Factors that Contribute to Occurrence of Malnutrition among Children below Five Years in Pediatric Ward Itojo Hospital, Ntungamo District Uganda.

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ABSTRACT

The study was aimed at assessing the factors that have contributed to the occurrence of malnutrition among children below five years in the pediatric ward of Itojo Hospital, Ntungamo District, Uganda. A descriptive cross-sectional study design was used where both qualitative and quantitative methods were applied. This was used to get information from 100 mothers' records from Itojo Hospital of children diagnosed with malnutrition under the age of five years from the Ntungamo district and simple random sampling was used. The study considered only mothers who had children below 5 years of age and those of children with more than 5 years were not considered. The data was collected using a questionnaire and analyzed using Microsoft Excel to come up with graphs, pie charts and tables. The study findings revealed that mothers' age at birth has a great impact on the health of the child. Malnutrition and stunting as the study indicates that 42% of the mothers with malnourished children were aged between 25 − 29 years. Findings further indicate that the occupation of the mother had a great impact on the malnutrition of the child as more than half 56% of the mothers with malnourished children were causal labourers and 20% were peasants. The socio-economic status of the mothers/family was found to be the major factor determining malnutrition in children. It was found that mothers who are educated with good jobs have much knowledge about the nutrition of mothers during pregnancy, have good health-seeking behaviours and vice versa. Cultural beliefs were also reported to have an impact on the malnutrition of the children as there are some foods that mothers were not allowed to eat due to different perceptions which lead to malnutrition in mothers and giving birth to malnourished children and some mothers still giving birth from homes by the help of the traditional birth attendants (TBAs). Mothers' sanitation was poor 18% had no toilets at home, and 21% never washed their hands after visiting the toilet/latrines. 44% did not hands before feeding the baby. The study concluded by recommending government and health workers should be sensitive people about the importance of immunization since it was found that some people still have poor perceptions of immunization.
Keywords: Malnutrition, Children, Mothers, Health Workers, Immunization.

INTRODUCTION

Malnutrition in children is common globally and results in both short and long-term irreversible negative health outcomes including stunted growth which may also be linked to cognitive development deficits, being underweight, and wasting [1-3]. Another estimate also by World Health Organization (WHO) states that childhood underweight is the cause of about 35% of all deaths of children under the age of five years worldwide [4]. The prevalence of chronic malnutrition (stunting) among children in the poorest households in Africa, Asia, and Europe is more than twice higher in richer countries [5-7]. Children in poor, indigenous, and rural communities suffer the worst rates of stunting (low height for age, an indicator of chronic malnutrition) [8, 9]. If malnutrition sets in before a child turns two years old, as is predominantly the case, the consequences are severe [10, 11]. According to Totin *et al.* [12], there are three commonly used measures for detecting malnutrition in children: stunting (extremely low height for age); underweight (extremely low weight for age); and wasting (extremely low weight for height). These measures of malnutrition are interrelated, but studies for the World Bank found that only 9 percent of children

exhibit stunting, underweight, and wasting [13]. Anemia is a common feature in malnourished children [14-17]. Children with severe acute malnutrition are very thin, but they often also have swollen hands and feet, making internal problems more evident to health workers [5]. Children with severe malnutrition are very susceptible to infection [5, 7, 18]. Malnutrition is still a serious public health problem in Uganda and requires urgent attention. There is a need to emphasize the importance of having a well-established surveillance system that would ensure necessary and timely action [19]. Adequate nutrition is an essential prerequisite for maintaining health status [20-22]. The critical role nutrition plays in health and development warrants greater commitment to and investment in nutrition in Uganda. Moreover, such an investment is a necessary prerequisite for further progress on the Millennium Development Goals (MDGs), particularly the hunger and health MDGs. While at the national level, Uganda currently produces sufficient food to meet the needs of its rapidly growing population, the proportion of Ugandans unable to access adequate calories decreased from 23 percent in 1997 to 15 percent in 2006.

Lack of access to highly nutritious foods, especially in the present context of rising food prices, is a common cause of malnutrition. Poor feeding practices, such as inadequate breastfeeding, offering the wrong foods, and not ensuring that the child gets enough nutritious food, contribute to malnutrition. Infection particularly frequent or persistent diarrhea, pneumonia, measles, and malaria also undermines a child's nutritional status [23-26]. This fact will guide the researcher to determine the actual reasons why malnutrition remains to be a health burden in the country specifically in Itojo Hospital, Ntungamo district. The results will be disseminated to relevant stakeholders in order to inform them of the current status of the condition in the district and might help them to forge the way forward to eradicating malnutrition in the region. The research will also act as a source of information and reference for future researchers willing to undertake the same topic of study and who share the common motivation of ridding malnutrition among children aged five years and below.

Aim of the Study

To assess factors that contribute to the occurrence of malnutrition among children below five years in the pediatric ward of Itojo Hospital, Ntungamo District, Uganda.

Specific Objectives of the Study

- To find out demographic factors that contribute to the occurrence of malnutrition.
- To assess socio-economic factors that contribute to the occurrence of malnutrition.
- To describe the cultural factors that contribute to the occurrence of malnutrition.

Research Questions

- What are the demographic factors that contribute to the occurrence of malnutrition?
- What are the socio-economic factors that contribute to the occurrence of malnutrition?
- What are the cultural factors that contribute to the occurrence of malnutrition?

METHODOLOGY

Study Design

The study used a descriptive cross-sectional study design where both qualitative and quantitative methods were applied. This method was preferred because of its rapidity, cost-effectiveness, and ability to obtain data in depth and because it helps to capture information that can easily be transformed into numerical form. This approach helped to get detailed information about the factors that contribute to the occurrence of malnutrition among children below five years in the pediatric ward of Itojo Hospital.

Area of Study

This study was conducted at Itojo Hospital in Ntungamo District, in Western Uganda. Itojo Hospital is located on the Mbarara-Kabale highway, approximately 52 kilometers (32 mi), by road, southwest of Mbarara, the largest town in the sub-region. This location lies approximately 22 kilometers (14 miles), by road, northeast of Ntungamo, where the district headquarters are located.

Study Population

The population in the study comprised health records acquired from Itojo Hospital of children diagnosed with malnutrition under the age of five years from the Ntungamo district.

Sample Size Determination

The sample size was calculated using the Fischer et al 1990 formula. I.e. $n=Z^2PQ/d^2$:

Where n is the desired sample size.

Z is the standard normal deviation taken as 1.96 at a confidence interval of 95%.

P is the proportion of the target population estimated to have similar characteristics=7% (Fischer's et al, 1990).

d is the desired error= 0.05.

Q= (1-P) which is the population without the desired characteristics.

Therefore;

n= 1.96^2 X0.07 (1-0.07)/ $(0.05)^2$= 100health records.

Sampling Procedure

The researcher used a randomized sample to select mothers with children below 5 years who were attending Itojo. With the help of the health workers, all patients who had turned up to collect their drug were collected in the same location and simple random sampling was used thus giving everyone a chance of participating in the study without bias however, the patients' consent was first sought and those who declined participating in the study were not interviewed. Upon the patients consent to participate in the study, the researcher identified a clear place with no interferences where he did the interviews from.

Inclusion and Exclusion Criteria

All mothers who were at the clinic had an equal chance of participating in the study however, those that consented to the study were interviewed. Mothers with children more than 5 years shall not take part in the study.

Definition of Variables

The study focused on finding out the factors that contribute occurrence of malnutrition among children below five years in the pediatric ward of Itojo Hospital, Ntungamo District, Uganda. Therefore, demographic factors, socioeconomic factors, and cultural factors are believed to have an effect or contribute to malnutrition therefore they are the independent variables, and then malnutrition the independent variable.

Data Collection Methods

Primary data was collected using a self-administered questionnaire; they were administered to all participants that were involved in the study. Personal interviewing was chosen on two grounds. First, this approach is more likely to improve the response rate, as people have a greater obligation to respond when they have face-to-face or engagement, and secondly, interviews with respondents may afford insight into issues not anticipated by the study.

Data Collection Tools

A data table was created for the purpose of collecting relevant data based on the set objectives of the study. The data table had the following columns: age of the patient, sex of patients, and cause of malnutrition, form of malnutrition diagnosed, management given and prognosis after management.

Data Collection Procedure

The researcher got an introductory letter from the head of Department, nursing that introduced him to the Administration of Itojo Hospital seeking permission to carry out the study. Then after the permission was granted the researcher went on to carry out research in the area of study.

Data Analysis and Presentation

The data was cleaned, organized and tallied from file records of patients at Itojo Hospital. The acquired results were analyzed by Microsoft Excel and eventually presented using Microsoft Word.

Ethical Considerations

An introductory letter from the school of nursing was obtained before embarking on the research. Another letter was sorted from the administration of Itojo Hospital for the purpose of getting necessary permission to collect the health data

RESULTS

Demographic factors that contribute to occurrence of malnutrition among children below 5 years at Itojo hospital in Ntungamo.

Thus, the demographic characteristics presented in table 4.1 below, were gotten from the interview with the respondent.

Table 1: Respondent characteristics.

| Age of respondents	Frequency (F)	Percent (%)
18 – 24	42	42
25 – 29	18	18
30 – 34	25	25
35 – 39	12	12
40 and above	3	3
Total	100	100
Marital Status of the mothers		
Married	75	75
Separated	12	12
Divorced	6	6
Widow	5	5
Total	100	100
Occupation		
Peasant	20	20
Employment	18	18
Business Owner	6	6
Casual labour	56	56
Total	100	100
Education		
Never went to school	10	10
Primary	74	74
Secondary	12	12
University	4	4
Total	100	100
Number of children		
1 – 2	4	4
3 – 4	26	26
5 – 6	49	49
7 and above	21	21
Total	100	100

Source: Primary data (2017)

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From the study findings, majority of the respondents 42 (42%) were aged between $18 - 24$ years, only 18 (18%) were in the age range of $25 - 29$ years and the least 3 (3%) were above 40 years. This implies that mothers' age has an effect on the malnutrition of the child.

Three quarters (75%) of the mothers with malnourished children were married however those that had separated contributed as greater percentage 12(12%) and the least were widows 5(5%). Findings also reveal that more than a half 56 (56%) of the mothers with malnourished children were causal laborers however the peasants also contributed a greater percentage 20 (20%) while the least 6 (6%) were those engaged in business. This indicates that most of these casual workers would be getting little earning which could not cater for every food staff needed for the better feeding and growth of the babies. Study results also show that almost three quarters 74 (74%) of the respondents had just attended primary education but also those who never went to school contributed a greater percentage 10 (10%) and the least 4 (4%) had attained the university level. This indicates that education level of mothers really contributes much to the nutrition levels among the children. Findings further indicate that among the mothers with malnourished children, almost a half 49 (49%) had $5 - 6$ children but also those had children more than 7 also contributed a bigger percentage of 21% however there were some with few children $1 - 2$ and these were the least 4 (4%). This implies that in a family where there many children, there are high cases/ chances of children being malnourished.

**Socio-economic factor that contribute to occurrence of malnutrition.**

In order to determine the socio-economic factors that have contributed to the occurrence of malnutrition in Itojo among children below 5 years, mothers were asked a number of questions and their responses are presented in tables, pie-chart and graphs below.
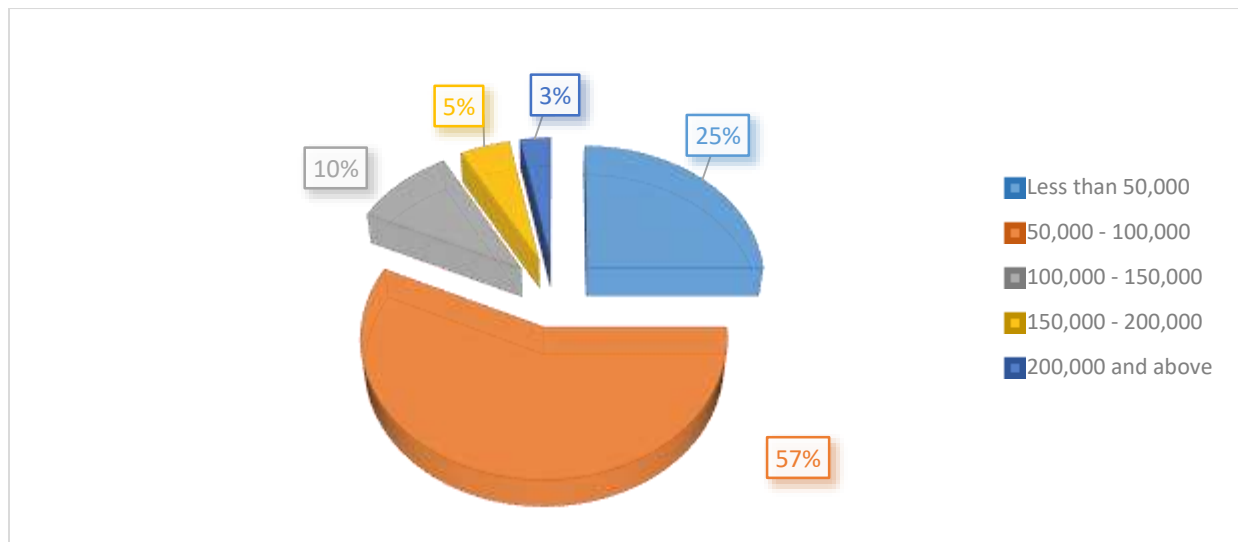
**Figure 1: Income level of the mothers**
Source: Primary data (2017)

Finding in the pie-chart above indicate that more than a half of the mothers 57 (57%) had their monthly income between $50,000/=$ to $100,000/=$ but also those that were less than $50,000/=$ had a bigger percentage which contributes to a quarter 25(25%) of the mothers and the least 3 (3%) of the mothers had monthly income equivalent to $200,000/=$ and above.
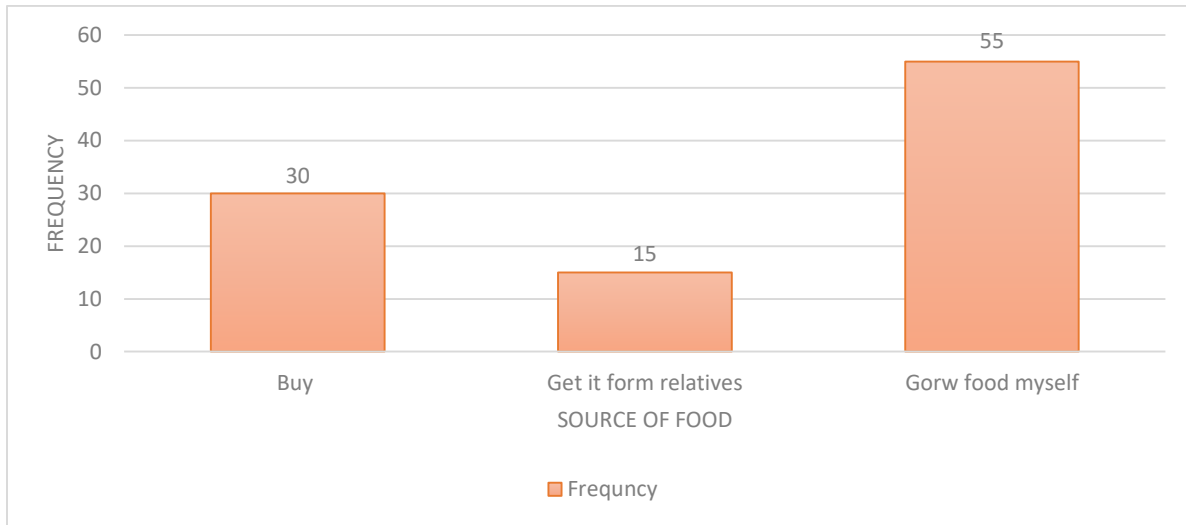
Figure 2: Sources of food
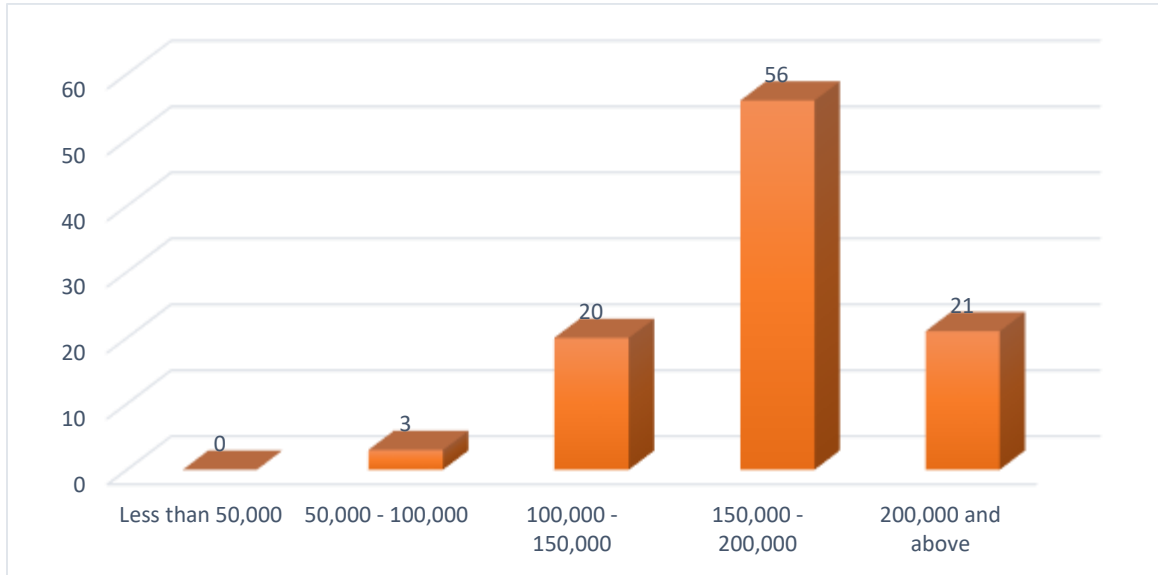**Source: Primary data (2017)**

More than a half 55 (55%) of the respondents grew food at home and the minority 15 (15%) got food from relatives. This implies that most of the mothers had land where they did agriculture however almost a quarter of the respondents indicated that they bought food.
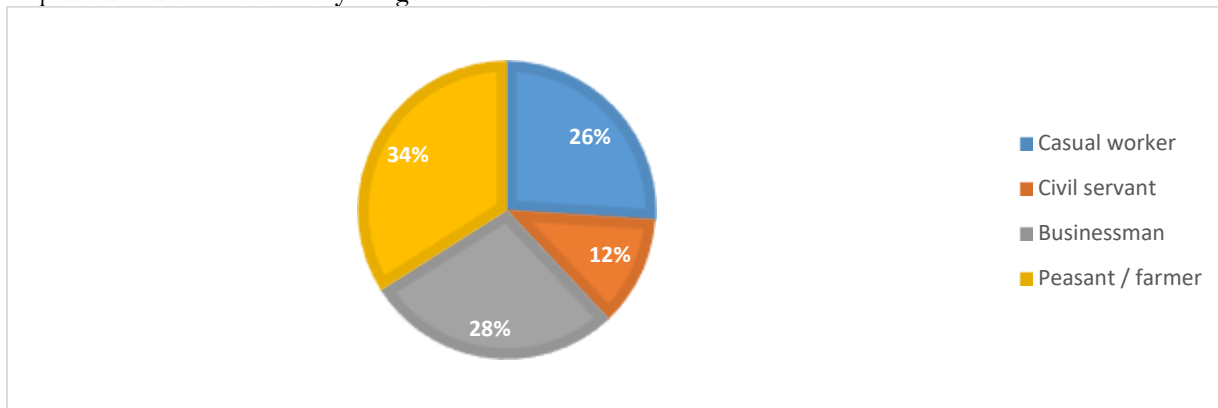
Figure 3: Husband's occupation
Source: Primary data (2017)

Results indicate that majority 34 (34%) of the mothers had their husbands who were peasants / farmers and the minority 12 (12%) had their husbands that were civil servants. This clearly indicates that most of the families relied on agriculture and casual work as their source of income which is less paying. Therefore, high levels of malnutrition could have been lack of enough money to buy different food staffs which nutritious and important for the children's growth.

Figure 4: Husbands' monthly minimum income

Source: Primary data (2017)

Slightly more than a half 56 (56%) of the respondents' husbands had their monthly income between 150,000/= to 200,000/=, only a few 21 (21%) had an income more than 200,000/= per month and the minority 3(3%) had income between 50,000= to 100,000/=. From these findings it can be believed that poverty is one of the factors leading to the persistence of malnutrition among most children below the age of 5 years.

**To find out cultural factors that contribute to occurrence of malnutrition.**

Respondents were asked questions regarding culture practices and beliefs that influence food intake by mothers and feeding of babies that could result to child malnutrition. Firstly, respondents were asked whether there were some foods that their culture did not allow them to eat when they were pregnant and only 40(40%) said that there are some foods that they were not allowed to eat and the other 60(60%) said their cultures did not stop them from eating any foods. Among some food that the culture did not allow are presented in the pie-chart below.
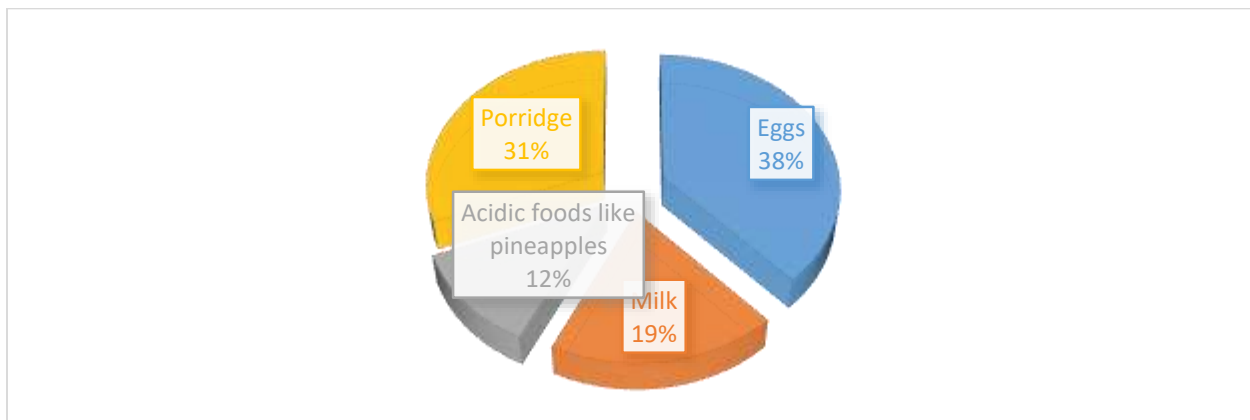
Figure 5: Foods not accepted by culture
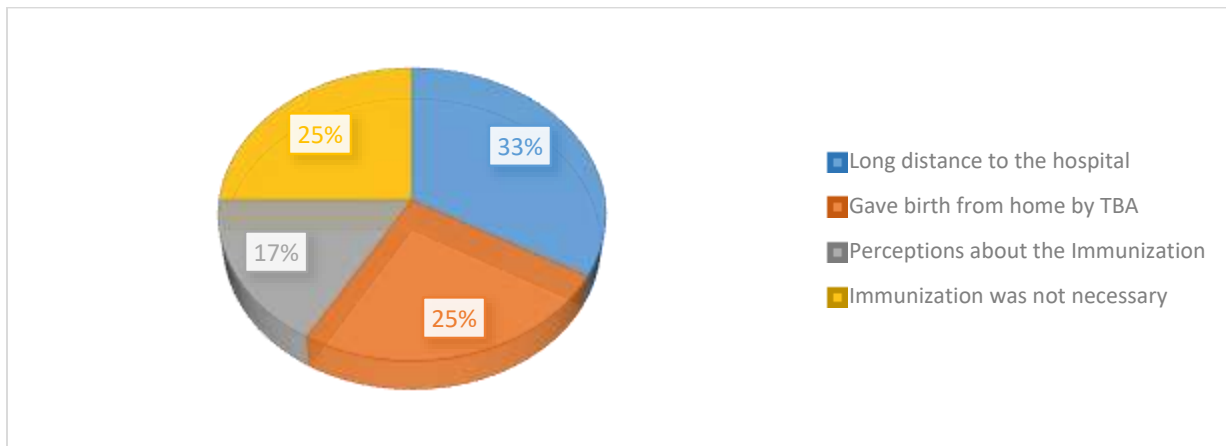**Source: Primary data (2017)**

15(38%) said that they were not allowed to eat eggs, while 12 (31%) were not allowed to drink porridge and 5(12%) were not allowed to take acidic foods like pineapples. When respondents were asked about the reasons for not allowing them to take such foods they gave different reasons which are shown in the figure below.
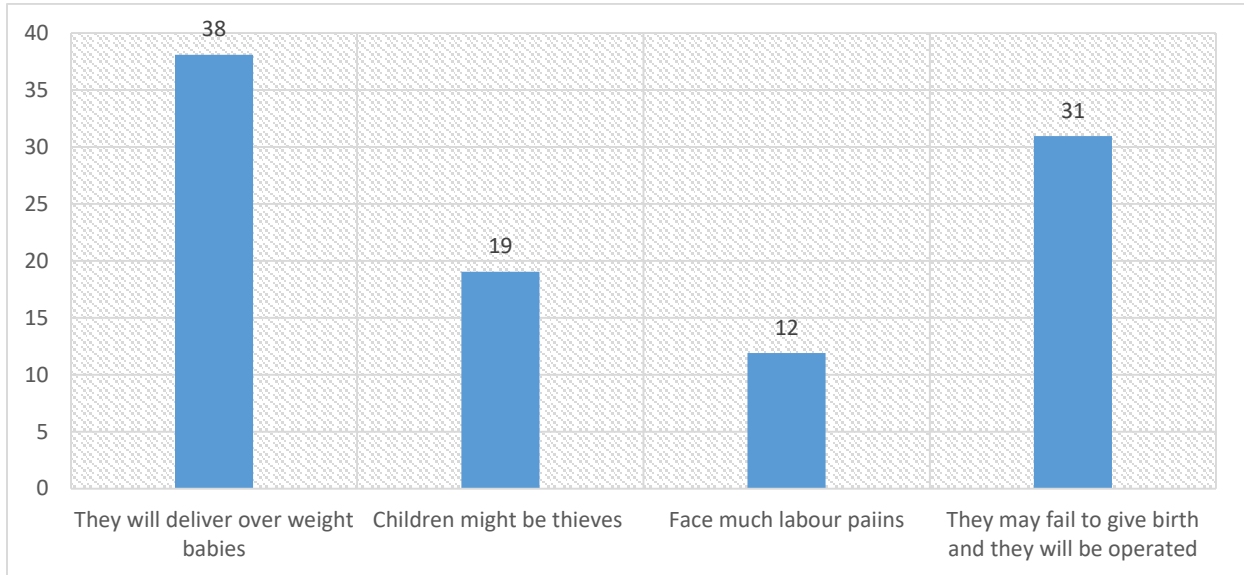
Figure 6: Reasons for not accepting some foods.
Source: Primary data (2017)

15 (38%) of the respondents said that the major reason for avoiding some foods was they would deliver over weight baby if they don't stop those foods, 12 (31%) that they may fail to give birth and they will be operated and the least 5 (12%) had perception that they would face much labour pains. Mothers asked whether they immunized their children and 88 (88%) of the respondents were found to have immunized their children while 12 (12%) had not immunized their children. The researcher further asked respondents about the reasons for not immunizing their children and the reasons are presented in the figure below.

Figure 7: Reasons for not immunizing their children
Source: Primary data (2017)

4(33%) of the revealed that the major reason for not immunizing their children was long distance to the hospital while the minority 2 (17%), giving birth from home by the TBA 3 (25%) and poor perceptions about immunization by the least 2 (17%) The researcher also asked their mothers about their sanitation in different questions which are presented in table below.

Table 2: Sanitation of the mothers

Whether they have toilets at home	Frequency	Percentage
Yes	82	82
No	18	18
Total	100	100
Wash hands after visiting the toilet		
Yes	79	79
No	21	21
Total	100	100
Wash hands before feeding the baby		
Yes	56	56
No	44	44
Total	100	100

Source: Primary data (2017)

Study findings show that majority 82 (82%) of the respondents had toilets at home while 18(18%) revealed had no toilets at home. 79% washed their hands their after visiting the toilet, 21 (21%) never washed their hands after vising the toilet. 56(56%) washed their hands before feeding the baby while 44(44%) did not. This shows that the sanitation by some mother is not yet high since there are some mothers who never washed their hands after visiting the toilet and other never washed their hands before feeding the baby. The researcher asked respondents if there are some foods they avoided when they were pregnant and all the respondents 100% revealed that they avoided some food and these are presented in figure below.
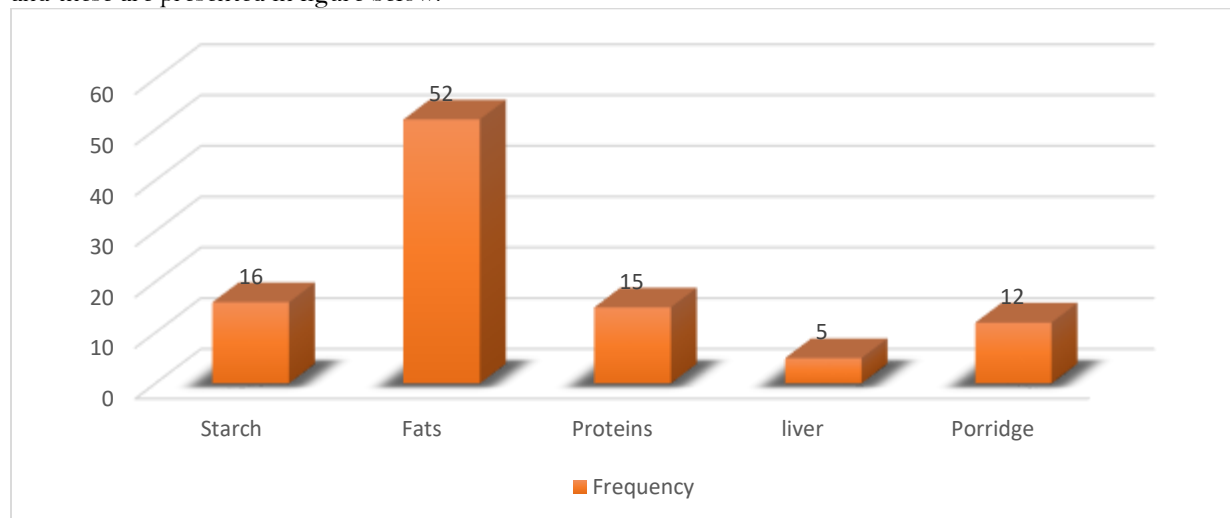
Figure 8: Foods avoided mothers during their pregnancy
Source: Primary data (2017)

Almost a half of the respondents 52 (52%) avoided fats, 16 (16%) avoided foods rich in starch and the least 5 (5%) avoided lever.

DISCUSSIONS

The study was aimed at assessing the factors contributing to the occurrence of malnutrition among children below five years in pediatric ward at Itojo hospital, Ntungamo district, Uganda. The study used a total of 100 respondents who were mothers in the pediatric ward.

Demographic factors that contribute to the occurrence of malnutrition among children below 5 years at Itojo hospital in Ntungamo.

According to the study findings, majority of the mothers 42% were aged between $25 - 29$ years, only 18% were the youngest with in the age range of $18 - 24$ years and the least 3% were above 40 years. This implies that mothers' age may also contribute to the malnutrition of the child. These findings are in agreement with Kebede [27], who reveals that mothers age at birth has been associated with malnutrition among under-five-year-old children for example it was found out in Bangladesh that children whose mothers were less than 20 years at the time of birth were 1.22 times more likely to be stunted, wasted and underweight compared to children whose mothers were 20 years and above at birth. Similarly, Babatunde [28] adds that the risk is greater in younger mothers particularly those below 24 years because they are not ready to take care of the child including providing all the necessary attention required for the baby. The study further shows that three-quarters of the mothers with malnourished children were married however those that had separated contributed a greater percentage 12% and the least 7% were widows. This implies that a child's malnutrition is closely related to the mother's marital status since a mother who is separated or divorced may face a challenge in caring for the babies while the one who is married may get support from the spouse. Similarly, in comparison to Ergin *et al.* [29], being a married mother was positively associated with good nutritional status among children under five years.

It was also found that more than half 56% of the mothers with malnourished children were casual laborers and also peasants also contributed a greater percentage 20% while the least 6% were those engaged in business. Most casual workers get little money and looking after their family is always a challenge. This was in agreement with Gulati [30] who also found out that a mother's occupation is one of the determinants of under-five malnutrition in most developing countries. Similarly, a study carried out in Kenya by ICF Macro [31] revealed that children from mothers who were casual laborers or farmers and housewives had a greater prevalence of stunting, underweight, and wasting than those from mothers who worked in offices or were housewives. According to the study findings, it was also found out that most cases of malnourished children were found with mothers whose education levels were low where by almost three quarters 74% of the mothers had just attended primary education, 10% never went to school and very little cases 4% were found in mothers who attained the university level. This indicates that education level of mothers really contributes much to the nutrition levels among the children. This is in correspondence with Janevic *et al.* [32] who reveals that mother's education level affects child's nutrition through her choices and health seeking skills related to nutrition, hygiene, preventive care and disease treatment. Additionally, Black et al. [13] explains that education helps mothers gain additional knowledge about the adequate intake of food for their children in terms of correct quantity, quality, and frequency. It also determines her income and this helps her access proper nutrition for the child as well as health services. Similarly, Blössner and Deonis [33] show that there was a negative association between the mother's education and under-five child malnutrition. The higher the level of a mother's education, the lower the percentage of under-five children classified as undernourished.

According to the study findings, greater levels of malnourished children were also found in mothers who had many children as it is indicated that almost half 49% had $5 - 6$ children and 21% had children more than 7, and those with few children $1 - 2$ the prevalence was less with 4%. This implies that in a family where there are many children, there are high cases/ chances of children being malnourished. However, these findings oppose the findings of Blössner & Deonis [33] in a cohort study done on all children born in a Mexican village in a sample of 30 families with four or fewer children, 75% of the children were malnourished to some degree, and in those with five or more children, 76% were malnourished.

Socio-economic factors that contribute to the occurrence of malnutrition.

According to the study, most of the mothers 57% were low-income earners with their monthly income ranging between 50,000/= to 100,000/= and 25% with less than 50,000/=, and very few were found with monthly income equivalent to 200,000/= and above. This implies that these mothers don't have enough money to cater for nutritional foodstuff for their children [30-50]. The study findings further revealed that more than half 56% of the husbands to these mothers had a monthly income between 150,000/= to 200,000/=, and only a few 21% had an income of more than 200,000/= per month. This is a great indicator that most of the families that had malnourished children had very low levels of income and therefore getting food on the table is not easy. In accordance to these findings Musaiger *et al.* [1] show that a family with low socio-economic status finds food prices high and they cannot afford to by the different varieties of food stuffs but only feed on available foods. The study findings also show that majority of the families 55% grew food at home, 30% bough the food and only 15% got food from relatives. This implies that most of the mothers had land where they did agriculture however an investigation into the types of foods they grew

was not investigated. In correspondence to McKinney and Phillip [34], they reveal that they foods given to children have a great contribution to their malnutrition. In their study, they found out that 70% of the families with malnourished children, only feed on matooke, posho, and beans they cannot afford to buy foods like fish, and milk among others which are important for the healthy growth of their children. Similarly, adds that Srinivasan [35] in the introduction of the household wealth index into the model also minimally attenuates the effect of education on stunting, which somehow differs from findings from other settings. Moreover, it was found out that SES is also significantly related to child stunting similar to findings from other studies, which found a statistically significant relationship between SES and child malnutrition [40-54].

To find out cultural factors that contribute to the occurrence of malnutrition.

According to the study findings, it was 42% of mothers revealed that there are some foods their culture did not allow them to eat when they were pregnant. Among the foods that they were not allowed to eat included eggs 16%, milk 19%, and 13% were not allowed to drink porridge. The major reasons for denying mothers some foods were that some foods where they would deliver overweight babies if they don't stop those foods (38%), they may fail to give birth and will be operated on (31%) while 12% had the perception that they would face much labor pains. Therefore, the malnutrition of the children could have resulted due to nutritional deficiencies from mothers during their pregnancy since they were denied some foods. In agreement with Jesmin et al. [36], undernourished mothers face greater risks during pregnancy and childbirth, and their children are set off on a weaker developmental path, both physically and mentally. Undernourished children have lower resistance to infection and are more likely to die from common childhood ailments such as diarrheal diseases and respiratory infections. The study findings also revealed that some mothers 12% had not immunized their children however most of them 88% had immunized their children. However, there were some cultural factors that affected mothers to immunize their children which included long distance to the hospital (33%), giving birth from home by the TBA (25%), and poor perceptions about immunization by the least (17%). These findings concur with Nyaruhucha [37] in his study in Tanzania, malnutrition in unimmunized children were threefold times higher than that of immunized with appropriate age. But the study done in India revealed unimmunized children were 10 times more likely associated to malnutrition than those who immunized under five year children. Therefore, mothers' poor attitude and non-adherence to immunization increases the malnutrition in children. In the assessment of the mother's sanitation status, majority of the mothers 82% had toilets at home while 18% revealed had no toilets at home. 79% washed their hands after visiting the toilet, and 21% never washed their hands after vising the toilet. 56% washed their hands before feeding the baby while 44% did not. This shows that sanitation by some mothers is still low since there are some mothers who never washed their hands after visiting the toilet and others who never washed their hands before feeding the baby. However, these findings are in contrast to Babatunde [28], who found that child caregivers or mothers hand washing only at the time of after visiting the latrine strongly contributes to malnutrition which was threefold higher than those whose mothers had practiced hand washing at each activity and he did not look that the time of feeding the baby. But the study's finds are in line with Nyaruhucha [37] who also observed a higher prevalence of malnutrition (94.1%) among children whose mothers didn't wash their hands after handling the rubbish.

CONCLUSIONS

According to the study findings, it can be concluded that mothers' age at birth has a great impact on the health of the child and malnutrition and stunting as the study indicates that 42% of the mothers with malnourished children were aged between 25 − 29 years. Findings further indicate that the occupation of the mother had a great impact on the malnutrition of the child as more than half 56% of the mothers with malnourished children were causal laborers and 20% were peasants. The socio-economic status of the mothers/family was found to be the major factor determining malnutrition in children. It was found out that mothers who were educated with good jobs and had employed husbands with high incomes reported low levels of malnutrition in their children. Because educated people have much knowledge about the nutrition of mothers during pregnancy, nutrients that are needed for the healthy growth of the baby, most of them had jobs that could afford to buy the food staff and have good health-seeking behaviors and vice versa. However cultural beliefs were also reported to have an impact on the malnutrition of the children as there are some foods that mothers were not allowed to eat due to different perceptions which lead to malnutrition in mothers and giving birth to malnourished children and some mothers still giving birth from homes by the help of the TBAs. An assessment of the mother's sanitation status, it can be concluded that the sanitation was poor 18% had no toilets at home. However, 79% washed their hands their after visiting the toilet, 21% never washed their hands after vising the toilet. 56% washed their hands before feeding the baby while 44% did not. This shows that the sanitation by some mother is still low since there are some mothers who never washed their hands after visiting the toilet and other never washed their hands before feeding the baby.

RECOMMENDATIONS

The government and health workers should sensitive people about the importance of immunization since it was found out that some people still have poor perceptions about immunization. The government should and the area

health inspector should enforce a toilet/latrine in every household. The health workers and Village Health Teams should be educated the mothers the proper ways of feeding their babies and the importance of washing hands after visiting the latrine/toilet. And also to ensure washing hands before feeding the baby.

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