

CURRENT PRACTICES IN INFANT NUTRITION IN BENIN CITY, NIGERIA

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ABSTRACT

A community based prospective study was carried out amongst 780 mothers who had children aged less than one year in Benin City, between March and June 1998. Study subjects were selected using multistage cluster sampling method while information on child's nutrition; maternal socio-demographic parameters were obtained with the aid of a semi-structured questionnaire. Of the 780 mothers, 432 (55.6%) had children who were less than 6 months while 348 (44.6%) had older infants. About 98.0% of the mothers were practicing one form of breast-feeding or the other. The exclusive breastfeeding rate (EBR), predominant breastfeeding rate (PBR) and bottle-feed rates (BOTFR) were respectively 38.0%, 38.8% and 19.4%. Breastfeeding practice was significantly associated with maternal age ($X^2 = 25.8$; $df = 12$; $p < 0.05$), maternal education ($\chi^2 = 16.9$; $df = 6$; $p < 0.05$) and socio economic status ($Xy^2 = 13.3$; $df = 4$; $p < 0.05$). Places of antenatal care in the last pregnancy ($Xy^2 = 11.7$; $df = 3$; $p < 0.05$) and delivery ($Xy^2 = 13.6$; $df = 3$; $p < 0.05$) also significantly influenced breastfeeding practices. Commonly, unfortified complementary feeds (mainly maize gruel) were introduced during early infancy. Current EBR, and PBR fall below expectation. Improved maternal education and insistence on use of health facilities for ANC and delivery could improve these rates.

INTRODUCTION

Malnutrition is one of the leading causes of childhood morbidity and mortality in Nigeria and, other developing countries^{1,2,3}. Other leading causes of infant mortality in developing countries particularly infectious diseases maintain a vicious but debilitating circle with malnutrition. Good infant feeding practices hold great potentials for preventing nutritional deficiencies and lowering infant mortality rate³. The determination of international health organisations to stem the increasing infant mortality rate led to the emergence of international declarations in the 1990's amongst which was the Innocent declaration on the protection, promotion and support of optimal breast-feeding⁴. The declaration endorses optimal breastfeeding and stipulates that children be exclusively breastfed for the first four to six months of life and complementary feeds added from about six months while breastfeeding continues up to the end of second year of life or beyond^{4,5}. The Baby Friendly Hospital Initiative (BFHI), designed to mobilise the potentials of established health facilities in reversing losses in infant nutrition also came into being⁶. It also aimed at empowering women to breastfeed optimally in a friendly environment⁶.

It is almost a decade since the first hospital in Benin City, Nigeria, was designated a Baby Friendly facility and since the renewed media initiative on optimal infant feeding. It has therefore become necessary to conduct a community-based study to assess the impact of these initiatives on infant feeding practices in line with current recommendations.

METHODOLOGY

The prospective and community based study was carried out in Ogida quarters - Benin City, the capital of Edo State, Nigeria, between March and June, 1998. Study subjects were mothers who had infants (age 0-364 days). Minimum sample size was determined using the one sample situation for estimating population proportion⁷ with specified absolute precision of 5.0%. Because cluster sampling was used instead of simple random sampling method, it became desirable to recruit twice the size needed if random sampling was done⁷. Thus, instead of the calculated sample size of 390, 780 was used. Over probability ranges of 5.0% to 95.0% and for sample size of at least 96, selection of an equal number from at least 30 randomly selected clusters would suffice⁸. Ogida quarters has 1822 enumeration areas and each of such areas was considered a cluster. From the 1822 clusters 30 were randomly selected and 26 study subject were recruited from each cluster.

Subjects were identified by visiting households between the hours of 4.00 p.m - 7.00 p.m. The first house visited in a cluster was randomly selected by spinning a pointer in a predetermined central location e.g a crossroad. The first house in the direction of the pointer when it stopped spinning is selected. The household whose door was closest to the entrance of the house was taken as the first. Thereafter, juxtaposed households were visited sequentially until the desired numbers of subjects were enrolled. Using a semi-structured questionnaire, information on antenatal care (ANC), delivery, infant feeding practice and maternal socio-economic characteristics were obtained from each respondent. Indicators for assessing nutritional practices were based on a 24-hour recall period⁹ Exclusive breastfeeding rate (EBR) was defined as the proportion of infants less than 6 months of age, who were exclusively breastfed⁹ Predominant

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breast-feeding rate (PBR) was the proportion of infants less than 6 months of age who were predominantly breast-fed⁹. Predominant breastfeeding in this case meant the predominant use of breast milk as source of nourishment in an infant. Water and water based drinks including infant formulae may also be offered to the exclusion of solids or semi solids.

Mixed feeding - is the administration of a combination of breast milk and complementary feeds before the age of six months and or infant formula to an infant⁹.

Bottle-feeding Rate (BOTFR) - proportion of infants less than 12 months who were receiving any food or drinks from the bottle⁹.

The socio-economic status of the respondents was determined using the scoring system designed by Olusanya et al¹⁰ and based on maternal education and paternal occupation.

RESULT

Seven hundred and seventy (98.7%) mothers were breastfeeding during the interview while 10(.4%) had stopped. Of the study population, 432(55.4%) had children who were less than 6 months of age while 346(44.6%) had older infants. One hundred and sixty four (38.0%) of the 432 mothers were practising exclusive breastfeeding, 144 (33.8%) predominant breastfeeding while 122 (28.2%) practised mixed feeding. Thus the exclusive breastfeeding rate in children aged less than 6 months was 38.0%. Twenty-seven (7.8%) of the 346 mothers with older infants also alluded to practising exclusive breastfeeding

when their babies were younger. Thus, of the total study population of 780, 191(24.5%) mothers either practised or were practising exclusive breastfeeding during the study. Corresponding figures for predominant breast-feeding and mixed feeding were respectively 190(24.4%) and 399(51.2%). The practice of exclusive breast-feeding declined with increasing age of the child.

Breastfeeding practice was significantly associated with maternal education ($Xy^2 = 16.9$; $df = 6$; $p < 0.05$) (Table 1) as only about 6.0% of those without formal education in comparison with about a quarter of those with secondary and post secondary education practised exclusive breastfeeding. Breastfeeding practice was also significantly influenced by socio-economic status of the family. Unlike mothers from low socio-economic stratum, those from the upper class were more likely to practice exclusive breastfeeding ($Xy^2 = 13.3$; $df = 6$; $p < 0.05$). (Table 2) Significantly more mothers from the younger age brackets in comparison with older ones practised exclusive breastfeeding ($Xy^2 = 25.8$; $df = 12$; $p < 0.05$) (Table 3).

Other maternal factors that significantly influenced breastfeeding practices were facilities utilised by mothers for antenatal care ($Xy^2 = 11.7$; $df = 3$; $p < 0.05$) and delivery of last baby ($Xy^2 = 13.6$; $df = 3$; $p < 0.05$) (Tables 4 and 5).

Unlike TBA's place, mothers that utilised maternity homes, hospitals and health centres were more likely to practice exclusive breastfeeding. Similarly, mothers who had their children in orthodox health facilities were more likely to breastfeed exclusively than those who used other facilities like churches, homes and TBA's places.

Table 1: Maternal Education and Breastfeeding Practice

Educational Status	Exclusive Breastfeeding (%)	Predominant Breast feeding (%)	Mixed Feeding (%)	Total (%)
Nil	3(6.1)	17(34.7)	29(59.2)	49(100)
Primary	48(21.0)	50(21.8)	131(57.2)	229(100)
Secondary	111(27.9)	100(25.1)	187(47.0)	398(100)
Post Secondary	29(27.9)	243(22.1)	52(50.0)	104(100)
Total	191	190	399	780

$Xy^2 = 16.9$; $df = 6$; $p < 0.05$

Table 2: Maternal Socio-economic status and breast feeding practice

Socio Economic Status	Exclusive breastfeeding (%)	Predominant breastfeeding (%)	Mixed feeding (%)	Total (%)
High	48(34.0)	25(18.3)	64(46.7)	137(100.0)
Middle	57(23.7)	68(28.2)	116(48.1)	241(100.0)
Low	86(21.4)	97(24.1)	213(54.5)	402(100.0)
Total	191	196	399	780

$Xy^2 = 13.3$; $df = 0.4$; $p < 0.05$

Table 3: Influence of Maternal age on Breastfeeding Practice

Maternal age (years)	Exclusive Breast-feeding (%)	Predominant breast-feeding (%)	Mixed feeding (%)	Total (%)
16 - 20	23(30.3)	26(34.2)	27(35.5)	76(100.0)
21 - 25	49(25.7)	53(27.8)	89(46~6)	191(100.0)
26 - 30	59(25.4)	58(25.0)	115(49.6)	232(100.0)
31 - 35	40(23.7)	32(18.9)	97(57.4)	169(100.0)
36 - 40	17(22.3)	14(18.7)	44(58.7)	75(100.0)
41 - 45	3(9.1)	7(21.2)	23(69.2)	33(100.0)
46 - 50	0(-)	0(-)	4(100.0)	4(100.0)
Total	191	190	339	780

$Xy^2 = 25.8; df = 12; p < 0.05$

Table 4: Relationship between place of recent antenatal care and breastfeeding practice

Place of Ante-Natal care	Exclusive breastfeeding n (%)	No Exclusive breastfeeding n (%)	Total n (%)
Maternity	83(24.2)	260(75.8)	343(100.0)
Hospital	73(27.2)	195(72.7)	268(100.0)
Health Centre	20(35.7)	36(64.3)	56(100.0)
TBA's Place	5(14.7)	29(85.3)	34(100.0)
Total	181	520	701(100.0)

$Xy^2 = 11.7; df = 3; p < 0.05$

Table 5: Place of delivery of last child and breastfeeding practice

Place of Delivery of Last baby	Exclusive breastfeeding n (%)	No Exclusive breastfeeding n (%)	Total n (%)
Orthodox health Facility	164(27.3)	437(72.7)	601(100.0)
Traditional birth attendant's place	5(15.6)	27(84.4)	32(100.0)
Residential home	22(15.5)	120(84.5)	142(100.0)
Church premises	0(-)	5(100.0)	5(100.0)
Total	191	589	780

$Xy^2 = 13.6; df = 3; p < 0.05$

Breastfeeding practice was however, not significantly associated with maternal parity ($X_y^2 = 5.30; df = 8; p > 0.05$), tribe ($X_y^2 = 13.42; df = 8; p > 0.05$), and religion ($X_y^2 = 5.36; df = 4; p > 0.05$). Of the 146 infants less than six months who were being predominantly breastfed, water was the main additional fluid offered (129 or 88.4%). Other fluids given were native concoctions 11(7.5%) and fruit juice, 6(4.1%). The bottle feeding rate was 19.4%. Of the 151 that had bottle feeding, 101 (66.9%) got formula feeds.

With increasing age, the proportion of infants on complementary feeds tended to appreciate. Out of the 408 infants on complementary feeds, 268 (65.7%) and 201(49.3%) respectively, were on solids, semi solids or both. Pap (83.9%), Pap and custard (8.3%) were the commonest forms of semi solids offered. Only 177 (49.2%) of the 386 cases on pap had it enriched with powdered milk, Soya beans, crayfish, sugar and cocoa drinks i.e. Bounvita.

DISCUSSION

A high proportion of the study population breastfed (exclusive, predominant or mixed) their babies and this is in consonance with previous reports from other parts of the country in 1985¹¹ and 1994⁵ that revealed that over 90% of mothers tended to breast feed their infants. It also agreed with the contention that most Nigerian mothers would breastfeed their infants but that the nature of such breastfeeding was the contentious issue¹². In this study, the exclusive breastfeeding rate of 38.0% was as an obvious improvement on the 2.0% reported in a Nigerian Demographic and Health survey of 1992¹³. The improvement in the rate could be ascribed to the impact of Baby Friendly Initiative promotion that received some boost in the last decade. Beginning from an average child age of 3 months, breastfeeding rate tended to decline with age, suggesting that the concept of exclusive breastfeeding for the first half of infancy is yet to be fully imbibed. Breastfeeding practice amongst the study subjects was significantly influenced by such maternal factors as education, age and socio-economic status. Others were facilities utilised for ANC and delivery. The practice of exclusive breastfeeding was more rampant among educated mothers and those drawn from high socio-economic stratum. The concept of

exclusive breastfeeding, including its overwhelming advantages, are more likely to be grasped by the educated mothers. Socio-economic status is directly related to education and this may explain why mothers from such stratum tended to breastfeed more. The practice of exclusive breastfeeding was commoner amongst younger mothers than their older counterparts. A plausible reason for the trend is the fact that the younger ones are more likely to be educated and education, as has been noted, has a significant influence on the breastfeeding practice.

That the facilities utilized by mothers for ANC and delivery had significant influence on breastfeeding practice were not surprising. Health education, particularly, on infant nutrition are given during periods of ANC and facilities where such is gotten, would determine the content of such infant nutrition. Orthodox health facilities unlike other facilities routinely give instructions on current trend on child nutrition. Immediate post delivery practice, an important part of optimal infant feeding with potentials for influencing exclusive breastfeeding is determined by place of delivery. This may explain the direct relationship between exclusive breastfeeding and facility utilised for delivery.

The bottle feeding rate of 19.4% in this study is an improvement on 85.0% reported in Lagos in 1987¹⁴ and 25.7% noted more recently in the country⁵. Sometime has elapsed between these studies and the current one, allowing for greater impact of breastfeeding promotion. However the figure of 19.4% is a far cry from the current recommendations on bottle-feeding and the trend may be partly explained by the need for mothers to resume duties three months or even earlier postpartum, leaving the caregiver with little or no option than give bottle-feeds.

Against the recommended norm, complementary feeds were introduced as early as one month of the child's age - an observation that is in consonance with the finding of 2 months reported by Okeke and Okafor¹⁵ from South Eastern Nigeria. It is also supportive of the observation in Benin city¹⁶ that 33.0% of mothers believed that complementary food should be introduced before the child's age of 3 months.

The finding of pap (Maize gruel) as the commonest complementary semi solid food is in keeping with the findings of Omololu in 1985¹¹. Maize gruel is largely carbohydrate and only 49.2% of those offering it had it fortified with substance other than palm oil and ground nut, as it is widely practised in Western and Northern parts of Nigeria. The lack of use of palm oil by mothers could be due to ignorance as palm oil is abundant in South South Nigeria.

Granted the widely acknowledged advantages of optimal breastfeeding during infancy, greater effort should be made to convince mothers to breast-feed their babies exclusively for 6 months. Complementary feeding after 6 months and the need to ensure its high nutritive value should be emphasised. Improved maternal education and utilisation of orthodox health facilities for ANC and delivery would boost exclusive breastfeeding.

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REFERENCES

1. **Fagbule D, Joiner KT.** Pattern of childhood mortality at the University of Ilorin Teaching Hospital. *Nig J Paediatr* 1987; 14(4): 1-5.
2. **Adeyokunnu A, Taiwo O, Antia U.** Childhood mortality among 22,255 consecutive admissions in University College Hospital. *Nig J Paediatr* 1980; 7(11): 7-15.
3. **Reddy V.** Protein Energy Malnutrition. Stanfield P, Brueton M, Chan M, Parkin M and Waterston T (eds) *Diseases of children in the subtropics and tropics.* ELBS (Publishers) 12th edition, London. 1991: 335-336.
4. WHO/UNICEF/USAID/SISAD/Innocent declaration on the protection, promotion and support of breastfeeding, adopted by participants in policy makers meeting. Florence, Italy, 1990. 1.
5. National Planning Commission/UNICEF. *The nutritional status of Women and children in Nigeria.* 1994; 34-42.
6. WHO. *The Baby Friendly Initiative* 1991. 1-9.
7. **Lwanga SK, Lemeshaw S.** Sample size determination in health studies: a practical manual WHO, 1991: 1 - 3.
8. **Herderson R.H, Sanderson, T.** Cluster sampling to access immunisation coverage: review of the methodology used by Expanded Programme on Immunisation. *Wld Hlth statist Quart* 1985; 38: 65-75.
9. WHO. Indicators for assessing breastfeeding practices. WHO/CDD/SER/91. 14.
10. **Olusanya O, Okpere E, Ezimokhai M.** The importance of social class in voluntary fertility control in a developing country. *W Afr J Med* 1985; 4: 205 - 211.
11. **Omololu A.** Breastmilk and infant Nutrition in Nigeria. *Nig J Paediatr* 1985; 12(2): 37-40.
12. **Ibe BC, Nkaginieme KEO.** Breastfeeding in a developing country; Influence of maternal time spent away from child on duration of breastfeeding. *Orient J Med* 199 2(2): 56-59.
13. **Atinmo T, Grange N.** Nutritional status of children under 5 years of age. *Nigerian Demographic and Health Survey. IRD/MACRO* 1992.1-5.
14. **Abosede OA, Adesanya SK.** Breastfeeding, artificial milk and early weaning practices among Nigerian working mothers. *Nig J Nutr Sci* 1987; 8(2): 131-136.
15. **Okoke EC, Okafor UA.** Current breastfeeding and weaning practices in Anambra State. *Nig J Nutr Sci* 1989,10(1): 21-30.
16. **Goyea H.S., Johnson E.J.** Benin City mothers: their belief concerning infant feeding and childcare. *Trop Geogr Med* 1977; 29: 103 - 108.