

Influence of Community Based Counsellors and Factors Associated with Exclusive Breastfeeding Practices in Ile – Ife, Nigeria

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Abstract: In spite of breastfeeding being almost universal in Nigeria, exclusive breastfeeding rate is low. Poor practices remain a major cause of neonatal and infant mortality. Community Integrated Management of Childhood illness (CIMCI) is a programme that employs the use of community based counsellors to address these challenges. The study assessed the effect of community based counsellor on breastfeeding practices of mothers and factors associated with exclusive breastfeeding in Ile-Ife, South-west, Nigeria. A comparative cross sectional study was conducted in two Local Government Areas (LGA) of Osun State, Nigeria. The study enrolled 722 mothers of index under five children through a multi stage cluster sampling techniques. Data was collected using structured questionnaire and analyzed using SPSS version 16.0. Approximately 94% of children in the CIMCI implementing LGA were exclusively breastfed compared to 76.1% in the non-implementing LGA ($p < 0.001$). Maternal age, maternal education level, family size, Initiation of breastfeeding within an hour of birth and residence in CIMCI-implementing LGA were significantly associated with exclusive breastfeeding. It was concluded that community based counselling has a positive effect on breastfeeding practices. Community based 'baby friendly' breastfeeding initiative is suggested.

Keywords: Community, Counsellors, Exclusive Breastfeeding, Mothers

1. Introduction

Breastfeeding infants exclusively for six months, is vital for optimal growth and development of infants. Breast milk provides all the nutrients needed for most infants up to six months of age. [1] Exclusive breastfeeding (EBF) is associated with greater reductions in infants' risks for specific negative health outcomes, including gastrointestinal and respiratory infections. [2] Improving breastfeeding alone could reduce the number of child deaths by more than ten percent. [3] In Nigeria breastfeeding is nearly universal with 97% of children ever breastfed, however the country has one of the poorest exclusive breastfeeding rates in Africa. [4] Recent data shows that the percentage of infants exclusively

breastfed rather than increase as anticipated, decreased from 17% in 2003 to 13% in 2008 and has not improved remarkably till now. [4-5]

Various factors have been adduced to influence breastfeeding practices. These factors include mother's marital status, employment status, low maternal education, friends' method of feeding their babies and social support. [6] The Nigerian government established Baby-Friendly Hospital Initiative (BFHI) has not had much effect on EBF rates because majority of women do not deliver in health facilities across the community. [7] This reiterate the importance of community level initiatives. One of such initiative is the World Health Organisation (WHO) driven Community Integrated Management of Childhood Illness (CIMCI), which was implemented in Ife Central Local Government Area in Osun

state, Nigeria in 2005. As part of the initiative Community Resource Persons (CORPs) were trained and equipped to provide information on appropriate child health practices at the household and community level. These practices if adopted were capable of improving child health and survival. The core message conveyed by these CORPs was appropriate breastfeeding practices such as breastfeeding exclusively for the first 6 months of life, initiating breastfeeding within an hour of birth and avoiding pre-lacteal feeds etc. They also formed breastfeeding support groups and assisted mothers experiencing difficulties with breastfeeding. This community based counsellors have now operated for more than six years in communities and households to promote appropriate breastfeeding practices. The objective of this study was to assess the effect of community based counsellor on breastfeeding practices of mothers and factors associated with exclusive breastfeeding in Ile-Ife, Nigeria.

2. Subjects and Methods

2.1. Study Setting and Participants

The study was carried out in two Local Government Areas (LGA) of Osun State, South-West Nigeria. The state has a population of about 3.4 million people. [8] Ife Central LGA was purposively chosen as the study site because it implements CIMCI and has trained CORPs while Ilesa East LGA the comparison site does not implement the CIMCI programme and has no trained CORPs. The study population was mothers of children 0-59 months old, and their index children (the index child is the child chosen for the study). The study excluded mothers with children age 0-59 months who were ill during the study, and non-consenting mothers.

2.2. Sample Size and Sampling Technique

The study was a comparative cross-sectional design and employed the use of multi-stage cluster sampling technique. Sample size was determined using a formula for comparing independent proportions. [9] These gave a sample size of 722 mothers and their index under five children. In each of the LGA 361 respondents were selected.

In the first stage Ife Central LGA, was purposively selected among the 30 LGAs in the state being the only LGA that implements CIMCI. Ilesa East LGA, was randomly selected by balloting system among the remaining non CIMCI implementing LGAs in the state.

In stage 2, wards 4 and 5 in Ife Central LGA were purposively selected being the two wards in the LGA with trained CORPs and implementing CIMCI, while Wards 2 and 8 were randomly selected from the 11 wards in Ilesa East LGA.

In stage 3, the Enumeration Areas (EAs) of the selected wards 4 and 5 in Ife central LGA and wards 2 and 8 in Ilesa East LGA were made the primary sampling unit. The number of EAs were assessed in the selected wards. The selected ward in Ife Central had 180 EAs while those in Ilesa East had 150 EAs. Within the selected wards one-fifth (1/5) of the EAs

were chosen using simple random selection method. Thirty six EAs were selected from wards 4 and 5 in Ife Central and 30 EAs were selected from wards 2 and 8 in Ilesa East. In each LGA the sample size of 361 was divided by the number of selected enumerated area to determine the average number of participant to recruit from each EA. An average of 10 participants were recruited from selected EAs in wards 4 and 5 and 12 participants from the selected EAs in wards 2 and 8 until the sample size of 361 was attained in each LGA.

In stage 4, household listing for the streets in the selected EAs were done in both LGAs. One street was randomly selected from each EA. A household was randomly selected as the starting point in the selected street by ballot system. Systematic random sampling of households in selected street was done. Interview began in the eligible household moving systematically until the targeted number of interviews has been attained.

In the last stage, the basic sampling unit was the household. One mother with an eligible child was interviewed in every household selected. Where the household had more than one eligible subject the child with birthday nearest to the interview period was chosen. Where there was no eligible child in the household the next household with an eligible child was chosen.

2.3. Data Collection Instrument

A structured interviewer administered pre-tested questionnaire was used in data collection. The questionnaire was adapted from the CIMCI household level survey questionnaire developed by United Nation Children's Funds (UNICEF) and previously validated by WHO/Nigeria. [10]

2.4. Statistical Analysis

The data was analysed using SPSS version 16.0 (SPSS Inc. Chicago). Wealth Index was constructed for each LGA by assessing the presence or absent of durable assets in the household. The presence was scored as 1 and the absence as 0, the mean assets score was re-categorized into five different wealth quintiles of equal proportion (Lowest, second, third, fourth and Highest wealth quintiles). Some variables were recoded for analysis at the bivariate and multivariate levels: age was recoded into < 30 and >31years, [4] education into: < secondary and ≥ secondary, marital status into married and not married, occupation was recorded into employed and unemployed, family size into ≤ 5 and ≥ 6. Wealth index was also re-categorised from five into two groups. Descriptive analysis was used, among others, for the socio-demographic characterization of the respondents. The chi square (χ^2) test/likelihood ratio chi square test was used to assess the statistical significance of the bivariate associations. Factors that were significantly associated ($P < 0.05$) with exclusive breastfeeding at the bivariate level were then used in a logistic regression model. The outcome measures and there definitions are as follows;

Early initiation of breastfeeding: Proportion of children born in the last 59 months before the study who were put to

the breast within one hour of birth.

Exclusive breast-feeding: Proportion of infants 0–6 months of age who are fed exclusively with breast milk. Applies to the infants, who have received only breast-milk from her mother, and no other liquids or solids with the exception of drops or syrup consisting of vitamins, mineral supplements or medicines. [11]

2.5. Ethical Clearance

Ethical clearance was obtained from the ethics and research committee of Obafemi Awolowo University Teaching Hospitals Complex. Written informed consent was obtained from the participants.

3. Results

Demographic characteristics of study population are presented in table 1. A total of 722 mothers and index children participated in the study. Most of the participants in both LGAs were married, 93.9% in the CIMCI implementing LGA and 96.4% in non-CIMCI implementing LGA. About 39% of mothers in the non-CIMCI implementing LGA had tertiary education compared with 24.1% in the CIMCI implementing LGA. The two LGA did not differ significantly in wealth index ($p=0.344$).

Table 1. Socio-demographic characteristics of mothers and index children by LGA.

Characteristics	CIMCI implementing LGA N=361 n (%)	NON-CIMCI LGA N=361 n (%)	Statistical Indices
Maternal Age yrs			
15-19	4 (1.1)	2 (0.6)	
20-29	174 (48.2)	168 (46.5)	
30-39	158 (43.8)	170 (47.1)	$\chi^2=1.56$, df=3 $P=0.669$
40-49	25 (6.9)	21 (5.8)	
Marital Status			
Married	339 (93.9)	348 (96.4)	
Not married	22 (6.1)	13 (3.6)	$\chi^2=2.41$ df=2 $P=0.119$
Maternal Education Status			
No Education	15 (4.2)	10 (2.8)	
Primary Education	72 (19.9)	28 (7.8)	
Secondary Education	187 (51.8)	183 (50.7)	$\chi^2=32.77$ df=3 $P<0.001$
Tertiary Education	87(24.1)	140 (38.8)	
Maternal Occupation			
Housewives	18 (5.0)	39 (10.8)	
Not Housewives	343 (95.0)	322 (89.2)	$\chi^2=8.400$, df=1, $p=0.004$
Index children age (months)			
≤5	29 (8.0)	55 (15.2)	
6-11	47 (13.0)	82 (22.7)	
12-23	61 (16.9)	75 (20.8)	$\chi^2=34.59$ df=4 $P=0.001$
24-35	114 (31.6)	70 (19.4)	
36-59	110 (30.5)	79 (21.9)	
Sex			
Male	209 (57.9)	195 (54.0)	
Female	152 (42.1)	166 (46.0)	$\chi^2=1.10$ df=1 $P=0.290$
Family size			
≤ 5	248 (68.7)	295 (81.7)	
≥ 6	133 (31.3)	66 (18.3)	$\chi^2=16.41$, df=1 $P<0.001$
Wealth Index			
First and Second quintile	234(64.8)	246(68.1)	
Third and above	127(35.2)	115(31.9)	$\chi^2=0.89$ df=1 $P=0.344$

*Likelihood chi square test, CIMCI=Community Integrated Management of Childhood Illness, Local Government Area.

More children in the CIMCI implementing area 93.7% were exclusively breastfed compared to 76.1% in the non-implementing area ($p<0.001$) (Table 2). Breastfeeding was initiated within one hour for 76.7% of children in implementing LGA compared with 38.8% observed in the non- implementing LGA ($p<0.001$). The pre-lacteal feeding rate was higher in the non-implementing LGA (25%) than in the CIMCI implementing LGA (12.2%) and this difference was statistically significant ($p<0.001$). Sugar water was a

common pre-lacteal feeds in both LGAs, while infant formula was a very common pre-lacteal feed in the non-implementing area (61.5%). Eighty two percent of the children aged 12-23 months in the CIMCI implementing LGA were still breastfeeding compared to 56% in the non-implementing LGA. In both LGAs husbands' support for breastfeeding was very high although a statistical difference exists between the two LGA (Table 2).

Table 2. Breastfeeding practices among mothers of index children by LGA.

Variable	CIMCI implementing LGA n (%)	NON-CIMCI LGA n (%)	Statistical Indices
EBF*	N=332	N=306	
Yes	311 (93.7)	233 (76.1)	
No	21 (6.3)	73 (23.9)	$\chi^2=38.96$, df = 1 P< 0.001
Total	332 (100.0)	306 (100.0)	
Still breastfeeding at age 12-23	N=61	N=75	
Yes	50 (82.0)	42 (56.0)	
No	11 (18.0)	33 (44.0)	$\chi^2=10.36$, df = 1 P= 0.001
Total	61(100.0)	75 (100.0)	
Initiation of breastfeeding	N=361	N=361	
<1 hour	277 (76.7)	140 (38.8)	
>1hour	84 (23.3)	221 (61.2)	$\chi^2=106.55$, df = 1 P< 0.001
Total	361(100.0)	361 (100.0)	
Husband support for breastfeeding			
Yes	330 (94.1)	318 (88.1)	
No	3 (0.8)	34 (9.4)	$\chi^2=41.83$, df=3 P< 0.001
Husband not present	23(6.4)	6 (1.7)	
Does not know	5 (1.4)	3 (0.8)	
Total	361(100.0)	361(100.0)	
Pre- Lacteal feeds			
Yes	44(12.2)	91(25.2)	
No	317(87.8)	270(74.8)	$\chi^2=20.13$, df = 1 P< 0.001
Total	361(100.0)	361(100.0)	
Types of pre-lacteal feeds	N=44	N=91	
Sugar water	6 (14.0)	10 (11.0)	
Glucose	26(59.0)	20 (22.0)	$\chi^2=40.03$, df = 3 P< 0.001
Infant formula	9 (20.0)	56 (61.5)	
Herbs / water alone	3 (7.0)	5 (5.5)	
Total	44 (100.0)	91(100.0)	

EBF* = Included only children who have been breastfed up to six months

**Likelihood ratio chi square test

At bivariate level of analysis maternal age ($p=0.004$), maternal education ($p=0.018$), family size ($p=0.026$), initiation of breastfeeding ($p<0.001$), mothers occupation ($p=0.002$), wealth index ($p=0.012$) and residence in CIMCI implementing LGA ($p=0.024$) were significantly associated with exclusive breastfeeding. The age of the child, sex of the child, marital status and husbands support for breastfeeding were not significantly associated with exclusive breastfeeding. A multivariate analysis was done to determine which of the selected socio-demographic characteristics predicts exclusive breastfeeding. As shown in table 3, Mother's educational status, mother's age, family size, initiation of breastfeeding within an hour and residence in CIMCI LGA, are factors that predicts the practice of exclusive breastfeeding. Mothers with secondary education and above are three times more likely to exclusively breastfeed than mothers with lower than secondary education (Odd Ratio (OR) 3.33, 95% Confidence Interval (CI) 1.34-8.36). Older mothers, 31 years and above are 1.24 times more likely to exclusively breastfeed than mothers 30 years and below (OR 1.24, 95% CI 1.02-3.23). Family size was another factor that predicted exclusive breastfeeding. Mothers with family size ≥ 6 are less likely to exclusively breastfeed compared to mothers with family size ≤ 5 (OR 0.44, 95% CI 0.22-0.86). Mothers who initiated breastfeeding within an hour of birth are 4 times more likely to breastfeed exclusively than those who

initiated breastfeeding an hour after birth (OR 4.01, 95%CI 2.60-6.40). Children born to mothers in the CIMCI implementing LGA are one and half times more likely to be exclusively breastfed than those born in non-CIMCI implementing LGA (OR 1.50, 95% CI.1.01- 2.10).

Table 3. Determinants of exclusive breastfeeding among mothers in Ile-Ife, Nigeria (N=722).

Variable	OR (95% CI)	p-value
Maternal age (Ref = ≤ 30 yr)		
≥ 31 yr	1.24 (1.02-3.23)	0.040*
Mother's education (Ref = < secondary)		
\geq Secondary	3.33 (1.34-8.36)	0.010*
Marital status (Ref = not married)		
Married	2.81 (0.72-10.9)	0.138
Family size (Ref = $n \leq 5$)		
≥ 6	0.44 (0.22-0.86)	0.017*
Occupation (Ref = housewives)		
Not housewives	1.18 (0.14-10.2)	0.880
Residence (Ref = non-CIMCI)		
CIMCI	1.50 (1.01-2.10)	0.002*
Wealth index (Ref = 1st and 2nd)		
3rd quintile and above	0.45 (0.80-2.49)	0.358
Initiation of Breastfeeding (Ref=After 1 hr)		
Within 1hr of birth	4.01 (2.60-6.40)	0.001

Ref = reference. * Significant at the level of $p<0.05$.

4. Discussion

Several studies have described the benefit of early initiation and exclusive breastfeeding for child health. [2] In this study exclusive breastfeeding rate was high in both LGA and was equally higher than the national average of thirteen percent. [4] The rate was however significantly higher in the CIMCI-implementing LGA than the non-implementing LGA. The very high difference that was seen in the study may be attributed to presence of community based counsellors in the CIMCI- implementing LGA, and probably the high level of maternal education especially in the non-implementing LGA. This is in agreement with the findings of Haider *et al* [12] who showed that using community based peer counsellors increased EBF rates in Bangladesh. A high maternal educational level was observed to also favour EBF; similar to findings in other studies. [13-14] High maternal education enhances mothers' understanding and appreciation of the demands and benefits of EBF, and empowers them to resist external interference and pressures. [15]

In this study 76.7% of children in the implementing LGA commenced breastfeeding within the first hour of life compared to 38.8% in the non-implementing LGA. The high and statistically significant difference between the two LGA may not be unconnected with the activity of the community based counsellors working under the CIMCI programme as the rate of breastfeeding initiation from the non-implementing LGA is similar to the national average from Nigeria Demographic Health Survey 2008. [4] This finding is in keeping with that of Awogbenja from Nasarawa, Nigeria. [16] The disparity in breastfeeding initiation may also be due to preference for formula feeds and other forms of pre-lacteal feed among mothers in non-implementing LGA compared to CIMCI implementing LGA. The initial acceptance of formula feeding as a pre-lacteal feed is an important consideration for the promotion of both breastfeeding initiation and exclusive breastfeeding for 6 months. [12]

At the time of this study, eight in ten of children aged 12-23 months in the CIMCI-implementing LGA were still breastfeeding compared to five in ten in the non-implementing LGA. The difference was statistically significant, thus the chance of been breastfed up to 23 months of age was higher in the CIMCI-implementing LGA than the non-implementing LGA.

In this study husband support was high in both LGA nine in ten in the CIMCI LGA and eight in ten in the non-implementing LGA although a statistical difference exists; husband support did not appear to have any significant effect on EBF rates unlike findings by sika *et al* who reported association between husband support and EBF. [6] The findings in this study are similar to results of other studies that have suggested a shift to 'baby friendly' household initiatives rather than hospital initiatives.[15, 16] This suggestion is keeping with the activity of the community based counsellors under the CIMCI programme.

We found a high maternal educational level, older maternal age, smaller family size, initiation of breastfeeding within an

hour of birth and residence in CIMCI LGA, as factors that were significantly associated with the practice of exclusive breastfeeding. These factors were not just associated but also predicted the practice of exclusive breastfeeding. Findings shows that mothers with family size ≤ 5 , achieved higher EBF rates than those with family size ≥ 6 . This is understandable because the fewer the number of babies the easier it is for mothers to cope with the demands of EBF thus reducing the chances of maternal exhaustion. [17] This is in agreement with findings by Uchendu *et al* in Enugu Nigeria. [15] Older mothers rather than younger ones were more likely to exclusively breastfeed. It is possible that mothers gain knowledge and confidence in good child care practices such as breastfeeding with time. This finding is supported by Lawson *et al* and sika *et al* who reported that older women probably know more about the benefits of breastfeeding and have more realistic outcome expectations. [6, 18] The result also indicated that residing in CIMCI LGA and initiating breastfeeding within one hour of birth increases the likelihood of breastfeeding exclusively. This result might be due to activities of the community based counsellors who not only appropriately educate mothers but also assisted mothers experiencing difficulties with breastfeeding. In this study marital status, wealth index and occupation did not predict the likelihood of exclusively breastfeeding unlike findings by Jones *et al*. [18] This possibly may be due to activities of these counsellors who do not consider marital status, wealth index and occupation in promoting their activities but rather empowers all strata with appropriate breastfeeding information.

5. Study Limitations

A limitation of the study was our dependence on mother's information of breastfeeding practices, though mothers' recall of breastfeeding behaviour has been found to be reliable and valid when investigated within 3years after the practice. [19] Another limitation is the cross sectional design which limits formulation of causal association.

6. Conclusion

Findings from this study have shown the positive effect of community based counselling activities on breastfeeding practices. The determinant of exclusive breastfeeding for 6 months includes family size, maternal age, maternal education, initiation of breastfeeding within an hour of birth and residence in CIMCI implementing community. We suggest therefore that effort should be made to scale up this initiative and or possible paradigm shift towards community based 'baby friendly' breastfeeding initiatives.

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