

Nutritional Status and Weaning Practices of Infants in Ogun State, Nigeria

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Abstract

Background: Most mothers in Ogun State, Nigeria, start weaning their infants in the sixth month. The major weaning foods given to the infants are corn pap, banana, fish and bean cake (moinmoin). The prevalence of malnutrition among infants in Ogun State is still high. The lack of education of mothers and absence of encouragement of the need to wean their infants with nourishing complemented and fortified foods to enhance their nutritional status, are the major contributory factors to poor infant weaning practices.

Objective: The study assessed infant (0-2 years) feeding practices of mothers in Ogun State, Nigeria, with reference to Ikenne Local Government Area and the nutritional status of these infants, based on their anthropometric indices.

Methods: This study involved 200 mother infant pairs who were randomly selected from various occupational groups in Ikenne Local Government Area of Ogun State, Nigeria. The data collected through structured and pretested questionnaire, was used to elicit information, on feeding practices, and anthropometric measurements for height/length and weight of infants measured following standard procedures. Descriptive statistics such as cross tabulation, frequency and percentages were used to analyse the data and determine the relationship between the variables. Significance was accepted at $P < 0.05$.

Results: Weaning was initiated in most homes in the sixth month. Most of the infants studied (69%) were normal while some (10%) were moderately malnourished and others were severely malnourished (21%). This study concluded that many of the infants studied had normal nutritional status though at lower level to the WHO standard. It is worrying however that up to 31% of the mother-infants relationship showed moderate to severe malnourishment owing to poor weaning practices employed. Proper nutrition education given to the mothers and monitoring of the infants weaning practices will further ensure adequate nutrition of the infants.

Keywords: Weaning practices; Infants; Nutritional status

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Introduction

In Ogun State, Nigeria, many women wean their infants at six months, but some do not resulting in malnourishment of the infants to various degrees from moderate to severe malnourishment. According to (Ayogu., *et al.* 2015), infant feeding is influenced greatly by socio-cultural factors such as beliefs, attitudes, practices and ignorance.

Exclusive Breast Feed (EBF) is good for the infant from birth to weaning. At weaning the food that the infant will eat in order to live and cope with the challenges of life becomes a pressing problem (Ayogu., *et al.* 2015). Adequate nutrition and health during the first few years of life is fundamental for child survival and prevention of malnutrition (Atinmo & Oyewole, 2008). The period between the introduction of mixed feeding and final stopping of breast feeding is commonly referred to as weaning period and is a time of particular danger to the infant. Child mortality is high during this period (Aminu & Agle, 2004) because of the lack of adequate, hygienically safe, easily consumed and digested foods for the baby.

The World Health Organisation recommends a gradual weaning period from 6 months to 2 years (WHO, 2006). This allowed the child to receive the benefits from breast feeding while also consuming the required additional nutrients from the complementary foods which should always be provided on demand. The weaning period is therefore a crucial time when the infant should be attentively cared for and observed so as to maintain good health (Dewery, 2001; Onofiok., *et al.* 2005). The present study was to assess the nutritional status of infants during weaning period to two years of age in the study area of Ikenne Local Government of Ogun State, Nigeria.

Materials and Methods

This study employed a descriptive cross sectional design. Ikenne Local Government Area of Ogun State was selected for its urban and rural-based outlook. Twenty eight (28) Healthcare Centres were purposively selected from the healthcare centres in the Local Government Area (LGA). Simple random sampling was used to select a total 200 mother-infant respondents from the attendance at the post-natal clinics of the healthcare centres. They were interviewed using the structured questionnaire which had information on socio-economic characteristics, weaning practices of mothers, and the anthropometric measurements of the infants. Questionnaire written in English was administered through interpretation in Yoruba and Pidgin English to respondents. The Anthropometric measurement of weight and height/length of infants were obtained using the standard procedure explained in Cogill (2001). The values were related to age of infants i.e. weight-for-age, height/length-for-age. The nutritional status of children was determined by the values using the WHO anthro software.

The weaning practices found amongst the respondents were examined with structured questionnaires highlighting the following, to show the nutritional intake of infants.

1. Currently breastfeeding at the time of the investigation.
2. Age, weaning started between 3 and 7 months.
3. Mode of preparation of weaning foods; home prepared, commercially (factory) products and combination of both home and factory made foods
4. Frequency of feeding ranged from infant demand, once a day with food stored in a flask or bowl or food prepared for the entire family.
5. Length of food storage ranging from 1-2 to 5-6 h.
6. Mode of feeding: Involved feeding food to the infant on demand, scheduled timing and forced feeding at the demand of the mother
7. Frequency of feeding per day. Varied from twice daily, thrice daily, four time daily and other frequencies of feeding in the day.
8. Type of cereals used in weaning. Considered six types of cereal used for weaning infants in the study area. These cereals included Corn pap, Agidi, Custard, Cerelac, Nutrend, Rice and Noodles.
9. Types of root and tubers used as weaning meals – included yams, cocoyam, Gari and starch.
10. Protein sources used for weaning infants. Four (4) main sources of proteins commonly used are fish, meat, egg and chicken
11. Vegetable protein sources used for weaning infants. These are beans, Akara and Moinmoin.

12. Fruits and vegetables used for weaning infants. The sources are mainly five (5) in number; orange, paw-paw, banana, watermelon and plantains.

Statistical Analysis: The data was analysed with the aid of descriptive statistics of the SPSS (Statistical Package for Social Sciences) version 16 (SPSS Inc., USA) to generate the results in frequencies and percentages, and to determine the relationship between the variables. Significance was accepted at $P < 0.05$. The WHO anthro software procedure was used for classification of nutritional status of subject characteristics.

Results

Characteristics of the Mother-Infant Pairs: Table 1 presented the socio-demographic background of the mothers. From Table 1, 55% of the infants were female while 45% were males. The highest age of mother examined ranged from 26-30 years (31.5%), and were commonest religion practiced in the area was Christianity (64%). The respondents were mostly traders (42%), and majority of the respondents were married (75.5%), while 38.5% and 36.5% of the respondents had secondary and tertiary school education, respectively, and 13.0% had no formal education. The highest household size was 4-7 and about 77% of the families examined were monogamous.

Table 1b showed that the Demographic characteristics of the infants. The highest range of numbers of children in the family was 1-4 (85%) and the most frequent age of the infants studied was 6-12 months (40.5%). There were more females (55%) than males (45%).

Characteristics	Frequency	Percentage
Age of Mothers (Years)		
<20	36	18.0
21-25	53	26.5
26-30	63	31.5
31-35	27	13.5
36-40	15	7.5
41-45	6	3.0
Religion		
Christian	128	64.0
Muslim	45	22.5
Traditional	27	13.5
Occupation		
Farmer	39	19.5
Trader	84	42.0
Teacher	37	18.5
Others	40	20.0
Marital Status		
Married	151	75.5
Single	25	12.5
Divorced	15	7.5
Widowed	9	4.5
Educational Level		
Secondary	77	38.5

Tertiary	73	36.5
Primary	24	12.0
No formal education	26	13.0
Household Size		
<4	48	24.0
4-7	125	62.5
>7	27	13.5

Table 1a: Demographic characteristics of mother-infant pairs.

Characteristics	Frequency	Percentage
No of the Children		
1-4	170	85.0
5-6	15	7.5
>6	15	7.5
Infants Age (Month)		
<6	67	33.5
6-12	81	40.5
13-18	45	22.5
>18	7	3.5
Sex of Infants		
Female	110	55
Male	90	45
Weight of Infants (Kg)		
2.0-4.0	37	18.5
4.1-6.0	29	14.5
6.1-8.0	56	28
8.1-10.0	36	18
10.1-12.0	42	21

Table 1b: Demographic characteristics of infants.

Table 2 presented the results of the weaning practices of infant/mother pairs used and their nutritional status were expressed in percentages add frequencies. The Table 2 showed that the most frequently served foods to the children were fish meals (67.8%) and corn pap (64.0%) and bananas (60%). Only 55% of the infants were breastfed, 32% of the infants were introduced to solid/semisolid food at the 6th month while 17%, 19.5%, 18%, and 13.5% were introduced to this food in the 3rd, 4th, 5th and 7th month, respectively. As regards the weaning food preparations, 51% of infants were fed home prepared foods mainly pap, 18% were fed on commercially prepared foods while 31% were fed on the combination of home and commercially prepared foods. This result also showed that 35% of the mothers stored the weaning food. The storage of the prepared food was for 1-4 hrs (75.5%) and above 5 hrs (27.5%). This could introduce contamination as earlier reported by Weaver (1994) that crude storage processes, poor hygiene and sanitation with inadequate knowledge of preservative methods could introduce parasitic contamination and risk of gastrointestinal infection.

In the present study, 44% of the respondents prepared food for the infants on demand, and so feeding on demand was common (68.5%) but some mothers practiced forced feeding (12%). This forced feeding is often at the time the infants do not need it and consequently results in infection with possibility of choking the infant to death. This is in support of the observation of Imonikebe (2009). Some mothers practiced scheduled feeding of their infants (19.5%), a practice that is common mostly in the urban areas where mothers cannot practice “demand” feeding owing to their work schedule. The most frequent time of feeding was 4 times a day (44.5%) and for more than 4 times a day (31.5%).

Weaning practices	Frequency	Percentage
Still Breastfeeding		
Yes	110	55.0
No	90	45.0
Introduction of Complementary Foods (Age)		
3 Months	34	17.0
4 Months	39	19.0
5 Months	36	18.0
6 Months	64	32.5
7 Months	27	13.5
Mode of Preparation		
Home prepared	102	51.0
Commercially prepared	36	18.0
Combination	62	31.0
Frequency of Feeding		
As soon as baby wants to eat	88	44.0
Once a day and food is stored in a flask	71	35.5
Once a day and food is stored in a bowl	12	6.0
Other members of the family wants to eat	24	12.0
Length of Storage		
1-4 hours	145	72.5
> 5 hours	55	27.5
Length of Feeding		
Feeding on demand	137	68.5
Scheduled	39	19.5
Forced feeding	24	12.0
Frequency of Feeding Per Day		
Twice/day	6	3.0
Three times/day	42	21.0
Four times/day	89	44.5
More than four times	63	31.5
Cereal Groups		
Corn Pap	128	64.0
Agidi	6	3.0
Custard	9	4.5

Cerelac	24	12.0
Nutrend	15	7.5
Rice	3	1.5
Noodles	15	7.5
Roots and Tubers		
Yam	79	39.5
Cocoyam	70	35.0
Garri	39	19.5
Starch	12	6.0
Meat and Fish		
Fish	134	67.0
Meat	12	6.0
Egg	28	14.0
Chickens	26	13.0
Legumes		
Beans	52	26.0
Akara	75	37.5
Moinmoin	73	36.5
Fruits and Vegetables		
Orange	21	10.5
Pawpaw	12	6.0
Banana	121	60.5
Watermelon	24	12.0
Plantain	22	11.0

Table 2: Weaning Practices Infants-Mother Pairs.

Table 3 showed that some foods which were usually avoided and the reasons for avoidance as weaning foods in Ogun State. It also shows snail meat as the highly avoided by parents, who regard it as unclean for infants (40.0%). Another food meal hated by mothers for weaning infants is Pork. The hatred for Pork emanates from the fact that it is said to contain large quantities of worm infection which can easily complicate the growth of infants.

Food Avoided	Reasons for Avoidance	Frequency	Percentage
Snail	Believed to be unclean for human consumption	80	40.0
Beans	Not easily digested by the baby	14	7.0
Groundnut	Baby might accidentally swallow	40	20.0
Pork	Believed to be unclean for human consumption	53	26.5
Okra	Family taboo	3	1.5
Watermelon	Too many seeds and baby might swallow	10	5.0

Table 3: Some foods which are seldom given to weaning infants.

Nutritional Status of Infants	Frequency	Percentage
Normal	138	69
Moderately malnourished	20	10
Severely malnourished	42	21

Table 4: Nutritional Status of Infants using weight for age Ratio (WHO/UNICEF, 2003) (n = 200).

Table 4 showed that 138 out of the 200 infants examined were normally nourished (69%) and only 10% were moderately malnourished and more disturbing is the fact that 21% of the infants were severely malnourished. The growth chart showed that the growth rate of infants in Ikenne Local Government Area falls short of WHO standard growth rate using weight for age.

Factors Affecting the Weaning Practices Used and the Nutrition Status of Infants Based On Various Weaning Methods

Table 5 showed the feeding methods and their relationship with the nutritional status of the infants using weight for age. For infants who were fed “on demand” many of them were normal (64%), 10.2% were moderately malnourished and 25.6% were severely malnourished. Of the infants who were fed on schedule 82% were normal, and 10.3% were moderately malnourished and 7.7% were severely malnourished, while infants who were force fed, 75% of them were normal, infant, 8.3% were moderately malnourished, and 16.7% were severely malnourished.

How infants were fed Total No. of Infants		Level of Nutritional Status of the Infants					
		Normal		Moderately malnourished		Severely malnourished	
Feeding methods		Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
Feeding on demand	137	88	64.2	14	10.2	35	25.6
Scheduled feeding	39	32	82.0	4	10.3	3	7.7
Forced Feeding	24	18	75.0	2	8.3	4	16.7

Table 5: Factors affecting weaning practices in relationship to nutritional status of infants.

Table 6 presented the relationship between type of food given to the infants and their nutritional status using weight for age assessment method. For infants who start eating solid/semi-solid food at the 3rd month, 79.4% were normal, 2.8% were moderately malnourished and 17.7% were severely malnourished. Infants who started eating foods at age 4 months, 74.4% of them were normal, 7.7% of them were moderately malnourished and 17.9% of them were severely malnourished while those who started eating foods at the 7th month, 63% were normal, 22.2% were moderately malnourished and 14.8% were severely malnourished.

Table 7 presented the relationship between age of introduction of food given to infants and their nutritional status based on weight for age (WHO/UNICEF, 2006). From Table 6, it can be seen that infants fed on home prepared foods (65%) especially when combined with complementary foods, prepared under hygienically prepared condition (93.6%) were saved from malnutrition and infection as early reported (Samuel & Golden, 2004).

Infants who were fed on commercially prepared food (36.1%) were normal while 22.2% were moderately malnourished and 41.7% were severely malnourished. Infants fed combined mode of preparation (93.6%) were normal and 4.8% severely malnourished.

Mode of Preparation Total No. of Infants		Nutritional Status of the Infants				
		Normal		Moderately malnourished	Severely malnourished	
		Frequency	Percent (%)	Frequency	Percent (%)	Frequency
Home prepared	102	67	65.7	11	10.8	23.5
Commercially prepared	36	13	36.1	8	22.2	41.7
Combination of both	62	58	93.6	1	1.6	4.8

Table 6: Relationship between Type of Food Given and the Nutritional Status of the Infants.

Age Total No. of Infants		Nutritional Status of the Infants					
		Normal		Moderately Malnourished		Severely Malnourished	
		Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
3 rd Month	34	27	79.4	1	2.9	6	17.7
4 th Month	39	29	74.4	3	7.7	7	17.9
5 th Month	36	30	83.3	1	2.8	5	13.9
6 th Month	64	35	54.7	9	14.0	20	31.3
7 th Month	27	17	63	6	22.2	4	14.8

Table 7: Relationship between Age of Introduction of Solid/Semi-Solid Food and the Nutritional Status of the Infants Using Weight for Age.

Conclusion

From the following analysis of the weaning practices and nutritional status of infants in Ogun State, Nigeria with special reference to Ikenne Local Government Area, the following can be concluded:

1. Majority of the infants (69%) seen in this study had normal nutritional status although at a lower level to W.H.O standard.
2. Infants exposed to poor weaning practices (31%) were moderately to severely malnourished.
3. The introduction of timely, adequate, balanced and hygienically prepared complementary or weaning foods suffered little or no malnutrition.
4. Nutrition education and monitoring of the weaning practices of mothers could be enhanced the nutritional status of the infants.

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