



A Study on Complementary Feeding Practices of Under Two Years Children of Coastal Region in Khulna Division

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ABSTRACT

The fundamental components of child nutrition and child survival include exclusive breastfeeding as well as weaning practice. The socio-economic, socio-demographic, socio-cultural, environmental and obstetrical factors are reported to have causal association with malnutrition. Nutrition is related to human capital through health and nutritional status in the first few years of human life is crucial for future productivity and school performance. Nutritional status is an indicator of poverty. However the present study has conducted to find out the status of knowledge on complementary feeding practices among mothers in selected community Clinic at Khulna in Bangladesh. The study was a cross-sectional study. The target population of the mothers having 6-24 months children. The study was conducted at Khulna in Bangladesh Due to time limitations 205 respondents were selected for the study. A two-stage cluster sampling technique following probability proportional sampling 2 was used. Ten Community clinic having a child of aged 6-24 months were randomly selected from each cluster (Union). A total of 205 children aged 6-24 months were selected for the survey kept in Community Clinic and tracked with the help of a Community Health care provider (CHCP). In order to collect the required information the questionnaire was developed and data was collected by face to face interview. Data collection procedure was conducted by face to face interview. After collection of data, data were checked and verified for consistency and reduction of errors. Data were then entered to the computer and saved in statistical package for social sciences (SPSS) ver. 17.00 by the researcher. Quality and reliability of collected data was re-checked. Appropriate statistical analysis was carried out to relate variable according to the objectives of the study. This study revealed that the most of the mother of young children were very young. Significant number of them were illiterate and of primary level of education. Maternal education had some effect on child health and nutrition. The respondents reported that 65% of the children were exclusively breastfed for the first 6 months of life. The figure presented on exclusive breastfeeding could grossly over-estimate the true exclusive breastfeeding rate. A significant proportion of the children were still breastfeeding, even though there was no information on how the feeding was done. In most rural communities, it is common to see children being breastfed up to 2 years of age and beyond. Breastfeeding at night, 77.3% of the children were breastfed between 5-9 times, and 4.7% less than 5 times. The trend of breastfeeding is similar during the day time, 83.0% of the children were breastfed 5-9 times, and only 6.3% less than 5 times. Only 18.1% and 10.7% of the children were breastfed on-demand both during the day and at night. The estimates indicate that, 57.0% of the respondents think that complementary foods should be introduced to young children in/soon after 6 months of age. The mothers' opinion of when complementary foods should be introduced and the time the index child was given first food/drink was, 57.0% and 61.2%, respectively. The possible deduction could be that, the true prevalence of exclusive breastfeeding in the district is between 57.0%-61.2%. Campaign for complementary feeding practices among 6-24 months should be strengthening using appropriate communication media. Mothers need to multiple contacts to acquire knowledge at pregnancy and during the first 5 years of life of a child. Health service providers, nutritionists and allied professional can provide them with knowledge on infant and young child feeding guidelines.

Key words: Complementary Feeding, Children, Coastal Region, Exclusive Breast feeding, Nutrition, Care.

INTRODUCTION

The importance of child feeding practices for child nutrition is well recognized in the nutrition literature^[i,iii]. Nutrition has a great impact in child's life and feeding practices has direct impact on the nutritional status and well being of a child. It was indicated that nutrition has direct impact in social educational, mental and physical development of young children^[iiii]. Feeding practices like other forms of behavior is reset of complex personal, social cultural and economic influences, which is one of the determinants of the nutritional status of the children. Childhood under nutrition that manifests as linear and pondered growth faltering most commonly occurs during the first two years of life^[iv,v]. Children in developing countries are most vulnerable to growth faltering in the period when complementary foods are initiated as this often coincides with decreased breast milk consumption^[vi], increased micronutrient deficiencies and diarrhoeal illness^[vii]. Inappropriate care and feeding are recognized as some of the underlying causes of under nutrition^[viii]. Lack of knowledge of optimal feeding practices and cultural beliefs, in particular, contribute to

deteriorations in the nutritional status of children^[ix,x,xi] Common inappropriate complementary feeding practices include introducing foods too early or too late, offering a limited diversity of foods and providing an inadequate quantity of food^[xii,xiii]. Thus, interventions that focus on changing the behaviours of caregivers and other context-specific factors could greatly improve complementary feeding^[xiv,xv,xvi,xvii]

However, efforts to measure and quantify child feeding practices and to assess the strength of their association with child nutritional status have been hampered by methodological problems. This is primarily because child feeding practices encompass a series of interrelated behaviors that must be considered simultaneously and are therefore difficult to summarize into one or a few variables that accurately reflect these practices. For example, recommended practices for a old infant include, among other things, breast-feeding, feeding the infant nutrient-dense complementary foods 2–3 times per day and actively helping and motivating the infant to eat. Child feeding practices in the first 3 years are also age specific within narrow age ranges, which adds to the complexity of measurement. Thus, evaluating the overall quality of child feeding behaviors can be challenging, and few researchers have ventured in this direction^[xviii].

Complementary feeding should be *timely*, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be *adequate*, meaning that the complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding. Foods should be prepared and given in a safe manner, meaning that measures are taken to minimize the risk of contamination with pathogens. And they should be given in a way that is *appropriate*, meaning that foods are of appropriate texture for the age of the child and applying responsive feeding following the principles of psycho-social care. The adequacy of complementary feeding (adequacy in short for timely, adequate, safe and appropriate) not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers. Feeding young infants requires active care and stimulation, where the caregiver is responsive to the child clues for hunger and also encourages the child to eat. This is also referred to as active or responsive feeding.

WHO recommends that infants start receiving complementary foods at 6 months of age in addition to breast milk, initially 2-3 times a day between 6-8 months, increasing to 3-4 times daily between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times per day, as desired. When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. The transition from exclusive breastfeeding to family foods, referred to as complementary feeding, typically covers the period from 6 to 18-24 months of age, and is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age world-wide. WHO estimates that 2 out of 5 children are stunted in low-income countries. Inappropriate feeding practices are often a greater determinant of inadequate intakes than the availability of foods in the households. WHO has developed a protocol for adapting feeding recommendations that enables programme managers to identify local feeding practices, common problems associated with feeding, and adequate complementary foods. The protocol builds upon available information and proposes household trials to test improved feeding recommendations. WHO recommends that the protocol be used to design interventions for improved complementary feeding, and is included as part of adaptation process of the Integrated Management of Childhood Illness strategy.

OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

To find out the status of knowledge on complementary feeding practices among mothers in selected community Clinic at Khulna in Bangladesh.

METHODOLOGY OF THE STUDY

Study Design: The study was a cross-sectional study

Study Population: The target population of the mothers having 6-24 months children.

Study Area: The study was conducted at Khulna in Bangladesh

Study Period & Duration: Twenty Four months (October, 2020 – October, 2022)

Sample Size:

The sample size will be calculated by using the following formula:

$$n = \frac{Z^2 pq}{d^2}$$

Here,

n= Desired sample size

$z = 1.96$; the critical value of z at 95% level of significance

$p =$ Prevalence of complementary feeding practice in Bangladesh. According to BDHS 2017-18, 34 percent of children ages 6-24 months are fed appropriately (.37)

$d =$ degree of accuracy set or margin of error i. e. 0.05

Therefore,

$$n = \frac{(1.96)^2 \times 0.37 \times 0.63}{(0.05)^2} = 358.190$$

$= 358$

Due to time limitations 205 respondents were selected for the study.

Selection Criteria:

Inclusion criteria: The target population included children the mothers having 6-24 months children

Exclusion criteria: Mother who are unable to give information due to physical and mental illness

Sampling Technique: A two-stage cluster sampling technique following probability proportional sampling 2 was used. Twenty clusters were selected from 10 targeted Districts. Ten Community clinic having a child of aged 6-24 months were randomly selected from each cluster (Union). A total of 205 children aged 6-24 months were selected for the survey kept in Community Clinic and tracked with the help of a Community Health care provider (CHCP)

Data collection tools: In order to collect the required information the questionnaire was developed and data was collected by face to face interview.

Data Collection Technique: Data collection procedure was conducted by face to face interview.

Data Management and analysis plan: After collection of data, data was checked and verified for consistency and reduction of errors. Data was then entered to the computer and saved in statistical package for social sciences (SPSS) ver. 17.00 by the researcher. Quality and reliability of collected data was re-checked. Appropriate statistical analysis was carried out to relate variable according to the objectives of the study.

VARIABLES

- *a. Dependent variables*
- Complementary feeding practices of 6-24 months children.
- *b. Independent variables*
- Socio-demographic Variables
- Age of children, Sex of children, age, education, occupation and Monthly income of parents, family type, religion.

Ethical considerations

- Permission was obtained from the American Independent University, California before beginning of the study.
- Verbal informed consent from the participants was taken before the interview.
- Confidentiality and privacy was strictly maintained
- The participant's right was ensured regarding withdrawal at any time from the study.

RESULTS

Table 1: Distribution of subjects by demographic characteristics of mothers

Background characteristics	Frequency (n)	Percentage (%)
Age (years)		
<20	14	6.6
21-30	58	28.2
31-40	57	28.0
Educational (level)		
No Education	74	36.1
Primary Education	70	34.0
Secondary	39	19.0
Intermediate	19	9.2
Bachelor and above	3	1.6
Religion:		
Muslim	183	89.1
Hindu	21	10.3
Others	1	.6
Occupation:		
Service holders	7	3.4
Business	75	36.4
Skilled work/day labour	97	12.7
House wife	26	47.5

Source: Field Survey, 2022

Table 1 shows the socio demographic characteristics of respondents. A few (6.6 %) of the mothers were less than 20 years of age whilst 28.0% were above 31-40 years. A significant proportion of the respondents (36.1%) never attended school, but 34.0% had primary education, whilst 19.0% and 9.2% had secondary, respectively. Only few (1.6%) of the mothers were Intermediate passed. 89.1% of respondents were muslim and 10.3% were hindus & 0.3% were others and only 0.6% were not of any traditional religion. The results also show that, significant number (47.5%) of the mothers was engaged in Housewife, 36.4% were business 12.7% were skilled work/day labour, and service holders were only 3.4%.

Table 2: Distribution of subjects by demographic characteristics of children

Background characteristics of the children	Frequency (n)	Percentage (%)
Sex		
Male	103	50.4
Female	102	49.6
Age in months		
6-8	37	17.9
9-11	57	28.0
12 or above	72	54.1

Source: Field Survey, 2022

In table 2 the findings of the study estimate that 50.4% of the children were males. The majority of the children (54.1%) were in the age group (12 or above months), 28.0% (9-11 months), and 17.9% (6-8 months) of age.

Table 3: Distribution of subjects by Feeding Practices

Feeding Practices	Frequency (n)	Percentage (%)
Exclusive breastfeeding for the first 6 months		
Yes	170	82.8
No	35	17.2
Children Still breastfeeding		
Yes	197	96.3
No	8	3.7
Breastfeeding at night (Per day)		
On-demand	37	18.1
<5 times	10	4.7
5 to 9 times	158	77.3
Breastfeeding during the day time		
On-demand	22	10.7
<5 times	13	6.3
5 to 9 times	170	83.0
Time of complementary foods introduction		
Before 6 months	36	17.5
After 6 months	125	61.2
After 1 year	42	20.3

Source: Field Survey, 2022

Table 3 shows children who were still being breastfed were 96.3%. Determining the frequency of breastfeeding, 77.3% of the children were breastfed between 5-9 times, 18.1% were breastfed On-demand and 4.7% of the children were breastfed less than 5 times at night, whilst 83.0% of the children were breastfed 5-9 times, 10.7% were breastfed On-demand and only 6.3% were breastfed less than 5 times during the day time. The majority (61.2%) of the children were introduced to complementary foods at the age of after 6 months, 20.3% were introduced to complementary foods in the after 1 year and 17.5% were given complementary foods before 6 months of age.

KNOWLEDGE ON COMPLEMENTARY FEEDING:

Table 4: Distribution of respondents by knowledge on duration of breastfeeding with complementary feeding

Period	Frequency (n)	Percentage (%)
6-9 th months	18	8.6
9-12 th months	59	29
12-18 th months	52	24.7
18 th -24 th months	61	30.1
Don't know	15	7.5
Total	205	100

Source: Field Survey, 2022

The above table 4 shows that no one could say duration of breast feeding with complementary feeding.

Table 4: Distribution of respondents by knowledge about complementary feeding

Period	Frequency (n)	Percentage (%)
The transition from exclusive breast feeding to family foods	13	6.5
After 6 months to give child extra food	14	6.5
Child start family food	24	11.8
Don't know	154	75.3
Total	205	100

Source: Field Survey, 2022

Among the respondents 75.3% could not say anything about complementary feeding 11.8% mentioned that child start family food, 6.5% said after 6 months to give child extra food, another 6.5% said complementary feeding as transition from exclusive breastfeeding to family foods.

Table 5: Distribution of respondents by frequency of consumption of solid and semi-solid foods (per day)

Age of child in months	Frequency (< 2times)	(%)	Frequency (2-3 times)	%	Frequency (3-4 times)	%
Intake of solid foods						
6<9 months(68)	181	88.2	24	11.8	0	0.0
9<24 months(311)	80	39.2	80	55.6	10	5.1
Intake of semi-solid foods						
6-<9 months (68)	190	92.6	15	7.4	0	0.0
9-<24 months (311)	80	75.9	46	22.5	3	1.5

Source: Field Survey, 2022

Table 6 illustrates the frequency of food/drink intake among different age groups. The majority (88.2%) of the children in the age group 6<9 months received solid food less than twice daily, 11.8% received 2-3 times and none received 3-4 times of solid food. In addition, the frequency among children in the age group 9>24 months were, 39.2% received solid food less than twice daily, 55.6% received 2-3 times and 5.1% did receive 3-4 times of solid food. The results also indicate that 92.6% of the children in the age group 6<9 months received semi-solid food less than twice daily, 7.4% received 2-3 times and none received 3-4 times of semi-solid food. Whilst, the children 9>24 months of age, 75.9% reported that they received semi-solid food less than twice, 22.5% received 2-3 times and 1.5% were given 3-4 times of semi-solid foods daily.

Table 6: Distribution Of subjects by frequency of Khichuri/Suzy intake (Per day)

Children	Frequency (n)	Percentage (%)
Khichuri/Suzy		
Yes	88	43.0
No	117	57.0
Consistency of Khichuri/Suzy		
Thick with paste	11	13.0
Very thin without paste	43	48.5
Thick without paste	34	38.5
Frequency of Khichuri/Suzy intake		
< 2 times	80	90.8
2-3 times	8	8.6
More than 6 times	1	0.6

Source: Field Survey, 2022

Table 7 indicated that 43.0% of the children received porridge. A high proportion (48.5%) of the mothers reported that the Khichuri/Suzy consumed was very thin to improve its nutritive value, 32.5% of the children received thick Khichuri/Suzy without paste, and 11.0% of the children received thick Khichuri/Suzy with. Most of the children, 90.8% consumed less than 2 times, 8.6% of the children consumed between 2-3 times and 0.6% of the children received More than 6 times of the Khichuri/Suzy in the previous 24 hours before the interview.

Table 7: Distribution of subjects by frequency of some liquids intake among children (Per day)

Liquid intake	Frequency (n)	Percentage (%)
Breast milk		
Yes	197	96.3
No	8	3.7
Plain water		
Yes	199	97.1
No	6	2.9
Baby food		
Yes	6	2.1
No	199	97.9
Tinned, powdered or fresh animal milk		
Yes	14	6.6
No	191	93.4
Fruit juice		
Yes	19	9.5

No	186	90.5
Drink anything from a bottle with a nipple		
Yes	23	11.1
No	182	88.9

Source: Field Survey, 2022

Table 8 presents data on the intake of some liquids. In this study, 96.3% of children still received breast milk, 97.1% of the children were given plain water, 2.1% took commercial infant formula, and 4.2% ate other fortified foods. In addition, 20.8% of the children were given flour/other porridge, 6.6% received animal milk and 9.5%, 8.2% and 4.7% received fruit juice, coffee/tea and minerals respectively. A significant proportion (11.1% of the children) was fed with baby feeding bottle.

Table 8: Distribution of subjects by frequency of foods consumed among children (Per day)

Food intake	Frequency (n)	Percentage (%)
Foods from grains	161	78.6
Carrots or yellow sweet potatoes	4	2.1
Fruits	11	5.5
Dark green vegetables	101	49.3
Vitamin A rich fruits (mango or papaya):	35	17.2
Other fruits and vegetables	56	27.4

Source: Field Survey, 2022

Table 9 illustrates the consumption pattern of some common foods. The majority (78.6%) of the children consumed foods prepared with grains, 2.1% carrots/yellow sweet potatoes, and 5.5% did consume roots and tuber foods. However, 49.3% of the children consumed dark green vegetables, 17.2% consumed vitamin A rich fruits, and 27.4% received other fruits/vegetables.

Table 9: Distribution of subjects by consumption of protein source foods (Per day)

Source of Protein intake	Frequency (n)	Percentage (%)
Animal meat	31	15.0
Chicken	14	6.9
Fresh or dried fish	95	46.4
Eggs	54	26.1
Foods made from beans/Dal	38	18.7
Groundnut	92	45.1
Foods made with oil, fat or butter	71	34.6

Source: Field Survey, 2022

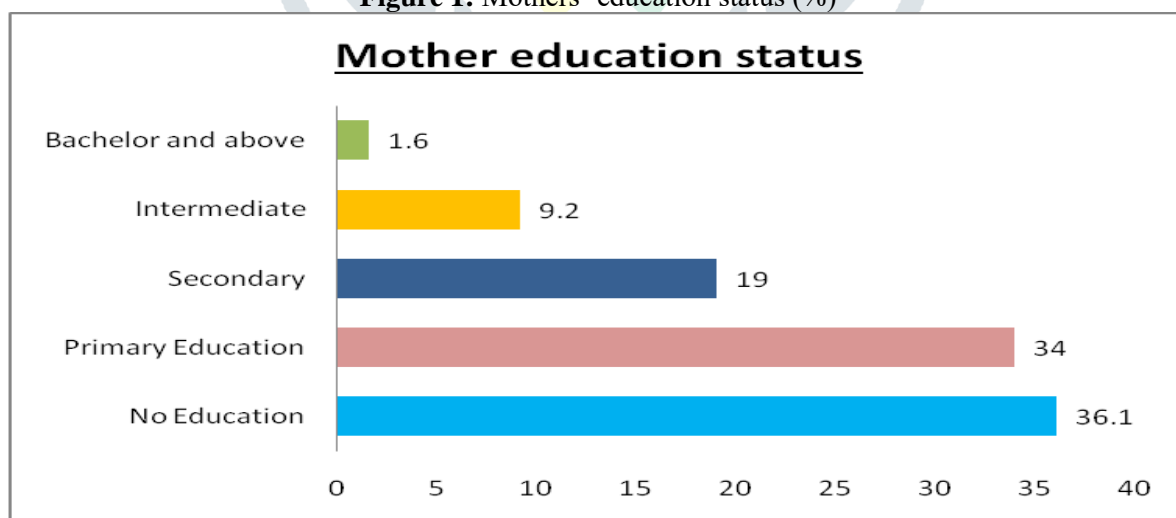
Table 10 presents data on the consumption of some major sources of protein. The mothers reported that, 15.0% of their children consumed foods served with animal meat, 6.9% of the children also consumed foods served with chicken/other birds, 46.4% of the children consumed foods served with fish, whilst 26.1% consumed foods served with eggs. Another 18.7% of the children consumed foods prepared from beans, and 45.1% consumed foods prepared with groundnut and the consumption of foods served with oil/fat was 34.6%.

Table 10: Percentage (%) of children who consumed specific foods (Per day) according to age

Foods consumed by children	6-8 months	9-11 months	12-17 months	18-24 months
Breast milk	98.5	100.0	100.0	81.9
Plain water	89.7	99.1	98.5	98.6
Infant formula	4.4	0.9	2.3	1.4
Fortified food	0.0	3.8	5.3	6.9
Other milk	2.9	4.7	7.5	11.1
Fruit juice	2.9	3.8	14.3	15.3
Grains	57.4	72.6	85.7	94.4
Carrots/Orange	1.5	1.9	3.0	1.4
Green vegetables	17.6	38.7	63.9	68.1
Mango/Pawpaw	5.9	13.2	20.3	27.8
Other fruits	10.3	19.8	33.8	43.1
Animal meat	1.5	11.3	17.3	29.2
Chicken/bird	0.0	6.6	7.5	12.5
Fish	14.7	40.6	53.4	72.2
Eggs	4.4	24.5	33.1	36.1
Beans	4.4	14.2	21.8	33.3
Groundnuts	13.2	35.8	55.6	69.4
Oily Foods	8.8	30.2	41.4	52.8

Source: Field Survey, 2022

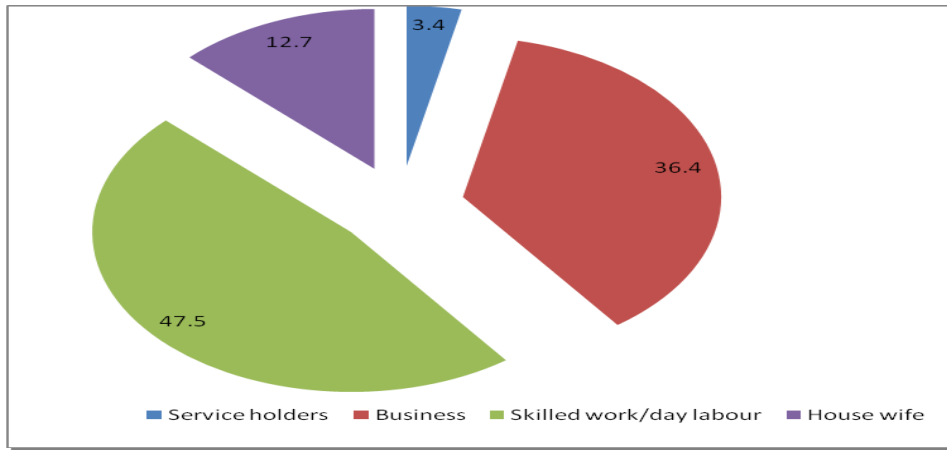
Table 11 shows the feeding pattern of the children in the different age groups. The majority (98.5%) and (81.9%) of the children in the age groups (6-8 months) and (18-24 months) were still breastfeeding, respectively. Intake of plain water among all the children in the different age groups was also consumed 89.7% (6-8 months), 99.1% (9-11 months), 98.5% (12-17 months) and 98.6% (18-24 months). Fruit juice, other milk intake increases with increase in age group as shown on table. Other liquids/carbonated drinks were also marginally consumed by the children whilst traditional medicine/ herbs were significantly consumed with prevalence of 7.5% in the age group 9-11 months and 6.8% in the age group 12-17 months. A significant proportion (57.4%) of the children in the age group (6-8 months) consumed foods prepared with grains, 72.6% (9-11 months) of the children similarly consumed food prepared with grains, 85.7% (12-17 months) of the children did receive foods prepared with grains and 94.4% (18-23 months) consumed foods made with grains. Children who consumed beans were: 4.4% (6-8 months), 14.2% (9-11 months), 21.8% (12-17 months) and 33.3% (18-23 months) whilst the consumption of nuts was 13.2% (6-8 months), 35.8% (9-11 months), 55.6% (12-17 months) and 69.4% (18-24 months).

Figure 1: Mothers' education status (%)

Source: Field Survey, 2022

Mothers' education status has shown in the above figure 1. From the result it was found that 36.1% mothers were illiterate which was maximum but only 1.6% mothers had Bachelor and above degree which was minimum. On the other hand 9.2% mothers completed Intermediate degree, 19% mothers completed secondary degree, 34% mothers completed Primary education.

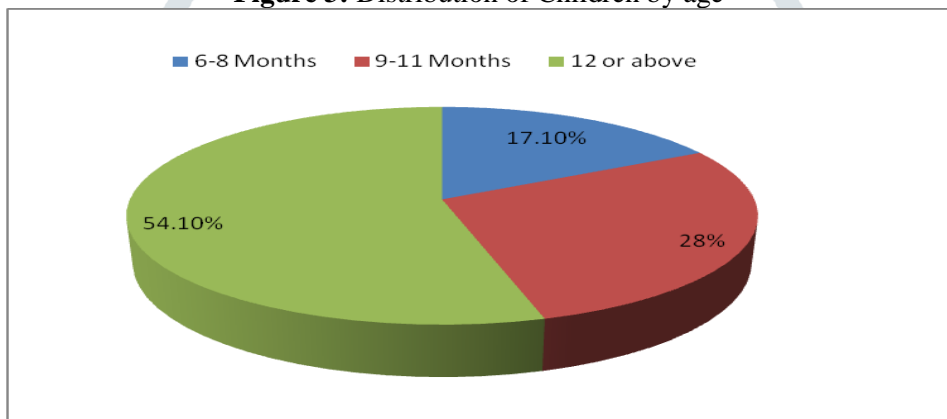
Figure 2: Mothers' Profession status (%)



Source: Field Survey, 2022

Mothers' Profession status has shown in the above figure 2. From the result it was found that 47.5% mothers, profession were skilled worker/day labour which was maximum, but only 3.4% mothers, profession were service holders which was minimum. On the other hand 12.7% mothers were house wife and 36.4% mothers, profession were Business.

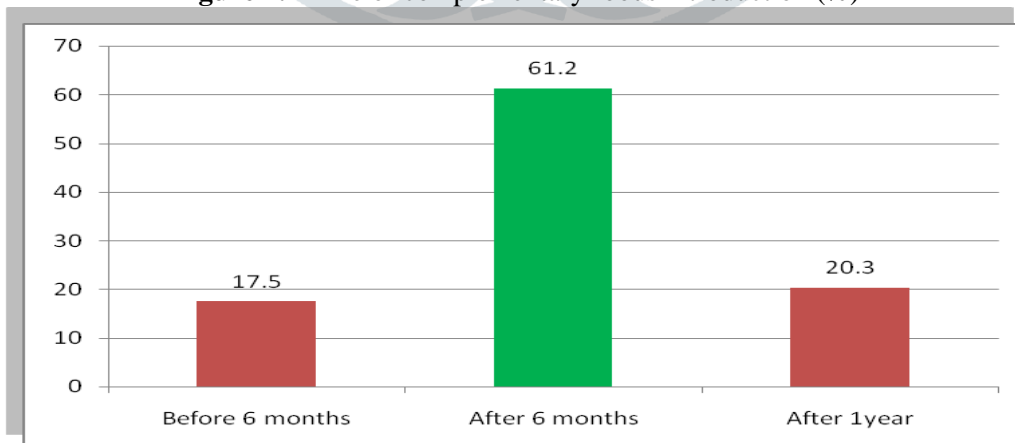
Figure 3: Distribution of Children by age



Source: Field Survey, 2022

Distribution of Children by age has shown in the above figure 3. From the result it was found that 54.10% children age were 12 months or above which was maximum but only 17.10% children age were 6-8 months and 28% children age were 9-11 months.

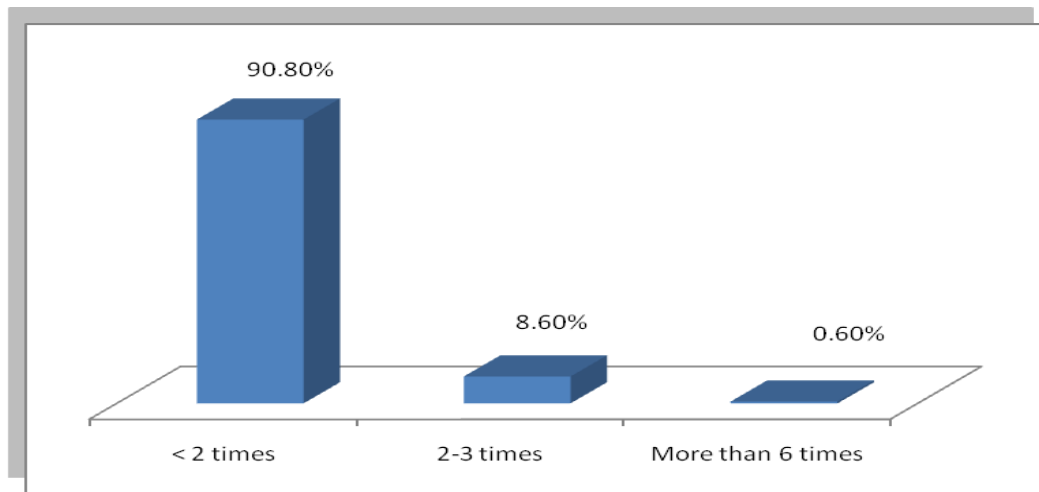
Figure 4: Time of complementary foods introduction (%)



Source: Field Survey, 2022

Time of complementary foods introduction has shown in the above figure 4. From the result it was found that 61.2% children started complementary foods introduction after 6 months which was maximum but only 17.5% children started complementary foods introduction before 6 months which was minimum and 20.3% children started complementary foods introduction after 1 year.

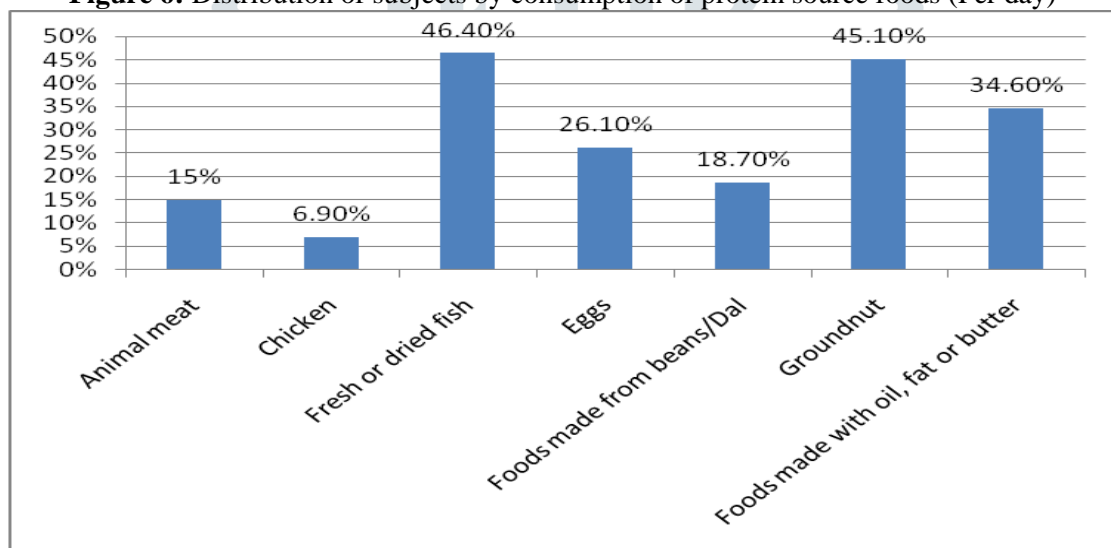
Figure 5: Distribution Of subjects by frequency of Khichuri/Suzy intake (Per day)



Source: Field Survey, 2022

Distribution of subjects by frequency of Khichuri/Suzy intake (Per day) has shown in the above figure 5. From the result it was found that 90.80% children took Khichuri/Suzy intake <2 times which was maximum but only 0.60% children took Khichuri/Suzy intake more than 6 times which was minimum and 8.60% children took Khichuri/Suzy intake 2-3 times.

Figure 6: Distribution of subjects by consumption of protein source foods (Per day)



Source: Field Survey, 2022

Distribution of subjects by consumption of protein source foods (Per day) has shown in the above graph. From the result it was found that 46.40% children consumed fresh dried fish which was maximum but only 6.9% children consumed chicken which was minimum. On the other hand 15% children consumed animal meat, 26.10% children consumed eggs, 18.70% children consumed foods made from beans/Dal, 45.10% children consumed groundnut and 34.60% children consumed foods made with oil, fat or butter.

DISCUSSION

This study revealed that the most of the mother of young children were very young. Significant number of them were illiterate and of primary level of education. Maternal education had some effect on child health and nutrition which is in agreement with the findings of Wamani et al (2004). The findings estimate that 50.4% of the children were male. The variations in child sex may either be as a result of early childhood mortality difference or reproductive condition where one gender was commonly conceived more frequently than the other. The other reason apart from biological chance may be family preference for male child than female. Therefore, adequate care and attention is provided for the male child relatively resulting in their survival. The respondents reported that 65% of the children were exclusively breastfed for the first 6 months of life. The figure presented on exclusive breastfeeding could grossly over-estimate the true exclusive breastfeeding rate and contrast what is reported in the BDHS (2017-18). Even though the prevalence of breastfeeding was high, majority are not fed in compliance with WHO (2003) recommendations. Information on prelacteal feeds was not collected in this study and it may be accounting for the high estimates of exclusively breastfed children in the district. The other possible deductions or explanation for the high prevalence exclusively breastfed children may include the level of awareness created on exclusive breastfeeding due to the long-standing health programs of both government and development partners particularly on children, pregnant and

lactating women. The children who were not exclusively breastfed and subsequent failure to consume adequate micronutrients may also have unwanted consequences which may lead to child morbidity.

A significant proportion of the children were still breastfeeding, even though there was no information on how the feeding was done. In most rural communities, it is common to see children being breastfed up to 2 years of age and beyond. Early weaning is also known to be associated with increased infant morbidity and mortality in poor communities as noticed in Gupta et al (2007). Early weaning of the children should be considered a matter of concern in order to reduce the prevalence of child undernutrition. Mostly, the complementary foods prepared by rural mothers are insufficient in terms of quality for good nutrition. Those children who were weaned before 2 years of age, especially among 6-8 months of age may be more vulnerable to child undernutrition. Generally the number of children breastfeeding reduces in the second year of life, similar to what is reported in BDHS (2011-18). The study results showed high prevalence of children who were still breastfeeding. This is very important for the growth and development of children less than two years of age and it is a common practice for poor and rural households.

The children were breastfed differently during the day time and at night. Even though the recommendation for breastfeeding of children above 6 months of age is on-demand, the mothers reported the following using 24 hour call. Breastfeeding at night, 77.3% of the children were breastfed between 5-9 times, and 4.7% less than 5 times. The trend of breastfeeding is similar during the day time, 83.0% of the children were breastfed 5-9 times, and only 6.3% less than 5 times. Only 18.1% and 10.7% of the children were breastfed on-demand both during the day and at night. There are many reasons responsible for the above frequency of breastfeeding. Many women are often engaged in several physical activities during the day, including income generating ventures and traditional roles in their various communities which may account for this practice of breastfeeding. Due to this, some mothers are unable to breastfeed on-demand during the day compared to night breastfeeding.

The practice of breastfeeding was good even though positioning and attachment during breastfeeding were not accounted for, especially among young mothers. The respondents reported that majority (61.2%) of the children were introduced to complementary foods at the recommended age (6 months). Some of the children may not be getting sufficient food and nutrients as a result of the inappropriate feeding practice stated above. Either early or late introduction of complementary foods could be the problem. The estimates indicate that, 57.0% of the respondents think that complementary foods should be introduced to young children in/soon after 6 months of age. The mothers' opinion of when complementary foods should be introduced and the time the index child was given first food/drink was, 57.0% and 61.2%, respectively. The possible deduction could be that, the true prevalence of exclusive breastfeeding in the district is between 57.0%-61.2%. For the fact that some of the women think that complementary foods should be given to young children on the 7th month after birth is worrying. The possible explanation could be that some of the respondents did not understand what complementary feeding and foods really meant. It was noted that some mothers limit the term "complementary foods" to only include ceremonial meals. The implication therefore, is that a significant proportion of the children were probably given these ceremonial meals after 6 months of life and were reported as receiving complementary foods at the age of 6 months. The study was limited by not collecting data on prelacteal feeds which could help arrive at the true prevalence of exclusively breastfed and timely introduction of complementary foods.

The use of a bottle with a nipple to feed children is high. The nipple of the bottle may "house" disease causing agents transferable to the baby. Finally, this study may not be conclusive on the feeding practices in the district, as many of the religious and cultural beliefs of this population, as well as the geographic location and accessibility to clean water may be unique. However, because there is limited information on children nutritional status in the district, these findings may be highly valuable despite the limitations observed. The majority (88.2%) of the children in the aged group 6>9 months received solid food less than twice daily, 11.8% received 2-3 times and none received 3-4 times. The children aged 9>24 months, 39.2% received solid food less than twice daily, 55.6% received 2-3 times and 5.1% did receive 3-4 times. The children who were consuming the right frequency of meals based on their age group are very limited as shown in table 4.4. Additionally, the results indicate that 92.6% of the children in the age group 6<9 months received semi-solid food less than twice daily, 7.4% received 2-3 times and none received 3-4 times. Again, the children aged 9>24 months, 75.9% of them received semisolid less than twice daily, 22.5% of the children received 2-3 times and 1.5% did receive 3-4 times of semi-solid food.

This indicates that a significant proportion of the children were receiving less than the recommended number of times of complementary foods, as stated in WHO (2003). Less intake of food among children 6-24 months of age could lead to child under nutrition since breast milk alone is not sufficient for healthy growth and development at that stage.

Household food insecurity may be one of the attributable factors the low food intake. It may also be an indication that, young children are only fed on complementary foods when the family meal is prepared. Majority of the mothers reported that they were peasant farmers who usually get poor crop yield annually which directly affect their ability to

provide adequate food for family members including children. Household food insecurity and low maternal income may be the two major factors influencing the low intake of complementary foods. Naturally during the lean season, families adopt different coping strategies such as skipping of meals and reduction in quantity and consumption of foods that result in frequent water intake (for example hot pepper foods). Provision of dairy milk to children was more likely to be practiced among the wealthy or the least poor. This discrepancy appears to imply that lack of specific resources in terms of assets might act as barriers for mothers in their efforts to put complementary feeding knowledge into practice. It indicates that the nutrient requirements for young children may not be met if their feeding pattern is not changed. And 11.1% of the children were fed with baby feeding bottle.

Children who are in the age group 6-24 months are physically active and require high energy. Inadequate intake of these energy giving foods may lead to rapid depletion of the body nutrients store resulting in child undernutrition. Grains are the common food crops cultivated in these areas and comparatively well consumed by the respondents. There was less diversity in the foods consumed. The reason could be the high dependence on their farm produce leading to minimal diversity in the food consumed. Seasonality has an influence on food availability and consumption pattern in rural communities. Most households eat what is commonly available than what they may prefer. The children consumed some of the complementary foods listed, the findings show that meals prepared from/with grains, vegetables, fish and eggs were relatively consumed more than the others. The frequency of consumption also increased with increasing age of the children which is similar to what was documented in BDHS, 2011. The findings of the study, only measured the frequency of food intake, whilst the quantity and quality were not considered. The factors that may account for low consumption of complementary foods include availability, affordability and accessibility among the respondents.

The frequency of mango/papaya consumption, other fruits and animal meat among the children were also identified to be minimal as shown on table 4.10. The essential question to ask is to what extent does the increase in fruit intake meet the nutritional requirements of the children at the various ages for healthy life? Factors such as characteristics of diet or child's appetite are known to influence frequency of complementary feeding but information was not collected on this. Although these were not measured in the study, it is unlikely that such factors could adequately explain the observed consumption patterns. Comparatively, beans, nuts, oil/palm oil were minimally consumed among the children. The results indicate that some of the children may not be meeting their energy requirements from the above foods. The consumption of other proteins and energy giving foods also increased with ages of the children. Complementary feeding has to be done with care such that it does not lead to child over nutrition which is unacceptable, but becoming common in the developing Countries. This suggests a need for adequate infant feeding promotion and research so that relevant health education messages are disseminated.

CONCLUSION

The findings of the study estimate that 96.3% of the children were still being breastfed, whilst 61.2% of the infants were given complementary foods at the age of 6 months. The complementary feeding practices of the children are not properly. There is less diversity and adequacy of food. Mother practice of appropriate feeding and caring was poor. Number of children under 5 years household income and children age significantly influenced infants nutritional status. The quantity and safety of these complementary foods which were given to the children are also of public health concern.

RECOMMENDATIONS

On the basis of the findings the study recommends that campaign for complementary feeding practices among 6-24 months should be strengthening using appropriate communication media.

Incorporate infant and young child feeding interventions to the population and advocacy for its importance.

Mothers need to multiple contacts to acquire knowledge at pregnancy and during the first 5 years of life of a child.

Health service providers, nutritionists and allied professional can provide them with knowledge on infant and young child feeding guidelines.

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