

**Akodu SO**  
**Njokanma OF**  
**Disu EA**  
**Anga AL**  
**Kehinde OA**

## Exclusive breastfeeding practices among women attending a private health facility in Lagos, Nigeria

DOI:<http://dx.doi.org/10.4314/njp.v41i4.11>

Accepted: 31th May 2014

Akodu SO (✉)  
 Njokanma OF, Disu EA, Anga AL  
 Kehinde OA  
 Department of Paediatrics  
 Lagos State University Teaching  
 Hospital, Ikeja, Lagos, Nigeria  
 Email: femiakodu@hotmail.com

**Abstract Background:** Exclusive breast feeding (EBF) is an effective tool of child survival. While many mothers understand the importance of breast feeding, some circumstances may hinder the practice.

**Objective:** To determine the pattern and factors influencing EBF among women attending a private health facility in Lagos, Nigeria.

**Methodology:** One hundred and twelve mothers with children aged twelve months or less were interviewed through a questionnaire on their breastfeeding practices.

**Results:** At the end of second month, two-fifths of the babies were still exclusively breastfed. This dropped to one-fifth by the end of the fourth month. At the end of six months, less than one-tenth of subjects were still exclu-

sively breastfed (3.6%).

No association was found between breastfeeding pattern and variables such as gender of infants, place of delivery, maternal age, type of delivery and number of antenatal visits. On the contrary there was an association with following variables: birth order among mother siblings, prenatal and postnatal feeding advice.

**Conclusion:** The rate of exclusive breast feeding among mothers for the recommended six months was very low (3.6%). Antenatal and postnatal programmes that will encourage mothers to practice exclusive breastfeeding should be strengthened.

**Key words:** Exclusive breast feeding, survival analysis, practice, private hospital, mother

### Introduction

Exclusive breastfeeding means that the infant receives only breast milk (either directly from the breast or expressed) and no other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines<sup>1</sup>. The WHO recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health.<sup>2</sup> Thereafter, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed for up to two years or more.

Promotion of exclusive breastfeeding (EBF) has been a cornerstone of public health measures to promote child survival for several decades<sup>3,4</sup>. EBF is associated with reduced risks of diarrhoea–and pneumonia–related infant morbidity and mortality both developed and developing world settings<sup>5–8</sup>.

Based on the WHO Global data on Infant and Young-Child Feeding in Nigeria, 22.3% of children were exclusively breastfed for less than four months, while 17.2% were exclusively breastfed for less than six months, in

the year 2003<sup>2</sup>. According to the Nigerian Demographic and Health Survey (NDHS), in 2008, 17% of children were exclusively breastfed for up-to four months, while 13% were exclusively breastfed up-to six months<sup>2</sup>. This data suggested a deteriorating situation; however, there is little or no information on the factors contributing to this situation.

The low proportion of women practicing EBF in most developing countries has been attributed to various maternal and child factors including place of residence, gender and age of the child, mother working outside home, maternal age and educational level, access to mass media and economical status<sup>9–11</sup>. Against the background that the relative importance of these and similar factors may differ from one environment to another, the current study sought to assess exclusive breastfeeding patterns among women attending a private health facility in Lagos, Nigeria. Although several local studies have been carried on the pattern of breast feeding among mothers, to the knowledge of the authors no study had recruited mothers attending private hospitals. The importance of conducting the study in a private healthcare facility stems from the fact that clients of such facilities

are often employed outside the home and are of relatively high socioeconomic class.

## Methodology

This was a descriptive cross-sectional study carried out over a five-month period from March through July 2013 among women who brought their children to the immunization unit at Isalu Hospitals Limited. Isalu Hospitals Limited is a private health facility located in Ogba, Ikeja. Ogba is about five kilometres west of Ikeja, the capital city of Lagos State. It is a densely populated area with a mixture of housing for high and low income earners.

Written and verbal informed consent was obtained from respondents who brought their children to immunization unit after explaining the purpose of the study. The targets were mothers with children aged less than twelve months. Eligible subjects who consented were recruited consecutively.

Women were interviewed through a study proforma which included general information, socio-demographic status, number of births, and duration of exclusive breastfeeding. The duration of exclusive breastfeeding (in months) here refers to the period from the first breast milk feed to the introduction of semi-solid or liquid food supplements along with breastfeeding. Social classification was done using the scheme proposed by Oyediji<sup>12</sup> and subjects were classified into five classes (I – V) in decreasing order of privilege. Socio-economic index scores (1 to 5) were awarded to each subject, based on the occupational and educational levels of parents.

Data were entered and analyzed using the Statistical Package for Social Science (SPSS) 18.0 version. Those women who were continuing EBF on the date of interview were considered censored cases and their duration of EBF was recorded and treated as censored data, as it was not known when they would discontinue EBF. They contributed valuable information and were not to be omitted from relevant aspects of the analysis. It would also be wrong to treat the observed time at censoring as exclusive breastfeeding termination time. A statistical technique useful for such data is survival analysis. Life table and the Kaplan Meier method<sup>13</sup> was used to subdivide the period of observation into smaller time intervals and for each interval, all who had been observed at least that long were used to calculate the probability of a terminal event occurring in that interval. The life table technique allows us to consider children who were still being breastfed at the time of interview of mothers, and also to know the proportion of children that remain being breastfed by the end of each month of their life. So, it allows a longitudinal approach to the cross sectional data collected. The probabilities estimated from each of the intervals were then used to estimate the overall probability of the event occurring at different time points. There were three assumptions for this methodology.

First, at any time, subjects who are censored have same survival prospects as those who continue to be followed. Second, survival probabilities are the same for subjects recruited early and late in the study. Third, the event happens at the time specified. Survival probabilities, standard error, hazard rate and median survival time were obtained. Log rank test for comparison of group was also applied to compare EBF experiences of groups.

EBF indicator was expressed as a dichotomous variable with category “1” for EBF and category “0” for non-EBF. This variable was examined against a set of independent variables (maternal and child characteristics) in order to determine the prevalence of EBF and factors associated with the duration of EBF. Log rank tests were used to assess the significance of factors associated with EBF and those with  $p < 0.05$  were considered significant.

## Results

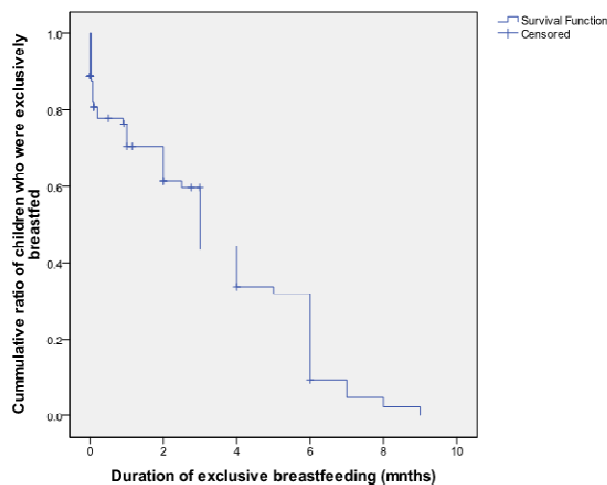
### *Characteristics of the study subjects*

The characteristics of recruited mothers and their children are shown in Table 1. A total of 112 eligible mother-infant pairs were recruited for the study. Majority of the recruited mothers were above 30 years of age, have tertiary educational status, are working mothers and belong to the upper socioeconomic strata. The most prevalent age group of the children was 9 – 11 months. Male and female children were nearly equally represented in the sample. Of the total births, 91.1% took place at a private owned facility. The proportion of delivery by caesarean section was 34.8%.

### *Cumulative probabilities for exclusive breast feeding (EBF)*

On the basis of the life table technique, Figure 1 shows survival probability for duration of exclusive breastfeeding among study infants.

**Fig 1:** Survival curve showing survival probability for duration of exclusive breastfeeding



**Table 1:** Characteristics of mothers and children

Characteristic	N	%
Gender of infant		
Male	59	52.7
Female	53	47.3
Age of infant (months)		
<3	40	35.7
3 – 5	13	11.6
6 – 8	4	3.6
9 – 11	46	41.1
No response	9	8.0
Position of birth		
1	46	41.1
>1	61	54.5
No response	5	4.4
Place of delivery		
Private hospital	102	91.1
Government hospital	10	8.9
Maternal age (years)		
>30	73	65.2
21 – 30	39	34.8
Mother's education status		
Secondary	3	2.7
Tertiary	107	95.5
No response	2	1.8
Father's education status		
Secondary	1	0.9
Tertiary	108	96.4
No response	3	2.7
Mother's working status		
Housewife	2	1.8
Working outside home	108	96.4
No response	2	1.8
Socioeconomic status		
Upper strata	106	94.6
Others	5	4.5
No response	1	0.9
Type of delivery		
SVD	73	65.2
C/S	39	34.8
Received prenatal feeding advice		
Yes	97	86.6
No	14	12.5
No response	1	0.9
Received postnatal feeding advice		
Yes	71	63.4
No	30	26.8
No response	11	9.8

Out of 112 women surveyed, 61 (54.5%) reported termination of EBF on or before survey date (terminal event). The remaining 51 (45.5%) cases were censored cases as they were still continuing EBF on the survey date. The overall exclusive breastfeeding rate was 42.9 percent. Table 2 show the cumulative probabilities for EBF using survival analysis. In relation to exclusive breastfeeding, it was observed that this was not a universal practice immediately after birth as 22 (19.7%) had formula feed introduced. The maximum numbers of babies who stopped EBF did so during first month of age interval, which are 22 babies. By the end of second month, forty-five of the recruited children were still exclusively breastfed, which further dropped to eighteen by the end of the fourth month. At the end of six months, four of the recruited children were still exclusively breastfed. The median length of exclusive breastfeeding (age in which half of the children received only the mother's milk) was found to be three months (with 95% confidence interval 2.61 – 3.40). The overall mean duration of exclusive breast feeding among respondents was 3.82 months (with 95% confidence interval 3.25 – 4.39).

**Table 2:** Cumulative probabilities for exclusive breast feeding using survival analysis

Breast feeding interval (months)	No entering the interval	No of cumulative events	No of remaining cases
0 – 1	112	22	65
1 – 2	65	28	45
2 – 3	45	38	27
3 – 4	27	44	18
4 – 5	18	45	17
5 – 6	17	57	4
6 – 7	4	59	2
7 – 8	2	60	1
8 – 9	1	61	0

### Factors associated with being exclusively breast fed

Table 3 presents the survival analysis to investigate variables associated with being exclusively breastfed. The median duration for EBF was same for the female and male babies ( $p = 0.757$ ). The median duration of EBF was significantly longer among subjects of the second or higher birth order. The place of delivery, maternal age, type of delivery and number of antenatal visits were not associated with significant differences in median duration of EBF ( $p > 0.05$ ). On the contrary the report of prenatal and postnatal feeding advice was associated with significantly longer median duration of EBF compared with mother who reported no prenatal and postnatal feeding advice ( $p < 0.05$ ).

**Table 3:** Survival analysis of factors associated with exclusively breastfeeding

Characteristic	No of terminal events	No of censored cases	Median duration of EBF (months) SE (95% CI)	Log rank test for comparison of group
Gender				0.757
Male	35	24	4.0 0.39 (3.25 – 4.76)	
Female	26	27	4.0 0.75 (2.53 – 5.47)	
Position of birth				0.012
1	26	20	3.0 0.24 (2.53 – 3.47)	
>1	33	28	6.0 0.30 (5.41 – 6.60)	
No response	2	3	2.0	
Place of delivery				0.510
Private hospital	56	46	4.0 0.54 (2.94 – 5.06)	
Government hospital	5	5	3.0 0.22 (2.57 – 3.43)	
Maternal age (years)				0.671
>30	42	31	3.0 0.41 (2.20 – 3.80)	
21 – 30	19	20	4.0 0.64 (2.75 – 5.25)	
Type of delivery				0.767
C/S	17	22	6.0 1.51 (3.05 – 8.96)	
SVD	44	29	4.0 0.43 (3.17 – 4.83)	
Number of antenatal visits				0.766
1 – 3	4	3	4.0 2.49 (0.00 – 8.89)	
More than 3	55	46	4.0 0.38 (3.26 – 4.74)	
No response	2	2	0.00 4.0 0.51 (3.01 – 4.99)	
Received prenatal feeding advice				0.001
Yes	51	46	1.0 0.44 (0.13 – 1.89)	
No	9	5	2.0 4.0 0.49 (3.05 – 4.95)	
No response	1	0	3.0 0.66 (1.72 – 4.29)	
Received postnatal feeding advice				0.001
Yes	38	33	2.0 0.69 (0.65 – 3.35)	
No	17	13	2.0 0.69 (0.65 – 3.35)	
No response	6	5		0.003

## Discussion

The survival analysis method was used to analyze data from 112 mothers. The median duration of EBF in the current study (three months) was lower than five months reported by Chudasama et al<sup>14</sup> among 498 mothers infant pairs in South Gujarat region of India, five years ago. On the contrary, the median duration of EBF reported in the current study is similar to three months reported by Setegnet al<sup>15</sup> among 608 mothers in Goba district, Southeast Ethiopia. However, it is of interest to note that the median duration of EBF reported in the present study was higher than the reported national duration of half a month but less than seven months reported in Southwest Nigeria by the National Population Commission<sup>16</sup>.

It was observed in the present study that the month during which the highest number of mothers discontinued EBF was at the end of first month. The explanation for this finding might be the effect of work resumption. Usually working mothers in Nigeria are allowed 12 weeks of maternity leave which equals approximately three months. Under these circumstances, mothers are prompted to resort to the supplementation of infant formula before three months so that their infants get accustomed to bottle feeding. Maternal fatigue and the difficulty in juggling the demands of work and breastfeeding may also contribute to this issue. The finding indicates that the passing and enforcement of legislation that supports working mothers who want to breast-feed exclusively should be a priority. Such legislation includes initiating breastfeeding-friendly work environments, as well as the extension of maternity leave to encourage mothers to exclusively breastfeed their babies to improve child health outcomes.

Exclusive breastfeeding (EBF) experiences of two groups of infants namely, those of first birth order and those of second or higher birth order were determined. The median duration of EBF was observed to be significantly higher among infants with second or more order. This observation might be related to previous breast feeding experiences of their mothers. The effect of mother parity on duration of EBF is still a matter of controversy. While some authors have reported that lower parity is associated with longer duration EBF<sup>17</sup> others have documented that higher parity leads to longer duration of EBF<sup>18,19</sup>. In another study<sup>20</sup>, it was asserted that parity had no significant influence on duration of EBF. It would appear that positive personal experiences would

encourage mothers to practice EBF of subsequent babies while negative experiences would do the opposite. Again, personal motivation might influence even a mother who had unpleasant experiences the first time to attempt EBF the next time around. The extent to which previous experiences and motivation play a role in EBF will therefore differ from one cohort of mothers to another.

In the present study, prenatal EBF plan by way of prenatal feeding advice was found to be associated with longer duration of EBF. This finding was in agreement with a study conducted among mothers in Bahir Dar City, Northwest Ethiopia<sup>21</sup>. This might be attributable to planning, increased preparedness, and commitment to achieve EBF. Similarly, the postnatal feeding advice was associated with longer duration of EBF.

## Conclusion

In conclusion, this study identified birth order, prenatal feeding advice, and postnatal feeding to be associated with exclusive breastfeeding and that practice of exclusive breast feeding among mothers declined to below 20% by the end of four months when they may have resumed work. Health workers in private health facilities should play a more prominent role in providing information about exclusive breastfeeding to mothers before and after delivery.

### Authors' contributions

Akodu SO: Conception, Data collection, Analysis, Manuscript writing.

Njokanma OF: Conception, Data collection, analysis

Disu EA: Conception

Anga AL: Conception, Data collection

Kehinde OA: Conception, Data collection

**Conflict of interest:** None

**Funding:** None

## Acknowledgement

We thank all the mothers who participated in the study as well as the Medical Director and staff of Isalu Hospitals Limited, Ogba, Lagos.

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