



PREVALENCE OF EXCLUSIVE BREASTFEEDING AMONG MOTHERS OF INFANTS AGED 0-6 MONTHS IN MAKURDI, NIGERIA: A CROSS-SECTIONAL SURVEY

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Abstract

There is paucity of reports on breastfeeding practices among nursing mothers in Makurdi, Benue state. The study was aimed at determining the prevalence of exclusive breastfeeding and associated factors among mothers of infants aged 0-6months attending Child Welfare Clinics in Makurdi, Benue state. This cross-sectional study was conducted among 300 mothers of children aged 0-6months attending under-five clinics in Makurdi. Data was collected using structured questionnaire and analyzed using SPSS version 20. The mean age of the infants was 3.06 months \pm 2.2months. Majority of the mothers 292(97.3%) were currently breastfeeding, but less than half of the mothers 141(47.0%) were exclusively breastfeeding. Among mothers that were not practicing exclusive breastfeeding, 103(64.8%) gave water, 68(42.8%) administered soft drink, 54(34.0%) gave infant formula, 11(6.9%) gave custard, while 17(10.7%) administered yam porridge, tea, fruit juice or liquid milk. Mothers who had one or more previous pregnancies and mothers of babies aged 0-1month were more likely to practice EBF. Even though the exclusive breastfeeding prevalence reported in this study is above the national figure, it is however less than the World Health Organization target for infants that are six months and below. Efforts should be intensified to sustain this giant stride with the hope of improving on it through public awareness on the importance of exclusive breastfeeding.

Keywords: Exclusive breastfeeding, infants, Mothers, Makurdi, Prevalence

Introduction

Nutrition especially at the early stages of life has continued to attract global attention. It is one of the most important factors that affect child survival, and development. ¹Inappropriate and inadequate nutrition can negatively affect the quality of life of the child. As a result World Health Organization and United Nation International Children Fund came up with a noble policy of exclusive breastfeeding practice for the first six months of life. ² Exclusive breastfeeding is the practice of only giving an infant breast-milk for the first six months of life (no other food or water) and has the single largest potential impact on child mortality of any preventive intervention ³. It is part of optimal breastfeeding practices, which also include initiation within one hour of life and continued breastfeeding for up to 2 years of age or beyond. ³

The overwhelming benefits of exclusive breastfeeding to the infants, mothers and the environment have been established in many research publications. ^{4,5,6} For instance, it has been shown to be a cornerstone of child survival and child health because it provides essential, irreplaceable nutrition for a child's growth and development. It serves as a child's first immunization - providing protection from respiratory infections ⁷, diarrhoeal disease, and other potentially life-threatening ailments. Exclusive breastfeeding also has a protective effect against obesity and certain non-communicable diseases later in life. ⁷ Even though the policy on exclusive breastfeeding is now well over two decades, evidence from research has not shown encouraging trend especially in developing countries. For instance the global prevalence of exclusive

breastfeeding was reported to be 38%.^{8,9} Similarly, publications of the International Baby Food Action Network (IBFAN) have shown that the exclusive breastfeeding at 3-4 months in different countries include Botswana to be 29.7%, Eritrea 64%, Ghana 36%, Kenya 17%, Lesotho 54%, Malawi 11%, Somali 7%, Sudan 40.8%, Swaziland 53%, Tanzania 4.1%, Uganda 68% and Zimbabwe 2.5%.¹⁰

In Nigeria, experts have described the rate of exclusive breastfeeding as being the worst in Africa. The Nigerian National Demographic and Health Survey (NDHS) reported in 2013 that only 13.1% of new born were exclusively breastfed^{11,12}. This report is coming at a time when Ghana had achieved 63% exclusive breastfeeding rate between 2005-2007.¹³ Furthermore, a neighboring State to the study location reported a prevalence of 22.9%.¹⁴ Similarly, in different states of Nigeria, reports have shown wide variations^{15,16} in exclusive breastfeeding rate, with a significant number showing figures that were far below WHO recommendation of more than 50%.^{17,18}

This discouraging prevalence of exclusive breastfeeding practice prompted some primary care experts to go in search of factors that are associated with exclusive breastfeeding with a view of fashioning out intervention programs to address them. Some of the factors identified to be associated with exclusive breastfeeding include socio-demographic factors (educational level, urban versus rural residence, monthly household income and parity); biosocial factors (breastfeeding support); cultural factors (beliefs, norms and attitudes towards breastfeeding), employment policies as well as maternal antenatal care history, place of delivery, and type of delivery, maternal parity, use of pre-lacteal feeds and use of bottle feeding.^{19,20,21,22,23}

The prevalence of exclusive breastfeeding varies widely from one geographical region of the country to another based on differences in socio-cultural characteristics between these regions. No report has been documented about breastfeeding practices in Makurdi the capital city of Benue State. This study therefore sought to investigate the prevalence of exclusive breastfeeding; and to determine the associated factors among nursing mothers of infants aged 0-6months attending Child Welfare Clinics in Makurdi.

Materials and Methods

Study setting

This study was carried out in Makurdi the capital of Benue State; in North Central, Nigeria. It lies between latitude 7.73⁰ and longitude 8.32⁰. It has a population of about 300,377 people (NPC 2006). Majority of the people were traders and farmers.

The study was conducted in three major Child Welfare Clinics in Makurdi metropolis. These included the Child Welfare Clinics of the Benue State University Teaching Hospital, the State Epidemiology Unit, and the Family Support Clinic. These clinics were set up and mandated to among other things, monitor the growth of under-five children, administer routine immunization, health education including demonstrations and attend to minor ailments of children under-five years. A sample size of 271 mothers and infants was calculated using the exclusive breastfeeding rate of 22.9%²⁴ obtained from a previous study. However, 300 mother-infants pairs were recruited for the study.

Study design

It is a descriptive cross-sectional study to determine the prevalence of exclusive breastfeeding and the associated factors.

Study population

The study was conducted among 300 mothers of children 0-6months, visiting the under-five clinics in Makurdi, Benue State comprising Family Support Programme (FSP) Clinic, State Epidemiological Unit, and the Benue State Teaching Hospital. The inclusion criteria include subjects should be the biological mothers of the infants and the infants should be less than 6 months old.

Sample size estimation

The sample size was determined using the formula below.²⁵

$$n = \frac{(Z_{1-\alpha})^2 P(1-P)}{d^2}$$

Where:

n = Minimum sample size
 $Z_{1-\alpha}$ = Constant at 95% confidence interval from two tables which is 1.96 for two tailed study.

- P = Best estimate of population prevalence obtained from literature review, which is 22.9%.¹⁴
- d = Precision which at 95% confidence interval is 5%.

$$n = \frac{(1.96)^2 \times 0.229(1-0.229)}{(0.05)^2} = 271$$

Therefore, the minimum sample size was increased to 300 to accommodate invalid filled questionnaires.

Sampling technique

This study used a multi-stage sampling technique. There are five major Child Welfare Clinics in Makurdi: The Family Support Clinic, The State Epidemiology Clinic, Federal Medical Centre, General Hospital, North Bank, and the Benue State University Teaching Hospital. Three of the Clinics were selected by simple random sampling method. The clinics selected are the Family Support Clinic, State Epidemiology Unit, and the State University Teaching Hospital. The entire pair of mother and infants (0-6 months) who presented to these Child Welfare Clinics within the period of the study and consented to participate in the survey were selected consecutively until the sample size was obtained. The distribution of the samples to the various clinics was done in a proportionate manner based on the average number of babies seen routinely in each clinic.

Data collection

An interviewer administered, semi-structured and pre-tested questionnaire was used to collect data with the assistance of trained research assistants (Medical Students). The questionnaire obtained information on the mother's Sociodemographic and the other relevant variables. Data collection was done on clinic days between Mondays and Fridays. The research assistants had prior short training on interviewing skills, methodology of the study and ethical issues.

Data analysis

The filled questionnaires were examined for completeness and entered into spreadsheet and then exported to Statistical Package for Social Sciences (SPSS) version 20 for further cleaning and analysis. The main outcome variable was the practice of

exclusive breastfeeding. The exposure variables include maternal age, educational attainment, and employment status, marital status number of previous deliveries, ante-natal care attendance, infant feeding counseling and place of delivery. Chi square test was used to test for association between the outcome and the exposure variables

Ethical consideration

Ethical approval for the study was obtained from the Ethical Review Committee of Benue State University Teaching Hospital, Makurdi. Written consent for the study was also obtained from the authorities of the other two clinics. Signed informed consent of the mothers was obtained after explaining the aims and objectives of the study and what their participation entails. In order to guarantee anonymity of each participant, the names of the respondents, addresses and identification information were excluded.

Results

Socio-demographic characteristics

A total of 300 mothers were recruited for the study. The infants were aged 0-6 months with a mean age of 3.06 months and a standard deviation of 2.2months. Majority of the infants were aged 1-3 months. The mother's mean age was 26.2 and standard deviation of 5.0. The socio-demographic profile of mothers showed that the majority of the subjects 165(55.0%) had secondary school education while 5(1.7%) had no formal education. Almost all the participants 291(97.0%) were Christians, while Muslims were 9(3.0%). The Tiv tribe accounted for the majority of the ethnic group 199(66.3%) while the Igede were 5(1.7%).

On the occupation of the participants; farmers were 20(6.7%), government employee 49(16.3%), daily labour 9(3.0%), housewife 69(23.0%), skilled worker 22(7.3%), student 30(10.0%) and others were 6(2.0%). The currently married participants were the majority 295(98.3%) while those not married accounted for 5(1.7%). As regards the parity of the mothers, majority of the mothers 142(47.3%) had 1-2 previous deliveries while 78(26.0%) were carrying their first baby (Table 1).

Table 1: Socio-Demographic Characteristics

	Frequency	Percentage
Mean Weight of the infants (Kg)	5.8 SD:1.5	
Mean Age of the children (months)	3.06 SD: 2.2	
Age of child (months)		
- <1	85	28.3
- 1-3	125	41.7
- 4-6	90	30.0
Age of mother (years)	26.2 SD:5.0	
Mothers age group (Years)		
- ≤ 19	13	4.3
- 20-24	103	34.3
- 25-29	112	37.3
- 30-34	50	16.7
- ≥35	22	7.3
Mothers age group(Years)		
- ≤24	116	38.7
- ≥25	184	61.3
Educational Qualification of Mother		
- Never being to School	5	1.7
- Primary	25	8.3
- Secondary	165	55.0
- Tertiary	105	35.0
Religion		
- Christianity	291	97.0
- Islam	9	3.0
Mothers occupation		
- Farmer	20	6.7
- Gov't employee	49	16.3
- Daily labour	9	3.0
- Trader	95	31.7
- Housewife	69	23.0
- Skilled worker	22	7.3
- Student	30	10.0
- Others	6	2.0
Mothers marital status		
- Currently Married	295	98.3
- Not Married*	5	1.7
Number of previous deliveries before the present child		
- None	78	26.0
- 1-2	142	47.3
- ≥3	80	26.7
Total	300	100

* Include single(2), separated (2) and divorced (1)

Figure i: Proportion of respondents who had ANC and received infantfeeding counseling

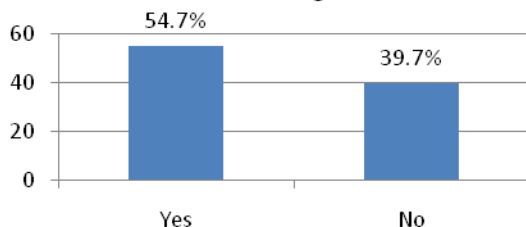
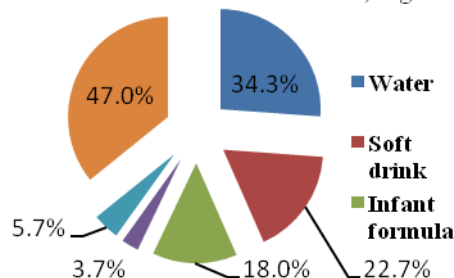


Figure ii: Other feeds given to babies aged 6 months or less in Makurdi, Nigeria



Breast feeding practices

Majority of the mothers 292(97.3%) were currently breastfeeding while 8(2.7%) had stopped breastfeeding. Majority of the mothers 207(69.0%) initiated breastfeeding within the first one hour of birth, while 93(31.0%) initiated it after one hour.(Table 2) Among the mothers that did not initiate breastfeeding within the first one hour; 60(20%) indicated that the mother was sick, 13(4.3%) said the child was sick, 3(1.0%) admitted that the child was premature, 13(4.3%) said that it was because of cleaning up after birth, while 4(1.3%) did not advance any reason. (Figure iii). Less than half of the mothers 141(47.0%) were exclusively breastfeeding their infants, 159(53.0%) were not exclusively breastfeeding their infants. (Table 2)Among mothers that were not practicing exclusive breastfeeding, complimentary feeds were given. Majority of mothers 103(64.8%) gave water, 68(42.8%) administered soft drink, 54(34.0%) gave infant formula, 11(6.9%) gave custard, while 17(10.7%) administered yam porridge, tea, fruit juice or liquid milk. (Figure ii)

Majority of the mothers, 243(81.0%) had the intention of breastfeeding their infants for the period of 13-23months, while only 6(2.0%) had the intention of breastfeeding less than six months. About a third of the mothers 106(35.3%) received assistance to commence breastfeeding; while close to two-third 194(64.7%) did not receive the same. The mothers who were assisted to commence breastfeeding, majority of the assistance 58(19.3%) came from the Health Workers, while the Traditional Birth Attendant gave the least assistance 1(0.3%). (Table 2) More than half of the mothers 164(54.7%) had received infant feeding counseling during Ante Natal Clinic, while 119(39.7%) indicated otherwise. (Table 2)

Majority of the infants 60(70.6%) aged 0-1month were being exclusively breastfed. When compared to infants of other group; the relationship was found to be statistically significant($X^2 = 52.09$, $p < 0.0000001$). Majority of mothers 54(48.2%) aged 25-29 were found to practice exclusive breastfeeding more when compared to other age group. This however, is not statistically significant ($X^2 = 0.1887$, $p = 0.9958$). Mothers that had one or more previous pregnancies practiced exclusively breastfeeding more than mothers that had no previous pregnancy. The relationship is statistically significant ($X^2 = 4.838$, $P = 0.02785$). Majority of the mothers that had ANC 135(47.7%) practiced exclusive breastfeeding more. However, the relationship with those that did not attend ANC was not statistically significant ($X^2 = 0.9913$, $p = 0.3194$). Majority of the mothers 79(48.2%) that had infant feeding counseling during ante-natal clinic practiced exclusive breastfeeding. The relationship with those that did not have infant feeding counseling was not statistically significant ($X^2 = 0.03418$, $p = 0.8533$).

Majority of the mothers 124(47.0%) that delivered at health facility practiced exclusive breastfeeding. However, the relation with those that delivered at TBA home was not statistically significant($X^2 = 0.0008$, $p = 0.9773$). Even though the majority of mothers that had secondary school education and above practiced exclusive breastfeeding much more, the relationship with those that had primary education or less was not statistically significant($X^2 = 3.062$, $p = 0.08017$). The mothers that were married 139(47.1%) practiced exclusive breastfeeding more than the unmarried mothers 2(40%). However, the relationship was not statistically significant($X^2 = 0.1$, $p = 0.7518$). Majority of infants 16(10.1%) that were not currently on exclusive breastfeeding had more episodes of diarrhoea disease and when compared to those on exclusive breastfeeding, the relationship was statistically significant ($X^2 = 4.9$, $p = 0.027$). (Table 3).

Table 2: Breast Feeding Practices

	Frequency	Percentage
Currently breastfeeding		
- Yes	292	97.3
- No	8	2.7
Breastfeeding Initiation after delivery		
- Within 1 hr	207	69.0
- After 1 hr	93	31.0
Currently on EBF		
- Yes	141	47.0
- No	159	53.0
Intended duration of breastfeeding*		
- 0-5 mnths	6	2.0
- 6-11 mnths	25	8.3
- 12-23mnths	243	81.0
- 24 mnths and above	18	6.0
Received Assistance to commence breastfeeding		
- Yes	106	35.3
- No	194	64.7
Who assisted in breastfeeding**		
- Health Worker	58	19.3
- Husband	11	3.7
- TBA	1	0.3
- Family member	36	12.0

*For respondents who are currently breastfeeding **For respondents who were assisted to commence breastfeeding

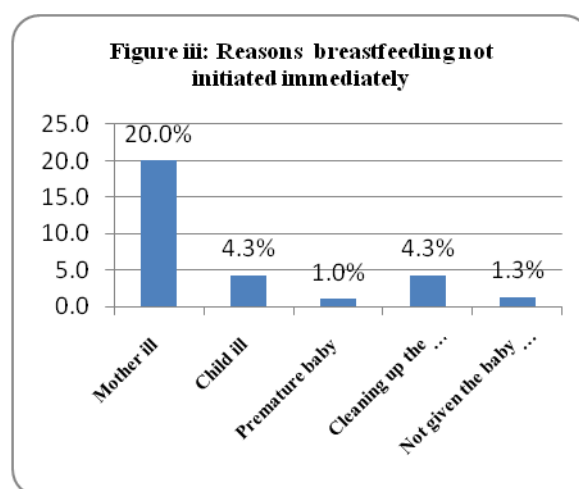


Table 3: Exclusive breastfeeding and other variables

	Currently on EBF				Chi sq	P-value
	Yes	Percent (%)	No	Percent (%)		
Child Age group(months)						
- 0-1	60	70.6	25	29.4	52.09	<0.0000001
- >1-<4	65	52.0	60	48.0		
- 4-6	16	17.8	74	82.2		
Age group mother						
- = or < 19	6	46.2	7	53.8	0.1887	0.9958
- 20-24	47	45.6	56	54.4		
- 25-29	54	48.2	58	51.8		
- 30-34	24	48.0	26	52.0		
- > or = 35	10	45.5	12	54.5		
No of Previous Pregnancy						
- None	45	57.7	33	42.3	4.838	0.02785
- 1 and above	96	43.2	126	56.8		
Had ANC						
- Yes	135	47.7	148	52.3	0.9913	0.3194
- No	6	35.3	11	64.7		
Had Infant feeding counseling during ANC						
- Yes	79	48.2	85	51.8	0.03418	0.8533
- No	56	47.1	63	52.9		
Place of delivery						
- At home or TBA	17	47.2	19	52.8	0.0008	0.9773
- In a health facility	124	47.0	140	53.0		
Mothers Education						
- Primary education or less	10.0	33.3	20.0	66.7	3.062	0.08017
- Secondary or above	131.0	48.5	139.0	51.5		
Mothers marital status						
- Married	139	47.1	156	52.9	0.1	0.7518
- Not married	2	40	3	60		
Infants with diarrhea episodes						
- Yes	5	3.5	16	10.1	4.9	0.027
- No	136	96.5	143	89.9		

Discussion

This study found that 47.0% of the infants aged 0-6 months were being exclusively breastfed as at the time of the study. This figure is higher than what was reported in similar studies in some parts of Nigeria. For instance, 22.0%²⁶ was reported in Kano and 21.2%²⁷ in Enugu State. Similarly, 22.8%,²⁸ and 22.9%²⁴ were also reported in Uyo and Calabar respectively. However, the figure from the current study is similar to what was reported by Sadoh et al., amongst medical women.²⁹ In other parts of Africa, some of the figures reported are similar to the one obtained in the current study. For example, 40.0%³⁰ was reported in Bakwu town of Ghana and 49.0%³¹ in Ethiopia. Outside the shores of Africa varied figures have been documented. In Sri Lanka, the prevalence of exclusive breastfeeding was documented to be as high as 75%³², 50.6%³³ in Turkey and 43.1% in Malaysia³⁴. This large variation in the prevalence of exclusive breastfeeding may be due to differences in methodology, population studied, cultural/traditional

affiliation of the studied population as well as regional perceptions of exclusive breastfeeding practice.

Even though women in Benue State of Nigeria are known to have high breastfeeding culture as seen in the current study, this has not translated into practicing appropriate breastfeeding as recommended by WHO, UNICEF and other promoters of exclusive breastfeeding across the globe. The prevalence of exclusive breastfeeding reported in this study is below the WHO/UNICEF target^{17,18}. In Makurdi City, some reasons could be advanced for this; many women in this part of Nigeria are well rooted in culture and tradition. As a result, exclusive breastfeeding may be seen as a western way of life which may take time to be fully embraced. Furthermore, the educational level of Makurdi women may be a factor. In Nigeria, women education is a challenge. The current study has observed that about two-third of the mothers had secondary school education or below. The experience of the authors is that, this level of education in makurdi may not be adequate to appropriately position the subjects to be a change agent. Therefore they

would appear to be in a disadvantaged position when it comes to accessing and accepting information on new scientific findings. In addition, the low exclusive breastfeeding practice reported in this study has also brought to the fore the issues of ineffective grassroots public awareness.

The current study has also noted that more than half of the infants that were not exclusively being breastfed were given water and supplementary feeds. These include soft drink, infant formula, custard, tea, fruit juice, liquid milk and yam porridge. This is consistent with what was reported in previous studies^{35,36}. This practice has long been discouraged by WHO and UNICEF.

Furthermore, for mothers who did not practice exclusive breastfeeding; some reasons have been advanced for their inability to do so. These reasons include mother's ill health, child's ill health, and having a premature baby. The reasons adduced here are not sufficient enough to stop exclusive breastfeeding. Experts in the field of Young Child Feeding Practices must do more in the area of public awareness with a view of correcting misconceptions among the people.

The present study further observed a strong association between exclusive breastfeeding and the occurrence of diarrhea in the infants. The infants that were exclusively breastfed had less episode of diarrhea when compared to those that were not exclusively breastfed. This fact has been established by many research findings^{37,38}. For instance, it has been shown that early initiation of breastfeeding and exclusive breastfeeding are protective of diarrhoea in sub-Saharan African countries with high diarrhea mortality^{37,38}.

Similarly, the current study has also found a strong association between exclusive breastfeeding and the infants' age. The infants that were one month and below received more exclusive breastfeeding than the others. This is consistent with what has been reported in previous studies.^{28,39,40,41} The common concern expressed by the authors is the decline in the prevalence of exclusive breastfeeding with increasing age. The reason for this finding is not clear. What is however crystal clear to the authors is the increase in responsibilities with increasing mother's age in Benue State of Nigeria. These responsibilities could be social, spiritual or economic activities. The increasing involvement of mothers in these tasks with increasing age may pose a challenge to the practice of exclusive breastfeeding. Further study is suggested to enable

researchers to look at this factor more carefully with a view of coming up with measures to addressing it.

A significant association was also found between exclusive breastfeeding mothers who have one or more previous pregnancies. They were noted to practice exclusive breastfeeding more than first time mothers. This finding is not consistent with the previous studies. In fact, the previous studies have established that multiparous women were less likely to initiate breastfeeding. This has led to the suggestion that multiparous women could be targeted for enhanced breastfeeding education and support.⁴² The reason for the conflicting findings in the current study is unclear. However, from the authors' experience over the years, it could be said that the first mothers in our environment could be easily pressured by friends and relations to engage in an unhealthy infant feeding practices. The researchers are of the considered opinion that further studies in this direction are advocated to resolve this conflict.

Furthermore, previous studies have established a positive association between exclusive breastfeeding and maternal higher education^{43,44}, young maternal age^{45,46}, antenatal care attendance^{45,47,48} as well as hospital birth^{47,48}. However, the current study has reported otherwise. The reason for the findings is not clear. It is also not clear if this kind of finding is peculiar to Makurdi women. However, further study is advised in this direction. The study could preferably be conducted in this particular location; preferably among similar subjects.

The limitations identified in the study include: the questionnaire used for this study was supposed to be self-reported diagnostic tools. Its interpretation to the respondents may reduce the accuracy of the responses. Secondly this is a health facility based study; as a result the actual percentage of the mothers that practiced exclusive breastfeeding in Makurdi (according to WHO criteria) could not be definitely established.

Conclusion

The prevalence of exclusive breastfeeding among infants aged 0-6 months was 47.0%. The factors that were identified to be significantly associated with exclusive breastfeeding were occurrence of diarrhea, infants' age of 1 month and below, and mothers with one or more previous pregnancies. These findings show that exclusive breastfeeding practice in Makurdi is above the national figure but below the World

Health Organization target for infants that are six months and below. Efforts should be intensified to sustain and improve on the current figure through public awareness on the importance of exclusive breastfeeding. Similarly, the factors identified should be considered during intervention programs on Infants Feeding Practices.

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Conflict of Interests

The authors declare no conflict of interests.

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