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### Original Article

#### INFANT AND YOUNG CHILD FEEDING PRACTICES IN THE EAST END OF FREETOWN, SIERRA LEONE

Tamramat I. Runsewe-Abiodun,<sup>1,2</sup> Francis S. Bondi,<sup>1,3</sup> Adekunle D. Alabi,<sup>4</sup> AND Ahmed M. Taqi<sup>1</sup>,

1. Department of Paediatrics, College of Medicine and Allied Health Sciences, University of Sierra Leone, Freetown, Sierra Leone
2. Department of Paediatrics, Obafemi Awolowo College of Health Sciences, Olabisi Onabanjo University, Ogun State, Nigeria
3. Department of Paediatrics, Newcastle Hospital, Kwazulu-Natal, South Africa
4. Department of Community Medicine and Primary Care, Obafemi Awolowo College of Health Sciences, Olabisi Onabanjo University, Ogun State, Nigeria

#### ABSTRACT

Adequate dietary intake may be a major determinant of the health outcome of children. This study aims at describing the infant and young child feeding practices amongst a group of mothers, factors affecting such practices and the effect of the practice on the nutritional status of the children.

Semi-closed ended questionnaire was used to address some of the Infant and Young Child Feeding (IYCF) indicators among the three hundred and forty-seven mothers.

Almost all of the index children in this study were breastfed with a majority within 30 minutes of delivery. Breast milk was the first drink in 79.8% of cases, and Exclusive breastfeeding rate was 26.3%. Breastfeeding for less than six months tends to be more prevalent among the low socioeconomic group and those who had Antenatal Care in the private clinics. Complimentary feeds for the majority of the children consisted mainly of cereal based gruels. There was a positive correlation between the nutritional status and the first drink, educational level of mother and length of breastfeeding.

Poor infant and young child feeding practices impinged negatively on the nutritional status of the children. Improved training of health care workers, female education, and empowerment are recommended.

**KEYWORDS:** Infant, young child, feeding practices, mothers, Freetown

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\*Corresponding Author Email: [dr\\_abiodun@yahoo.com](mailto:dr_abiodun@yahoo.com); Tel: +234 803 7204 733

## INTRODUCTION

Nutrition within the first 1000 days of life is most crucial to the healthy growth of a child and a sustainable socio-economic development of the community (Fall et al., 2011, Martorell et al., 2010). Hence the renewed attentions on infant nutrition from conception up through the first two years of life such that the G8 included Nutrition as one of its global effort in 2012. (Food and Nutrition Security-International relations 2012).

It was globally accepted that all new-borns should be placed on exclusive breast milk for the first six months of life after which good quality complimentary feeds of a wide variety are to be added from that time on while breastfeeding continues for at least the first two years of the child's life (WHO 2013).

The 2014 global nutrition report highlighted the dismal state of nutrition in the developed world especially amongst children less than five years. [Global nutrition Report 2014]. Although some progress has been made towards improving the nutritional status of these children, it has been too slow.

Of the six indicators to measure the World Health Assembly (WHA) targets on nutrition, only four were available for assessment in the 2014 Global nutrition report; the rate of exclusive breastfeeding and diversity of complementary feeds could not be assessed. Even at that, the majority of the countries only met the target on only one of the indicators. (Global nutrition report 2014)

Although the rate of breastfeeding generally appears high globally (Snellen 1998), trends within the last few years in the developing countries have revealed little progress towards achieving the WHA target for exclusive breastfeeding as it hovers between 17 and 33% (UNICEF 2014).

In Sierra Leone, although some progress has been made in the rate of exclusive breastfeeding rising from 8% in 2005 to 32% in 2010, the current average annual rate of reduction (AARR) percentage of -0.8 indicates an increase in stunting and data were not available for the dietary diversity or minimum acceptable diet. (Global Nutrition Report 2014).

The Sierra Leone demographic health survey reported 38% of the children were stunted, 9% wasted, 16% underweight, 97% breastfed, 32% had exclusive breastfeeding and only 7% were

fed according to the country's national policy on Infant and Young Child Feeding practices (IYCF). (SDHS 2013). Under-five mortality rate (U5MR) stands at 160.6/1000 (one of the ten worst health indicators) (UNICEF 2014). The female enrolment in schools stood at 11% in 1990 (UNESCO 2014).

There is a dearth of literature on studies on infant and young child feeding practices (IYCF) in Sierra Leone. An appropriate knowledge of the IYCF should assist in improving the nutrition of the children thereby contributing to a reduction in Under-five morbidity and mortality

This study, therefore, aims at generally describing the infant and young child feeding practices amongst mothers attending the Under-five clinic in a densely populated area of the capital and specifically the factors affecting the practices and the relationship between the IYCF and the nutritional status of the children.

## MATERIALS AND METHODS

This study was a facility-based, cross-sectional descriptive study that involved mothers who had brought their children aged less than five years for minor ailments or routine infant welfare activities to the under-five clinic in the East end of Freetown.

Freetown is the socio and economic nerve centre of Sierra-Leone. It is the capital and largest city with an estimated population of 773,000 (Sierra Leone Census 2015). The city of Freetown is politically divided into three "ends" and eight municipalities or wards. The East End of Freetown has three wards: East I, East II, and East III; the Central Freetown includes two wards: Central I and Central II and the West End of Freetown contain the wards West I, West II, and West III. The wards in the East End of Freetown are the most densely populated and are inhabited by the poorest in the city.

All mothers with children less than 25 months attending the clinic were recruited into the study between 1st July and 29th July 2011 using a systematic random sampling technique until the desired sample size was attained.

The sample size was calculated using the Epi-Info Statcalc. Exe Version 3.5.1. The estimated population of children between 0 and 24 months attending the clinic per month was 1,100 (unpublished data). Figures from the SDHS 2013 put the exclusive breastfeeding rate in Sierra Leone at 32%, (SDHS 2013) error of precision was 4% and at Confidence interval of 95%, estimated sample size was therefore 346. Hence, a total of 350 pairs of mother and child between 0- 25 months were recruited into the study.

### **Institutional Clearance**

Permission for the study was obtained from the Medical Superintendent of the Ola During Children's Hospital to which the under-five clinic is affiliated, and a written informed consent was also obtained from each of the prospective study subjects.

### **Research Instrument Validation**

Validation of research instrument and training of the assistants were done in Ola during Children's Hospital. One of the authors (TIR) along with the research assistants applied the semi-structured questionnaire on 20 mothers in the outpatient clinic of the Children's Hospital. The children were weighed and length measured by the researchers until there was a minimal observers' error of one decimal point. Weights and lengths were given to the nearest one decimal point. All ambiguities in the questionnaire were resolved during this pre-test stage.

The Pre-tested semi-structured questionnaires were interviewer-administered to address some of the IYCF indicators. Data included in the survey were information on the socio-demographic characteristics of the mother. Some indicators of IYCF feeding practices such as breastfeeding rate, breastfeeding initiation, and duration, pre-lacteal feeds, introduction and types of complementary feeds, were included. The index child bio data, immunization status, anthropometric parameter, 24-hour dietary recall were also recorded. The nutritional status of the index child was determined based on the Wellcome classification (1970) and Socio-economic status of respondents according to Oyedele (1985).

Data entry, validation, and analysis were done using Epi-info 7.1.5.2 software. Frequency tables were generated for all the categorical variables and association between them was tested using the chi-square test. Means and standard deviations and other descriptive measures were determined for quantitative variables such as age, parity, etc. A linear regression was used to determine the factors contributory to the nutritional status. The level of significance was set at  $p$ -value  $< 0.05$ .

### **RESULTS**

A total of three hundred and fifty mothers were recruited into the study. However, the outputs from three of the parents were excluded from analysis as they were less than 25% completed.

The age range of mothers was between 12 and 45 years, mean age was  $24.2 \pm 6.14$  years, median was 23.0 Years

The index child ages ranged from 0.25 to 24 months; mean age was  $10.25 \pm 6.96$  months; median age was nine months.

About 284 (81.8%) of the mothers had an antenatal care in the hospital, 29 (8.4%) in private clinics, 26 (7.5%) did not receive any and 8 (2.3%) had with TBAs.

231 (66.8%) delivered in Government hospitals, 74 (21.4%) delivered at home, 29 (8.4%) in private clinics and 12 (3.5%) were delivered by TBAs.

Table 1 shows that 85 (24.5%) of the respondents were teenagers, the majority were of low socio-economic status; less than a half of them had up to secondary school education (46.1%), and over two-thirds of them were either artisans or petty traders. More than a third of the mothers were primiparas.

Almost all (99.7%) of the index children in this study were breastfed, only one of the mothers never breastfed her child. Two-thirds of the respondents, 231 (66.6 %) initiated breastfeeding within 1 hour of delivery. Initiation of breastfeeding was significantly related to the point of uptake of antenatal care ( $p$ -value =0.008). Neither age, education nor place of delivery significantly affected the initiation period ( $p$  value=0.46, 0.84 and 0.11 respectively).

**Table 1: Socio-demographic characteristics of the study population**

Variable		
Age (years)	Frequency n=347	Percentage
<20	85	24.5
20-35	241	69.5
36-50	21	6.1
Education		
Post secondary	13	3.7
Secondary	147	42.4
Primary/No formal	187	53.9
Occupation		
Middle	7	2.1
Junior	234	67.3
Unemployed/students	106	30.6
Marital status		
Married	262	75.5
Not married	85	24.5
Religion		
Islam	253	72.9
Christianity	88	25.4
Others	6	1.8
Parity		
Primipara	143	41.2
Multipara	164	47.3
Grandmultipara	40	11.5

As shown in Table 2, 277 (79.8%) of the mothers gave breast milk as the first drink, and about a fifth gave pre-lacteal feeds as follows; 68 (19.59%) gave water, concoction was given in 2 cases (0.6%) and Oral rehydration salt solution in 1 child (0.3%). Where the respondents had antenatal care significantly affected the first drink that the child was started with (p value=0.000). Breast milk as the first drink was highest in babies delivered in private clinics, and pre-lacteal feeds were more in babies delivered in Government hospitals and TBAs. Also, the majority of those in the higher Socio-economic status gave breast milk as their child's first drink. The age of the respondents, socio-economic status, as well as a place of delivery, did not statistically affect the first drink the child had.

**Table 2: Characteristic first drink in the index child against the demographic parameters of the respondents**

Variables				
Age (years)	Breast milk	Others	Chi-square	Pvalue
<20	68 (80.0)	17 (20.0)	8.3	0.41
20-35	190 (78.8)	51 (21.1)		
36-50	19 (90.5)	2 (9.5)		
Education				
Post-secondary	12 (92.3)	1 (7.7)	6.15	0.63
Secondary	116 (79.0)	31 (21.1)		
Primary/No formal	149 (70.7)	38 (20.3)		
Occupation				
Senior	7 (100.0)	0 (0.0)	15.8	0.19
Junior	175	59 (25.2)		
Unemployed	95 (89.6)	11 (10.3)		
Marital status				
Married	214 (81.7)	48 (18.4)	12.2	0.43
Divorced	1 (100.0)	0 (0.0)		
Never married	61 (73.5)	22 (26.5)		
Separated	1 (100.0)	0 (0.0)		
Religion				
Islam	198 (78.3)	55 (21.8)	6.26	0.9
Christianity	73 (83.0)	15 (17.0)		
Others	6 (100.0)	0 (0.0)		
Place of delivery				
Government Hospital	188 (81.4)	43 (18.6)	14.75	0.54
Private Clinic	25 (86.2)	4 (13.8)		
Home/TBA	63 (70.3)	22 (29.6)		
Place of Antenatal Care				
Government Hospital	226 (79.6)	58 (20.6)	68.91	0
Private Clinic	24 (82.8)	5 (17.2)		
Home/TBA	27 (79.4)	7 (20.6)		
Parity				
Primipara	114 (79.7)	29 (20.3)	10.57	0.23
Multipara	130 (79.3)	34 (20.7)		
Grand Multipara	33 (82.5)	7 (17.5)		

Almost a half of the mothers, 156 (45.0%) breastfed for less than six months, 189 (54.5) fed for 23 months and only 1 (0.3%) at two years.

Although the age of mother, occupation and place of antenatal care did not significantly affect the duration of breastfeeding, more of the teenage

mothers (50.9%) fed their babies for less than six months and not up to 24 months. Also, feeding for less than six months tends to be more prevalent among the low socioeconomic group. This is as shown in Table 3.

**Table 3: Duration of breastfeeding against the demographic characteristics of the mothers**

Parameters	<6 months	6 months	6.1-12 months	Chi- Sq	P value
<b>Age (years)</b>					
<20	12 (25.5)	13 (27.7)	22 (46.8)	10.1	0.0400
20-35	58 (35.6)	43 (26.4)	62 (38.0)		
36-50	1 (5.6)	4 (22.2)	13 (72.2)		
<b>Education</b>					
Post-secondary	6 (50.0)	5 (41.7)	1 (8.3)	22.3	0.0002
Secondary	37 (37.8)	32 (32.7)	29 (29.6)		
Primary/No formal	28 (23.7)	23 (19.5)	67 (56.8)		
<b>Occupation</b>					
Senior	2 (50.0)	2 (50.0)	0 (0.0)	4.7	0.3000
Middle					
Junior	47 (29.2)	40 (24.8)	74 (46.0)		
Unemployed	22 (34.9)	18 (28.6)	23 (36.5)		
<b>Marital status</b>					
Married	48 (29.8)	39 (24.2)	74 (46.0)	4.5	0.3000
Divorced	0 (0.0)	0 (0.0)	1 (100.0)		
Never married	23 (34.8)	21 (31.8)	22 (33.3)		
Separated					
<b>Religion</b>					
Islam	51 (30.7)	39 (23.5)	76 (45.8)	4.1	0.4000
Christianity	19 (32.2)	20 (33.9)	20 (33.9)		
Others	1 (50.0)	0 (0.0)	1 (50.0)		
<b>Place of delivery</b>					
Government Hospital	46 (30.1)	42 (27.5)	65 (42.5)	6.9	0.5000
Private Clinic	4 (18.2)	5 (22.7)	13 (59.1)		
Home/TBA	21 (40.4)	13 (25.0)	18 (34.6)		
<b>Place of Antenatal Care</b>					
Government Hospital	59 (32.2)	48 (26.2)	76 (41.5)	4.9	0.8000
Private Clinic	5 (25.0)	5 (25.0)	10 (50.0)		
Home/TBA	7 (28.0)	7 (28.0)	11 (44.0)		
<b>Parity</b>					
Primipara	24 (27.0)	28 (31.5)	37 (41.6)	5.1	0.3000
Multipara	41 (35.7)	28 (24.3)	46 (40.0)		
Grand Multipara	6 (25.0)	4 (16.7)	14 (58.3)		

The mean duration of breastfeeding was  $8.59 \pm 5.9$  months.

More than two-thirds of the mothers, 229 (69.0%) will breastfeed in public, and mothers in the extremes of ages were more favourably disposed to breastfeeding in public. There was an inverse relationship between the level of education and willingness to breastfeed in public. Education, place of delivery and venue of antenatal care all significantly affected the willingness to breastfeed in public. (P value=0.002, 0.02 and 0.01 respectively). Religion played no role in the preference of the respondents (p value=0.3). Willingness to breastfeed in public was less popular among mothers who had their antenatal clinic and deliveries in Government hospitals and private clinics. In the 117 respondents who will not breastfeed in public, reasons ranged from moral/religious, 33 (28.2%) to being shy 79 (67.5%), lack of confidence in breast size 2 (1.7%) and others 3 (2.6%). The reasons were significantly related to education and place of antenatal care. P value=0.04, 0.00 respectively.

The educational level of the mothers significantly affected what they do before breastfeeding (p value= 0.007). Cleaning the breast with water before breastfeeding was commoner among those with post-secondary educational levels.

228 mothers had commenced complementary feeds for their children, and 119 (34.3%) were still receiving breast milk only as at the time of the study.

The overall rate of exclusive breastfeeding in this study was 26.3%. It was more prevalent among teenage mothers than other age groups. Among the 25 children aged six months as at the time of the survey, 18 (72%) of them had been started on complementary feeds and only 7 (28%) had exclusive breastfeeding P value= 0.000. Maternal age and education significantly affected the onset of complimentary feeds (0.04, 0.0002 respectively). It was much later than six months in the extremes of age and exclusive breastfeeding slightly commoner among the teenagers. This is as shown in Table 4.

What complementary feed the child was started with was significantly related to the socioeconomic status of the mother, marital status, religion and place of delivery (P value-0.000). The majority of the mothers in the higher socio-economic levels started their children on commercial preparations e.g. nutrilac and cerelac.

Complimentary feeds for many of the children consisted mainly of cereal based gruels

A 24-hour dietary recall revealed the major food that the children were fed with. Aside from breast milk, the primary food for breakfast was tea (coffee) with bread or rice, Rice for lunch and rice for dinner.

Regarding the nutritional status, 37.2% were classified as Marasmus, 49.4% were simple underweight, and 13.2% were within normal limits. None of the children had Pedal oedema.

**Table 4: Onset of complementary feeds against socio-demographic characteristics of respondents**

Parameters					
Age (years)	<6 months	6 months	6.1-12 months	Chi- Sq	P value
<20	12 (25.5)	13 (27.7)	22 (46.8)	10.1	0.04
20-35	58 (35.6)	43 (26.4)	62 (38.0)		
36-50	1 (5.6)	4 (22.2)	13 (72.2)		
Education					
Post-secondary	6 (50.0)	5 (41.7)	1 (8.3)	22.3	0.0002
Secondary	37 (37.8)	32 (32.7)	29 (29.6)		
Primary/No formal	28 (23.7)	23 (19.5)	67 (56.8)		
Occupation					
Senior	2 (50.0)	2 (50.0)	0 (0.0)	4.7	0.3
Middle					
Junior	47 (29.2)	40 (24.8)	74 (46.0)		
Unemployed	22 (34.9)	18 (28.6)	23 (36.5)		
Marital status					
Married	48 (29.8)	39 (24.2)	74 (46.0)	4.5	0.3
Divorced	0 (0.0)	0 (0.0)	1 (100.0)		
Never married	23 (34.8)	21 (31.8)	22 (33.3)		
Separated					
Religion					
Islam	51 (30.7)	39 (23.5)	76 (45.8)	4.1	0.4
Christianity	19 (32.2)	20 (33.9)	20 (33.9)		
Others	1 (50.0)	0 (0.0)	1 (50.0)		
Place of delivery					
Government Hospital	46 (30.1)	42 (27.5)	65 (42.5)	6.9	0.5
Private Clinic	4 (18.2)	5 (22.7)	13 (59.1)		
Home/TBA	21 (40.4)	13 (25.0)	18 (34.6)		
Place of Antenatal Care					
Government Hospital	59 (32.2)	48 (26.2)	76 (41.5)	4.9	0.8
Private Clinic	5 (25.0)	5 (25.0)	10 (50.0)		
Home/TBA	7 (28.0)	7 (28.0)	11 (44.0)		
Parity					
Primipara	24 (27.0)	28 (31.5)	37 (41.6)	5.1	0.3
Multipara	41 (35.7)	28 (24.3)	46 (40.0)		
Grand Multipara	6 (25.0)	4 (16.7)	14 (58.3)		

When all the other confounding variables were removed, only the first drink, educational level of mother and length of breastfeeding affected the nutritional status (Corr. Coeff=0.52)

## DISCUSSION

The study identified that although breastfeeding is still a common practice in the urban Freetown as almost all the mothers in the study breastfed their babies, the poor Infant and Young Child Feeding (IYCF) practices that follow the initial initiation of breastfeeding significantly affected the nutritional status of the children. The breastfeeding rate in this study is slightly higher than the figure reported for the country (SDHS 2013) but similar to reports from other countries in the sub-region (Black et al.,). Studies have found that breastfeeding is commoner among the lower socio-economic group and in the rural areas (SDHS 2013). Although the study population here were within the urban area where breastfeeding rates have been reported to be lower, the majority of the respondents in this study were of the low socio-economic group.

It is, however, instructive that breast milk as the first drink for babies was higher among the respondents who either had no Antenatal care (ANC) at all or who had the ANC with the Traditional Birth Attendants (TBAs). This finding corroborates the SDHS 2013 report. (SDHS 2013). Considering the fact that Sierra Leone commenced Free Health Care Initiative (FHCI) in April 2010, this finding portends grave danger for the country as it is expected that access to health care in Government hospitals will be greatly increased. That appropriate initiation of breastfeeding as the first drink is closely linked to the point of uptake of ANC underscores the relevance of health personnel in the education of mothers on the correct approach to breastfeeding. Several studies have highlighted the place of the health care giver as the crucial link between policy and practice (WHO 2008). They have been identified as the primary source of infant feeding information (Kassier et al. 2013, Katepa et al. 2015). Hence, it is imperative that they are appropriately trained and retrained on IYCF practices to forestall the danger inherent in inappropriate IYCF practices amongst the caregivers. (Doherty et al., 2006, Tylleskar et al., 2011.).

It was observed that cleaning of the breast before breastfeeding is somehow limited to the few mothers with post-secondary education. In essence, a majority of the mothers had the right attitude to breastfeeding. This is suitable for

further promotion of breastfeeding within the community.

The median duration of 8 months in breastfeeding in this study was much lower than the 17.3 months recorded for the country (SDHS 2013). It may be due to the very high level of mothers from the low socioeconomic group in this study as it could be seen that feeding for less than 6 months was more prevalent amongst them and the teenagers.

College education seemed to hinder breastfeeding in public in the study population. More of the educated mothers had their ANC and deliveries in private clinics and Government hospitals. It was therefore not a surprise that the point of ANC and delivery did have a strong effect on willingness to breastfeed in public. The finding in this study is quite similar to other studies; maternal education and ANC in Government hospitals seem to be the greatest influence on Breastfeeding practice. (Shifraw et al., 2015)

Exclusive breastfeeding rate of 26.3% in this study is slightly lower than that reported in 2010 though much higher than the 8% reported for the entire country in 2005 (Global Nutrition Report 2014). The result is similar to that of Zambia (Disha et al., 2012), lower than Ethiopia and India and Nigeria (Disha et al., 2012, Bentley et al., 2015, Khan et al., 2012, Senbanjo et al., 2014), and higher than China (China et al., 2014)

Similar to reports from the sub-region most of the children in this study were weaned mainly on grain -based gruels, complementary feeds were introduced early and usually of inadequate quality (Bentley et al., 2015, Njai et al., 2013).

Although the UNESCO Institute for statistics 2014 did not report the minimum acceptable diet or dietary diversity for the country, this study identified that majority of the children were fed mainly on carbohydrates with minimal diversity. It was therefore no surprise that over 85% of the children had one form or the other of malnutrition. Similar to other studies, (Bentley et al., 2015, Khan et al., 2012) this study identified a positive correlation between the nutritional status and some of the examined IYCF indicators.

That the first drink for the child, the length of breastfeeding and educational level of the mother all have a positive correlation with the nutritional status ( $r=0.52$ ), make it all the more important that the IYCF practices be urgently improved upon if the Under 5 morbidity and mortality in the country are going to be reduced. It is known that singly or in combination with

other diseases; Malnutrition contributes to close to 54% of all deaths in children under the age of 5 years in the developing countries.

## CONCLUSION

This study has identified the slow gain in the rate of exclusive breastfeeding among the cohort of mothers in this study, the negative effect of education on breastfeeding practice and the apparent poor performance in breastfeeding education within the government hospitals and private clinics.

It is recommended that while health care providers, especially in government hospitals, receive training and retraining. In addition, Breastfeeding Counselling, Lactation Management, and Breastfeeding counselling should be included in pre-service training in both nursing/midwifery and medical schools in the country. In addition, there is a need for the Government of Sierra Leone to urgently make moves to get the hospitals Baby friendly and the workplace women-friendly through the enactment of Acts of Parliament that will compel all workplaces to provide crèche, extended maternity leaves in order to promote, protect and support breastfeeding.

These could be supported with massive campaigns on electronic and print media to encourage behavioural change and correction of misconception about breastfeeding especially amongst the educated in the community.

The major limitation of this study is that, lengths were measured in less than a half of the study population, so the rate of stunting was not determined in this study

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