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Maternal nutritional knowledge, feeding practices and nutritional status of infants (0-24months) in Ilaro, Ogun State

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Abstract
Poor infants feeding practices have been found to be more prevalent among nursing mothers in developing countries. Continuous evaluation of the likely contributing factors will help in correcting this. This study assessed the Maternal Nutritional knowledge, Feeding practices and Nutritional status of infants (0-24 months) in Ilarotown. Using a multistage sampling technique, a total number of 250 nursing mothers were selected in Ilaro. A semi- structured and interviewer administered questionnaire was used to obtain information on socio-demographic characteristics, Maternal nutritional knowledge and infants feeding practices, while the nutritional status of the infants was assessed using anthropometry measurement. The data collected was subjected to both descriptive and inferential (chi square) statistics using SPSS Version 20.0. The results showed that 2.0% of the respondents had no formal education and almost half of the respondents (40.4%) earned more than #10,000 monthly. Anthropometry measurement shows that 50.8% of the infants had normal weight for age, while 12.4%, 9.6% and 27.2% were severely, moderately and mildly wasted respectively. Also 21.6% and 40.4% had normal height for age and weight for age respectively and these were significantly associated with their parental educational attainment (weight for age; χ^2= 36.026, p-value = 0.007, height for age; χ^2=40.100,p-value = 0.002) and estimated monthly income (WFA: χ^2= 27.734,p-value = 0.006, HFA:χ^2=25.324,p-value = 0.013). More than half of the respondents (54.4%) had good knowledge of maternal nutrition and nearly all initiated breastfeeding (82.4%) after delivery. 58.4% practiced exclusive breastfeeding and almost half of the respondents (43.6%) introduced complementary feeding after six months of birth. Significant association (χ^2=32.417,p-value = 0.001) was observed between educational attainment and maternal nutritional knowledge of the mothers. Conclusively, practice of exclusive breastfeeding and maternal nutritional knowledge was significantly high; however, high level of malnutrition in this study calls for urgent intervention,hence there is need to create more opportunities to enhance maternal income generation, improved maternal education and ensure routine monitoring of the health of the children.

Keywords: feeding practice, maternal, nutritional knowledge, nutritional status

Introduction

Background of the study

Infant and young child feeding has continued to be a major challenge in developing countries of the world. It is influenced greatly by socio-cultural factors (Sika-Bright *et al.*, 2010) such as beliefs, attitudes and practices as well as ignorance. When a child is born what to eat in order to live and cope with challenges of life becomes an issue of concern.

Adequate nutrition during infancy and early childhood is essential to ensure the growth, health, and development of children to their full potential (WHO, 2009) and of important for the early prevention of chronic degenerative diseases. Poor breastfeeding and infants feeding practices have adverse consequences on health and nutritional status of infants, which in turn affects the mental and physical development of the child. Breast milk is the first and most essential feed for the infants as it contains the necessary ingredients for healthy growth and development, therefore for these essential nutrients to be fully extracted from the breast milk, exclusive breastfeeding must be practiced for 6 months and followed by breastfeeding along with complementary foods for up to two years of age or beyond (Brown *et al*., 2010) [3].

Exclusive breastfeeding (EBF) practice which supports optimal infants' growth (Caulifield *et al*., 2004) [4] and protection against infections for the first six months of life (Idris *et al.*, 2013) [6] is particularly low in developing countries. In Nigeria, EBF falls below expected level to achieve a significant reduction in child mortality (Agho *et al.* 2011) [1]. According to Black (2008) [2] report, 1.4 million deaths and 10% of disease burden in under-five children resulted from inadequate breastfeeding especially non-exclusively breastfed children in developing countries. Many nutritional deficiencies witnessed during second half of infancy in many developing countries has been found to be as the result of either early or too late introduction of complementary foods (Pelto *et al.* 2003) and nutritionally inadequate complementary foods.

However, Inappropriate feeding practices and consequences are major obstacles into sustainable socio-economic development and poverty reduction. A mother is the gate keeper of the health of the family and the type of care she provides depends to a large extent on her knowledge of some fundamental nutrition and health care which has been reported to influence her health care practice. Thus, targeted, well-resourced and coordinated nutritional education may improve maternal nutritional knowledge thereby enhancing the nutrition and health status of their children.

Poor infant feeding is a leading factor to infant morbidity and mortality which could be a consequence of the fact that

mothers who choose exclusive breastfeeding wean off their babies abruptly and present later in hospital with malnutrition.). Other factors such as poverty, poor access to health facilities, living standard, water and sanitation and mothers education are also varying causes of malnutrition among under-five children (Pieris *et al*., 2010) [11].
This study assessed the knowledge of mothers, feeding practice and nutritional status of infants 0-24 months in ilaro. The aim of the study was to determine the current nutritional status of the infants and assess the possible association with maternal nutritional knowledge, infant feeding practice and socio economic characteristics which can be used to formulate policy for appropriate nutritional intervention particularly in this era of austerity measure.

Study Area
This study was carried out among nursing mothers in Ilaro area of Yewa South, Ogun State. The purpose of this study was to assess the maternal nutritional knowledge, feeding practice and the nutritional status of their infants (0-12months).

Study Design
The study was cross sectional and descriptive in nature.

Research Materials
A semi-structured and interviewer administered questionnaire was used to obtain information on socio-demographic characteristics, Maternal nutritional knowledge and infants feeding practices, while the nutritional status of the infants was assessed using anthropometry measurement; infant-O-Meter was used to determine the height, weighing scale to determine the weight.

Sampling Procedure
A multistage sampling technique was used in selecting the respondents; Ilaro community was divided into three clusters which are Igboro, Orita and express areas. Simple random sampling was used in selecting the respondents using convenience sampling technique.

Sample Size
Yamane formula was used to determine the sample size. The prevalence of malnutrition among under-five children in Nigeria is 80%. (Yamane 1967)
Yamane (WHO 2008) formula:

$$n_o = \frac{Z^2 P (1-P)}{d2}$$

P= Prevalence from previous study
d= desired level of precision at 5 % (0.5)
z= confidence interval (1.96)

$$n_0 = \frac{(1.96)^2 0.8(0.2)}{(0.05)^2} = 245.86$$

The sample size was rounded up to 250 to take care of attrition

Data Collection
A semi structured questionnaire was administered for data collection, questions were asked on areas peculiar to the study. Section A contains personal Information of the nursing mothers which includes: Age, ethnic group, religion and family background and also personal information of the infants. Section B contains socio economic and demographic background of the mothers, Section C contains Anthropometric assessment of the infants, Section D contains dichotomous questions on Nutritional knowledge of mothers; yes was coded 1 and No was coded 0 and total number of responses was summed up at 20 and then categorized as good (15-20), average (10-14) and poor(<10) respectively while Section E contains questions on infants feeding practice of the nursing mothers.

Data Analysis
Data collected on this study were subjected to descriptive and inferential statistics (chi square) using statistical packaged for social scientist (SPSS) version 20. Also WHO AnthroPlus was used to determine the nutritional status of the infants. The studies were shown in tabular form with percentage value.

Results
Table 1 revealed that majority of the respondents were Yoruba (80.4%), Christian (68.4%) and from monogamy family background. Also 34.0% of the infants were within the age range of 7-12 months and majority of their fathers (61.2%) and mothers (76.8%) were business men and women, SSCE holders(38.8% and 34.4%), while almost half of the mothers and fathers (40.4% and 46.4%)) accrued estimated monthly income of 10000-20000 and above 40000 respectively.

Table 1: Frequency and Percentage distribution of Socio-economic characteristics of the respondents

Variable	Frequency	Percentage
Ethnic group		
Yoruba	201	80.4
Igbo	19	7.6
Hausa	13	5.2
French	1	0.4
Igala	5	2.0
Egun	10	4.0
Nupe	1	0.4
TOTAL	250	100
Religion		
Christianity	171	68.4
Islam	78	31.2
Traditional	1	0.4
TOTAL	250	100

Family background		
Monogamy	207	82.8
Polygamy	43	17.2
TOTAL	250	100
Age of infants		
0-6 months	78	31.2
7-12 months	85	34.0
13-18 months	47	18.8
19-24 months	40	16.0
TOTAL	250	100
Mother's occupation		
Farming	4	1.6
Civil servant	17	6.8
Personal business	192	76.8
Employee of private organization	10	4.0
Unemployed	27	10.8
Total	250	100
Father's occupation		
Farming	7	2.8
Civil servant	31	12.4
Personal business	153	61.2
Employee of private Org.	55	22.0
Unemployed	4	1.6
Total	250	100
Academic qualifications of mothers		
No formal education	29	11.6
Primary school leaving cert	40	16.0
SSCE	111	44.4
ND	34	13.5
HND	22	8.8
Bsc	12	4.4
N.CE	2	.8
Total	250	100
Academic qualification of fathers		
No formal education	5	2.0
Primary school cert	23	9.2
SSCE	97	38.8
ND	43	17.2
HND	45	18.0
BSc	35	14.0
MSc	2	.8
Total	250	100
Estimated income of mothers		
<10000	62	24.8
10000-20000	101	40.4
21000-30000	45	18.0
31000-40000	9	3.6
>40000	33	13.2
Total	250	100
Estimated income of fathers		
<10000	5	2.2
10000-20000	50	20.0
21000-30000	47	18.8
31000-40000	32	12.8
>40000	116	46.4
Total	250	100
Sex		
Male	129	51.6
Female	121	48.4
Total	250	100

Fig 1 presents the nutritional knowledge of the respondents and it revealed that more than half (54.40%) of the mothers has good nutritional knowledge, 44.80% Has average knowledge while very few (0.8%) of them has poor knowledge of nutrition.

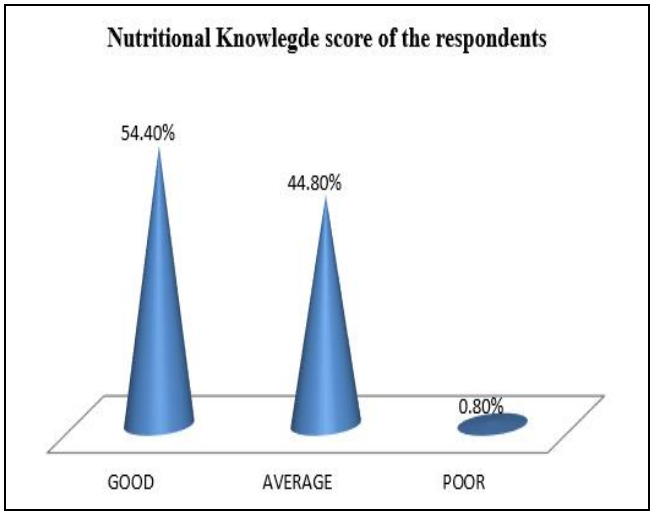

Fig 1: Nutritional Knowledge of the respondents

Figure 2 shows the feeding practice score of the respondents. 58.0% of the respondents had good infants feeding practices, 33.2% had moderate feeding practices while only few (8.8%) of the respondents had poor infants feeding practices.

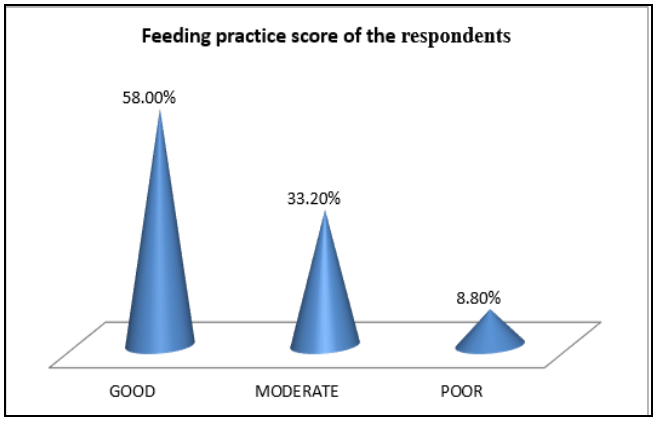

Fig 2; Feeding practice score of the respondents

Table 2 shows that majority (82.4%) of the respondents believe that breastfeeding should be initiated immediately after delivery while almost all of them breastfed their infants for 11-13 months (98.0%). Also more than half (58.4%) of the nursing mothers practiced exclusive breastfeeding, while 43.6% and 27.2% of them introduced complementary foods above six months and introduced maize gruel as complementary food to their infants.

Table 2: Frequency and Percentage distribution of the feeding practices of the respondents

Variable	Frequency	Percentage
Didyou initiate breastfeeding immediately after delivery?		
YES	206	82.4
NO	44	17.6
TOTAL	250	100
Did you practice or are you practicing exclusive breastfeeding?		
YES	146	58.4
NO	104	41.6
TOTAL	250	100
What type of feeding method are you practicing?		
Exclusive breastfeeding	54	21.6
Mixed feeding	196	78.4
TOTAL	250	100
What is the duration of your breastfeeding?		
5-7 months	1	0.4
8-10 months	1	0.4
11-13 months	245	98.0
20-22 months	3	1.2
TOTAL	250	100
When did you introduce complementary foods?		
<1 month	6	2.4
1-2 months	21	8.4
3-4 months	44	17.6
5-6 months	23	9.2
Above 6 months	109	43.6
Not applicable	47	18.8
TOTAL	250	100
What type of complementary foods did you introduce?		
Commercial foods	60	24.0
Guinea corn gruel	10	4.0
Maize gruel	68	27.2
Millet gruel	16	6.4
Others(tubers, rice & beans)	46	18.4
Not applicable	50	20.0
TOTAL	250	100
What method did you employ for complementary feeding?		
Cup and spoon	136	54.4
Feeding bottle	57	22.8

Force feeding	8	3.2
Not applicable	49	19.6
TOTAL	250	100

Table 3 revealed that 12.4% of the infants were severely wasted, 9.6% moderately wasted, 27.2% mildly wasted and majority (50.8%) were normal. The result also shows that 36.8% of the children were severely stunted, 19.25% moderately stunted, 22.4% mildly stunted while 21.6 % were normal respectively. It was further observed from the result that 10.8% severely underweight, 14.8% were moderately underweight, 34.0% were mildly underweight, while about half (40.4%) were normal according to the WHO classification standards.

Table 3: Frequency and percentage distribution of nutritional status of the infants

Nutritional Indices	Wasting Freq %	Stunting Freq %	Underweight Freq %
Normal	127 50.8	54 21.6	101 40.4
Mild	68 27.2	56 22.4	85 34.0
Moderate	24 9.6	48 19.2	37 14.8
Severe	31 12.4	92 36.8	27 10.8
Total	250 100	250 100	250 100

Table 4 shows association between socioeconomic characteristics of the respondents. From the table both parents' occupation was not significantly associated with wasting and stunting while only the fathers' occupation was significantly associated with underweight. Also there was no significant relationship between the parents' education and wasting while it was significantly associated with underweight and stunting. It was also observed from the result that the parents' income had no significant relationship with wasting but had a notable relationship with underweight and stunting respectively.

Table 4: Association between Socio-Economic Characteristics of Parents and the Nutritional Status of Their Infants

socio-economic characteristics	Wasting x^2Df p-value	Underweight x^2 Df p-value	Stunting x^2Df p-value
Fathers occupation	8.805 15 0.887	26.819 15 0.030	21.884 15 0.111
Mothers occupation	6.984 12 0.0859	15.761 12 0.202	15.068 12 0.238
Fathers education	26.637 18 0.167	30.458 18 0.33	46.899 18 0.000
Mothers education	22.581 18 0.207	36.026 18 0.007	40.100 18 0.002
Fathers income	11.235 12 0.509	32.601 12 0.001	21.674 12 0.041
Mothers income	6.367 12 0.902	27.734 12 0.006	25.324 12 0.013

Table 5 shows the association between nutritional knowledge and the nutritional indices. It revealed that there was no significant relationship (p-value > 0.05) between nutritional knowledge and all the nutritional indices.

Table 5; Association between nutritional knowledge and nutritional indices

Nutritional knowledge	X^2	Df	p-value
Wasting	6.724	6	0.347
Stunting	6.883	6	0.332
Underweight	0.055	1	0.815

Table 6 revealed that both parents' education had a significant association (p-value < 0.05) with nutritional knowledge while there was no significant association between mothers' income (p-value < 0.05) and nutritional knowledge, however, fathers' income was significantly associated with nutritional knowledge. Also a significant association (p-value<0.05) was observed between nutritional knowledge and feeding practice

Table 6; Association between Nutritional knowledge, socio-economic characteristics and feeding practice

Nutritional knowledge	X^2	Df	p-value
Mothers education	32.417	12	0.001
Fathers education	28.927	12	0.004
Mothers income	10.890	8	0.208
Fathers income	31.216	8	0.000
Feeding practice	15.943	4	0.003

Discussion

The global public health recommendations states that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. This means infants should only be given breast milk, without water or herbal preparations or food in the first six months except vitamins, minerals or medicine. There was a considerable level of exclusive breastfeeding practices among the respondents in the study area as majority (58.6%) of the mothers practiced exclusive breastfeeding for six months. This seems to be a great improvement in the study area when compared to a study conducted by Salami *et al*., (2013) in Lagos which found out that 13% of mothers practiced exclusive breastfeeding for six months.

Also almost half (43.6%) of the mothers introduced complementary foods to their infants above six months of age, this is higher than what was reported by Mohammed (2014) and this could be attributed to the fact that majority (76.8%) of the mothers run their personal businesses which implies that they had enough time to breastfeed their infants and introduce complementary foods at the appropriate time. However, a little gap was discovered as some mothers (41.6%) were still found to have introduced complementary foods to their infants between ages 1 and 5months which is in consonance with the findings of (Idris, *et al*., 2013) [6]. This could be detrimental to child's health because early introduction of complementary foods reduces duration of breastfeeding and interferes with uptake of important nutrients in breast milk (Mohammed 2014). Also the feeding practice score of the mothers showed that majority of them had good feeding practices which could be traceable to their high (54.4%) nutritional knowledge which was found to be significantly associated with the feeding practices. This result was a little bit higher than what was reported by Idris *et al*., (2013) [6].

The prevalence of underweight, wasting and stunting observed in this study re-affirmed the fact that malnutrition among under five children in Nigeria is still a public health issue and current policy to reduce the prevalence has not been much effective as it is being corroborated by high(36.8%)prevalence of severe stunting over underweight (10.8) and wasting (12.4%). However, this observation is in concurrence with the findings of Oguntonna *et al.*, (2005) and Nkwoala *et al.* (2010) [8]. Also in comparison with the WHO classification scheme for degree of population, the percentage of infants that were severely stunted alone was high, indicating that a high percentage of the children suffer

with growth failure. Afolabi *et al.,* (2014) had similar findings in their study.

The highest educational attainment recorded in this study was secondary education. There was a significant association (P<0.05) between nutritional knowledge, parent education, stunting and underweight. Ene-Obong *et al*., (2010) [5] opined in their study that maternal education influences the nutritional status of infants positively.

This study further revealed that there was a significant relationship between parents' income and nutritional status of the children. Parent who are gainfully employed have greater financial capacity to build a healthy family. This result concurs with the study of Rahman *et al*., (2008) [12] which suggests that parents' socioeconomic status has important role to play in the nutrition and health status of under-five children.

Conclusion

In conclusion, mothers in this study had a good nutritional knowledge and socio-economic characteristics such as education and income had a significant relationship with the nutritional status of the infants. Also, there is no significant relationship (p-value >0.05) between maternal nutritional knowledge and the nutritional status of the infants which implies that nutritional knowledge alone is not the only determining factor of children's nutritional status. Also the feeding practice of majority of the mothers was found to be appropriate and their high nutritional knowledge seems to be responsible for this as shown by a positive significant relationship between their feeding practice and nutritional knowledge.

Recommendation

Practice of exclusive breastfeeding and maternal nutritional knowledge was significantly high; however, high level of malnutrition in this study calls for urgent intervention from NGOs and breast feeding support groups should establish follow-up and encourage mothers to practice knowledge acquired. Also governments at various levels should create more opportunities to enhance maternal income generation, improved maternal education and ensure routine monitoring of the health of the children so as to drastically reduce the menace of malnutrition and prevent its further outbreak among the under-five children.

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