to every child under

5 years in Iganga hospital nutrition and pediatric units in Iganga district to participate in the study.

## Sampling procedure

The study participants in Iganga hospital nutrition and pediatric units in Iganga were selected randomly after identifying the parents with children under 5 years of age.

## Data collection method

The survey was conducted by carrying out anthropometric measurements like height, weight, head circumference, and body mass index and questionnaires were also given to obtain information from the sample population. A face-to-face interview was used to collect respondent's information, this was between the researcher or research assistant and the respondents because it allowed me or the research assistant to interpret questions that some respondents were not able to understand.

## Data collection tools

A pre-tested semi-structured questionnaire will be used in the English language. MUAC tapes will be used to measure mid-upper arm circumference, weighing scale will be used to measure the weight of children, and tapes to measure the head circumference and height of children to determine to determine the BMI. This will help the researcher to collect information about the level of knowledge of caregivers, practices of caregivers, and maternal factors influencing nutrition status among children under 5 years at the nutrition and pediatric ward in Iganga Hospital in Iganga district.

## Data collection procedure

I obtained an introductory letter from Medicare Health Professionals College through the District Health Officer to the Chief Administrative Officer of the Iganga district to seek permission to carry out the study from Iganga Hospital. I explained the procedure and the importance of the study to the respondents, then consent was obtained from those who were willing to participate in the study. For clients who were able to read and write, printed self-administered questionnaires were given to them to fill in the required correct information and the researcher was available to guide them where needed. To those who were not able to read and write the Researcher was available to read and translate the information and helped them fill in the information required.

## Study Variables

The study considered both dependent and independent variables.

## Dependent variable

Nutrition status among children under 5 years at nutrition and pediatric ward in Iganga hospital, Iganga district .

## Independent variable

These included the level of knowledge of caregivers, practices of caregivers, and maternal factors influencing nutrition status among children under 5 years at the nutrition and pediatric ward in Iganga Hospital, Iganga district.

## Quality control

## Pretesting of the questionnaire

A sample of 30 respondents of the same age group was used in pretesting the questionnaire. This sample was obtained from Nakalama HCIII, they were asked to complete the study by answering the questions. Each time they read and answered the question were asked to tell what exactly came into their mind and notes about what they said. The reason for pretesting was to identify poorly phrased questions and wrong-structured questions. At the end of pretesting these poorly phrased and wrongly structured questions were changed or restructured.

## Training of research assistants

A session was organized in which two research assistants were oriented about the objectives of the study, how they handled respondents with calmness and patience, and different ways of answering questions that happened to be asked. They were taught how to record patient's responses during the interview process and how to interpret the nonverbal commits of patients.

## Ample time for data collection

Data was collected within a month during the hospital attachment which I believed was enough to collect data from all the 100 respondents.

## Inclusion criteria

All children under 5 years and children whose caregivers were willing to give informed consent

## Exclusion criteria

Those with signs of the severity of cute malnutrition indicating the need for referral were not included in the study.

Children with other clinically detectable reason concerning their health other than nutrition.

## Adherence to standard operating procedures (SOPS)

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Each research assistant was informed of what is expected of him or her when to complete the assigned task taking into consideration the rules and regulations of the health facility.

## Data Analysis and presentation



Data was entered into SPSS version 20 for data analysis after which the analyzed data was transferred to Microsoft Excel version 2010 for presentation of results in graphs and tables.

## Ethical considerations

Approval for the study was obtained from Medicare Health Professional College (MHPC), from the District Health Officer of Iganga district, the medical superintendent of Iganga Hospital, and informed consent from all participants. Confidentiality of information, the right to withdraw from the study, and privacy were maintained at all levels. The consent of the respondents was obtained after the purpose and objectives of the study were identified and well explained to the respondents. The study was intended purely to be for academic purposes and all the information given was treated with confidentiality and numbers instead of names were used to identify the respondents.

## Results

## Demographic characteristics and child bio data

From table 1 revealed that majority of the children (73%) were village residents more and 27% were town residents. Furthermore, most of the children involved in the study were females with apercentage of 65% to males who were just 35%. And that majority (63%) of these were aged between 2-5 years and minority (37%) are aged between 0-24 months.

**Table 1: Respondents' demographic characteristics and child bio data (n=100)**

| **Bio data** | | **Frequency** | **Percentage (%)** |
|---|---|---|---|
| Residence | Village | 73 | 73 |
| | Town | 27 | 27 |
| Sex | Male | 35 | 35 |
| | Female | 65 | 65 |
| Age | 0-24 months | 37 | 37 |
| | 2-5 years | 63 | 63 |

**Table 2: Respondents knowledge about breastfeeding and complimentary feeds (n=100)**

| **Knowledge about;** | **Frequency** | **Percentage(%)** |
|---|---|---|
| **Number of times a child should be exclusively breastfed in a day.** | | |
| At least 8 times | 72 | 72 |
| On demand | 28 | 28 |
| **Total** | **100** | **100** |

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**Table 3: Respondents knowledge about number of times a child should spend beingexclusively breastfed**

| **Knowledge about;** | **Frequency** | **Percentage(%)** |
|---|---|---|
| **Time a child should spend being exclusively breastfed** | | |
| Less than 6 months | 11 | 11 |
| At least 6 months | 89 | 89 |
| **Total** | **100** | **100** |

**Table 4: Respondents knowledge about the composition of the complementary feeds**

| **Knowledge about;** | **Frequency** | **Percentage (%)** |
|---|---|---|
| **Main meal should be a mixture of greens/cereals/meat/eggs/poultry/fish/legumes andvegetables** | | |
| Yes | 61 | 61 |
| No | 14 | 14 |
| Not sure | 35 | 35 |
| **Fruits and vegetables are suitable for complementary feeds** | | |
| Yes | 72 | 72 |
| No | 26 | 26 |
| **Total** | **100** | **100** |

**Figure 1: Respondents knowledge of how long the child should be breastfed in addition to complimentary feeding (n=100)**

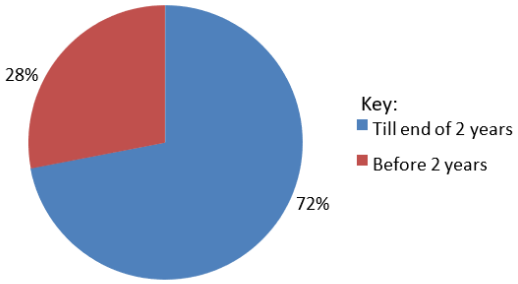
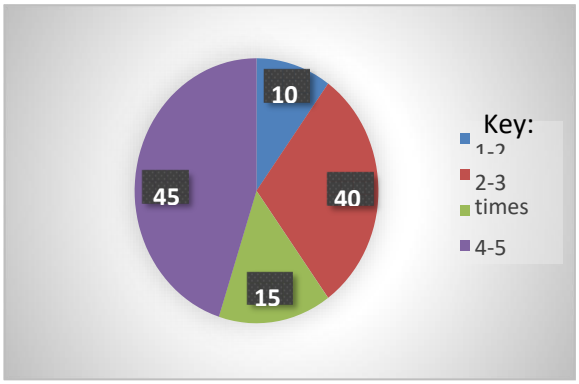



**Figure 2: Respondents knowledge of how many times complimentary feeds should be given (n=100)**



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## Knowledge of caretakers of children under 5 years influencing nutrition status

The table 2 shows that majority 72% knew that children are exclusively breastfed at least 8 timesa day and minority 28% on demand.

Table 3 shows that majority 89% of the respondents had knowledge that children should be exclusively breastfed for at least 6 months and minority 11% knew that children should be breastfed less than 6 months.

Table 4 on knowledge assessment revealed that most 61% of that respondents had knowledge that the main meal should be a mixture of greens/cereal/meat/eggs/poultry/fish/legumes and vegetables, 35% were not sure and 14% did not know about it. In relation to suitability of fruits and vegetables for complementary foods, majority 72% had knowledge and the minority 26% had no knowledge of it.

Majority 72% of the respondents had knowledge that a child should be breastfed in addition to complementary feeding till the end of 2 years and minority 28% knew it should be before two 2 years.

The figure 2 shows that the biggest percentage 45% had knowledge that complementary feeds should be given on demand, 40%had knowledge that complimentary feeds should be given 2-3 times, 15% knew it should be 4-5 times and 10% knew that feeds should be given 1-2 times.

## Practices of caretakers of children under 5year influencing the nutrition status

The figure 3 shows that majority, 79% of the respondents-initiated children to complementary feeds at 6 months and minority, 21% initiated the children before 6 months.

From table 5 shows that of the 21 who introduced complimentary feeds before 6 months, 47% claimed that the mother had reasons for work, 29% had not enough breast milk, 14% claimed that the baby was over crying, 5% introduced because of sickness and 5% had other reasons.

Majority 56% of the respondents were no longer breastfeeding whereas minority 44% were stillbreastfeeding.

The table reveals that majority 48% stopped breastfeeding between 6-12months and 41% stoppedbreastfeeding between 1-2years and 11% stopped before 6months.

The table reveals that majority who constituted 52% breastfed more than 5 times a day and 48%breastfed less than 5 times a day.

The figure shows that most of the respondents 85% used hands and plate to feed the children,10% used cups, 5% used bottles and only1% used a spoon to feed the children.

The figure gives a representation respondents practice of boiling drinking water and majority 88% don't and the minority 12% only do. About the washing of hands with soap and clean water before feeding the children showed 80% not in the habit and only 20% did.

**Figure 3: Respondents' children's age when complementary feeds were initiated (n=100)**

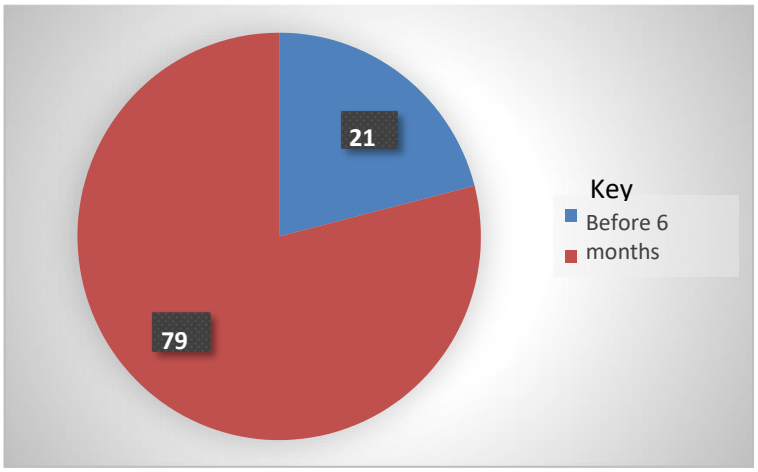

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**Table 5: Respondents reason if complementary feeds were introduced before 6 months. (n=21)**

| Reason | Frequency | Percentage (%) |
|---|---|---|
| Over Crying | 3 | 14 |
| Work | 10 | 47 |
| Mother had not enough breast milk | 6 | 29 |
| Sickness | 1 | 5 |
| Others(personal/cultural) | 1 | 5 |
| Total | 21 | 21 |

**Figure 4: Respondents still feeding (n=100)**

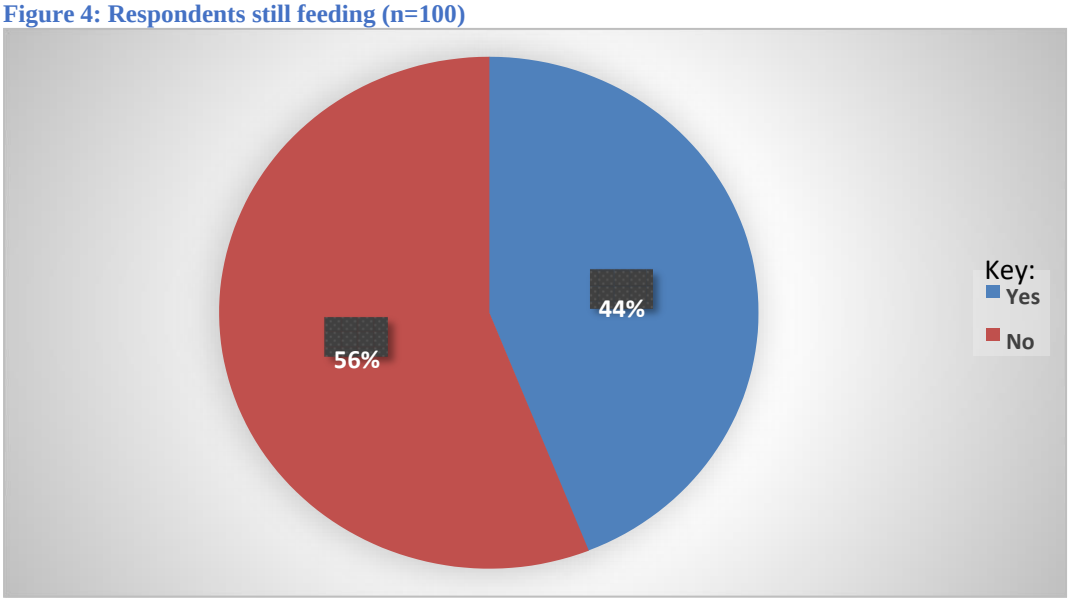


**Table 6: Respondents number of times of feeding among those not still breasting (n=56)**

| Time | Frequency | Percentage (%) |
|---|---|---|
| Stopped before 6months | 6 | 11 |
| Stopped Between 6-12months | 27 | 48 |
| Stopped between 1-2 years | 23 | 41 |
| Total | 56 | 56 |

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**Table 7: Respondents number of times of breastfeeding among those still breastfeeding(n=44)**

| **Times(daily)** | **Frequency** | **Percentage (%)** |
|---|---|---|
| More than 5 times | 23 | 52 |
| Less than 5 times | 21 | 48 |
| Total | 44 | 44 |

**Table 8: Respondents' utensils used for feeding the children (n=100)**

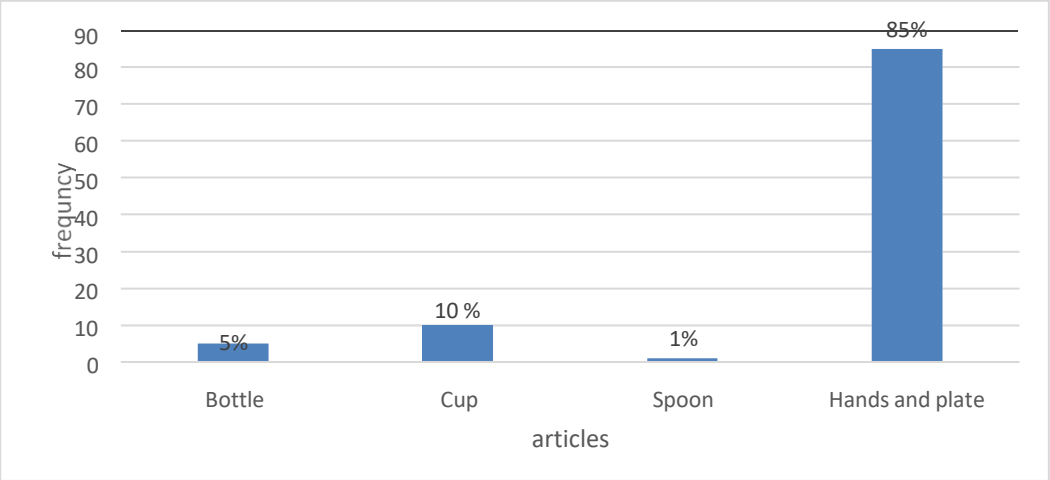

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**Table 9: respondents age factor that influence nutrition status (n=100)**

| Maternal factors | Frequency | Percentage (%) |
|---|---|---|
| **Age** | | |
| <20 | 20 | 20 |
| 20-29 | 43 | 43 |
| 30-39 | 27 | 27 |
| 40+ | 10 | 10 |
| Total | 100 | 100 |

**Table 10: Maternal education level influencing nutrition status**

| Maternal factors | Frequency | Percentage (%) |
|---|---|---|
| **Education level** | | |
| None | 10 | 10 |
| Primary | 34 | 34 |
| Secondary | 46 | 46 |
| Tertiary and university | 20 | 20 |
| Total | 100 | 100 |

**Table 11: Respondents maternal marital status influencing nutrition status**

| Maternal factors | Frequency | Percentage (%) |
|---|---|---|
| **Marital status** | | |
| Married | 36 | 36 |
| Single | 29 | 29 |
| Separated | 25 | 25 |
| Widowed | 10 | 10 |
| Total | 100 | 100 |

**Table 12: Maternal occupational factors influencing nutrition status**

| Maternal factors | Frequency | Percentage (%) |
|---|---|---|
| **Occupation** | | |
| Peasant farmer | 40 | 40 |
| Business | 25 | 25 |
| Civil servant/NGO staff | 10 | 10 |
| Others | 11 | 11 |
| Total | 100 | 100 |

## Maternal factors influencing nutrition status

From the table Most 43%of the mothers of the children were in the age bracket of 2029years, fewer 27% were among those aged 30-39, some 20% were aged, 20 years and the

least 10% were among those aged 40+ years.

According to the education level status, the study showed that majority 46% have an education level of secondary, others 34% have that a level of primary and fewer 20% have a level of tertiary and university and the fewest 10% haven't attained any education at all.

Concerning marital status, the findings have it that 36% were married, 29% were single mothers,25% were separated and 10% were widowed.

About the occupation factors, majority 40% were peasant farmers, some 29% were into businessand some 10% were civil servants/NGO staff and 11% were involved in other occupations.

## Discussions

## Knowledge of caretakers of children under 5 years influencing nutrition status

The objective of the study was to assess the level of knowledge of caregivers of children under 5 years at the nutrition and pediatric wards in Iganga General Hospital about the factors influencing nutrition status. The data analysis and interpretation revealed the following major findings:

72% of the caretakers knew that a child should be exclusively breastfed on demand and the lesser percentage 28% at least 8 times a day. This is probably because of the thorough antenatal and postnatal health education particularly about breastfeeding, maternal and child health campaigns aired on local radio and television stations by the MOH and stakeholders like NGOs like UNICEF. Such results are consistence with the study of" A systemic review in East Africa indicates that almost 84.4% were aware of EBF. (Jean Prince Claude Dukuzumuremyi, K. A, et al, 2020)"

The results also showed that 89% of the caretakers knew that a child should be exclusively breastfed for at least 6 months probably due to the health education provided and information from fellow women who know the same and 11% knew it should be less than 6 months and this still tarries with the study of "A systemic review in East Africa indicates that 84.4% were aware of EBF, and 49.2% knew that the duration of EBF was the first six months only. (Jean Prince Claude Dukuzumuremyi, K. A, et al, 2020)."

Furthermore, the results also showed that 61% had knowledge that the child's main meal had to contain a mixture of many food items including grains/cereal/meat/eggs/poultry/fish/legumes, and vegetables, and 72% knew that fruits and vegetables are suitable complementary feeds. These results are probably due to the health education where nutritional information was given showing that caregivers' knowledge of the contents of the meal influences how they feed the child. These

Findings agree with "A study done by women's health bulletin in Kenya found out that the content of nutritional knowledge among the caregivers was mainly on balanced diet (31.2%).

Others were food hygiene (18.1%), food preparation methods (8.7%), and food diversification (6.5%).(Peter Maina Chege, et al, 2017)."

More results in regards to knowledge show that the majority 45% knew that children should be given complementary feeds on demand probably due to the health education in regards to nutrition care to be given to children but still a relatively high percentage 40% know that feeds should be given 2-3 times daily a phenomenon that is so casual and usual that socially families have 2-3 meals a day and not considering the children as a special need. This is similar to the study conducted in eastern and central Uganda indicated that most caregivers (77%) were knowledgeable about key infant and young child feeding practices such as complementary feeding and meal frequency. (Jacent Kamuntu Asimwe, et al, 2021)

## Practices of caretakers of children under 5 years influencing nutrition status

The objective of the study was to assess the level of knowledge of caregivers of children under 5 years at the nutrition and pediatric wards in Iganga General Hospital about the factors influencing nutrition status. The data analysis and interpretation revealed the following major findings:

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## Maternal factors influencing the nutrition status of children under 5 years

The objective of the study was to find out the maternal factors influencing nutrition status among children under 5 years at the nutrition and pediatric wards in Iganga General Hospital and the findings were;

Most 43% of the mothers of the children were in the age bracket of 20-29 years, fewer than 27% were among those aged 30-39, some 20% were aged, 20 years and the least 10% were among those aged 40+ years. This accounts for the highest population of Uganda being in the reproductive age and such assumed to have limited knowledge, experience, and skill in child care and nutrition health and this posed a risk for malnutrition. The findings correspond to a study carried out in Tamale Metropolis, Ghana on young maternal age as a risk factor for child nutrition showed that the average weight, height, and anthropometric z-score of children of teenage mothers were lower than those of children of adult mothers. Overall, 39.0%, 8.0%, and 16.3% of the children were stunted, wasted, and underweight respectively. However, consistently the prevalence of undernutrition was higher in children of adolescent mothers than in children of adult mothers i.e., 59.3% versus 16.7% for stunting, 12.0% versus 4.0% for wasting, 29.3% versus 3.3% for underweight (Anthony Wemakor, et al, 2018).

According to the education level status, the study showed that the majority 46% have an education level secondary, 34% have a level of primary and fewer than 20% have a level of

Tertiary and university and the fewest 10% haven't attained any education at all. Attaining some level of education enables the acquisition of relevant knowledge about nutrition health and child care hygiene, use of boiled water, kind of feeds, frequency of feeding, and demystification of cultural and traditional myths. The results correspond to the study carried out in sub-Saharan Africa on the joined effect of maternal marital status and type of household cooking fuel on child nutritional status, was found that on stunting, compared to children born married mothers who knew the use of clean household cooking fuel, children born to single mothers who use unclean household cooking fuel(95%), children born to single women who use unclean household cooking fuel(95%) and children born to married women who use unclean cooking fuel(95%) were more likely to be stunted. With wasting, children born to single

Mothers who used unclean household cooking fuel and children born to married mothers who used unclean household cooking fuel were more likely to be wasted compared to children born to married mothers who used clean household fuel. (Bright Opoku Ahinkorah, et al, 2021).

Concerning marital status, the findings have it that 36% were married, 29% were single mothers, 25% were separated and 10% were widowed. Married families tend to have a diversity in income economic support and hence the ability to manage the child's nutrition health concerns. This confers with a study in

Pakistan on toddlers with married mothers who were at 0.86 times risk of stunting (OR: 0.62; 95% CI: 0.768-0.9867) and 0.771 times risk of severely stunted (OR: 0.771; 95% CI: 0.672-0.883) compared to toddlers with divorced mothers. These results indicate that toddlers with married mothers have a lower risk of being stunted. (Agung Dwi Laksono, et al, 2019).

Regarding the occupation factors, the majority 40% were peasant farmers, some 29% were in business some 10% were civil servants/NGO staff and 11% were involved in other occupations. Despite working having the advantage of economic stability necessary for managing malnutrition, the working schedules tend to be risk factors for malnutrition in children due to unavailability of the caretakers and failure to monitor the health status of children. This corresponds to a study carried out on maternal employment and child nutritional status in Uganda showed that 28%, 4%, and 11% of the children of working women were stunted, wasted, and underweight respectively. Concerning occupation, over half of the women (56%) were engaged in agricultural work. Only 9% were in formal (professional and clerical jobs). Over half of the women were self-employed (Olivia Nankinga, et al, 2019).

## Conclusions

The study showed that despite the caretakers knowing exclusive breastfeeding and complementary feeding of the children, a number of them adhere not to the practices and application of the knowledge and this was affiliated to the limited resources to do so. The study further identified that maternal age, marital status, education level and occupation had a significant influence on the nutrition status of the children under 5 years.

## Limitations of the study

- Inadequate funds to facilitate the process of research.
- Bad weather; heavy rains and very hot weather will alter the smooth flow of the study. Lack of cooperation among some of the respondents.
- Inadequate knowledge and skills for carrying out research.
- Language barrier due to various ethnicities within different languages.

## Recommendations

There is a need for the caretakers to adhere to the practices and knowledge acquired to effect results concerning the improvement of the nutrition status of children under 5 years.

There should also be increased campaigns with feasible knowledge that is applicable in rural areas and this could be also through empowering the VHTs in these areas by the government of Uganda and the Ministry of health to improve the nutrition status of children under 5 years.

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## List of abbreviations

**BMI:** Body Mass Index
**MoH:** Ministry of Health
**MUAC:** Mid Upper Arm Circumference
**UBoS:** Uganda Bureau of Statistics
**UDHS:** Uganda Demographic Health Survey
**UNICEF:** United Nations Children's Emergency Fund
**USAID:** United States Agency for International Development

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