

**MAKERERE**



**UNIVERSITY**

**COLLEGE OF HEALTH SCIENCES**

**SCHOOL OF PUBLIC HEALTH**

**FACTORS ASSOCIATED WITH COMPLEMENTARY FEEDING  
PRACTICES AMONG CHILDREN AGED 6 – 23 MONTHS IN  
PADER DISTRICT**

**BY**

**NAMBAFU CAROLINE**

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PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF  
A MASTERS IN PUBLIC HEALTH NUTRITION OF MAKERERE  
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**DECLARATION**

I, Nambafu Caroline, hereby declare that the work contained in this dissertation, is original and has not been presented partially or in total to any institution for publication or academic award.

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## **DEDICATION**

This dissertation is dedicated to my late dad – Wilbur Francis Namiisi, and the people who have always believed in me and helped me to achieve my potential: My Husband – Dan Byenkya, Daughter - Valerie, Mummy Grace, Uncle Pascal, Alice, and my siblings. Thank you so much for being part of my life.

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## **ACRONYMS AND ABBREVIATIONS**

FANTA – Food and Nutrition Technical Assistance

GAM – Global Acute Malnutrition

IDDS – Individual Dietary Diversity Score

MOH – Ministry of Health

MDG – Millennium Development Goals

UDHS – Uganda Demographic Health Survey

UNICEF – United Nations Children’s Fund

WHO –World Health Organization

COR – Crude Odds ratio

AOR – Adjusted Odds ratio



## OPERATIONAL DEFINITIONS

***Complementary feeding;*** This is the feeding of other foods and liquids to a breastfeeding child aged 6 to 23 months.

***Minimum dietary diversity;*** the proportion of children aged 6-23 months who receive 4 or more food groups.

***Minimum meal frequency;*** the proportion of breastfeed children who receive solid, semi solid or soft foods the minimum number of times or more i.e. 2 times for infants 6-8 months and 3 times children 9-23 months.

***Introduction of solid, semi solid or soft foods;*** This indicator measures timeliness of introduction of complementary foods and it is defined as the proportion of children who receive solid, semi solid or soft foods.

***Malnutrition;*** This is an imbalance - a deficiency or an excess - in a child's intake of nutrients and it can manifest as over or under nutrition (underweight - having low weight for one's age, stunted - too short for one's age, wasted - too thin for one's height and micronutrient malnutrition).

***Responsive feeding;*** The active involvement of a mother in ensuring adequate consumption of food by the child through encouragement.

## ABSTRACT

**Introduction:** Infant and young child feeding has been known to compromise the health of children among which complementary feeding plays a major part. Even communities that have performed adequately in breast feeding have had their efforts undermined by complementary feeding hence causing malnutrition among their children.

This study was conducted with the aim of finding out factors that are associated with complementary feeding among the children in Pader district.

**Methods:** A cross sectional study that employed both qualitative and quantitative data collection methodologies was used. The quantitative study used a two-stage cluster sampling procedure involving 270 households and data was collected through use of an interviewer administered structured questionnaire. The qualitative study comprised of 3 focus group discussions with mothers and fathers of children aged between 6 and 23 months. Complementary feeding was defined using indicators of minimum dietary diversity and minimum meal frequency. Maternal, environmental and child related factors were associated with these indicators using bivariate and multivariate analysis.

**Results:** The percentage of children aged 6-8 months and 9-23 months who attained the minimum meal frequency was 89% and 62% respectively.

A small proportion (32%) of the children received the minimum dietary diversity of 4 food groups.

Older children (11-23 months) were less likely to meet minimum meal frequency than the younger children aged 6-8 months (OR = 0.24 CI = 0.11 - 0.52).

Children whose mothers had a high parity (over 6 children) were more likely to meet minimum meal frequency as compared to those whose mothers had a low parity (OR = 4.71 CI = 1.58 – 14.03).

Children with a poor appetite were less likely to meet the minimum meal frequency and dietary diversity than those with a fair appetite (OR = 0.27 CI = 0.11 – 0.64, OR = 0.24 CI = 0.08 – 0.74 respectively).

Children whose mothers encouraged them while eating were more likely to meet the minimum meal frequency as compared to those whose mothers took no interest in encouraging them (OR = 2.38 CI = 1.33 – 4.29).

Children whose mothers were employed were more likely to meet the minimum dietary diversity than those whose fathers were employed (OR = 2.93 CI = 1.40 – 6.14).

Distance to the water source and mother's occupation had no association with minimum dietary diversity at bivariate level. However, at multivariate analysis children whose households lived over 1 km away from the water source were found to be more likely to meet minimum dietary diversity than those who lived 500m away from their water source (OR = 2.65 CI = 1.02 – 6.86) and those whose mothers were subsistence farmers were less likely to meet the minimum dietary diversity as compared to those whose mothers were employed (OR = 3.21 CI = 1.51 – 6.89).

**Conclusion:** Mothers practicing responsive feeding and having a high parity was positively associated with minimum meal frequency while child characteristics like having poor appetite and being older was negatively associated with minimum meal frequency.

Minimum dietary diversity was negatively associated with poor appetite and subsistence farming but positively associated with long distance to the water source and mother's employment rather than father's employment as the main source of income in the family.

## **1.0 INTRODUCTION AND BACKGROUND**

### **1.1 Introduction**

The progress in achieving the 4<sup>th</sup> MDG of reducing the under five mortality rates by two thirds by 2015 has been slow in Sub Saharan Africa and in Uganda specifically, malnutrition has been noted as the underlying cause of nearly 60% of infant and child mortality (U.B.O.S, 2006).

It is of particular importance to note that complementary feeding is a critical determinant of child growth and survival in the 6-23 months period. The second intervention in (MOH, 2009) focuses on the young child and the critical 6-23 month window of opportunity which is the period in which adequate nutrition significantly affects subsequent child survival, development and future health, economic and social development of a country.

According to (Allen LH, 1992), the period between 8 and 20 months of age is the "valley of death", when under-nutrition becomes apparent, transfer of maternal immunity decreases and a synergism appears between under-nutrition and infection and many behavioral deficiencies.

Special concern should be therefore put on issues concerning complementary feeding as Uganda is currently exceeding the set WHO standards for stunting by 13%, underweight by 4% and wasting by 0% for children below 5 years. This means that there is great and urgent need for serious intensified action to reduce these malnutrition rates to a level below the WHO standards.

Pader district alone depicts stunting rates as per the WHO classification as serious (greater than 30%) and underweight rates as poor (between 10% and 20%) though wasting rates are acceptable.

The goal of this study was to find out the factors that influence complementary feeding practices in Pader district and the results of this study will provide a baseline for interventions in nutrition to target the children below 2 years in order to reduce on the prevalence of stunting, wasting and underweight among children below 5 years.

## **1.2 Background**

### **1.2.1. Background characteristics of Pader district**

Pader district, formally part of Kitgum district is located in the northern region of Uganda (Acholi region) and it borders Kotido in the east, Gulu in the west, Sudan in the north and Lira and Apac in the South.

Its population is over 293,679 people. 147,200 are female and 146,479 are Male whose main language is Luo and Acholi (UBOS).

The people of Pader are mainly agriculturalists who grow food crops such as millet, potatoes, beans, simsim and sunflower. Cash crops include cotton, and Vegetables are Cabbage, Tomatoes and Onions. Animals like cattle, goats and sheep in addition to birds such as chicken, guinea fowls, ducks and turkeys are also reared. The harvest period for the north of Uganda runs from July/August to November/December with a three month 'hunger gap' between May and July.

Food and nutritional security plays a very important role in attaining good nutrition and overall health of families. It therefore goes without saying that political conflict in northern Uganda that lasted 20 years affected food security and people had to depend on food aid in Internally Displaced People's camps.

Despite the fact that by December 2010, more than 90% of the Acholi population had returned to their villages, the consequences of the long humanitarian crises continue to threaten individual lives and the entire communities.

Among the threats is the level of malnutrition among children that is at a worrisome rate in the affected districts of the region (DHO/ACF/UNICEF, 2011).

This study therefore attempts to find out from the caretakers of children 6 to 23 months the factors that influence complementary feeding.

### **1.2.2 The nutritional status of children 6 - 23 months in pader district**

Data from the (U.B.O.S, 2011) report malnutrition among children less than 5 years in northern Uganda as 24.7% for stunting, 3.4% for wasting and 12.3% for underweight.

A study carried out in Pader district (WFP, 2009) shows the prevalence of GAM (proportion of children with a weight / height index  $< -2$  Z- scores or oedema) among children 6 -59 months is 4.7% (6 to 29 months is 9.5%) and the prevalence of stunting among children 6 - 59 months is 34.0%.

These results are quite similar to those reported by (MOH, 2008) which show GAM among the 6 – 59 months at 5.3% while stunting is at 28.5%. However, the highest rates of malnutrition (7.3%) in the district have been recorded among children 6 to 29 months and this has been associated with high rates of morbidity and poor complementary feeding practices.

The nutritional health of children is determined by many factors which involve adequate breastfeeding, timely introduction of adequate complementary feeding and prevention as well as immediate treatment of infections. Failure to achieve all or one of the mentioned factors can compromise the nutritional status of children hence increasing the burden of diseases and death in the population.

Complementary feeding in Pader district as shown in previous studies, (DHO/ACF/UNICEF, 2011) , (MOH, 2008)and (WFP, 2009) has been reported as poor basing on the assessment of some indicators like minimum meal frequency feeding frequency, minimum dietary diversity, timely introduction of complementary foods and continued breastfeeding up to 2 years.

### **1.2.3 The feeding practices of children 6 - 23 months in Uganda and subsequently in Pader district**

According to (WHO, 2008) appropriate infant and young child feeding (IYCF) practices include timely initiation of feeding of solid and semi-solid foods from age 6 months and improving the quality of foods consumed as the child gets older, while maintaining breastfeeding however, (U.B.O.S, 2011) reported only 6% of the Ugandan children 6 -23 months as fed appropriately as required by the IYCF practices.

Many caretakers fail to introduce complementary foods on time and for those who manage to do it, the food is not nutritionally adequate in meeting the energy demands of the growing child.

The percentage of children in the age bracket of 6 - 8 months that continue to exclusively breastfeed is 12.1% and only 63.4% receive complementary feeds while breast feeding as well.

In pader district, (MOH, 2008) found that 39% of mothers exclusively breast feed their children for the first 6 months and therefore a great percentage practice mixed feeding before a child reaches 6 months. The main foods that are introduced before a child reaches 6 months are Cereal porridge, water, tea without milk, milk/milk tea, juice, beans soup, silver fish soup, vegetables soup , eggs, legumes, sorghum and vegetables.



The children between 6 - 24 months are generally fed cereal meal, legumes, some fruits, vegetables, fish and some meat products. The most common foods given are maize products and beans but there is generally a low consumption of animal proteins among children 6 - 24 months. 59.2% of the breast feeding children (6-24 months) in pader were fed complementary foods less than three times a day (inadequate feeding frequency) and 61% were breastfed up to their second birthday.

#### **1.2.4 Complementary feeding guidelines**

Studies have shown that the period from birth to 2 years of life is the peak age for growth faltering, deficiencies of micronutrients and common childhood illnesses and once the child reaches 2 years of age, it is close to impossible to reverse stunting that has occurred earlier (Martorell et al., 1994). This indicates the importance of feeding right during this stage and this is why the (PAHO/WHO, 2001) guidelines for complementary feeding of a breast fed child recommend the following feeding practices:

- Continued, frequent on demand breastfeeding up to 24 months and beyond
- Introduction of complementary feeding at 6 months of age
- Increase in food quantity as a child gets older while maintaining breast feeding
- Increase in feeding frequency as a child ages using a combination of foods and snacks
- Gradual increase in food consistency/thickness and variety as the child ages
- Diversification of the diet by including fruits, vegetables, fortified staples and animal products.
- Practice responsive/active feeding
- Practice frequent and active feeding during and after illness
- Practice good hygiene

Failure to adhere to the above recommendations can have detrimental consequences to the health of the child and these include the immediate (significant morbidity and mortality,

delayed mental and motor development), and long term (Impairment in intellectual performance, reduction in work capacity, poor reproductive outcomes and poor overall health) consequences.

## **2.0 LITERATURE REVIEW**

### **2.1 Complementary feeding and its indicators**

Complementary feeding is the provision of non-breast milk foods or fluids to a child (Wamani, 2003). These foods are supposed to be rich in all nutrients especially iron because according to (Agostoni et al., 2008), complementary foods are supposed to meet 90% of the iron needs of a breast fed infant. These foods should be introduced in a timely way i.e. at 6 months, should be fed to the child appropriately as indicated in the guidelines (PAHO/WHO, 2001). The feeding practices can be assessed in terms of indicators such as minimum dietary diversity, minimum meal frequency, introduction of complementary foods, minimum acceptable diet, continued breast feeding, and consumption of iron rich or iron fortified foods (WHO, 2010).

Several studies especially in Sub Saharan Africa have found these indicators to be scoring poorly despite efforts from different stake holders.

A study by (Senarath et al., 2012) found the minimum dietary diversity among children aged 6-23 months ranging from 15% in India to 71% in Sri Lanka, Nepal (34%) and Bangladesh (42%) were in between.

The issue of early or late introduction of complementary foods to children also constitutes a problem in child feeding even in developed countries.

According to a study by (Fein et al., 2008) in the US, approximately 21% of the mothers introduced solid foods to their children before they were 4 months and 7% introduced solids after 6 months.

According to (Lauer et al., 2004) the prevalence of continued breast feeding in developing countries was found to be 86% for infants 6 to 11 months and 68% for children 12 to 23 months.

## **2.2 Major predictors of complementary feeding practices**

Some of the factors that have been associated with stunting among children less than 2 years have been identified as mother's education, household asset index and land ownership (Wamani et al., 2005). Stunting is usually an outcome of a long term inadequate dietary intake and the period of complementary feeding highly contributes to this condition.

A study by (Fein et al., 2008) agrees with the above study that less educated mothers are more likely to engage in unhealthy infant feeding practices than more educated mothers.

Working mothers, those with less exposure to media and with primary or no education were found to be less likely to give their children complementary diets that met minimum dietary diversity, minimum meal frequency and minimum acceptable diet (Joshi et al., 2012). Children aged 6 to 11 months were significantly less likely to meet minimum acceptable diet and meal frequency.

Much as most studies have associated feeding practices to maternal factors, (Victor et al., 2012) however found low paternal education as well as Lack of post natal checkups and poor economic status in Tanzania to be among causes of poor complementary diets. Similar findings were reported by (Senarath et al., 2012).

A study in India by (Kuriyan and Kurpad, 2012) significantly associated complementary feeding practices with socio economic status, socio cultural beliefs, maternal illiteracy and ignorance. (Rasheed et al., 2011) found the gap in knowledge about appropriate complementary foods to be

in terms of quality, quantity and strategies to convert family foods to make them suitable for children. Complementary feeding advice from family members, peers, and health workers, the importance given to feeding young children, and time spent by caregivers in feeding influenced the timing, frequency, types of food given, and ways in which complementary feeding occurred. Food insecurity, inaccurate indigenous knowledge, time-consuming maternal livelihoods, family eating behaviors, local agriculture, and the local ecosystem are responsible for poor complementary diets (Paul et al., 2011).

Mothers who have few children easily adhere to infant and child feeding recommendations than those with many children (Vaahtera et al., 2001).

### **2.3 Factors affecting feeding frequency**

Feeding frequency is the number of meals that should be eaten by a child per day and according to (PAHO/WHO, 2001) PAHO 2006 and WHO 2001, assuming a diet with energy density of 0.8 kcal per gram or above and low breast milk intake, an average healthy breastfed infant should be given meals 2-3 times a day at 6-8 months and 3-4 times a day at 9 -23 months of age with additional nutritious snacks like fruits, bread or chapatti with nut paste. A meal frequency greater than necessary can displace breast milk unless the infant is no longer breast feeding.

M. Munirul Islam et al 2008 however argues that if the meals are of high energy density, fewer meals can be provided in order to prevent excess energy intake. More meals can be given to the child if their energy density is low but also put in mind not to displace breast milk. Therefore it is

necessary to give fewer more energy dense meals so that the child can still enjoy the benefits of breast milk.

## **2.4 Factors affecting timing of complementary feeding**

It is a global public health recommendation to exclusively breast feed infants for the first 6 months of their lives before other foods are given. This is because of the numerous benefits of exclusive breast feeding which according to (Innocent declaration, 2005) and (PAHO/WHO, 2001) are:

- Reduction in the incidence and severity of infectious diseases, hence lowering infant morbidity and mortality.
- Contributes to women's health by reducing the risk of breast and ovarian cancer, and by increasing the spacing between pregnancies.
- Enhancement of motor development

According to (Olwedo et al., 2009), about 49% of children had timely complementary feeding but 39% of the children received complementary feeds before the age of 6 months while 13% received after 6 months. This study was however, carried out in northern Uganda when people were still living in internally displaced people's camps and the reason for the early introduction of complementary food was blamed on food insecurity affecting mothers' food intake and consequently impacting on quantity of breast milk for the child.

(Nasreddine et al., 2012) cites the onset of a new pregnancy, belief that breast milk alone is nutritionally insufficient for a baby after 3/4 months, child is considered old enough as the main reasons mothers in countries like Yemen, Saudi Arabia and Lebanon give for the early introduction of complementary foods.

Various studies have shown that introduction of complementary foods earlier than 6 months can cause digestive problems for the child, increased risk of childhood obesity, serious infections associated with feed preparation, handling and feeding among others.

Much as breast milk contains all the nutrients necessary for a child to grow and develop the energy demands of a child increase with increase in age therefore at 6 months, breast milk alone may not be adequate in supplying nutrient demands of the growing child (WHO/UNICEF, 1998). late introduction of complementary food has been known to compromise the health status of a child due to the fact that less nutrient intake will cause under nutrition and increased risk of micronutrient deficiencies such as iron and zinc deficiency because studies have shown that breast milk does not contain adequate amounts of iron and zinc.

A study by (Patel et al., 2012) associated socio economic status to timeliness of introduction of complementary foods whereby richest households were less likely to delay introduction of complementary foods than other households.

## **2.5 Factors affecting food diversification**

According to W.H.O 2001, “Complementary foods should be varied to include adequate quantities of meat, poultry, fish or eggs, as well as vitamin A-rich fruits and vegetables every day. Where this is not possible, the use of fortified complementary foods and vitamin mineral supplements may be necessary to ensure adequacy of particular nutrient intakes”.

In order to achieve optimum nutrition, a child must consume at least 4 food groups from the different groups shown:

- (i) grains, roots and tubers,
- (ii) vitamin A – rich plant foods,
- (iii) other fruits and vegetables,
- (iv) meat, poultry, fish and sea foods,
- (v) eggs,
- (vi) pulses and nuts,
- (vii) milk and milk products
- (viii) foods cooked in oil/fat (SCN, 2007).

When assessing dietary diversity for children aged 6-23 months, the oil/fat group is omitted.

According to a study done in Ethiopia by (Baye et al., 2012) high rates of stunting were attributed to complementary diets that were low in animal products, fruits and vegetables. This kind of food intake was observed due to the fact that the study population is a subsistence farming group who mainly grow crops but cannot afford animal products.

(Subedi et al., 2012) found out that feeding diverse complementary foods to children 6 - 23 months in the Chepang communities was associated with monthly family income and duration of food sufficiency hence food insecurity and poverty are major predictors of poor complementary diets.

Lack of knowledge has been identified as a major hindrance to proper complementary feeding and therefore attempts to improve knowledge through counseling as evidenced from (Paul et al., 2012) in rural Zimbabwe shows that dietary diversity and energy density of complementary foods improved significantly after counseling.



In a study by (Mponshane et al., 2008), HIV infection among children was associated with dietary diversity whereby HIV infected children in rural south Africa had significantly less diverse diets than those of HIV uninfected children.

The study by (Patel et al., 2012) found determinants of not meeting minimum dietary diversity and minimum acceptable diet as: no maternal education, lower maternal Body Mass Index (BMI) ( $<18.5 \text{ kg/m}^2$ ), lower wealth index, less frequent ( $<7$ ) antenatal clinic visits, lack of post-natal visits and poor exposure to media

### **3.0 STATEMENT OF THE PROBLEM, JUSTIFICATION AND CONCEPTUAL FRAME WORK**

#### **3.1 Statement of the problem**

Poor complementary feeding is associated with malnutrition in children and it is reported that only 6% of the 6 – 23 months old children in Uganda are fed appropriately based on the recommended infant and young child feeding practices which include continued breast feeding, food diversity and feeding frequency. In addition to this, only 68% of the children 6-9 months receive complementary foods signifying that complementary feeding is introduced late(U.B.O.S, 2011).

Complementary feeding is an important aspect of a child's growth and if poorly done, a child experiences growth faltering by the age of 2 years.

In the northern region of Uganda, (U.B.O.S, 2011) reported that the percentage of children between 6 and 23 months who receive a minimum of 4 food groups is 7.6%, 27.7% receive the minimum meal frequency of 3 meals per day while 89% are breastfed.

In pader district, complementary feeding practices are poor as witnessed from various reports. According to the (DHO/ACF/UNICEF, 2011) & (MOH, 2008), 52% of the children aged 6 to 23 months eat  $\geq 3$  meals a day, individual dietary diversity score (measurement used as a proxy measure of the nutritional quality of an individual's diet.

is at 58%, 39% are exclusively breastfeeding and 61% breast feed up to 2 years.

Identifying the factors responsible for poor complementary feeding can reduce malnutrition since the stage of complementary feeding is critical in the determination of a child's nutritional status.

My study therefore was aimed at finding out the factors that influence complementary feeding practices among children aged 6 to 23 months in Pader district.

### **3.2 Study justification**

Improving the quality of complementary foods is one of the most cost effective ways of improving health and reducing morbidity and mortality in young children since the period of complementary feeding is directly or indirectly related to malnutrition and represents a critical window of vulnerability.

According to (Krebs and Hambidge, 2007), the onset of stunting happens in the first few months of life while wasting and under nutrition progressively continue through the first 2 years of a child's life.

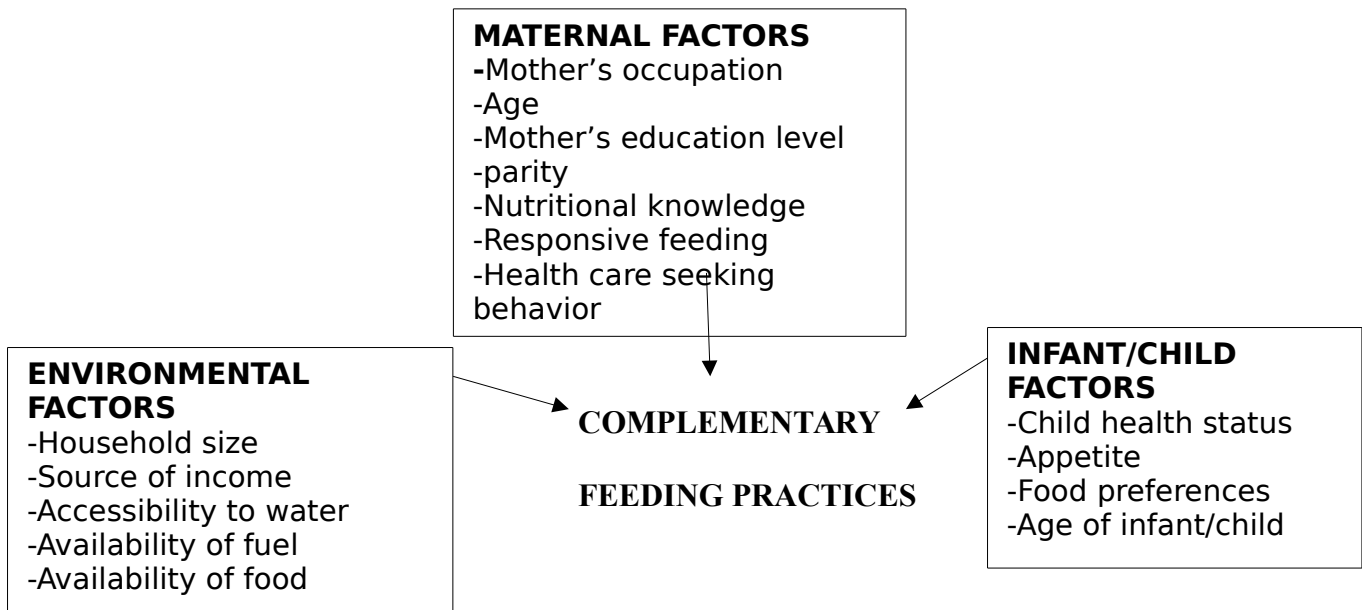
Various studies have been done in the northern region and specifically in Pader about complementary feeding but few have specialized on the factors that could be leading to the poor complementary feeding practices.

Caretakers in Pader and other parts of Uganda are still struggling with the aspect of complementary feeding because stakeholders have put less emphasis on complementary feeding as compared to promotion of increased breastfeeding rates and duration.

This study will therefore act as a baseline for interventions that intend to target malnutrition among children less than 5 yrs in Pader and other parts of the country.

### 3.3: Conceptual framework

Fig 1: Conceptual frame work: Factors affecting complementary feeding practices



#### Narrative of the conceptual framework

According to the conceptual framework in figure 1 above, the factors that affect complementary feeding range from maternal, infant and environmental factors.

Complementary feeding practices can be assessed in various ways some of which may involve the types of food eaten, how they are prepared and served to children at different stages of growth as well as feeding styles. However, the most practical method is through measurement of indicators such as dietary diversity scores, timely introduction of solid, semi solid or soft foods, minimum meal frequency, continued breastfeeding, minimum acceptable diet and consumption of iron rich or iron fortified foods (WHO, 2010). This study mainly assessed three indicators which are minimum meal frequency, minimum dietary diversity and introduction of solid, semi solid or soft foods.

Factors affecting these indicators were then associated with complementary feeding. Maternal factors such as occupation (Baye et al., 2012), age, education level (Patel et al., 2012) and (Fein et al., 2008), nutritional knowledge (Paul et al., 2012), parity (Vaahtera et al., 2001) , responsive feeding (Rasheed et al., 2011) and health care seeking behavior (Kimani-Murage et al., 2011) were assessed.

Infant/Child factors that affect complementary feeding included health status, some studies hint on appetite as a likely contributor to inadequate dietary intake (Dewey and Brown, 2003), food preferences and age (Victor et al., 2012) while environmental factors like sources of income, household size(Garg and Chadha, 2009), fuel, accessibility to water, and food availability (Subedi et al., 2012)were assessed as well.

## **4.0 STUDY OBJECTIVES**

### **4.1 General Objective;**

To investigate factors that influence complementary feeding practices among children 6-23 months in Pader district.

### **4.2 Specific Objectives;**

- To assess the minimum dietary diversity, minimum meal frequency and timeliness of complementary feeding.
- To determine the maternal factors affecting minimum dietary diversity, minimum meal frequency and timeliness.
- To determine the infant/child factors affecting minimum dietary diversity, minimum meal frequency and timeliness.
- To determine the environmental factors affecting minimum dietary diversity, minimum meal frequency and timeliness.

## **5.0 STUDY METHODOLOGY**

### **5.1 Study site**

The study was carried out in Pader district. Pader district is found in the eastern part of the Acholi sub-region located in northern Uganda. According to the 2011 district population profile, Pader's population was projected to be 231,700 in the year 2012 (U.B.O.S, 2011).

Pader borders Agago in the east, Gulu in the west, Lamwo and Kitgum in the north and Lira as well as Otuke in the south. Populations of all these districts have been resettled in their original areas that had been deserted for almost a decade during the peak of the LRA insurgency.

Pader district has 13 sub counties, 52 parishes and 630 villages. The district is sparsely populated and majority of the people live in the rural where they practice subsistence farming that is heavily dependent on seasons.

### **5.2 Study population**

While this study was about children of 6-23 months, the study population was households with such children. In a household with two or more children in this age range, one child was selected using a simple random selection procedure. For the extraction of data, mothers/care takers were asked questions about complementary feeding of the reference children. Since all the selected children had to be breast feeding, biological mothers were the main respondents.

### **5.3 Study design**

A cross sectional study design was used which combined both qualitative and quantitative data collection methods.

#### **5.4 Inclusion criteria**

Mother/caretaker (18 – 60) years with child aged 6 – 23 months consenting to participate in the study.

#### **5.5 Exclusion criteria**

Mother/caretaker with child aged 6 – 23 months who was not breastfeeding anymore.

#### **5.6 Sampling and recruitment;**

A two stage cluster sampling method was used to select villages and households that participated in the survey. The first stage of sampling was at the village level and the second stage was at household level.

Much as Pader district comprises 630 villages, only 27 villages were selected to participate in the survey using a simple random selection procedure. The villages included: Jaka west, Barajwa, Latanya west, Kiteny, Mission A, Mwod kodi, Lurwama, Tokodo, Lwala C, Jaka central, Akemokoc, Owelle, Bar Oywec, Rackoko A, Wiya nono, Tyer, Kilak central A, Labaka, Lagwai zone B, Ogowaleng, Kineni, Telela central, Olwor south, Aluka west, Mission B, Kilak central B and Latanya east.

These villages were distributed in 7 sub counties which are Ogom, Pader, Awere, Pajule, Latanya, Lapul and Pader trading center.

In each of the villages, 10 households with breast feeding children aged between 6 and 23 months were selected for interviews.

The enumerators, with the help of local leaders located the centre of the village where the team spun a pencil once, noting the direction in which the tip faced on stopping. The teams then walked in the direction that was



indicated by the tip of the pencil until they reached the edge of the village. At the edge of the village, the team spun the pencil once again, until it pointed into the body of the village. The teams then walked along this second line counting and marking each household with a breast feeding child aged 6 - 23 months on the way.

The first household visited was obtained by drawing a random number between one and the number of households counted. The subsequent households were then chosen by proximity. In villages where households are closely packed together, the next household on the right was chosen. In villages which are spread out, the household closest to the previous one was selected. The process was repeated until the required sample was obtained.

Three focus groups were held each in a different village. In one village, 6 mothers aged less than 30 years who did not participate in the quantitative study were selected for the focus group discussion. In the second village, 6 mothers aged 30 to 60 who had not participated in the quantitative study were selected to participate in the discussion while in the third village, only fathers were selected to participate in the discussion. All the participants had to have children aged 6-23 months in their households.

## 5.7 Sample size estimation;

Sample size for mothers to be interviewed was estimated using the (Bennett S, 1991) formula

which is recommended for cluster sampling.  $C = \frac{P(1-P)*D}{S^2*b}$  ,

C = Number of required clusters/ villages

P = The prevalence of children aged 6 – 23 months in pader who do not receive the minimum meal frequency of 3 or more meals a day = 48% ((DHO/ACF/UNICEF, 2011))

S = level of precision = 5% (0.05)

b = number of households that an interviewer can do in a day in this community (10)

D = 2.5 (design effect used by (MOH, 2008)

$$C = \frac{0.48*0.52*2.5}{0.05*0.05*10}$$

$$C = \frac{0.624}{0.025}$$

C = 24.96 + 2 more clusters to improve on the reliability of results = 26.96

N (Sample size) = C\*b = 26.96\*10 = 269.6

N = 270

## 5.8 Data collection procedure and tools

### 5.8.1 Recruitment and training of research assistants

Data was collected in April 2013 for a period of two weeks by a team of 10 research assistants who were knowledgeable in both English and Acholi languages. The research assistants were mainly students in tertiary institutes who were at the district doing their internship while others

were in their senior six vacation. They were trained on the tool and on good interviewer techniques for two days after which they went to the community to pretest the tool. The tool had already been translated into Acholi so the research assistants collected data in Acholi. After the pretest, few modifications were made which mainly included how to ask or probe some questions and get the required answers.

Permission to collect data was sought from the district health officer and the village heads in the selected villages. The village head (LC 1 chairperson) guided the research assistants around the village during data collection until all the ten households had been visited.

### **5.8.2 Data Collection procedure.**

Quantitative data was collected using an interviewer administered semi structured questionnaire with care takers. Research assistants had to ensure that before starting the interview, they established the correct ages of the reference children using their birth certificates or health cards. In cases where the cards were missing, age determination was done with the parents to ensure that the age in months was got right before interviews could proceed.

Qualitative data was collected through 3 focus group discussions done separately for mothers less than 30 years, mothers 30 years and above and fathers. All participants had to be having children aged 6-23 months in their households. Six participants per group were selected per village with the help of the village head. Focus group discussion guides were followed while collecting data. A moderator coordinated the discussion in Acholi language and a note taker wrote down the responses in English. A voice recorder was also used to record the discussions and translated later into English. Group summaries were made during analysis of the qualitative data and few statements which represented a particular issue were used to support some results obtained from analysis of quantitative data.

### **5.8.3 Instruments**

-Designed and pretested structured questionnaires were used to collect quantitative data.

-Tape recorders were used for Focus Group Discussions.

-Focus group discussion guide was also used for the discussions.

## **5.9 Data management and quality assurance**

### **5.9.1 Data management;**

Supervision and monitoring of data collection was done on daily basis to achieve quality work.

The questionnaires and tape recorders were reviewed every day to ensure uniformity of data collected. Data entry screens were designed earlier and data entrants trained in preparation for data entry. In order to minimize errors arising from transposition and copying, double data entry and data cleaning were done.

Qualitative data from FGDs were transcribed in MS word to generate transcripts and the data was then analyzed using atlas.ti5.0 software.

The quantitative data from semi structured questionnaires was sorted, edited and entered into Epi Info version 3.5.1 software then analyzed using stata version 10.0 and the analyzed data presented in form of graphs and tables.

### **5.9.2 The outcome/ dependent variable and how it was measured**

The outcome variable was composed of 2 variables i.e. minimum dietary diversity and feeding frequency. The third variable which was introduction of solid, semi solid and soft foods was ignored because 99% of the children were already on complementary food.

The minimum dietary diversity was measured as the proportion of children 6 – 23 months of age who received foods from 4 or more food groups in the previous 24 hrs before the interview day.

The food groups that were considered were grains, roots and tubers, legumes and nuts, dairy

products (milk, yogurt, cheese), flesh foods (meat, fish, poultry and liver/organ meats), eggs, vitamin-A rich fruits and vegetables, other fruits and vegetables(WHO, 2010).

The minimum meal frequency was measured as the proportion of breastfed children 6-23 months of age who received solid, semi-solid, or soft foods the minimum number of times or more the previous 24 hrs before the day of the interview. Minimum number was 2 meals for children 6-8 months and 3 meals for children 9 – 23 months as per WHO guidelines.

The timely introduction of complementary food was measured as the proportion of infants 6 – 8 months who received solid, semi solid or soft foods the previous 24 hrs before the day of interview.

### **5.9.3 The independent variables and how they were measured**

These included the maternal factors namely: age, education level, occupation, parity, nutritional knowledge, responsive feeding and health care seeking behavior.

- Parity was grouped into 3 categories which were 1-3 children, 4-6 children and more than six children.
- In order to be considered knowledgeable, a mother had to have a score of at least 4 questions related to complementary feeding answered correctly out of 6.
- Responsive feeding was measured using one aspect of encouraging children to eat some more food. A mother qualified to be practicing responsive feeding if she took interest in ensuring that the child ate more food by using any positive means of encouragement.
- A mother only qualified as having good health care seeking behavior if she took the child to any health facility when he/she had an illness in the past two weeks before the interview day.

Infant/child factors included: child health status, appetite, food preferences and age.

- A child was considered as having a poor health status if he/she had suffered from one or more of the following illnesses in the two weeks prior to the interview day: cough, flue, malaria, diarrhea, fever, and other infections.
- A child was considered to have achieved his/her food preferences if he/she ate their preferred food the day before the interview and those without specific food preferences were considered to like whatever was served.
- The age of the children was categorized into 3 groups i.e. 6-8 months, 9-11 months and 11-23 months.
- Child's appetite was considered poor, fair or good from the mother's point of view.

Environmental factors included: household size, source of income, availability of fuel, availability of food and access to water.

- Household size was categorized into 3 groups i.e. 2-4 people, 5-7 people and above 7 people.
- A household was considered to have access to water if it was less than 1 km away from the water source.
- Food was considered to be available to the household if the households who obtained food from the garden and those who purchased it did not have challenges in obtaining it in the past two months prior to the interview day.
- Fuel was considered to be available to the household if households did not have challenges in acquiring it.

#### **5.9.4 Statistical analysis**

#### ***5.9.4.1 Univariate analysis***

This was done on all the variables in the data set and the descriptive statistics were determined using stata software. All the variables were described in terms of frequencies and their percentages and presented in form of tables and graphs.

#### ***5.9.4.2 Bivariate analysis***

The relationship between each explanatory variable/independent variable and the outcome variable was examined as other variables were ignored. This was done to determine associations between each independent variable and the outcome variable. Odds ratios and their 95% confidence intervals were used to investigate associations between each potential factor and complementary feeding practices. Statistical significance was established if the p – value was found to be less than 0.05.

#### ***5.9.4.3 Multivariate analysis***

Logistic regression model was used to estimate adjusted odds ratios and their 95% confidence interval. Multivariable logistic model enables assessment of the effect of one factor having controlled for the other. In other words, confounding is controlled for during multivariate analysis.

### **5.10 Ethical considerations**

Approval from the Makerere University School of Public Health Institutional Review Board to conduct the research was sought.

For every selected household, informed consent was sought from the responding mother/caretaker of the reference child. The research assistants collecting the data explained to the respondent the benefits, risks, confidentiality and voluntary participation.

While in the district, permission to conduct the research was sought from administrative leaders starting with the District Health Officer and the chairpersons of selected villages.

### **5.11 Study limitations**

Complementary feeding in this study applied to only children who were still breast feeding and in the age bracket of 6 – 23 months so those who were not breast fed were not considered in this study.

The associated factors could have been dependent on season yet data collection for this research took a period of only 2 weeks and it was the planting season.



## 6.0 RESULTS

### 6.1 Socio-demographic characteristics of respondents

The social-demographic variables are described in table 1 below. More than half of the participants were mothers aged between 16 and 30 years and the mean age of participants was 26.8 years. About half of the mothers had at least attended primary school and only 4% had attained tertiary education. More than three quarters of the mothers were married and for the purposes of this survey, marriage did not only involve church weddings but even traditional marriages.

Table 1: Socio demographic characteristics of participants

<b>Age (years)</b>	<b>Frequency (n=270)</b>	<b>Percentage</b>	<b>Cumulative percentage</b>
≤29	169	63	63
≥30	101	37	100
<b>Education level</b>			
No formal education	66	24	24
Primary education	148	55	79
Secondary education	45	17	96
Tertiary education	11	4	100

<b>Parity</b>			
1-3	140	52	52
4-6	91	34	86
>6	39	14	100
<b>Marital status</b>			
Single	15	6	6
Married	236	87	93
Separated	14	5	98
Widowed	5	2	100
<b>Occupation</b>			
Employed	38	14	14
Casual worker	23	9	23
Subsistence farmer	209	77	100
<b>Household size</b>			
2-4people	72	27	27
5-7 people	100	37	64
8-14 people	98	36	100
<b>Source of income</b>			
Husband employed	110	41	41
Mother employed	43	16	57
Sell of agricultural produce	101	37	94
Support from parents	16	6	100

## 6.2 Objective 1: Indicators of complementary feeding practices

The indicators assessed here included minimum meal frequency, minimum dietary diversity and introduction of solid, semi solid and soft foods.

### 6.2.1 Minimum meal frequency:

This indicator was assessed for two age groups which included 6-8 months and 9-23 months whose details are shown in table 2 below. The study investigated 270 children selected from 270 households among which 83 (30.7%) were aged 6-8 months, 63 (23.3%) were aged 9-11 months and 124 (45.9%) were aged 12-23 months.

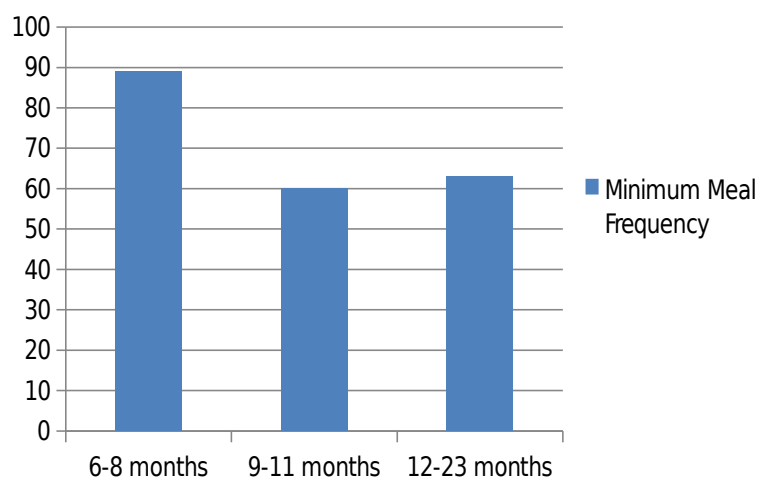
Among the 6-8 months old children, 74 (89%) achieved the minimum meal frequency while 116 (62%) among those aged 9-23 months achieved the minimum meal frequency (figure 2).

Table 2: Frequency of meals as indicated by age groups

Meal frequency	Age groups			
	6-8 months	9-11 months	12-23 months	Total
1 meal or none	9	7	10	26
2 meals	34	18	36	88
3 meal or more	40	38	78	156
Total	83	63	124	270

Figure 2: Graph of minimum meal frequency against age groups

**Figure 2: Graph of minimum dietary diversity against age groups**



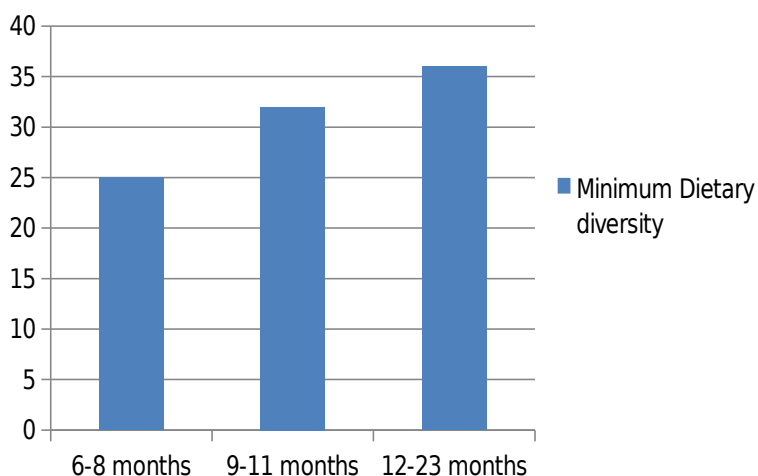
### 6.2.2 Minimum Dietary diversity

In this study, it was found that the minimum dietary diversity was poor as seen in table 3 below because only 32% of the children had consumed 4 or more food groups the day before the interview.

Table 3: Minimum dietary diversity and its association with age groups

Age group	Dietary diversity		Total
	≤ 3 food groups	≥ 4 food groups	
6-8 months	62	21	83
9-11 months	43	20	63
12-23 months	79	45	124
Total	184	86	270

Figure 3: Graph of minimum dietary diversity against age groups



Further disintegration of this indicator as shown in figure 3 above indicates that only 25.3% of the 6-8 months old children, 31.7% of the 9-11 months old children and 36.3% of the 12-23 months old children achieved the minimum dietary diversity of 4 food groups per day.

### 6.2.3 Introduction of solid, semi solid and soft foods

This indicator is used to measure the timeliness of complementary feeding and it is only used to assess infants of 6 to 8 months. In this study, 99% of the children aged 6-8 months ate solid, semi

solid or soft food the day before the interview. The qualitative results further agree with these findings because all participants mentioned 6 months as the right age for the child to start complementary feeding and therefore it seems most mothers put this knowledge into practice. In one focus group at Lagwai East, a mother said that “*a child should begin eating food at 6 months because the baby begins to show interest in food and yet it cannot hurt the baby’s stomach*”. As observed from table 4 below, only 1 child aged 6-8 months had not eaten complementary food the day before the interview and this happened because the child was sick. This is why this indicator was ignored during analysis.

**Table 4: Introduction of solid, semi solid or soft foods and its relationship with age groups**

	<b>Age groups</b>			
<b>Consumption of solid, semi solid or soft foods</b>	6-8 months	9-11 months	12-23 months	Total
No	1	3	1	5
Yes	82	60	123	265
Total	83	63	124	270

### **6.3 Analysis of factors associated with minimum dietary diversity and minimum meal frequency**

Univariate analysis was done on all variables to obtain frequencies and their percentages. After this, bivariate analysis was done to assess the relationship between each independent variable and the outcome variables and the results are in the tables shown in this section.

A logistic regression model was used to estimate adjusted odds ratios and their 95% confidence intervals. All significant variables at bivariate level were carried forward to multivariate analysis. The procedure was used in such a way that the p value associated with each variable determined which variable should be deleted or added to the model. The cut off p-value was  $p < 0.05$

whereby p-value greater than 0.05 meant that the variable was to be removed from the model while variables with p-value less than 0.05 were included in the model. The regression equation was then refitted for the new model. The procedure stopped when no variable could be added or deleted.

### 6.3.1 Objective 2: Analysis of maternal factors and their association with minimum meal frequency.

More than half (68%) of the respondents were knowledgeable on complementary feeding yet only close to half (42%) encouraged their children to eat.

Almost all the mothers had good health care seeking behavior since they took their children to seek medical help when they suffered from an illness.

As observed from table 5 below, children whose mothers had a high parity (over 6 children) were more likely to meet minimum meal frequency as compared to those whose mothers had a low parity (OR = 4.71 CI = 1.58 – 14.03).

Children whose mothers encouraged them while eating were more likely to meet the minimum meal frequency as compared to those whose mothers took no interest in encouraging them (OR = 2.60 CI = 1.47 – 4.58).

Table 5: Maternal factors and their association with minimum meal frequency

Variable	Freq (n=270)	%age	MMF		Significance test	
			Poor	Good	COR (95% CI)	AOR (95% CI)
<b>Age of mother</b>						
Less than 30	169	63	54	115		
30 and above	101	37	27	74	1.29 (0.75 – 2.22)	1.38(0.78 – 2.46)
<b>Education level</b>						
No formal education	66	24	15	51		
Primary	148	55	47	101	0.63(0.32 – 1.24)	0.70(0.35 – 1.42)
Secondary	45	17	17	28	0.48(0.21 – 1.11)	0.50(0.21 – 1.21)

Tertiary	11	4	2	9	1.32(0.26 – 6.80)	1.53(0.28 – 8.26)
<b>Parity</b>						
1-3 children	140	52	49	91		
4-6 children	91	34	28	63	1.2(0.69 – 2.13)	1.10(0.60 – 2.01)
>6 children	39	14	4	35	4.71(1.58 – 14.03)	5.57(1.82 – 17.09)*
<b>Marital status</b>						
Single	15	6	5	10		
Married	236	87	73	163	1.12(0.37 – 3.38)	1.29(0.40 – 4.11)
Separated/divorced	14	5	2	14	3.00(0.48 – 18.92)	2.17(0.32 – 14.72)
Widowed	5	2	1	5	2.00(0.17 – 22.94)	1.71(0.14 – 21.70)
<b>Occupation</b>						
Salaried employment	38	14	10	28		
Casual laborer	23	9	5	18	1.29(0.38 - 4.38)	1.21(0.34 – 4.33)
Subsistence farmer	209	77	66	143	0.77(0.36 – 1.69)	0.90(0.40 – 2.05)
<b>Nutritional knowledge</b>						
Knowledgeable	184	68	52	132		
Not knowledgeable	86	32	29	57	1.29(0.74 – 2.24)	1.21(0.68 – 2.18)
<b>Encouraging child to eat</b>						
Yes	155	58	22	93		
No	113	42	59	96	2.60(1.47 – 4.58)	2.38(1.33 – 4.29)*
<b>Health care seeking Behavior</b>						
Good	16	6	73	161		
Poor	234	94	5	11	1.00(0.34 – 2.99)	0.68(0.21 – 2.16)

**\*statistically significant when p < 0.05**

### 6.3.2 Analysis of the maternal factors and their association with dietary diversity

In table 6 below, no variable was significantly associated with dietary diversity at bivariate analysis but at multivariate analysis, children whose mothers were subsistence farmers were found to be less likely to meet the minimum dietary diversity as compared to those whose mothers were employed (OR = 0.46 CI = 0.22 – 0.95).

Table 6: Maternal factors and their association with Minimum Dietary Diversity

Variable	Freq (n=270) %age		MDD		Significance test	
			Poor	Good	COR (95% CI)	AOR (95% CI)
<b>Age of mother</b>						
Less than 30	169	63	114	55		
30 and above	101	37	69	32	0.96 (0.57 – 1.63)	0.91(0.53 – 1.55)
<b>Education level</b>						
No education	66	24	45	21		
Primary	148	55	95	53	1.20(0.65 – 2.21)	1.16(0.62 – 2.17)
Secondary	45	17	34	11	0.69(0.29 – 1.63)	0.74(0.31- 1.77)
Tertiary	11	4	9	2	0.48(0.09 – 2.40)	0.45(0.09 – 2.30)
<b>Parity</b>						
1-3 children	140	52	98	42		
4-6 children	91	34	59	32	1.27(0.72 – 2.22)	1.27(0.72 – 2.25)
>6 children	39	14	26	13	1.17(0.55 – 2.49)	1.12(0.52 – 2.42)
<b>Marital status</b>						
Single	15	6	10	5		
Married	236	87	162	74	0.91(0.30 – 2.77)	0.88(0.28 – 2.76)
Divorced	14	5	8	6	1.50(0.33 – 6.77)	1.54(0.33 – 7.26)
Widowed	5	2	3	2	1.33(0.17 – 10.74)	0.98(0.12 – 8.10)
<b>Occupation</b>						
Salaried employment	38	14	21	17		
Casual laborer	23	9	13	10	0.95(0.33 – 2.70)	0.85(0.29 – 2.47)
Subsistence farmer	209	77	149	60	0.50(0.25 – 1.01)	0.46(0.22 – 0.95)*
<b>Nutritional knowledge</b>						
Knowledgeable	184	68	128	56		
Not knowledgeable	86	32	55	31	0.78 (0.45 – 1.33)	0.71(0.41 – 1.24)
<b>Encouraging child to eat</b>						
Yes	155	58	84	31		
No	113	42	99	56	0.65 (0.39 – 1.10)	0.60(0.35 – 1.03)
<b>Health care seeking Behavior</b>						
Good	16	6	158	76		
Poor	234	94	10	6	0.80 (0.28 – 2.29)	0.81(0.27 – 2.40)

\*statistically significant when  $p < 0.05$



### 6.4.1 Objective 3: Analysis of environmental factors and their association with minimum meal frequency

The majority of the households accessed water from the boreholes and 73% had their water sources less than 500m away from home. A big percentage of households used firewood as the main fuel for cooking which was mainly got from bushes and/or gardens. The rainy seasons and long distances were found to be major factors affecting the availability of the firewood.

As seen from table 7 below, none of the variables was found to be significantly associated with minimum meal frequency at both bivariate and multivariate analysis.

**Table 7: Environmental factors and their association with minimum meal frequency**

Variable	Freq (n=270)	%age	MMF		Significance test	
			Poor	Good	COR (95% CI)	AOR (95% CI)
<b>Household size</b>						
2-4 people	72	27	24	48		
5-7 people	100	37	30	70	1.17(0.61 – 2.24)	1.11(0.56 – 2.22)
8-14 people	98	36	27	71	1.31(0.68 – 2.55)	1.42(0.70 – 2.85)
<b>Source of income</b>						
Husband employed	110	41	30	80		
Mother employed	43	16	13	30	0.87(0.40 – 1.88)	0.82(0.36 – 1.85)
Sell of surplus harvests	101	37	34	67	0.74(0.41 – 1.33)	0.82(0.43 – 1.54)
Support from parents	16	6	4	12	1.13(0.34 – 3.76)	0.68(0.19 – 2.48)
<b>Major fuel for cooking</b>						
Firewood	223	83	67	156		
Charcoal	47	17	14	33	1.01 (0.51 – 2.01)	1.18(0.57 – 2.45)
<b>Source of fuel</b>						
Purchasing	50	19	16	34		
Searching in bushes	220	81	65	155	1.12 (0.58 – 2.17)	1.10(0.55 – 2.23)
<b>Challenges in getting fuel</b>						
Lack of money	50	19	15	35		
Rainy season	85	31	15	70	2.00(0.88 – 4.55)	1.82(0.77 – 4.30)
Long distances	77	29	29	48	0.71(0.33 – 1.52)	0.66(0.30 – 1.47)
Injuries	22	8	9	13	0.62(0.22 – 1.76)	0.78(0.25 – 2.39)
None	36	13	13	23	0.76(0.31 – 1.88)	0.69(0.25 – 1.87)

<b>Water source</b>						
Borehole	249	92	77	172		
Protected well	13	5	3	10	1.49(0.40 – 5.57)	1.04(0.26 – 4.24)
Tap	8	3	1	7	3.13(0.38 – 25.91)	2.05(0.23 – 18.13)
<b>Distance to water source</b>						
Less than 500m	198	73	55	143		
Between 500m-1km	52	19	18	34	0.73(0.38 – 1.39)	0.86(0.43 - 1.72)
Over 1km	20	8	8	12	0.58(0.22 – 1.49)	0.76(0.28 - 2.09)
<b>Main food source</b>						
Purchasing	56	21	18	38		
Garden	214	79	63	151	1.14 (0.60 – 2.14)	1.28(0.64 – 2.56)
<b>Challenges in getting food</b>						
Poor harvests	144	53	40	104		
Lack of money	91	34	29	62	0.82(0.46 – 1.46)	0.66(0.35 – 1.27)
Lack of land	7	3	3	4	0.51(0.11 – 2.39)	0.35(0.06 – 1.97)
None	28	10	9	19	1.12(0.48 – 2.59)	1.10(0.45 – 2.72)

#### 6.4.2 Analysis of environmental factors associated with minimum dietary diversity

Table 8 gives details of the analysis and as observed, children whose mothers were employed as the main source of income in the family were more likely to meet the minimum dietary diversity than those whose fathers were employed (OR = 2.93 CI = 1.40 – 6.14).

Distance to the water source had no association with minimum dietary diversity at bivariate level. However, at multivariate analysis children whose households lived over 1 km away from the water source were found to be more likely to meet minimum dietary diversity than those who lived 500m away from their water source (OR = 2.65 CI = 1.02 – 6.86 ).

**Table 8: Environmental factors and their association with minimum dietary diversity**

<u>Variable</u>	<u>Freq (n=270)</u>	<u>%age</u>	<u>MDD</u>	<u>Significance test</u>
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	<b>Poor</b>	<b>Good</b>			<b>COR (95% CI)</b>	<b>AOR(95% CI)</b>
<b>Household size</b>						
2-4 people	72	27	44	28		
5-7 people	100	37	70	30	0.67(0.36 – 1.28)	0.72(0.38 – 1.38)
8-14 people	98	36	69	29	0.66(0.35 – 1.26)	0.71(0.37 – 1.37)
<b>Source of income</b>						
Husband employed	110	41	83	27		
Mother employed	43	16	22	21	2.93(1.40 – 6.14)	3.23(1.51 – 6.89)*
Sell of surplus harvests	101	37	65	36	1.70(0.94 – 3.09)	1.87(1.01 – 3.43)*
Support from parents	16	6	13	3	0.71(0.19 – 2.68)	0.76(0.20 – 2.90)
<b>Major fuel for cooking</b>						
Firewood	223	83	152	71		
Charcoal	47	17	31	16	1.10 (0.57 - 2.15)	1.21(0.61 – 2.39)
<b>Source of fuel</b>						
Purchasing	50	19	33	17		
Searching in bushes	220	81	150	70	0.91(0.47 - 1.73)	0.82(0.42 – 1.59)
<b>Challenges in getting fuel</b>						
Lack of money	50	19	33	17		
Rainy season	85	31	58	27	0.90(0.43 – 1.90)	0.75(0.35 – 1.61)
Long distances	77	29	55	22	0.78(0.36 – 1.67)	0.73(0.34 – 1.61)
Injuries	22	8	16	6	0.73(0.24 – 2.20)	0.81(0.26 – 2.50)
None	36	13	21	15	1.39(0.57 – 3.36)	1.50(0.60 – 3.74)
<b>Water source</b>						
Borehole	249	92	170	79		
Protected well	13	5	6	7	2.51(0.82 – 7.71)	2.11(0.68 – 6.58)
Tap	8	3	7	1	0.31(0.04 – 2.54)	0.28(0.03 – 2.39)
<b>Distance to water source</b>						
Less than 500m	198	73	142	56		
Between 500m-1km	52	19	31	21	1.72(0.91 – 3.24)	1.82(0.95 – 3.50)
Over 1km	20	8	10	10	2.54(1.00 – 6.42)	2.65(1.02 – 6.86)*
<b>Main food source</b>						
Purchasing	56	21	36	20		
Garden	214	79	147	67	0.82 (0.44 - 1.52)	0.77(0.41 – 1.45)
<b>Challenges in getting food</b>						
Poor harvests	144	53	97	47		
Lack of money	91	34	62	29	0.97(0.55 – 1.69)	1.05(0.59 – 1.86)
Lack of land	7	3	4	3	1.55(0.33 – 7.20)	1.68(0.35 – 8.13)

None 28 10 20 8 1.05 (0.64 - 1.70) 1.08(0.44 – 2.64)  
 \*statistically significant when p <0.05

### 6.5.1 Objective 4: Analysis of child related factors associated with minimum meal frequency

Almost half (46%) of the children in the survey were aged 12-23 months and 31% were 6-8 months. Majority (93%) of the children had poor health status because they either had suffered from cough, flue, malaria or diarrhea in the 2 weeks preceding the survey.

As reflected in table 9 below, older children (11-23 months) were less likely to meet minimum meal frequency than the younger children aged 6-8 months (OR = 0.24 CI = 0.11 - 0.52).

Children with a poor appetite were less likely to meet the minimum meal frequency than those with a fair appetite (OR = 0.27 CI = 0.1 – 0.64) while children with a good appetite were more likely to meet the minimum meal frequency as compared to those with a fair appetite.

**Table 9: Child related factors and their association with minimum meal frequency**

Variable	Freq (270)	%age	MMF		Significance test	
			Poor	Good	COR (95% CI)	AOR (95% CI)
<b>Health status</b>						
Good	20	7	3	17		
Poor	249	93	77	172	0.39 (0.11- 1.38)	0.35(0.10 – 1.30)
<b>Child's age</b>						
6-8 months	83	31	10	73		
9-11 months	63	23	25	38	0.21(0.09 – 0.48)	0.23(0.10 – 0.56)*
12-23 months	124	46	46	78	0.23(0.11 – 0.49)	0.24(0.11 – 0.52)*
<b>Child's appetite</b>						
Fair	110	41	38	84		
Poor	28	10	18	10	0.27(0.11 – 0.64)	0.27(0.10 – 0.69) *
Good	132	49	27	105	1.89 (1.06 – 3.38)	1.74(0.95 – 3.20)*
<b>Food preferences</b>						
Not met	77	29	25	52		
Met	193	71	56	137	1.18 (0.67- 2.08)	1.07(0.58 – 1.95)

**\*statistically significant when p <0.05**

### 6.5.2 Analysis of child related factors associated with minimum dietary diversity

As reflected in table 10 below, children with a poor appetite were less likely to meet the minimum dietary diversity than those with a fair appetite (OR = 0.24 CI = 0.08 – 0.74).

**Table 10: Child related factors associated with Minimum dietary diversity**

Variable	Freq (n=270)	%age	MDD		Significance test	
			Poor	Good	COR (95% CI)	AOR (95% CI)
<b>Health status</b>						
Good	20	7	15	5		
Poor	249	93	167	82	1.47 (0.52 - 4.19)	1.59(0.55 – 4.59)
<b>Child's age</b>						
6-8 months	83	31	62	21		
9-11 months	63	23	43	20	1.37(0.66 – 2.84)	1.38(0.66 – 2.89)
12-23 months	124	46	78	46	1.74(0.94 – 3.22)	1.70(0.91 – 3.17)
<b>Child's appetite</b>						
Fair	110	41	65	45		
Poor	28	10	24	4	0.24(0.08 – 0.74)	0.24(0.08 – 0.74)*
Good	132	49	94	38	0.58(0.34 – 1.00)	0.58(0.34 – 1.00)*
<b>Food preferences</b>						
Not met	77	29	53	24		
Met	193	71	130	63	1.07 (0.61- 1.89)	1.06(0.59 – 1.88)

**\*statistically significant when p <0.05**

## **7.0 DISCUSSION**

### **7.1 The prevalence of minimum dietary diversity and minimum meal frequency**

This study investigated factors associated with complementary feeding by asking mothers whose children were still breastfeeding and were in the age range of 6-23 months recall questions. The prevalence of complementary feeding was established by designing the questions to focus on the past 24 hrs prior to the day of interviews as recommended by Ruel et al, 2003.

Results of the study reveal a low prevalence of minimum dietary diversity (proportion of children who received foods from at least 4 food groups the previous day) as an indicator of complementary feeding at 32% where by the indicator scores improved with increase in age. This figure is far less than that found by the (DHO/ACF/UNICEF, 2011) which was 50%. However, similar findings were published by (Senarath et al., 2012) whereby the Minimum dietary diversity among children aged 6-23 months in Nepal was 34%. The diets of these

children are lacking in mainly fruits, vegetables and animal products. Many mothers have a belief that most of the green vegetables that are accessed in their homes are not good for the children as depicted in some focus group discussions: *“lapena (pegion peas), boo, akeyo, dodo (amaranthus) and nyoo(seeds of boo) are not good for the child because they cause them to have diarrhea and their stomachs are not yet mature enough to digest them.*

Eggs which are a very good source of high biological value proteins are not given to children because as mentioned by some mothers in a focus group in paipii, *“Eggs cause dysentery and stomach pain so we do not give children eggs”.*

In this study, 70% of the children had the recommended number of meals in which 89% of those aged 6-8 months ate at least 2 meals and 62% of those aged 9-23 ate at least 3 meals. This proportion is higher than the 52% reported by the (DHO/ACF/UNICEF, 2011). Most mothers were knowledgeable about meal frequency as depicted in the focus group discussion in kilak village where some of the respondents said that *“children between 6 and 23 months should eat “3 times so that the child can grow. Over giving child cold and warm food suffocates the child and gives a swollen hard stomach as if it has kwashiorkor”.*

## **7.2 Factors affecting minimum dietary diversity**

Factors such as mother’s occupation, main source of household income, child’s appetite and distance to the water source affected dietary diversity. This study found good/fair appetite to be positively associated with dietary diversity meaning that such children were more likely to eat a more diversified diet than those with poor appetite. An article by (Bentley et al., 1995) suggests that *“the monotony of a diet may act synergistically with the consequences of repeated infectious*

morbidity, and result in chronically depressed appetite and limited acceptance of additional food in quantity and variety at the time when this becomes critical for meeting the nutritional needs of the growing infants”.

Since most of the mothers were found to be housewives who just cultivated their home gardens for food, they mainly provided their children with food of plant origin because animal source foods are expensive especially since they had no source of income. The study carried out in Ethiopia by (Baye et al., 2012) shows that families that practice subsistence farming were more likely to have stunted children due to a complementary diet poor in animal protein, fruits and vegetables.

It is quite interesting to note that the households whose water sources were beyond 1 km from home actually had their children eating more food groups than those who lived less than 500m away from their water sources. A reliable water supply is a key component of good complementary feeding (IBFAN, 2009) and according to the MDG definition of access to water, a household is said to be accessing water if it is less than 0.8km from the water source. It is therefore assumed that households whose water sources were over 1 km away would have a negative effect on the minimum dietary diversity of their children but instead, it was the opposite. The most possible explanation for this could be the copying strategy of storing water so that the mother or other household member does not have to travel the long distance everyday to collect water. Stored water will be at the household whenever needed to prepare meals for the child but the households with water sources nearer have to rush to the source whenever they need water which is quite tedious.



Mothers who were employed as the main source of household income were more likely to provide a more diverse diet to their children as compared to fathers whose employment was the main source of income in the family. In one of the focus group discussions at Paipii, mothers agreed that fathers used their money to attain other household assets instead of buying foods that cannot be got from the garden: *“our husbands when they get their money, they drink, buy land and marry more women but they cannot allow to even buy nice food like meat or milk for the children”*.

### **7.3 Factors affecting minimum meal frequency**

The factors that were found to affect the minimum meal frequency were child’s age, parity, responsive feeding, and appetite.

The results of this study found that older children were less likely to achieve their minimum meal frequency than the younger ones. Other studies by (Ng et al., 2011) in Indonesia, (Joshi et al., 2012) in Nepal and (Victor et al., 2012) in Tanzania however have found opposite findings where by younger children were less likely to meet the minimum meal frequency and minimum dietary diversity. The results in this study could be because parents seem to be more responsive towards the satiety clues of younger children than older ones.

It is rather strange to note that mothers with high parity (more than 6 children) provided more meals to their children than those with low parity (1-3 children). A study by (Garg and Chadha, 2009), instead shows that high parity has a negative association with good infant care and complementary feeding practices. These results could be attributed to the fact that the mother had older children to help out with household chores as she creates time for child care and feeding. In

contrast, a mother said during a focus group discussion that *“Sometimes poor spacing can reduce on the amount of food for the child to get energy”*.

Mothers who practiced responsive feeding actually had their children eating more meals in a day than their counterparts who did not. Responsive feeding is very important in improving food intake among children since it involves the mother actively participating in ensuring adequate consumption of food by the child. One of the fathers in kilak subcounty during a focus discussion suggested that *“mothers be sensitized to communicate to children during feeding because failure to communicate can lead to failure to eat”*. A study in Bangladesh by (Moore et al., 2006) found that Positively responsive mothers tended to have active children who explicitly signaled their desire for food or water, and who ate more mouthfuls of food.



## **8.0 CONCLUSION AND RECOMMENDATIONS**

### **8.1 Conclusion**

According to this study, only 32% of the children managed to attain the required minimum dietary diversity which is 4 food groups per day. This shows that the greatest percentage(68%) of the children were eating 3 or less food groups implying that there is an increased risk of micronutrient deficiencies among these children.

As far as minimum meal frequency is concerned, the majority of the children especially the 6-8 months age group attained the recommended frequency as per the WHO standards. Children aged 6-8 and 9-23 months should eat at least 2 meals and 3 meals respectively.

Results from this study show that complementary feeding in Pader has been mainly crippled by dietary diversity which is very poor probably because people have not started keeping animals since they are still probably recovering from the political insurgency caused by the Lord's resistance army. This implies that most families have to depend on food crops grown in their gardens hence being able to provide mainly food of plant origin to their children and less animal source foods.

As far as this study was concerned, children with a poor appetite, those whose mothers' main occupation was subsistence farming and whose water sources were less than 500km from home were not likely to eat a diverse diet.

The children who achieved the minimum meal frequency were those who were in the younger age group (6-8 months), whose mothers had more than 6 children, who had a fair appetite and those whose mothers practiced the aspect of responsive feeding through encouragement.

## **8.2 Recommendations**

Efforts by the government and other stakeholders should be targeted to improving livelihoods of mothers in the villages through provision and training in small scale income generating activities which can earn them some money that can be used to buy food stuffs of animal origin that cannot be got from their gardens. This will improve dietary diversity among their children and themselves as well.

Programs that encourage children especially school going children to rear small animals for meat such as rabbits, hens, guinea fowls and pigeons will improve dietary quality since these animals can be slaughtered and shared at home and the younger children can also benefit.

More intense trainings for mothers should be introduced in order to teach them about responsive feeding as well as age appropriate feeding for children. Responsive feeding/active feeding can go a long way in improving dietary intake hence taking care of the appetite issues.

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## **APPENDIX I: CONSENT FORM**

### **Factors associated with complementary feeding practices among children aged 6 – 23 months in Pader district.**

Good morning/ afternoon madam,

I am from Makerere University School of Public Health and conducting a study on factors associated with complementary feeding practices in Pader district. You have been identified as one of the study participants because you have a breast feeding child aged between 6 and 23 months and I am kindly inviting you to participate in this study which will take about 1 hour.

**Your participation is completely voluntary and you may withdraw from this study at any time without penalty.**

There are **no immediate personal benefits** attached to your participation in the study. However, the findings will be used to improve complementary feeding among our children in this district. Your participation is therefore very important. There are **no risks** associated with your participation in the study.

All information obtained in this study will be kept strictly **confidential** under custody of researchers and accessible to only authorized individuals. We shall not require your name to ensure anonymity.

**By signing this consent form, you are indicating that you fully understand the above information and agree to participate in this study.**

**Participant's signature** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Interviewer's signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_



For more information, please contact Caroline Nambafu (Principal investigator) on Tel: 0782591588 .

**THANK YOU**

**APPENDIX II: STRUCTURED QUESTIONNAIRE**



MAKERERE UNIVERSITY

HHID-----

**FACTORS INFLUENCING COMPLEMENTARY FEEDING PRACTICES IN PADER DISTRICT.**

1.1 Date of interview.....

1.2 Interviewer's Name: .....

Signature: .....

1.3 District ID: ..... 0.4 Sub county: ..... 0.5 Parish: .....

0.6 Village: ..... 0.7 Cluster ID: .....

0.8 HH No: .....

*Administer this questionnaire to the biological mother of the breast feeding child aged 6 -23 months in the household. If mother has more than 1 child in the age bracket and both are still breast feeding, then select 1 child using a simple random method.*

Name of child: .....

Sex: .....

Date of birth: .....

Age in months: .....

**SECTION 1 – SOCIO DEMOGRAPHIC INFORMATION**

1.1	How old are you?	..... (completed years)
1.2	What is your level of education?	<ol style="list-style-type: none"> <li>1. No formal education</li> <li>2. Primary</li> <li>3. Secondary</li> <li>4. Tertiary</li> </ol>
1.3	How many children do you have?	<input type="text"/> <input type="text"/>
1.4	How many people live in this household? <i>(A household is a group of people who eat and live together)</i>	<input type="text"/> <input type="text"/>
1.5	What is your marital status?	<ol style="list-style-type: none"> <li>1. Single</li> <li>2. married</li> <li>3. widowed</li> <li>4. separated</li> <li>5. Other: specify.....</li> </ol>
1.6	What do you do to earn a living?	<ol style="list-style-type: none"> <li>1. Have a job</li> <li>2. Casual laborer (works for wage)</li> <li>3. Nothing</li> <li>4. Sell my agricultural products</li> <li>5. Retail business</li> <li>6. Others; specify .....</li> </ol>
1.7	What is the main source of income for your family?	<ol style="list-style-type: none"> <li>1. Caregiver employed</li> <li>2. Husband employed</li> <li>3. Parents support</li> <li>4. Others: specify.....</li> </ol>

## SECTION 2 – CHILD NUTRITION

2.1	Did <u>NAME</u> consume breast milk in any form yesterday during the day or at night?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. <b>No (terminate the interview)</b></li> <li>3. Don't know</li> </ol>
2.2	Did <u>NAME</u> eat any solid, semi solid or soft foods yesterday during the day or at night?	<ol style="list-style-type: none"> <li>1. Yes skip to 2.3</li> <li>2. No</li> <li>3. Don't know</li> </ol>
2.2a	If no, why? ( <b>Do not read out the options</b> )  Go to section 3 after 2.2a	<ol style="list-style-type: none"> <li>1. Has not started eating solid, semi solid or soft foods</li> <li>2. Was sick</li> <li>3. There was no food in the household</li> <li>4. Others: specify .....</li> </ol>
2.3	How many times did <u>NAME</u> eat solid, semi solid or soft foods other than liquids yesterday during the day and at night?	<ol style="list-style-type: none"> <li>1. Number of times    <input type="text"/><input type="text"/></li> <li>2. Don't know</li> </ol>
2.4	How do you generally rate <u>NAME</u> 's appetite? ( <b>Read options for her</b> )	<ol style="list-style-type: none"> <li>1. Poor</li> <li>2. Fair</li> <li>3. Good</li> <li>4. Don't know</li> </ol>
2.5	During meal time, does <u>NAME</u> self feed or do you feed him/her? ( <b>Read options for her</b> )	<ol style="list-style-type: none"> <li>1. Self feeds always</li> <li>2. Some times</li> <li>3. I always feed him/her</li> </ol>
2.6	During meal time, how often does <u>NAME</u> finish his/her food? ( <b>Read options for her</b> )	<ol style="list-style-type: none"> <li>1. Always</li> <li>2. Sometimes</li> <li>3. Never</li> </ol>
2.7	Is there anything you do to encourage <u>NAME</u> to eat food?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No                    skip to 2.7</li> </ol>
2.8a	What do you usually do? ( <b>Do not read options</b> )	<ol style="list-style-type: none"> <li>1. encourage verbally</li> <li>2. Make promises</li> <li>3. Feed him/her</li> <li>4. Offer a different food</li> <li>5. Play with him as he feeds</li> <li>6. Threaten</li> <li>7. Beat him/her</li> <li>8. Others: specify .....</li> </ol>
2.9	Does <u>NAME</u> have special food preferences (likes)?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Don't know</li> </ol>
3.0a	Did he/she eat such food yesterday?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Don't know</li> </ol>

## SECTION 3; CHILD HEALTH STATUS

3.1	Has <u>NAME</u> suffered from any respiratory	1. Yes
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	infection such as cough and flue in the last 2 weeks?	2. No (skip to 3.2) 3. Don't know
3.1a	Where did you take him/her for treatment?	1. Hospital 2. Health center 3. Private clinic 4. Traditional health attendant 5. Nowhere (did not take for treatment) 6. Other: specify .....
3.2	Has <u>NAME</u> had any other health problems in the last 2 weeks?	1. Yes 2. No (skip to section 4) 3. Don't know
3.2a	What was it?	1. Fever 2. Malaria 3. Other: specify .....
3.2b	Did you go to any health facility for treatment?	1. Yes 2. No

#### SECTION 4 - INDIVIDUAL DIETARY DIVERSITY QUESTIONNAIRE

Please describe the foods (meals and snacks) NAME ate yesterday during the day and night, whether at home or outside the home. Start with the first food eaten in the morning. (***Tick whatever food item is mentioned or write it in the food group where it belongs***)

Question number	Food group	Examples	Yes=1 No=0
1	GRAINS, ROOTS AND TUBERS	Maize and its products, rice, millet, sorghum. White sweet potatoes, white yams, potatoes, cassava, Matooke(plantain), porridges, bread, noddles, .....	
2	LEGUMES AND NUTS	Beans, peas, ground nuts, soy beans, coconut, palm nuts, .....	
3	DAIRY PRODUCTS	Animal milk, yoghurt and cheese	
4	FLESH FOODS	meat, fish including silver fish, poultry, and liver/organ meats	
5	EGGS		
6	VITAMIN A RICH FRUITS AND VEGETABLES	Bananas, ripe paw paws, ripe mangoes, pineapples, water melon, oranges, passion fruits, Amaranths, kale, cowpea leaves, cassava leaves, sweet potato leaves, spinach, tomatoes, lettuce, broccoli, yellow/orange sweet potatoes, carrots, pumpkins, others:-specify.....	
7	OTHER FRUITS AND	Cabbages, egg plants, onions, others:-	

	VEGETABLES specify.....
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**SECTION 5 – KNOWLEDGE QUESTIONS (answer the following questions with a true or false statement)**

5.1	Children are not supposed to eat other foods not even water before they are 6 months old	<ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> <li>3. Don't know</li> </ol>
5.2	A child who is 6 to 8 months should eat 5 meals a day in addition to breast milk	<ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> <li>3. Don't know</li> </ol>
5.3	A child who is 1 year and a half should not breast feed because he/she is old enough	<ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> <li>3. Don't know</li> </ol>
5.4	A child who is 1 year should eat at least 3 meals a day in addition to breast milk	<ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> <li>3. Don't know</li> </ol>
5.5	Children should breast feed mainly at night and eat other foods at day time	<ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> <li>3. Don't know</li> </ol>
5.6	Do not force children to eat whenever they refuse especially when they have already reached 6 months	<ol style="list-style-type: none"> <li>1. True</li> <li>2. False</li> <li>3. Don't know</li> </ol>

**SECTION 6 – RESOURCES FOR HOUSEHOLD USE**

6.1	What is the major fuel for cooking in this family?	<ol style="list-style-type: none"> <li>1. Firewood</li> <li>2. Charcoal</li> <li>3. Electricity</li> <li>4. Gas</li> <li>5. Paraffin</li> <li>6. Other: specify .....</li> </ol>
6.1a	How do you obtain the fuel	<ol style="list-style-type: none"> <li>1. Purchasing</li> <li>2. Searching in forests and bushes</li> <li>3. Other: specify .....</li> </ol>
6.1b	What challenges do you have in obtaining the fuel?	<ol style="list-style-type: none"> <li>1. Lack of money</li> <li>2. Rainy season for firewood and charcoal</li> <li>3. none</li> </ol>

		4. Other: specify.....
6.2	Where does your household get water for cooking?	1. Borehole 2. Protected well 3. Running water 4. Tap 5. Other: specify .....
6.3	How far from your household is the source of water?	1. Less than 500m 2. Between 500m and 1000m 3. Over 1km
6.4	Is the water obtained clean enough for cooking?	1. Yes skip to 5.5  2. No
6.4a	What do you do to the water to make it fit for cooking?	1. Nothing 2. Filtering 3. Let it settle and decant 4. Other: specify .....
6.5	How do you obtain food for household consumption?	1. Purchasing 2. From the garden 3. Food aid 4. Food for work 5. Other: specify .....
6.5a	Have you had any challenges in obtaining food in the last 2 months?	1. Yes 2. No ( <b>End interview</b> ) 3. Don't know
6.5b	What challenges did you experience?	1. No money for buying food 2. Crops destroyed by weather 3. Poor harvests 4. Others: specify .....

**Thank the respondent for her participation**

## APPENDIX III: FOCUS GROUP DISCUSSION GUIDE

### Factors influencing complementary feeding practices among children aged 6 - 23 months in pader district

District	
Sub county	
Village	
Name of moderator	
Name of note taker	
Number of discussants	
Interview start time	
Interview end time	

#### Introduction

Good morning/afternoon/evening to you all. My name is .....and my colleagues are ..... (Mention your names). We are a team of research assistants from Makerere University, school of public health. We would like to discuss with you issues concerning complementary feeding of our children who are aged 6 to 23 months.

All your responses will be treated with utmost respect, and remember there are no ‘right’ or ‘wrong answers’ as we want information based on your experiences, observations and feelings. Please feel free to ask for clarifications where needed. You do not have to reveal any personal information if you do not want to. All your answers shall be completely confidential and your name shall not be directly mentioned in the report.

Before we begin, I request that we all introduce ourselves and mention how long you have lived in this area. I request that you speak one at a time as well as loudly and clearly when answering a question so that all your views are understood and well written down. When making a point during the discussion, you may choose either to use your name or not. To help us capture the whole discussion and ensure that we do not miss anything that you say, I kindly request you to allow me use the tape recorder here.

May I use the tape recorder? .....

May I continue with the interview? .....

Thank you for accepting to take part in the discussion.

#### Warm up

1. Think about your community and especially children who have reached the age of 6 months but are yet to make 2 years. Describe the problems experienced in feeding them.
  
2. In this community, what do you consider key nutritional needs for these children?

### **Availability of local foods**

3. In this community, you have traditionally accessed a variety of foods for your children. What are the most commonly consumed foods? (probe for: foods locally grown and consumed in this community and foods bought from the local market).
  
4. What are the growing and harvesting seasons for the various foods commonly consumed in this community? When is the dry season? When is the rainy season?
  
5. In the last 6 months, did your community experience a season of low or no food supply? What coping mechanisms were employed to ensure that children 6 to 23 months were fed adequately?

### **Infant/child feeding practices**

6. In this community, what do people consider as food taboos i.e. foods that should not be given to children before they reach the age of 2 years?
  
7. What foods are considered special for children aged between 6 and 23 months?
  
8. At what age do children begin eating food or other drinks except breast milk in this community? Why?



9. What types of food are mostly served to children aged between 6 and 23 months in your community?
  
10. What problems are experienced by mothers in feeding children who have reached the age of six months?
  
11. How many meals are usually given to children between 6 and 23 months a day in your community? Why?
  
12. Do you get any nutrition counseling either at your community health centre or from external visitors from organizations like NGOs?
  
13. In this community, what are the sources of clean and safe water used in household for food preparation and drinking?
  
14. How best do you think nutrition of children aged 6 and 23 months can be improved in your community?
  
15. Do you have any questions you would like to ask regarding the topic we have discussed?