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Breastfeeding practices in early infancy in Benin city, Nigeria

DOI:<http://dx.doi.org/10.4314/njp.v42i2.11>

Accepted: 29th February 2012

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Abstract: *Background:* Adequate early infant nutrition is essential for subsequent optimum growth and development of the child. Exclusive breastfeeding is the cornerstone of the best possible nutrition in early infancy.

Objective: To assess current breastfeeding practices in early infancy in Benin City and further progress (if any) that may have been made in the realisation of optimal early infant feeding practices in the locale in the preceding decade.

Methods: A community-based household survey was carried out in three representative wards in Egor Local Government Area of Benin City, from June to September, 2009. Infant feeding practices were evaluated using pre-tested questionnaires on 1068 mothers of infants aged less than 12 months.

Result: Five hundred and forty-six (51.1%) infants were aged less than 6 months. The Ever Breastfed Rate was 100.0% while the Timely Suckling Rate was 35.5%. The Exclusive and Predominant Breastfeeding Rates were respectively 40.7% and 30.4% while the Bottle-feeding Rate was 32.2%.

Most (98.4%) mothers had correct information about exclusive breastfeeding obtained mainly from antenatal clinics and immunization centres. Factors significantly associated with EBF were high maternal education ($X^2 = 9.718$; $p = 0.045$), high socio-economic status ($X^2 = 12.910$; $p = 0.012$), increasing maternal age ($X^2 = 14.777$; $p = 0.022$), higher parity ($X^2 = 15.212$; $p = 0.009$), delivery in hospital ($X^2 = 15.079$; $p = 0.020$) and infant's age ($X^2 = 100.482$; $P = 0.0001$).

Conclusions/Recommendations: Breastfeeding practices in Benin City have not improved much from what obtained a decade earlier. Greater emphasis on female education and socio-economic empowerment are advocated as tools for improvement. Reinvigoration of the Baby-friendly Hospital Initiative is also recommended to ensure continued health facility interface that would ensure community mobilisation and support for optimal breastfeeding.

Key Words: Breastfeeding, Practices, Early Infancy, Benin City

Introduction

The provision of appropriate nutrition is of great importance during infancy and childhood if growth and development are to be optimised. In the first 6 months of life breast milk is the “perfect” blend of nutritional and non-nutritional substances that ensure appropriate outcomes in growth, cognition, immune response and long-term wellbeing¹. Beyond six months of age and well into the second year of life, breast milk could still provide up to 50% of nutrient intake².

Studies have established the adequacy of exclusive breastfeeding in providing enough fluids and nutrients for growth and development in the first half of infancy³⁻⁵. Sub-optimal feeding practices lead to malnutrition,^{2,5,6} which is a contributory factor to 60% of under-5 mortality in sub-Saharan Africa^{2,7}. Exclusive breastfeeding

alone could save the lives of up to 1.3 million children annually, world-wide^{8,9}.

Despite widespread knowledge of the current early infant feeding recommendations and the benefits to the child and the mother, indicators of early child nutrition remain unacceptable in many parts of the globe¹⁰. A mother's decision on how to feed her infant is a result of a complex interplay of factors and it is believed that mere knowledge of what is right is not sufficient to positively influence the behaviour of many¹¹.

Many mothers declare their intentions to breastfeed exclusively and actually initiate the practice but could abort same due to challenges that include need to return to paid job, the feeling of insufficient milk production and the tradition of water supplementation^{3,11,12}.

The baby-friendly hospital initiative (BFHI) was designed by WHO and UNICEF as a global effort to turn health facilities, especially maternities, into centres of breastfeeding support.¹³ and promotion. Yet, well into the second decade of its existence, the breastfeeding indicators in many parts of the world fall short of goals.¹⁰ The goal for the year 2000 was to achieve 80% exclusive breastfeeding rate¹⁴.

The United Nations urges member countries to make the required efforts necessary to achieve the target of the millennium development goal-four (MDG-4). These efforts must include strategies to improve young child nutrition in order to reduce under-five mortality. These strategies should proceed from studies which attempt to understand why some mothers in different communities are less likely to adhere to early infant feeding recommendations. The study therefore was undertaken to assess the current early breastfeeding practices including its determinants in Benin City. This is done against the backdrop of what obtained in the locality a decade earlier.

Subjects and methods

The study, a cross-sectional, descriptive and community based one was carried out in Egor Local Government Area (LGA) of Edo State. Egor LGA is one of the three LGAs that make up Benin City, the Capital of Edo State. The City is urban and cosmopolitan in nature. It was conducted between June and September, 2009.

A multi-stage random sampling method was used. Three of the 10 political wards in Egor (representing 30%) were selected using a table of random numbers. It was therefore assumed that the total population was evenly distributed among the 10 wards. Thus, of the total of 68,748 women of child bearing age in Egor, each of the 10 wards would have approximately 6,875 women of child bearing age and any of these could have an infant. On the basis of this assumption equal numbers of 356 mothers of infants were recruited from the three selected wards to make up a sample size of 1068.

The method of subject identification was similar to that used by the Expanded Programme on Immunization (EPI)¹⁵. On arrival at a selected ward, central locations were identified and these were mostly cross roads and T-junctions. From such locations, a direction was randomly selected from three or four available options, through balloting. All households in the selected directions were visited sequentially and eligible respondents identified and consecutively recruited until the end of the road or ward boundary was reached. This procedure was repeated from many central locations in the ward until the required number of respondents was obtained. Subjects were visited from 4.00 – 6.30p.m. on week days and from 8.00a.m. on weekends and public holidays. Subjects who were absent were revisited at other times that they were expected to be home.

Information on infant nutrition and family socio-demographic parameters were obtained from respondents using a pre tested questionnaire with open-ended and close-ended questions. The questionnaires were administered by one of the researchers and trained colleagues and the infant feeding practices were documented using 24 hour recall data as recommended by WHO^{16,17}. The socio-economic status of the family of subjects was determined using the method described by Olusanya *et al*¹⁸.

Study subjects were mothers and their infant aged 0-364 days (just under 12 months). Information on the date of birth of the infants was obtained from the mothers or fathers and verified by birth records, where available. Informed consent was obtained from every parent/guardian.

Ethical clearance for the study was obtained from the University of Benin Teaching Hospital Ethics Committee. Permission for the study was obtained from Edo State Ministry of Health and Egor Local Government.

Data was entered directly into the Statistical Package for Social Science (SPSS) spread sheet and checked for accuracy. The data was then analysed using SPSS version 15. Results were displayed in tables and figures and chi square test was used to determine associations between non-parametric variables. The student's t test was used to compare means. A p-value of < 0.05 was considered significant.

Results

Breastfeeding Practices

Ever Breastfed Rate (EBR) among the 546 babies was 100%. All such infants were still receiving breast milk at the time of the study. Of the 546 mothers (whose infants were <6 months), 222 (40.7%) practiced exclusive breastfeeding (EBF), 166 (30.4%) predominant breastfeeding (PBF) and 158 (28.9%) mixed feeding (MF). The proportion of infants exclusively breastfed declined with increasing age (Table 1). About a third (28.9%) of infants (<6 months) had complementary feeds introduced rather early. Mixed feeding increased with increasing age of infants.

Five hundred and thirty seven (98.4%) mothers had heard about EBF yet less than half practised it. The most frequent reason (58.3%) for its practice was "to prevent illness." Other responses included enhancing babies' intelligence (18.4%), ensuring fast growth (6.8%) and fostering bonding between mother and child, (5.8%). Mothers' reasons for not practicing exclusive breastfeeding are displayed in Table 2. The commonest reason was the mother's perception that the infant was inadequately fed with breast milk.

Table 1 shows that 168 (45.4%) mothers who delivered in hospital exclusively breastfed their infants while 29 (37.7%), 13(27.1%) and 12(23.5%) mothers who delivered in maternities, at home and at TBAs' places and

church premises respectively, also breastfed exclusively. The practice of EBF was significantly associated with place of delivery ($X^2 = 15.079$, $p = 0.020$). Mothers delivering in orthodox health facilities were more likely to practice exclusive breastfeeding than mothers who delivered in other facilities or at home.

Table 1: Infants' age, place of delivery, maternal education, family's socio-economic status and breastfeeding practices.

	EBF n(%)	PBF n(%)	MF n(%)	X^2	P value
<i>Age (in months)</i>					
0 – 1 (n=158)	94(59.5)	52(32.9)	12(7.6)	100.4 82	0.0001
2 – 3 (n=204)	92(45.1)	64(31.4)	48(23.5)		
4 - <6(n=184)	36(19.6)	50(27.2)	98(53.3)		
<i>Place of delivery</i>					
Hospital (n=370))	168(45.4)	102 (27.6)	100(27.0)	15.07 9	0.020
Maternity (n=77)	29(37.7)	23(29.9)	25(32.5)		
Home (n=48)	13(27.1)	18(37.5)	17(35.4)		
TBA/church (n=51)	12(23.5)	23(45.1)	16(31.4)		
<i>Maternal education</i>					
Primary/Nil Educa- tion. (n=249)	85(34.1)	87(34.9)	77(30.9)	9.718	0.045
Secondary (n=256)	115(44.9)	69(27.0)	72(28.1)		
Tertiary (n=41)	22(53.7)	10(24.4)	09(22.0)		
<i>Family's socio-economic status</i>					
High (n=78)	42(53.8)	18(23.1)	18(23.1)	12.91 0	0.012
Middle (n=187)	85(45.5)	53(28.3)	49(26.2)		
Low (n=281)	95(33.8)	95(33.8)	91(32.4)		

EBF: Exclusive breastfeeding; PBF: Predominant Breastfeeding; MF: Mixed Feeding

Table 2: Reasons for not practicing exclusive breastfeeding

Reasons	F	%
Infant not satisfied with breast milk	88	27.2
Babies need water	52	16.0
Insufficient breast milk	57	17.6
Infant formula is adequate	30	9.3
Exclusive breastfeeding makes babies refuse other foods	20	6.2
Mother not strong enough/Not enough food to eat	19	5.9
Work	19	5.9
Miscellaneous	39	12.0
Total	324	100.0

One hundred and ninety-one (42.7%) mothers who had antenatal care (ANC) in hospitals breastfed exclusively, 18 (34%) who had ANC in maternity homes did the same but none who was cared for by a TBA breastfed exclusively. Of mothers who had ANC in hospitals, maternities and in TBAs' place 134 (30.0%), 17 (32.1%) and 3 (75.0%) respectively, practiced predominant breastfeeding. One hundred and twenty-two (27.3%), 18 (34.0%) and one (25%) who had ANC in hospitals, maternity homes and with TBAs' place respectively practiced mixed feeding. Place of ANC did not significantly influence breast feeding practice ($X^2 = 5.991$; $p = 0.200$).

The EBFR increased with increasing level of maternal education while MF and PBF increased with reducing level of education. EBF was more rampant among mothers with tertiary education. Table 1 shows that 22 (53.7%) mothers with tertiary education exclusively breastfed their infants while 115 (44.9%) with secondary

education and 85 (34.1%) with primary or no formal education also breastfed exclusively. PBF and MF were most prevalent among mothers with primary or no formal education. The mothers' level of education significantly influenced the choice of feeding practice. ($X^2 = 9.718$; $p = 0.045$).(Table 1)

Significantly, older mothers practiced exclusive breastfeeding in comparison with younger ones ($X^2 = 12.521$; $p = 0.028$) (Table 3). Family socio-economic class (SEC) significantly influenced choice of breastfeeding practice. ($X^2 = 12.910$; $p = 0.012$) as 42 (53.8%) mothers of high SEC exclusively breastfed their infants in comparison with 85 (45.5%) and 95 (33.8%) mothers belonging to the middle and low SECs respectively, that did the same. Maternal occupation was not significantly associated with EBF ($X^2 = 7.078$; $p = 0.215$). (though more top civil servants and professionals (62.5%) practised EBF than other occupational groups). EBF was most practised by Etsako women and least practised by Urhobos. The differences observed in the practice among the different tribes/ethnic groups were not statistically significant ($X^2 = 11.208$; $p = 0.082$). Similarly paternal education and infants' gender were not significantly associated with EBF ($X^2 = 2.147$; $p = 0.342$) ($X^2 = 0.817$; $p = 0.082$) respectively.(Table 3)

Table 3 shows that the relationship between birth order and exclusive breastfeeding was statistically significant ($X^2 = 15.212$; $p = 0.009$). Babies in the birth orders beyond fifth were significantly less likely to be exclusively breastfed.

Table 3: Maternal age, child's birth order, child' gender, paternal education and practice of exclusive breastfeeding

	EBF n (%)	No EBF n (%)	X^2	P value
<i>Maternal age (years)</i>				
16-20 (n=24)	05(20.8)	19(79.2)	12.521	0.028
21-25 (n=110)	34(30.9)	76(69.1)		
26-30 (n=216)	92(42.6)	124(57.4)		
31-35 (n=116)	52(44.8)	64(55.2)		
36-40 (n=62)	32(51.6)	30(48.4)		
>40 (n=18)	07(38.9)	11(61.1)		
<i>Birth order</i>				
1 st (n=155)	55(35.5)	100(64.5)	15.212	0.009
2 nd (n=142)	50(35.2)	92(64.8)		
3 rd (n=97)	46(47.2)	51(52.6)		
4 th (n=65)	29(44.6)	36(55.4)		
5 th (n=56)	33(58.9)	23(41.1)		
>5 th (n=31)	09(29.0)	22(71.0)		
<i>Infants' gender</i>				
Male	117(42.6)	168(57.4)	0.817	0.366
Female	105(38.8)	166(61.2)		
<i>Paternal education</i>				
Tertiary	46(48.4)	49(51.6)	2.147	0.342
Secondary	129(40.7)	188(59.3)		
Primary/no formal edu.	47(35.1)	87(64.9)		

EBF: Exclusive breastfeeding

Time of initiation of breastfeeding

Among the 546 infants 194 (35.5%) were put to the breast within one hour of birth giving a Timely First Suckling Rate (TFSR) of 35.5%. Seventy six (13.9%)

infants began suckling within 30 minutes of life while 118 (21.6%) began after 30 minutes but within one hour of birth. Two hundred and seventy five (51.2%) achieved first suckling beyond one hour but within 24 hours of birth. Mothers who did not put their infants to breast within one hour did so for the following reasons: the need to rest after labour, surgical delivery, delayed milk flow, maternal or infant illness.

Sixty three (17.0%) mothers, who delivered in the hospital put their babies to breast within 30 minutes of delivery while 5 (6.5%) who delivered in the maternity initiated breastfeeding during the same period (Table 4). Breast feeding initiation within the first 30 minutes was significantly associated with place of delivery ($X^2 = 18.88$; $p = 0.026$). Mothers who delivered in the hospital were more likely to initiate early breastfeeding than those who delivered in other locations.

Table 4: Relationship between place of delivery and time of initiation of breast feeding

Place of Delivery	0-30 mins n(%)	>30mins-1hr n (%)	>1hr-24hrs n(%)	>24 hrs n(%)	Total n(%)
TBA/Church	5(9.8)	10(19.6)	28(54.9)	8(15.7)	51(100.0)
Home	3(6.3)	8(16.7)	30(62.5)	7(14.6)	48(100.0)
MH	5(6.5)	18(23.4)	49(63.6)	5(6.5)	77(100.0)
Hospital	63(17)	82(22.2)	168(45.4)	57(15.4)	370(100.0)
Total	76(13.9)	118(31.6)	275(50.4)	77(14.1)	546(100.0)

$X^2 = 18.88$; $df=9$; $p=0.026$. MH=Maternity Home; TBA=Traditional Birth Attendants; Hr= Hour; Mins = Minutes

Thirteen (17.6%) mothers with tertiary education initiated breastfeeding within 30 minutes of infant's birth, 102 (19.7%) with secondary education did the same and 48 (10.2%) with primary or no formal education also initiated breastfeeding within the first 30 minutes. Initiation beyond 30 minutes but within one hour was comparable among all levels of education. Maternal education beyond primary level was significantly associated with early initiation of breastfeeding ($X^2 = 21.141$; $p = 0.001$).

Discussion

In the study, older mothers (36-40 years) adhered more to optimal breast feeding practices. In tandem with this observation are the findings from Canada¹⁹ and Israel²⁰ where older women were noted to breastfeed than younger ones. In contradistinction, studies in Chile³ and Benin City²¹ found the practice commoner in younger mothers (about the age of 20 years). Eregie²² in 1996 found no association between maternal age and EBF in Benin City- a finding that was corroborated in 1998 by Aghaji¹¹ in Enugu. Nonetheless the present study and that of Okparaocha *et al* were community-based while Eregie's and Aghaji's were hospital-based.

Okparaocha *et al* averred that younger mothers were more amenable to change while older ones were more likely to stick to tradition. In this study, it is likely that the older mothers being encountered are the same whose

breastfeeding behaviour had been influenced by the intensive breastfeeding promotions of the late 1990s. The younger mothers perhaps began child bearing at the time BFHI activities had waned. The relationship between maternal age and EBF noted in this study is also supported by the finding that EBF was most prevalent among 3rd, 4th and 5th born infants. Such babies are more likely to be born to older mothers. It is also probable that mothers who have practised EBF previously are the ones continuing with the practice. Nonetheless experiences from Chile³, Enugu¹¹ and Jos²³ on EBF do not support the assertion, as EBF was more common amongst first babies. Okparaocha *et al* found no association with birth order²¹.

Though more (62.5%) top civil servants and professionals than others practiced EBF, maternal occupation did not significantly influence EBF. Okparaocha *et al* made same observation 10 years earlier in Benin City.²¹ Against expectations that full time housewives would readily engage in EBF since they have their babies with them almost all the time, this was not the case. Aghaji¹¹ from Eastern Nigeria had made similar observation. A plausible explanation for the trend is that many of such women are less likely to be well educated and belonging to lower social strata – a strata unlikely to breastfeed exclusively.

Mothers with secondary and tertiary education were more likely to initiate breastfeeding early than others. A plausible reason for this is that educated mothers are more likely to imbibe the tenets of breastfeeding classes during ANC and also have improved access to documents on "Successful Breastfeeding." Maternal education was also positively associated with the practice of EBF. More mothers with tertiary education exclusively breastfed their babies. Similar findings had been reported in Benin City²¹, Enugu¹¹ and Kano²⁴. In Enugu¹¹, paternal education also significantly influenced EBF but in the current study as with that carried out in Uganda, such was not the case. Educated parents are more likely to accept new health initiatives, technologies and strategies¹¹ than the less educated who tend to cling to tradition.

Half of mothers in the study belonged to low socio-economic classes. This was not surprising since Nigeria is a developing country with low female literacy rate and high level of unemployment. In 2007, the World Bank reported that more than 70% of Nigerians lived on less than US \$1 a day²⁵ and more recently, in 2009, the "State of the World's Children"²⁵ reported 43% prevalence of poverty in urban centres in Nigeria. A positive association was found between socio-economic status and EBF in the present study.

Okparaocha *et al*²¹ reported similar association in Benin City a decade earlier which corroborated similar findings in studies carried out in United States of America²⁶ and the United Kingdom²⁷. In contradistinction, however, Okechukwu²³ in Jos and Wamani²⁸ in Uganda found no association between socio-economic status and EBF. The urge to give the best to their children would

be stronger in high socio-economic class families. If it is an acknowledged fact that EBF is superior to other forms of feeding the high SEC families are more wont to comply than others. In this study as well as that conducted in Kano²⁴, ethnicity was not significantly associated with exclusive breastfeeding.

The place of antenatal care did not significantly influence breast feeding practices in the study. However, it did 10 years earlier²¹. Over 90% of mothers in the study had heard of EBF because of the promotional activities in ANC's that had gone on for nearly two decades. It was therefore not surprising that the place of recent ANC did not influence the choice of breastfeeding practice for the index infant.

Unlike the place of ANC, the place of delivery was significantly associated with breastfeeding practices. This was probably because mothers who delivered in hospitals had hospital staff support for BF just before delivery as could occur in orthodox health facilities. It is also plausible that the higher prevalence of EBF among mothers delivering in hospitals is influenced by the calibre of mothers than by hospital practices.

Delivery in hospital was significantly associated with initiation of breastfeeding within 30 minutes of infant's birth. It is expected that labour room staff who work in hospitals would be better trained than those who work in other health facilities and would assist mothers to initiate breastfeeding on time.

The EBR in the study was 100%. This supports the claim that breastfeeding is the norm in many developing countries. Other Nigerian researchers had equally documented high EBR. Lawoyin *et al*²⁹ reported 99.9% in Ibadan in 1998 and Ogunlesi *et al*³⁰ reported 98% in Ilesa, in 2005. In rural Uganda²⁸, in 2002, 99% of mothers studied had breastfed their babies and in Northern Nigeria all 310 mothers studied breastfed their infants and young children. These are in contrast to what obtains in developed countries like the U.S. where 74% of mothers ever breastfed and Ever Breastfeeding Rate at six months was abysmally 43%³¹. In the United Kingdom the Millennium Cohort study conducted between 2000 and 2002, 70% of U.K. mothers ever breastfed but only 38% still breastfed at four months of infant's age. Breastfeeding is widespread in many developing countries like Nigeria but the challenges are sub-optimal breastfeeding practices.

The TFSR in the study is comparable to the national average of 32%¹⁰ and the 37% reported from Ilesa in 2005 by Ogunlesi³⁰. In 1998, Okparaocha²¹ documented a much higher rate of 52%. It would appear that labour room practices that ensure that mothers make early contact with their newborn infants and are assisted in initiating early feeding have waned.

The EBFR in this study was 40.7% while the PBFR was 30.4%. The 40.7% noted in this study differs greatly from the 27%²² recorded for Benin City in the mid 1990s. It is however comparable to the 38% observed in Okparaocha's study in 1998.²¹ In a recent study in another part of Nigeria, Ogunlesi³⁰ in 2005, reported an

EBFR of only 21% in a baby-friendly hospital in Ilesa; a value that was comparable to the then national average of 17%. This could imply that the impact of BFHI is more in Benin City, though the practice of EBF has stagnated in Benin City in the last decade. This could be due to the fact that younger mothers have not been adequately mobilized to significantly add to the proportion of mothers who are breastfeeding exclusively.

EBF declined with increasing age. It was most prevalent among infants 0-1 month. Similar pattern had been noted earlier in Benin City²¹, Ibadan²⁹ Uganda²⁸ and Chile³. This trend could depict mothers' perception that infants need other foods beside breast milk as they grow older.

The commonest (27.7%) reason why mothers failed to breastfeed exclusively was the perception that babies were no longer satisfied with breast milk as they remained fretful after being breastfed and the fretfulness ceased when they were offered additional feeds. The impact of this challenge may be less if mothers have easy access to lactation managers. A help-line might be appropriate.

The PBFR of 30.4% was comparable to the 33.8% reported earlier in Benin City²¹. Breastfeeding education that discourages water supplementation must reach not just the expectant mothers but also key family members if the practice must stop.

Conclusion

In conclusion, breastfeeding indices in the preceding decade in Benin City have remained relatively static. If no deliberate efforts are made to enshrine exclusive breastfeeding the initial gains of the past may be eroded. Reinvigoration of the BFHI is recommended. This will ensure continued health facility interface that would ensure community mobilisation and support for optimal breastfeeding.

Limitations of study/Further studies

Data from respondents relied on 24 hour recall with its attendant drawbacks. To what extent this has affected the results is difficult to decipher. A multi centre study might be required for comparison.

Conflict of interest: None

Funding: None

Acknowledgement

We wish to acknowledge with thanks the contributions of the leadership of Egor Local Council and the various communities utilised for the study. Members of households that participated in the study made invaluable contributions to the realisation of the objectives of the study. To them we remain grateful.

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