

## Breastfeeding and Complementary Feeding Practices of Mothers of Children (0 – 24 Months) Attending Infant Welfare Clinics (IWC) at the Institute of Child Health (ICH) University of Nigerian Teaching Hospital (UNTH) Ituku-Ozalla Enugu

Ndiokwelu C.I.<sup>1\*</sup>, Maduforo A.N.<sup>2</sup>, Amadi C. A.<sup>1</sup>, and Okwy-Nweke C. P.<sup>1</sup>

1. Department of Nutrition and Dietetics, University of Nigeria Teaching Hospital Ituku-Ozalla, Enugu State, Nigeria
2. Department of Nutrition and Dietetics, PMAN International Health Services, Post Service Housing Estate Kurudu Abuja, Nigeria

Corresponding Authors' Email: [cndiokwelu@yahoo.com](mailto:cndiokwelu@yahoo.com)

### Abstract

**Background:** The study investigated the breastfeeding and complementary feeding practices of mothers of children (0-24months) attending the Infant Welfare Clinic (IWC) at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu. The study aimed; to access the infant feeding knowledge of mothers, to ascertain the time of introduction of complementary feeds by mothers, to assess the quality of the complementary feeds used by mothers and to ascertain the period of breastfeeding cessation by the mothers.

**Methodology:** The research involved a cohort study of the breastfeeding and complementary feeding pattern of mothers of children (0-24months) attending the Infant Welfare Clinic (IWC) situated at the Institute of Child Health (ICH), University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu. The study was carried out through the evaluation of the knowledge, and practices of the mothers. Structured interview schedule was used to collect information on the mothers' knowledge, and practices of breast feeding and complementary feeding recommendations.

**Result:** Analysis of data revealed that the breastfeeding practices of the mothers varied. Ninety mothers (45%) gave breastmilk alone, only 25 (12.5%) of these children were up to six months. Sixty five (32.5%) of these children who are receiving breastmilk alone were still under six months of age. Majority (26.7%) of the mothers who were no longer breastfeeding stopped between 6 and 8 months of age, while 139(74.4) among the breastfeeding mothers planned to stop breastfeeding between the ages of 12 and 23months. Thirty one mothers (16.7%) planned to breastfeed their children up to 24 months and beyond. Eighty (40%) mothers had introduced their children to complementary feeds and time of introduction of complementary feeds varied among the mothers. Corn gruel (pap) was a common complementary feed used by majority of the mothers 50(62.5%). Very few mothers 18(22.5%) enrich the complementary feeds with sugar and oil and only 14 (17.5%) mothers used feeding bottles to feed their children. Fifty eight mothers (72.5%) had introduced their children to the family foods. A consistent positive relationship existed between mother's education and frequency of breastfeeding; type of birth and exclusive breastfeeding and birth order; mother's educational background and exclusive breastfeeding; frequency of breastfeeding with age of introducing complementary feeding and when to stop breastfeeding with mother's occupation and educational background respectively.

**Conclusion:** Based on the findings of this study, the researchers concluded that although breastfeeding remains a universal practice by women, the Infant and young child feeding practices observed in this study are far from optimal. The finding showed that although breastfeeding is common amongst the mothers, it is rarely optimal. The mothers use mainly pap made from cereals as complementary feeds instead of using different varieties of our locally available foods, as was the practice prior to the rampant use of the maize gruels. The mothers had insufficient knowledge of use of sugar and oil to enrich the complementary feeds.

**Keywords:** Breastfeeding, Complementary feeding, Practices, Mothers, Children

### Introduction

Malnutrition had been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occurring during the first year of life. No more than 35% of children worldwide were exclusively breastfed during the first four months of life; complementary feeding frequently begins too early or too late, and feeds are often nutritionally inadequate and unsafe. Malnourished children who survive are more frequently sick and suffer the life-long consequences of impaired development. Since poor feeding practices are major threat to social and economic development, they are among the most serious obstacles to attaining and maintaining health that face this age group (1).

Adequate nutrition during infancy and early childhood is fundamental to the development of a child's full

potential. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development. The consequences of poor nutrition in terms of both foods and feeding behaviors, during the first two years of life include significant illnesses, delayed mental and physical development and death (2).

Without doubt, breastfeeding is recognized as the best feeding option for children because of its nutritive, protective, psychological and economic value. At the same time, the increasing HIV prevalence in Nigeria and corresponding risk of mother to child transmission (MTCT) through breastfeeding has brought about the need to weigh the benefits of breastfeeding against the risk of infection with HIV/AIDS (3).

The importance of breastfeeding and complementary feeding was underscored by the 2002 World Health Assembly (WHA) resolution 545.25 on "Global Strategy for Infant and Young Child Feeding" which re-emphasized the importance of Exclusive Breastfeeding (EBF) for six months while promoting the timely introduction of adequate, safe and appropriate complementary feeding together with continued breastfeeding for 2 years and beyond (4). Breastmilk meets all of an infant's nutritional requirements for the first six months of life and is superior to any substitute (2). Early infant malnutrition disease and deaths results from failure of mothers to exclusively breastfeed their babies from birth (5). The Nigeria Demographic and Health Survey in 2003 reported that the rate of exclusive breastfeeding for six months is still very low in Nigeria, between 15% and 17% (2).

The complementary feeding period generally from 6-24 months is a particularly vulnerable period in the lives of children. It is the peak period for growth faltering, deficiency of certain micronutrient and high prevalence of some childhood illness like diarrhoea and respiratory infection. Malnutrition from inadequate breastfeeding and poor complementary feeding practices is a particular risk in this age group of children in resource-poor countries of sub-Saharan Africa and contributes significantly to high child mortalities in this region (6). Exclusive breastfeeding up to six months of age and breastfeeding up to 12 months was ranked number one, with complementary feeding starting at six months number three. These two interventions alone were estimated to prevent almost one-fifth of under-five mortality in developing countries (18).

### **Statement of Problems**

Research revealed that Nearly 8 million children died in 2010 before reaching the age of 5, largely due to pneumonia, diarrhoea and birth complications. In 2010, the infant mortality rate in Nigeria was 88/1000 live births, under 5 mortality rate in Nigeria was 143/1000 live births and neonatal mortality rate was 40/1000 live births, 12% of infants were born with low birthweight, 38% had early initiation of breastfeeding (i.e.  $\leq 1$ hour), 13% were exclusively breastfed for 6 months, 32% were breastfed at age 2years. The percentages of under-fives (2006–2010\*) suffering from: underweight – moderate & severe (23%), severe (9%); stunting – moderate & severe (41%) and wasting – moderate & severe (14%). Vitamin A supplementation coverage rate (6–59 months) 2010 (91%) and percentage of households consuming iodized salt (2006 – 2010) was 97% (19).

From birth, poor infant feeding practices have been identified to be a major course of neonatal and infant mortality. The World Health Organization, UNICEF and Nigeria National Breastfeeding Policy recommended that children be exclusively breastfed from birth to six months and continued breastfeeding to twenty four months and beyond for optimal survival, growth and development. Unfortunately, only 15% of children under six months are exclusively breastfed in Nigeria and 26% in BASICS focal states (Abia, Kano and Lagos).

The PROFILE analysis, showed that 21% of infant deaths are attributed to poor breastfeeding practices in Nigeria (7). This means that if no action is taken to protect, promote and support breastfeeding, over one million Nigerian children will die between 2003 and the next ten years (8). At about six months of age, children need to be fed adequate complementary feeds. Locally-available foods rich in energy, protein, iron and vitamin A and prepared in good hygienic conditions should be the base of the complementary feeding. However, most young children are fed complementary feeds that are inadequate in quality and quantity. For instance, two third of children six to nine months old are currently not fed foods of animal origin like fish, meat, crayfish, poultry or egg and therefore lack in their diets essential nutrients for their survival, growth and development (8).

The unnecessary introduction of water and other fluids before six months reduces intake of breastmilk and energy absorption of iron, transfer of immune factors from breastfeeding and increases exposure to infectious agents (2). Field studies showed that complementary feeds introduced between four and six months of age confer no advantage on growth and development (8; 9).

### **Objectives of the Study**

#### **General Objective**

The general objective of this study is to assess the infant feeding practices of mothers of children (0-24 months) attending the Infant Welfare Clinic (IWC) at UNTH. Enugu.

### **Specific Objectives**

1. To access the infant feeding knowledge of mothers
2. To ascertain the time of introduction of complementary feeds by mothers
3. To assess the quality of the complementary feeds used by mothers.
4. To ascertain the period of breastfeeding cessation by the mothers.

### **Significance of the Study**

This study is aimed at assessing mothers' infant feeding practices with a view to unraveling some faulty feeding practices by the mothers, highlighting those areas that require modification and proffering relevant approaches to ensure that infant and young child feeding recommendations are implemented at community, state and national level.

Also to ensure that children and young children pass through the period of complementary feeding with the least possible hazards as well as the prevention and reduction of mother-to-child transmission (MTCT) of HIV especially through breastfeeding in Nigeria.

The findings of this study will serve as a guide for Health workers in the counselling of mothers and caregivers on infant and young child feeding recommendations. The Policy Makers will find this research finding a useful tool in the formulation of guidelines on ensuring appropriate feeding of infants and young children. It can also serve as a guide in drawing menu for meal formulation in Day Care Centers. The research findings will also form a base line for further research on infant and young child nutrition.

## **RESEARCH METHODOLOGY**

### **Research Design**

The research involved a cohort study of the breastfeeding and complementary feeding pattern of mothers of children (0-24months) attending the Infant Welfare Clinic (IWC) situated at the Institute of Child Health (ICH), University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu The study was carried out through the evaluation of the knowledge, and practices of the mothers. The structured interview schedule was used to collect information on the mothers' knowledge, and practices of breast feeding and complementary feeding recommendations.

### **Area of the Study**

The Infant Welfare Clinic (IWC) of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State.

### **Population for the Study**

All mothers whose children were breastfeeding and/or on complementary feeding present at the Institute of Child Health within the period of data collection.

### **Sampling Procedure**

Two hundred mothers were enlisted into the study purposively as they brought their children for immunization after birth.

### **Data Collection Technique**

A structured interview schedule was developed and validated by the professionals of the Department of Dietetics University of Nigeria Teaching Hospital Ituku-Ozalla. This was used to collect information on the characteristics of the children and their mothers. Information on demographic characteristics, breastfeeding and complementary feeding knowledge and practices were obtained. The mothers were also counseled on health and infant feeding (exclusive breastfeeding practices and subsequent complementary feeding to be used after six months).

### **Statistical Data Analyses**

Data were coded and analyzed using Statistical package for social sciences (SPSS) version 16 to analyze the data. Frequency tables, correlation and chi-square analyses were done in order to predict the significant values with p value of 0.05.

### **Results**

A total of 200 mothers were used for the study. Table one below shows some of the demographic variables of their children. The ages of the children used for the study ranged from 0 -24 months of age.

Majority of the children' fell between 0-1 month 53(26.5%), 52 (26%) were between 2-3 months, 31 (15.5%) fell between 6-8 months and 9-11 months respectively. Only 6 (3%) of the children were up to 24 months of age.

The birth order of the children were mostly between 1st and 2nd position 114 (57%), 63 (31.5%) were between the 3rd and 4th position while only one infant (0.5%) was above the listed option and is the 9th in the birth order.

One hundred and ninety six of the children representing 98% of the studied population were single births while four children (2%) were multiple births.

**Table 1: Demographic characteristic of the children**

Demographic Characteristics	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
<b>Age of children (Months)</b>			
0 up to 1 Month	53	26.5	
2 up to 3 Months	52	26	
4 up to 5 Months	17	8.5	
6 up to 8 Months	31	15.5	75.100
9 up to 11 Months	31	15.5	
12 up to 23 Months	10	5	27
23 up to 24 Months	6	3	
<b>Birth Order</b>			
1 <sup>st</sup> – 2 <sup>nd</sup>	114	57	
3 <sup>rd</sup> – 4 <sup>th</sup>	63	31.5	
5 <sup>th</sup> – 6 <sup>th</sup>	19	9.5	233.400
7 <sup>th</sup> – 8 <sup>th</sup>	3	1.5	
Others	1	0.5	
<b>Type of Birth</b>			
Single	198	98	
Multiple	4	2	184.320

P < 0.05 (highly significant)

**Table 2: Demographic characteristics of the mothers**

Demographic Characteristics	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
<b>Age of Mothers (Years)</b>			
15 – 19	6	3	
20 – 29	110	55	
30 – 39	77	38.5	252.500
40 – 49	6	3	
50 years above	1	0.5	
<b>Religion</b>			
Christianity	199	99.5	
Islam	1	0.5	196.020
African Traditional Religion	-	-	-
<b>Ethnic Group</b>			
Igbo	193	96.5	
Hausa	1	0.5	
Yoruba	3	1.5	545.360
Others	3	1.5	
<b>Mother's Educational Background</b>			
No Formal Education	1	0.5	
Primary Education	23	11.5	
Secondary Education	99	49.5	196.240
Tertiary Education	50	25	
Post Graduate	11	5.5	
Others	16	8	
<b>Occupation</b>			
Civil Servant	52	26	
Business	64	32	
Unemployed/Student	1	0.5	47.650
Medical Health Personnel	7	3.5	
Others	76	38	
<b>Husband's Educational Background</b>			
No Formal Education	5	2.5	
Primary Education	41	20.5	
Secondary Education	87	43.5	149.5660
Tertiary Education	46	23	
Post Graduate	15	7.5	
Others	6	3	
<b>Husband's Occupation</b>			
Civil Servant	52	26	
Business	64	32	
Unemployed/Student	1	0.5	115.650
Medical Health Personnel	7	3.5	
Others	76	38	

P < 0.05 (highly significant)

Table 2 revealed some of the socio- economic demographic characteristics of the mother used for the study.

Their age ranged between 15-50 years. Majority 110 (55%) fell between 20-29 years while only one mother representing (0.5%) of the studied population was 50 years old.

One hundred and ninety nine mothers representing (99.5%) of the mothers were Christians, 1(0.5%) is a Muslim and none of the mothers is practicing African traditional religion.

The mothers were from different ethnic groups; the majorities 193(96.5%) were Igbos, 3(1.5%) Yoruba and the minority ethnic groups (Edo, Efik) respectively only one of the mothers (0.5%) is an Hausa. The mothers had different levels of educational attainments; the highest attained level was secondary education 99(49.5%), followed by tertiary education 50(25%). One of the mothers (0.5%) had no formal education.

The mothers were mainly businesswomen, 64(32%), 48 (24%) mothers were civil servants, 24(12%) were unemployed/students and 17(5.5%) were medical or Health personnel. Fifty three (26.5%) of the mothers were hairdressers, seamstress, and housewives.

Their husbands also had different educational attainment, the highest attained level was secondary education 87(43.5%) and 5 (25%) of the husbands had no formal education.

Sixty four (32%) of their husbands were businessmen, 52 (26%) were civil servants and 7 (3.5%) were Medical or Health personnel, 76 (38%) were politicians, legal practitioners, transporters, engineers, contractors, craftsmen.

**Table 3: Breastfeeding pattern of mothers of children from 0-24 months**

Feeding of Baby from 0 – 6 Months	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )	P-Value
Milk alone	90	45		
Milk + little water	48	24		
Milk + breastmilk substitute	27	13.5		
Milk + Pap	22	11	151.780	0.00
Milk + any other food	10	5		
Milk substitute	3	1.5		
<b>If Exclusive breastfeeding is important</b>				
Yes	178	89		
No	22	11	121.680	0.00
<b>Still Breastfeeding?</b>				
Yes	185	92.5		
No	15	7.5	144.500	0.00
<b>Age Stopped Breastfeeding</b>				
2 – 3 Months	1	6.7		
4 – 5 Months	2	13.3		
6 – 8 Months	4	26.7		
9 – 11 Months	3	20	2.200	0.82*
12 – 23 Months	2	13.3		
Others	3	20		
<b>Reason for stopping breastfeeding</b>				
The doctor asked me not to breastfeed	4	26.7		
Others	11	73.3	3.267	0.07*
<b>Age planned to stop breastfeeding</b>				
2 – 3 Months	-	-		
4 – 5 Months	1	0.5		
6 – 8 Months	3	1.6		
9 – 11 Months	12	6.5	363.355	0.00
12 – 23 Months	139	74.7		
24 Months and above	31	16.7		
<b>Frequency of breastfeeding</b>				
On demand	70	35		
When I fee baby is hungry	31	15.5		
As frequent as possible	94	47	167.750	0.00
When the breastmilk is full	2	1		
Others	3	1.5		

At age of breast feeding and reason for stopping breastfeeding  $p = 0.82$  and  $0.07$  respectively  $p > 0.05$  (no significant difference).

Table 3 above revealed the pattern of breastfeeding of mothers from 0-24 months of age. Ninety mothers representing 45% of the studied population gave breastmilk alone, but from the age distribution of the children, it was discovered that only 25(12.5%) children who received breastmilk alone received it for up to six months, the

other 65 (32.5%) of the infant who are receiving breastmilk alone were still below six months of age. Some of their mothers admitted that they could not be able to complete the exclusive breastfeeding since they were mostly civil servants. Forty eight (24%) mothers gave breastmilk and little water, 27 (13.5%) mothers gave breastmilk and breastmilk substitute, 22 (11 %) gave breastmilk with pap, 10 (5%) mothers gave breastmilk and other food while 3 (1.5%) mothers did not breastfed at all but gave breastmilk substitute.

One hundred and seventy eight mothers (89%) thought that exclusive breastfeeding is important but for those who would be able to maintain it while 22 (11 %) mothers did not agree with this.

One hundred and eighty five (92%) mothers were still breastfeeding their children while 15 (7.5) of the studied population had stopped breastfeeding their babies

Eleven (73.3%) of the mothers who had stopped breastfeeding had no significant reasons for stopping, it was either because they want to stop or the baby stopped on their own or the mothers were pregnant, while 4 (26.7%) mothers stopped because their doctors asked them not to breastfeed at all.

None of the mothers who had stopped breastfeeding was able to breastfeed up to 2 years of age. Four (26.7%) mothers stopped between 6 and 8 months, 3 (20%) stopped between 9 and 11 months, 2 (13.3%) stopped between 4 and 5 months and 12 and 23 months respectively, 1 (6.7%) stopped between 2 and 3 months, while 3 (20%) of the mothers did not breastfed at all.

Amongst the one hundred and eighty five mothers that were still breastfeeding, 139 (74.7%) planned to stop breastfeeding between 12 and 23 month while only 31 (16.7%) mothers planned to breastfeed up to two years and beyond.

The frequency at which mothers breastfed their children varied significantly. Ninety four (47%) mothers breastfed as frequently as possible while 70 (35%) mothers breastfed on demand.

**Table 4: Mothers whose children were on complementary feeds and time of introduction**

Introduced Complementary Feeds?	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
Yes	80	40	
No	120	60	8.000
<b>Age of Introduction</b>			
1 – 3 Months	23	28.8	
4 – 6 Months	57	71.2	14.450

P < 0.05 (highly significant)

One hundred and twenty mothers representing 60% of the studied population has not started their children on complementary feeds, while only 80 mothers (40%) had introduced complementary feeds. Fifty seven (71.2%) mothers introduced the complementary feeds between 4 and 6 months of age, but it was only 25 (31.3 %) of them that actually started their children on complementary feeds at the age of six months. Twenty three (28.8%) mothers introduced their babies on complementary feeds too early; between 1 and 3 months of age.

**Table 5: Type of complementary feeds**

Complementary Feed(s)	Frequency	Percentage (%)
Pap	2	2.5
Pap and Milk	50	62.5
Pap/Cray fish Groundnut paste	2	7.5
Commercial infant formula	2	2.5
Commercial complementary feeds	3	3.8
Combination of the above	14	1.3
Others	1	1.3

P < 0.05 (highly significant)

Table 5 revealed the type of complementary feeds mostly given by the mothers. Fifty (62.5%) mothers gave pap with milk, 14 (17.5%) mothers gave a combination of the above listed complementary feeds. 6(7.5%) mothers gave pap with soy flour, 3 (3.8%) mothers gave commercial cereals, while 2 (2.5%) of the mothers gave pap/Cray fish groundnut paste, commercial infant formula and plain pap respectively.

Only one (1.3%) mother gave other feed like pap with Milo.

**Table 6: Mothers that enrich complementary feeds with sugar and oil and Reasons for not adding sugar and oil**

Enrichment of complementary feeds with sugar and oil?	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
Yes	18	22.5	24.200
No	62	77.5	
<b>Mothers that added oil only</b>			
Yes	8	12.9	34.129
No	54	87.1	
<b>Reasons for not adding sugar and oil</b>			
Not aware that oil and sugar is used to enrich baby's food	4	6.5	42.387
Don't want baby to take sugary things	8	12.9	
Sugar makes baby to pass watery stool	37	59.7	
Sugar gives baby worm	13	21	

P < 0.05 (highly significant)

Sixty-two mothers representing 77.5% of the mothers that had introduced complementary feeds did not add oil or sugar to enrich the complementary feeds. Only 18 (22.5%) mothers added sugar to the complementary feeds of their children.

Out of the 62 mothers that did not add sugar, 8(12.9%) added only oil while 54 (87%) mothers did not add either oil/sugar.

The mothers' reasons for not adding oil and sugar varied significantly. Thirty seven (59.7%) mother did not add because they believe sugar makes baby to be passing watery stool, 13(21 %) were because sugar gives baby worm and 8 (12.9%) mothers did not want their children to be taking sugary things Four mothers (6.5%) claimed that they were not aware that oil and sugar should be used to enrich baby's food.

**Table 7: Frequency of complementary feeding and utensils used in feeding the children**

Enrichment of complementary feeds with sugar and oil?	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
1 – 2 times	16	20	51.700
3 – 4 times	47	59.8	
5 – 6 times	12	15	
More than six times	5	6.3	
<b>Utensils used in feeding baby</b>			
Feeding bottles	14	17.5	74.500
Small plastic bowl/spoon	7	3.5	
Small stainless bowl/spoon	53	26.5	
Both stainless and plastic	6	3	

P < 0.05 (highly significant)

A total of 47 (58.8%) children were fed between 3-4 times per day, 16 (20%) were fed 1-2 times per day 12 (15%) were fed 5-6 times per day while only 5 (6.3%) of the children feed more than six times per day.

Majority of the mothers 53 (26.5%) used small stainless bowl/spoon to feed their babies, 14 (17.5%) mother used feeding bottles while 6(3%) mothers admitted that they used both stainless and plastic.

**Table 8: Mothers who had introduced family food/ Type of foods and how they were given**

Number that had introduced family food	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
Yes	58	72.5	16.200
No	22	27.5	
<b>Types of family food</b>			
Rice	2	3.4	94.552
Beans	2	3.4	
Yam	6	10.6	
Eba with okro soap	3	5.2	
Agidi with okro soap	1	1.7	
Combination of the above	11	19	
All of the above	33	56.9	
<b>How the food was given</b>			
Mashed	30	51.7	26.310
The way it appeared after cooking	27	46.6	
Sometimes mashed, sometimes not mashed	1	1.7	

P < 0.05 (highly significant)

A good number of the children 58 (72.5) on complementary feeds had been introduced to the family diet while 22 (27.5%) were yet to start. Majority of the mothers 33(59.9%) gave all family foods listed above, 11 (19%) gave a combination of some of the family foods while 6(10.3%), 3(5.2%), 2(3.4%) and 1 (1.7%) were on yam, eba with okra soup, rice, beans and agidi with okra soup respectively.

Thirty (51.7%) mothers admitted mashing the foods before feeding it to the children although most of them used their hands to mash, 27 (46.6%) mothers gave the food the way it was after cooking, while one of the mothers (1.7%) said that she gave the food mashed sometimes but not always.

**Table 9: Mothers who gave snacks and fruits and the types given**

Number that gave snacks	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
Yes	58	72.5	16.200
No	22	27.5	
<b>Types of snacks</b>			
Moi-moi	10	17.2	29.414
Akara	3	5.2	
Fried plantain	1	1.7	
Baked products (e.g. biscuits)	14	24.1	
Combination of the above	14	24.1	
All of the above	16	27.6	
<b>Number that gave fruit</b>			
Yes	51	63.8	6.050
No	29	36.3	
<b>Type of fruit</b>			
Orange	13	25.5	31.706
Banana	2	3.9	
Mango	4	7.8	
Pear	3	5.9	
Combination of the above	21	41.2	
All of the above	8	15	

P < 0.05 (highly significant)

A total of 58 (72.5%) mothers give snacks while 22 (27.5%) did not give snacks. The snack mostly given by 14 (24.1 %) of the mothers was baked product (e.g. biscuits). Fifty one (63.8%) of the mothers gave fruits while 29 (36.3%) did not give fruits.

A good number of the mothers 21 (41.2%) give a combination of the above listed fruits while 13 (25.5%) mothers give orange.

**Table 10: Mothers who gave animal protein and type**

Given animal protein?	Frequency	Percentage (%)	Chi-Square (X <sup>2</sup> )
Yes	62	77.5	24.200
No	18	22.5	
<b>Types of animal protein</b>			
Egg	3	4.8	28.645
Meat	3	4.8	
Fish	19	30.6	
Any combination	13	21	
All of the above	24	38.7	

P < 0.05 (highly significant)

This table showed the number of mothers that gave animal sources of protein. Sixty-two (77.5%) mothers admitted giving animal sources of protein while 18 (22.5%) did not give.

**Table 11: Relationship between mother's occupation and frequency of breast-feeding**

Mother's occupation	Frequency of breast-feeding
1.000	0.874

**Table 12: Type of birth in relation to the breastfeeding patterns from 0-6 months**

Type of birth	Breastfeeding pattern from 0-6 months
1.000	0.654



**Table 13: Breastfeeding patterns from 0-6 months in relation to birth order**

Breastfeeding pattern from 0-6 months	Birth order
1.000	0.887

**Table 14: Mother's educational background in relation to breastfeeding pattern from 0 – 6 months**

Educational background	Breastfeeding pattern from 0-6 months
1.000	0.864

**Table 15: Frequency of breastfeeding in relation to age of introducing complementary feeds**

Frequency of breastfeeding	Age of introducing complementary feeds
1.000	0.740

**Table 16: When to stop breastfeeding in relation to mother's occupation and educational background**

When to stop breastfeeding	Mothers Occupation	Educational Background
1.000	0.709	0.749

Tables 11, 12, 13, 14, 15, and 16 showed that there were relationships between mother's education and frequency of breastfeeding; type of birth and exclusive breastfeeding; exclusive breastfeeding and birth order; mothers educational background and exclusive breastfeeding; frequency of breastfeeding with age of introducing complementary feeding and when to stop breastfeeding with mothers occupation and educational background respectively.

## DISCUSSION, CONCLUSION AND RECOMMENDATIONS

### Discussion

A total of 200 mother-infant pairs were used for the study. The ages of the children' ranged from 0-24 months. Majority (5326.5%) of the children fell between the ages of 0-1 month, 144(57%) were between the 1st - 2nd of the birth order, while almost all 196(98%) were single births.

The ages of the mothers varied significantly. Majority 110(55%) of the mothers were within their peak childbearing age, this is similar to the finding of Ezeofor (11). Their educational levels ranged from no formal education to post graduate education. Majority 99(49.5%) of the mothers had secondary education, only one (0.5%) mother had no formal education. The mothers were engaged in different works of life. Sixty four (32%) of them were businesswomen, 52(26%) were civil servants while 1(3.5%) were Medical Health personnel.

### Breastfeeding

Almost all the mothers 197 (98.5%) breastfed their children, this finding is in conformity with the findings of Haggerty and Rutstein where breastfeeding was found to be universal in sub-Sahara Africa (12). Ninety (45%) of the mothers gave breastmilk alone from birth but only 25(12.5%) of them had completed their exclusive breastfeeding for six month. The children of the other 65 mothers (32.5%) who love breastmilk alone were still under six months of age. Some of the mothers said they would complete the exclusive breast-feeding for six months, while some admitted they could not complete it since they were civil servant and they would have started work before the baby complete six months.

The comparisons of the exclusive breastfeeding rate found in this study with that of Ihekuna revealed a downward trend in exclusive breastfeeding rate (13).

This may be due to the fact that many mothers believed that there were no difference between the growth rate and intellectual capacity of an exclusively breastfed child and a non-exclusively breastfed child. There was also a decrease in the level of awareness on the importance of exclusive breastfeeding by health workers now than the previous years and many mothers admitted being advised by some medical practitioners to give their children water in order to avoid dehydration.

One hundred and seventy eight of the mothers (89%) said that exclusive breastfeeding is important but some of them admitted that it is difficult to practice because of the socio-economic situation of the country and depending on the infant too. Seventy (35%) mothers practiced breastfeeding on demand. This finding is lower than that found in Botswana where 78.3% mothers breastfed their infant on demand (14). One hundred and eighty five (92%) mothers were still breastfeeding their children. One hundred and thirty nine (74.7%) of them planned to stop breastfeeding between the ages of 12 and 23 months and 31(16.7%) planned to breastfeed up to two years and beyond. This finding was lower than the findings in Botswana where 85% of the mothers planned to continue breastfeeding for eighteen months and more (14) and 62% were reported by Ighogboja research group to be the practice among Nigerian mothers (15). One explanation for this short duration of breastfeeding could be inadequate message exposure/education. There was also a negative attitude towards longer duration of

breastfeeding on the part of the more educated women, which conform to previous findings (16) that educated mothers in non-industrial communities breastfeed poorly compared to their less educated counter-parts.

### **Complementary Feeding**

Eighty (40%) mothers had started their children on-complementary feeding and the age of introduction varies significantly. Twenty three (28.8%) introduced between the ages and 3 months, while 57(71.2%) introduced between 4 and 6 months. Among those that introduced complementary feeding it was only 25(31.2%) of them were able to start after their children had completed six months, the other 32(40%) started before the age of six months. Majority 50(62.5%) gave pap with milk as complementary feed while 2(2.5%) gave plain pap. Most of the mothers 62 (77.5%) do not add sugar or oil to enrich their baby's pap, this is due to the belief by most mothers 37(59.7%) that sugar will make their babies-to be passing watery stool. Majority of the children 47(58.8%) received complementary feeds between 3 and 4 times in a day. This showed a positive trend since it is the recommended frequency for children aged 9-11 months (12). Fourteen (17.5%) mothers used feeding bottles to feed their children. This showed a decrease in the use of feeding bottle as compared with the report of Haggerty and Rutsein (12) that one third of children are bottle fed in the first four months in Namibia and Nigeria and in Ogunba (17) where 89.2% mothers used feeding bottles for their children. One explanation for this variation could be due to increased emphasis by the health workers that mothers should feed their children with cup and spoon instead of feeding bottles and there is a corresponding positive response from the mothers. A good number of the children 58(72.5%) were already on family diet, 30(51.7%) received the family diet mashed while one mother (1.7%) admitted that she gave the foods mashed sometimes and sometimes not mashed. Fifty eight (72.5%) mothers gave snacks while 51 (63.8%) gave fruits to their children, Sixty two (77.5%) mothers admitted giving animal proteins like egg, meat, fish to their children although the type given varied significantly. There was a positive relationship between when to stop breastfeeding, mother's occupation and mother's educational background.

### **Conclusion**

Based on the findings of this study, the researcher concluded that although breastfeeding remains a universal practice by women, the Infant and young child feeding practices observed in this study are far from optimal. The finding showed that although breastfeeding is common amongst the mothers, it is rarely optimal. The mothers use mainly pap made from cereals as complementary feeds instead of using different varieties of our locally available foods, as was the practice prior to the rampant use of the maize gruels. The mothers had insufficient knowledge of use of sugar and oil to enrich the complementary feeds.

### **Recommendations**

Based on the findings of this study, the following recommendations are made;

It is suggested that the country develop feeding guidelines and interventions, which should be promoted and integrated into the existing programmes. Emphasis should be on the need to strengthen existing programmes to promote exclusive breastfeeding and the continuation of breastfeeding into the second year and beyond. Extra support for the primiparas through behaviour, change and communication (BCC) should be provided. Studies on infant care should be included in secondary school education curriculum. There is urgent need to develop satisfactory, cheap and culturally acceptable complementary recipes that can be prepared from locally available foods.

Attention should also focus on the use of sugar and oil to increase the energy content of complementary feeds and the timeliness of complementary feeding so as to optimize the benefits of breastfeeding and complementary feeding.

The health services and the communities can play important roles in supporting infant and young child feeding. Counseling if based on locally appropriate feeding recommendations, is effective in improving feeding practices, and can be delivered by trained health workers or peers.

### **References**

1. World Health Organization (2002a). Global Strategy for Infant and Young Child Feeding. WHO Geneva.
2. Federal Ministry of Health (2005), Infant and Young Child Feeding in Nigeria, Guidelines.
3. Ibe O.E., (2003). Incidence of mother to child transmission (MTCT) of HIV/AIDS. Feeding practices and survival of HI V infected or Aids children. Proceedings of Nutrition society of Nigeria at the 34th conference and scientific meeting. Child survival and the right to adequate nutrition:29-34.
4. World Health Assembly (2002). WHA Res 55.25 Available at [www.who.int/gb](http://www.who.int/gb)
5. Ndubisi E.C. (2003). Malnutrition and childhood diseases: The Way out. Proceedings of Nutrition society of Nigeria at the 34th conference and scientific meeting. Child survival and the right to adequate nutrition: 35-40
6. World Health Organization (1998). The World Health Report. Life in the 21st Century. A Vision for WHO, Geneva.
7. PROFILE (2001), A Tool for Nutrition Policy Analysis and Advocacy in Nigeria in Proceedings of

- Nutrition Society of Nigeria at the 34th Annual Conference and Scientific Meeting. Child Survival and the Right to Adequate Nutrition: 3.
8. Aminu F.T. and Agle A.N (2003). Infant and Child Feeding Household Caring Practices and Child Survival in Nigeria at the 34th Conference and Scientific Meeting. Child Survival and the Right to Adequate Nutrition: 1-8.
  9. Dewey K.G. Cohen R.J. Brown R. H. and Rivera L.L. (1999), Age of Introduction of Complementary Foods and Growth of Term, Low Birth Weight, Breastfed infant: A Randomized Intervention Study in Honduras. *Am Journal of Clinical Nutrition* 69:679-686.
  10. Cohen R. H. Brown Canahuati J., Landa L, Rivera and Dewey K. G. (1994), "Effect of Age of Introduction of complementary Foods on Infant Breast Milk intake Total Energy intake and Growth a Randomized Intervention Study in Honduras.
  11. Ezeofor I.O. (2005). Breastfeeding practices of mothers of breastfed children 0 to 24weeks,attending Infant Welfare Clinic (IWC) at the Institute of Child Health, UNTH,Enugu. *Nigeria Journal of Nutritional Sciences*; 26(2): 1-9.
  12. Haggerty P. A. and Rutstein S. (1999), Breastfeeding and Complementary Infant Feeding and the Postpartum Effects of Breast feeding. Calvertan, MD Macro International Inc.
  13. Ihekuna D.C. (2004). Complementary Feeding Knowledge and Practices of Mothers Attending Infant Welfare Clinic (IWC) at the Institute of Child Health, UNTH,Enugu. MPH Thesis. University of Nigeria, Enugu Campus.
  14. Mahgoub S.E.O., Bandeke T. and Nyepi M. (2002). Breastfeeding in Botswana: Practices, Attitudes, Patterns and the Socio-cultural Factors Affecting Them. *J Trop Pediatr*; 48: 195-199.
  15. Ighogboja LS., Odumodu C.U. and OIarewaju(1996). Breastfeeding pattern in Jos, Nigeria, before Baby friendly Hospital Initiative. *J Trop Pediatr*;42: 178-179.
  16. Popkin B, Bilsborrow R. Akin J. and Yamamoto M. (1983). Breastfeeding determinants in low-income countries. *Med Anthropol*; 7:1-31.
  17. Ross J.S. and Labbok M.H. (2004). Modeling the effects of different infant feeding strategies on infant survival and mother-to-child transmission of HIV. *The American Journal of Public Health*; 94: 1174-1180.
  18. Ogunba B. O. (2006), Maternal Behavioural Feeding Practices and Under-Five Nutrition Implication for Child Development and Care *Journal of Applied Sciences Research* 2(12): 1132-1136.
  19. United Nations Children's Fund (UNICEF) (2012), Global Strategy for Infant and Young Child Feeding. Nutrition Section, Programmes, UNICEF New York.
  20. United Nations Children's Fund (UNICEF) (2012) *The State Of The World's Children 2012* United Nations publications [www.unicef.org/sowc2012](http://www.unicef.org/sowc2012)

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:  
<http://www.iiste.org>

## CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

**Prospective authors of journals can find the submission instruction on the following page:** <http://www.iiste.org/journals/> All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

## MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

Recent conferences: <http://www.iiste.org/conference/>

## IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

