

Full Length Research Paper

Caregiver feeding practices in Sierra Leone

Boniface Francis Kalanda^{1*} and Asseneth Jerotich Cheboi²

United Nations Children's Fund, Sierra Leone.

United Nations Children's Fund, Kenya.

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Sierra Leone is a basis for developing a community based Early Childhood Development (ECD) programme. Using a set of questions in a household survey, it was found that 92% of children are given breast milk as their first food. However, for 39% of children, breastfeeding stops after 40 days. 46% of the children were not breastfed exclusively until six months. 28% of the children did not get three meals per day, and 13% of the mothers reported that the child had insufficient food. Only 86% of mothers had a positive assessment of the quality of food they give to their child. Low degree of diversity in the diet was observed for 38% of children who consume less than 3 types of food. Children whose diet is undiversified represent the majority of those who do not eat fruits and vegetables or protein. Sierra Leone needs to implement a parental feeding counselling programme to improve quality of feeding practices for children. This would reduce stunting and other poor nutritional outcomes.

Key words: Parent, child, feeding, practices, early childhood development (ECD).

INTRODUCTION

Good parenting skills, which can be reinforced through early child development (ECD) leads to school readiness and other good health, education and child protection practices (Heckman, 2013). The philosophy of ECD programmes is to support the parents in child rearing, reinforce good practices and provide new knowledge so that they can improve other practices (Horton, 2013). Helping parents promote their children's development should also improve their self-esteem and general competence as parents. Kuchenbecker et al. (2017) showed that caregiver education improved dietary diversity even in food insecure situations in rural Malawi.

In order to design effective ECD programmes, it is therefore essential that good child rearing practices in the local communities are identified and included in the curriculum and built upon. It is also necessary to understand parents' knowledge and attitudes concerning child development. Karla et al. (2017), in a thematic analysis of caregiver narratives, concluded that in African settings, there are different cultural factors that affect feeding practices. In Sierra Leone, there is limited data and information on cultural and traditional child rearing practices. The objective of this study was to document current parental practices of child feeding in Sierra

*Corresponding author. E-mail: bkalanda@yahoo.com.

Leone. The results were to be used as an evidence base on which to develop an Early Childhood Development (ECD) policy and strategies going into the future to reduce poor nutritional outcomes in children between 6 months and 6 years.

METHODOLOGY

Sampling

All the districts in Sierra Leone were divided into two strata (urban and rural). Households were selected using a two-stage cluster sampling methodology. The first stage was selecting a predetermined number of Enumeration Areas (EAs) in each strata and the second stage was selecting households in the selected EAs. A sample of 1,500 households was selected based on similar studies conducted in the West Africa region (Seurat, Per. Comm., 2013). Mothers or care givers of over 2,000 children (Table 10) of between 6 months and 72 months were selected to be interviewed from the 1,500 households. If a mother/care giver had two children of 6 to 72 months, one child was selected using a Kishi selection table of random numbers. If a mother/caregiver had more than two children of 6 to 72 months, a maximum of two children were selected on condition that one is less than 36 months and the other of more than 36 months.

Data collection

Data was collected as part of a larger study using a standardized and pre-coded questionnaires. The survey questionnaire had three parts. Relevant to this paper are survey questions on characteristics of the household, the mother and each interviewed child from 6 to 72 months and survey questions related to child feeding practices. Data related to the food eaten by the child during the day preceding the survey was collected. For breakfast, lunch and dinner meals, the survey documents, a list comprising: (i) rice or cereal, (ii) bread, (iii) milk or milk products, (iv) meat, (v) fish or eggs, (vi) tubers, (vii) other vegetables, (viii) fruit, (ix) beverages (other than water), and (x) other foods. For each of the three main meals, mothers had the opportunity to mention four food items. Thus, information was used firstly to describe the food items that have been consumed during meals, secondly to identify the variety of food items in the meal, and thirdly to identify children who did not have proteins during the day or fruits at any of the three meals of the day. The daily diet of young children is considered as diversified if it includes foods from at least four different food groups (WHO, 2002; 2010). In this study, sources of protein are considered to be milk, milk products, fish, and eggs. In the analysis, meat has been separately analysed as it is a major source of protein in the study population.

Data analysis

Quantitative data was analysed using SPSS. Qualitative data from opened ended questions was analysed through categorisation on emerging themes. Tables were generated for all the areas in the three parts of the questionnaire. This paper focused only on practices related to feeding practices.

Limitations

The study questions were translated from English to local languages
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(such as Krio and others depending on district) and translated back into English. This could lead variations which may affect the results. Parental practices discuss issues which may be culturally embarrassing. This may lead to under reporting of socially unacceptable behaviours and over reporting of socially acceptable behaviours. The results could also be affected by recall bias. Data collection did not include anthropometric measurements. This limits the depth of the conclusions that can be drawn.

Ethical clearance

The study was cleared by a national multi-sectoral Early Childhood Development Committee in Sierra Leone.

RESULTS

Breastfeeding

The majority of the children in the sample received their very first feeding from their mother as breast milk (Figure 1). Only 56.6% of the children were exclusively breastfed up to six months.

Suckling

Among the 2,450 children aged 6 months to 6 years of age who were breastfed for whom information is available, only 31.8% still suckled on the day of the survey. The majority of them are less than 15 months old and suckle one to ten times a day. Among the 68.2% of children who are no longer breastfed, three quarters stopped suckling when they were between 13 and 24 months old (Table 1).

Mother's opinions on bottle feeding

Seventy-four (73.6%) of the mothers had favourable views on bottle feeding (Table 2).

Child feeding

Number of meals eaten by the child during the day preceding the survey

Over half (56.7%) of children had three meals the day before the survey. Slightly over a quarter of the children had at most two meals a day. Only few of the children had at most one meal on the day that preceded the survey (Table 3).

Perception of the mothers on adequacy of food eaten by their children

Nearly three-quarters of mothers think their child has

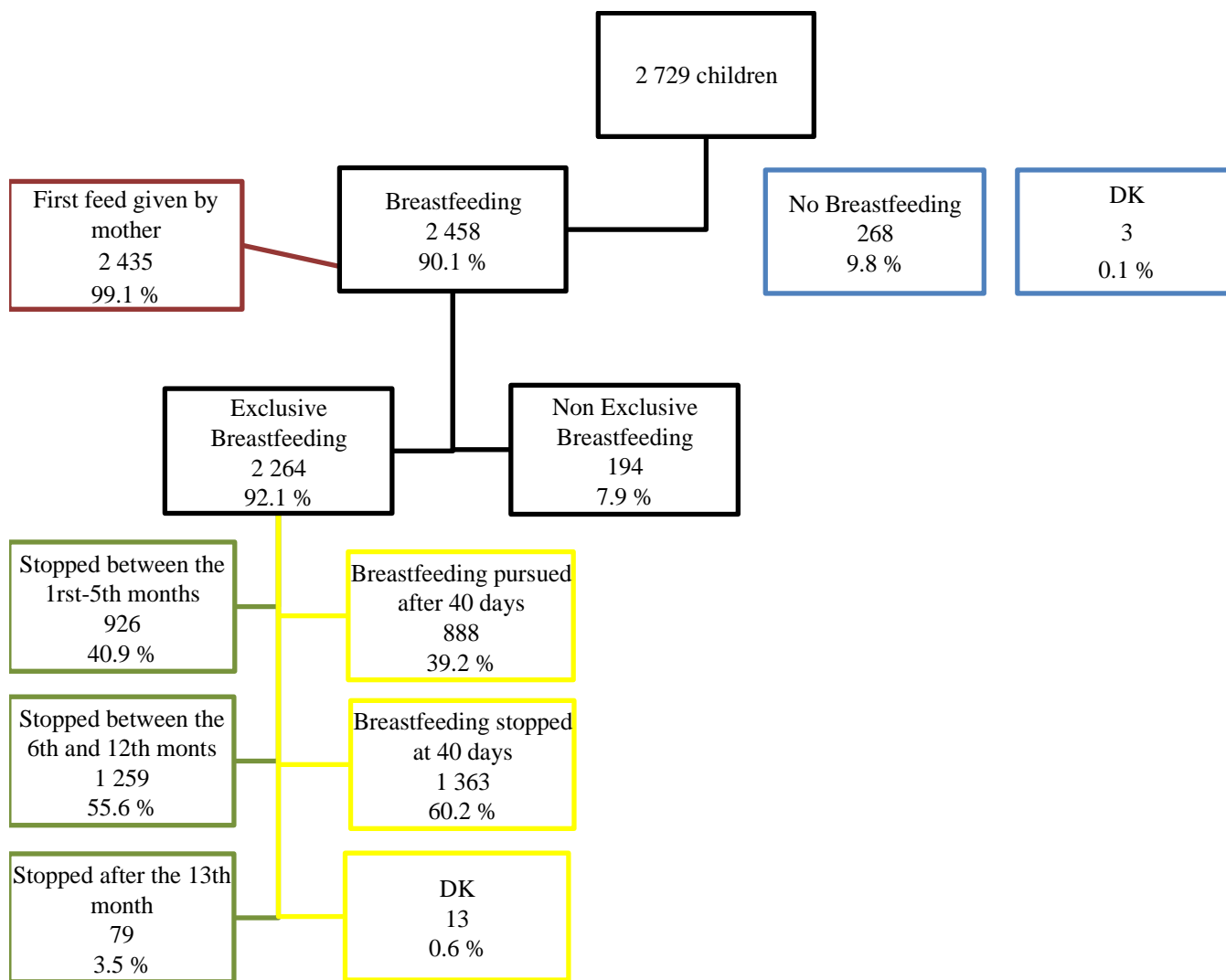


Figure 1. Distribution of children by number of days of exclusive breast feeding (DK= Don't Know).

Table 1. Current status of suckling.

Number of children (122 450)			
	Still suckling (%)	No longer suckling	
Total	779 (31.8)	Total	1,671 (68.2)
Age group		Age when he/she stopped	
Under 15 months	536 (68.8)	1 - 5 months	43 (2.6)
16 - 35 months	223 (28.6)	6 - 12 months	288 (17.6)
Over 36 months	20 (2.6)	13 - 18 months	742 (45.4)
Total	779 (100.0)	19 - 24 months	488 (29.8)
Number of feeds per day		Over 25 months	75 (4.6)
1 - 10	530 (69.6)	Total	1,636 (100.0)
11 - 20	153 (20.1)		
Over 20	79 (10.4)		
Total	762 (100.0)		

Table 2. Opinions of mothers about the possible use of a feeding bottle.

Opinion on feeding bottle	Numbers	%
Favourable	1,993	73.6
Not favourable	595	22.0
Does not know	119	4.4
Total	2,707	100.0

Table 3. Number of meals taken by children during the previous day.

Number of meals	0	1	2	3	>4	Total
Total number	8	82	657	1,534	424	2,705
%	0.3	3.0	24.3	56.7	15.7	100.0
Cumulative (%)	0.3	3.3	27.6	84.3	100.0	-

Table 4. Sufficiency of food and number of meals eaten the previous day.

Sufficient quantity of food	Yes, certainly		More or less		At times not enough		Often not enough		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
0	6	0.3	1	0.3	1	0.3	0	0.0	8	0.3
1	41	2.1	13	3.4	13	4.4	15	27.3	82	3.0
2	370	18.8	160	41.2	111	37.9	15	27.3	656	24.3
3	1,213	61.7	160	41.2	139	47.4	20	36.4	1,532	56.7
>4	336	17.1	54	13.9	29	9.9	5	9.1	424	15.7
Total	1,966	100.0	388	100.0	293	100.0	55	100.0	2,702	100.0
%	72.8%	-	14.4%	-	10.8%	-	2.0%	-	100.0%	-

enough to eat (and among them, 21.2% think so even if their child has at best two meals a day). Table 4 shows that few mothers believe that their child has more or less adequate food to eat and also that their child has at times or often not enough to eat.

Mothers (14.7%) in rural areas versus 8.8% in urban areas felt that the food eaten by their children is sometimes or not sufficient enough. This also applies to mothers in the poorest quintile and richest quintile (20.7 and 5.4%, respectively) (Table 10).

Quality of food given children

The vast majority of mothers (85.9%) believe that the quality of food they give to their child is good. In contrast, only a minority of mothers finds that the quality of the food for their child is poor or does not know how to characterize it.

In addition to this, there is the perception, for 43.2% of them, that the amount of food they give to their children is not enough (Table 5).

Parental feeding support

While 31.1% of the children eat at very regular times and 26.9% at relatively regular times, some 42.9% eat at flexible hours. In addition, 64.5% of the children aged 6 months to 6 years eat alone, without the help of an adult (Table 6).

At 9 months, 89.8% of children are assisted to eat. This proportion drops very sharply with age, reaching 66.9% at 18 months, 47.5% at 2 years, 21.8% at 3 years and 13.3% at 4 years.

Diversity of meals fed to children

From Table 7, 63.7% of children had a diversified diet, with foods from at least four different groups. A large number of children (13.0%) consume only one or two types of food in a day.

Children whose diet is already little diversified represent 75.0% who consume no fruits and vegetables, while 69.7% of them do not consume protein and 40.2%

Table 5. Distribution of children in insufficient food situation.

Quality of foods	Food quite sufficient						No/Total (%)
	No		Yes		Total		
	Number	%	Number	%	Number	%	
Good	213	61.6	2,107	89.4	2,320	85.9	9.2
Average	95	27.5	199	8.4	294	10.9	32.3
Poor or DNK	38	11.0	50	2.1	88	3.3	43.2
Overall	346	100.0	2,356	100.0	2,702	100.0	12.8

Table 6. Regularity of the child's meal times and help to eat.

Regularity of meal times?	How does the child eat?				
	He/She eats alone	He/She eats with the help of an adult	He/She eats with the help of another child	Total	
				Number	%
Very regular times	489	318	34	841	31.1
Fairly regular meal times	505	217	7	729	26.9
Flexible hours	753	370	15	1,138	42.0
Total	1,747	905	56	2,708	100.0
%	64.5%	33.4%	2.1%	100.0%	-

Table 7. Diversity of food in the child's meals on the day.

Number of food items	Overall			Protein			Meat			Fruits and vegetables		
	Number	%	Cumul. %	With	Without	Without (%)	With	Without	% Without	With	Without	Without (%)
1	55	2.0	2.0	3	52	4.3	0	55	2.2	0	55	6.5
2	300	11.0	13.0	22	278	22.9	1	299	11.8	64	236	27.8
3	671	24.7	37.7	155	516	42.5	6	665	26.2	326	345	40.7
4	707	26.0	63.7	425	282	23.2	21	686	27.1	553	154	18.2
5	518	19.0	82.7	440	78	6.4	52	466	18.4	472	46	5.4
6	326	12.0	94.7	319	7	0.6	52	274	10.8	315	11	1.3
7	124	4.6	99.2	124	0	0.0	37	87	3.4	123	1	0.1
8	20	0.7	100.0	20	0	0.0	17	3	0.1	20	0	0.0
9	1	0.0	-	1	0	0.0	1	0	0.0	1	0	0.0
Total	2,722	100.0	-	1,509	1,213	100.0	187	2,535	100.0	1,874	848	100.0

Source of proteins are milk, milk products, fish, eggs, meat. Meat has been separately analysed as it is a major source of protein in the study population.

of those do not eat meat. 44.6% (1,213 of the 2,722 children in the sample) did not eat proteins the day before the survey. If meat is removed from the group of protein items, 93.1% of the children will be considered as not having consumed it. Consumption of fruits and vegetables is higher (1,814 children who have eaten it out of the 2,722 in the sample), but it is also observed that nearly a third of them (31.2%) do not consume them (Table 7).

Consumption of fruits and vegetables by age

While protein consumption is almost the same, whether children are six months or six years old, the presence of fruits and vegetables in the child's diet varied by children's age. Figure 2 is a probability model of children that eat fruits and vegetables at least once a day by their age. From the shape of the curve, fruits and vegetables are introduced into the diet of children between the ages

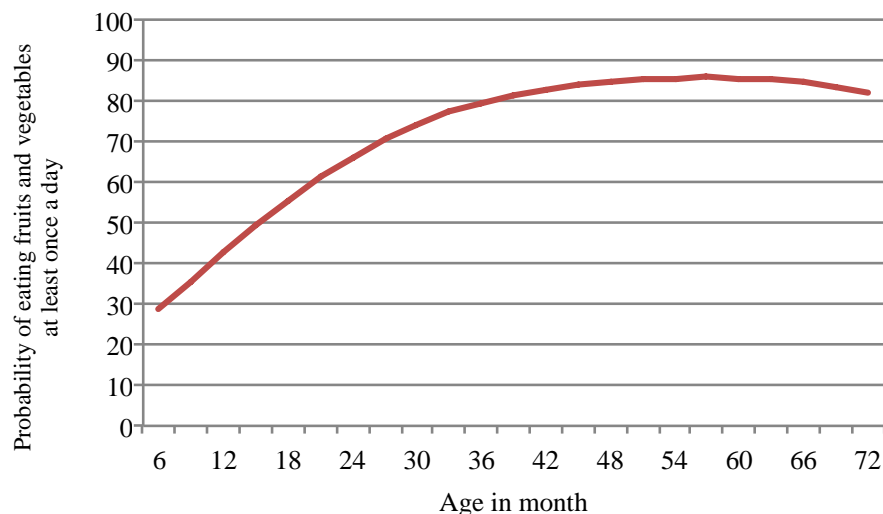


Figure 2. Probability of eating fruits and vegetables at least once a day by age.

Table 8. Distribution by the presence or not of meat and fruit/vegetable.

Meat	Fruits and/or vegetables		Overall
	No (%)	Yes (%)	
No	651 (26.1)	1,661 (66.6)	2,312 (92.7)
Yes	29 (1.2)	153 (6.1)	182 (7.3)
Overall	680 (27.3)	1,814 (72.7)	2,494 (100)

vegetables on the day preceding the visit of the interviewer. Only 6.1% of the children had meals that included meat, fruit and vegetables. Thus, 67.8% (1.2% + 66.6%) of the children consumed only one food group out of the two (Table 8).

Difficulties with accessing food

Over half of mothers (53%) said they scarcely or never have a problem in finding food (45% said they never faced it) (Table 9). However, 53% of families living in rural areas are more often or at times have difficulty in getting food, as against 32% in urban homes.

DISCUSSION

Breast feeding

Exclusive breastfeeding for the first six months of a child's life could save 12 to 20% of child deaths (Government of Sierra Leone, 2014). Hence, awareness must be increased in communities, inclusive of women

and men, on the importance of breast feeding. In addition, lower than expected numbers of children suckled the day before the survey. This calls for parental education to increase appropriate feeding practices. Similarly, the large favourability of bottle feeding calls for increased parental education.

Bottle-feeding has been known to increase diarrhoea diseases where it is inappropriately used, leading to poor nutritional outcomes. Appropriate bottle feeding counselling should therefore be targeted to mothers in Sierra Leone.

Child feeding

Children are at least expected to have 3 meals a days. This calls for further analysis to determine why children are given at least 3 meals a day.

Income level of the family but also the geographical location (urban/ rural) affects adequacy of food provided to children of 6 months to 6 years in Sierra Leone. This may be related to poverty levels in the country. Appropriate social protection interventions may need to be designed to address this serious anomaly.

Table 9. Perception of mothers on the frequency of difficulties in obtaining food by area.

Food problems	Geographical area					
	Overall		Urban		Rural	
	N	%	N	%	N	%
Often	231	8.5	65	7.6	166	8.9
At times	1 046	38.5	209	24.4	837	44.9
Scarcely	231	8.5	86	10.0	145	7.8
Never	1 212	44.6	496	57.9	716	38.4
Total	2 720	100.0	856	100.0	1 864	100.0

Table 10. Respondents by region, area of residence and wealth quintile.

Region	Area	Quint. 1	Quint. 2	Quint. 3	Quint. 4	Quint. 5	Quint. 1 and 2		Quint. 4 and 5		Overall	
		N	N	N	N	N	N	%	N	%	N	%
East	Rural	210	142	89	47	30	352	68.0	77	14.9	518	100.0
	Urban	14	18	37	64	35	32	19.0	99	58.9	168	100.0
	Overall	224	160	126	111	65	384	56.0	176	25.7	686	100.0
North	Rural	184	226	225	150	54	410	48.9	204	24.3	839	100.0
	Urban	0	7	5	23	54	7	7.9	77	86.5	89	100.0
	Overall	184	233	230	173	108	417	44.9	281	30.3	928	100.0
South	Rural	140	119	106	66	0	259	60.1	66	15.3	431	100.0
	Urban	0	9	14	57	45	9	7.2	102	81.6	125	100.0
	Overall	140	128	120	123	45	268	48.2	168	30.2	556	100.0
West	Rural	2	6	5	32	40	8	9.4	72	84.7	85	100.0
	Urban	1	18	47	124	284	19	4.0	408	86.1	474	100.0
	Overall	3	24	52	156	324	27	4.8	480	85.9	559	100.0
Overall	Rural	536	493	425	295	124	1029	54.9	419	22.4	1873	100.0
	Urban	15	52	103	268	418	67	7.8	686	80.1	856	100.0
	Overall	551	545	528	563	542	1096	40.2	1105	40.5	2729	100.0

Parental feeding support: Support with eating

At 18 months, a large number of children are not being assisted with feeding. This large number needs further examination as it may mean that children that need assistance with feeding are being left alone, leading to inadequate feeding.

Diversity of food/meals

The daily diet of young children is considered as diversified if it includes foods from at least four different food groups (WHO, 1990). Based on this definition, a lot of children in the study do not have a diversified diet. Consumption of non-diversified meals and consumption

of meals with no meat, fruits and/or vegetables may be a cause for poor nutritional outcomes in children in Sierra Leone. Parents need support to diversify food for children.

Difficulties with accessing food

Only slightly over half of mothers had no difficulties in accessing food. This is quite a low figure if the child related nutritional problems in Sierra Leone are to be addressed. The scenario is worse in rural areas. This calls for appropriate nutritional, social protection or other government interventions to increase access of food for mothers with children between 6 months and 6 years, especially in rural areas where a majority of the population reside.

Conclusion

Poor nutrition outcomes in Sierra Leone may be related to poor parental feed practices. Parental practices related to breast feeding, child support and feeding support have been found to be sub optimal in this study. In particular, there is need for attention to breast feeding practices, child feed, caregiver feeding support, dietary diversity and access to food. Mothers of children 6 months to 6 years have also problems with accessing food in general and diversified foods, such as meat, fruits and vegetables in particular. Nutrition outcomes in Sierra Leone would be improved by developing a comprehensive community based early childhood development programme to improve feeding related parental practices. Mekonnen et al. (2017) have recommended similar interventions for populations with suboptimal feeding practices in Ethiopia. Future studies in this area should collect data on dietary intake, disaggregated by age. In addition, future research of this type should collect anthropometric data to triangulate findings from caregiver practices data. This will enable further assessment of food and dietary intake by age as recommended by WHO. The effects of feeding practices could also be better understood if future studies could collect anthropometric data at the same time that mothers/caregivers practices are being studied.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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