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Correlates of exclusive breast feeding among nursing mothers attending child health clinic at a general hospital in Rivers State Nigeria

Bright O. Ogbondah

Department of Community Medicine, College of Medicine, Rivers State University, Nkpolu Orowoukwo, Port Harcourt, Rivers State, Nigeria

Abstract

Background: Early initiation of breast feeding and feeding exclusively for six months have great implication for the survival, well-being and growth of new borne. Factors such as maternal age, occupation, religion, spouse age, spouse occupation, parity, antenatal care (ANC) attendance, mode of delivery (MOD) and birth order are significantly associated with exclusive breast feeding (EBF)
Methodology: The study is a descriptive cross-sectional study conducted among nursing mothers attending child health clinic in General Hospital Bonny, in Bonny Island, Rivers State, Nigeria. All eligible nursing mother who presented at the clinic were enlisted for the study. Enlistment of eligible participants was done on every child welfare clinic day. Data was collected using a pretested, interviewer administered, structured questionnaire which was adapted and prepared in English Language. Categorical data was analyzed using multinomial logistic regression model with statistical significance set at 0.05.
Result: Results from this study identified significant association between EBF and some maternal variables such as age, occupation and religion. Spouse age and occupation were significantly associated with EBF. ANC attendance, gestational age, MOD, parity and birth order were also significant variables associated with EBF.
Conclusion: Maternal variables such as age, occupation, religion, parity, MOD, ANC attendance including spouse age and occupation significantly influence EBF of new borne.

Key words: Exclusive breast feeding, age, occupation, mode of delivery, parity, gestational age.

Introduction

Breast feeding (BF), a practice which has been in existence since ancient times is known to be the simplest, healthiest and cheapest feeding method that fulfills all infant nutritional needs.[1] Over the years and for several reasons, infant formulas have substituted human breast milk (HBM) as means of nutrition for infants. However, it is a well-documented fact that there is no perfect substitute for HBM.[2] The HBM unlike infant formulas which have a narrow range of components, contains a perfect combination of nutrients in a dynamic form which depends on various factors.[3] The composition of HBM which includes 87-88% of water, 70% (60-70g/L) Carbohydrates, 1% (8-10g/L) Proteins, 3.8% (35-40g/L) Fat and contains 65-70 kcal per 100ml of energy with about 50% and 40% of total calorie supply from fat and carbohydrate respectively.[3,4] Several factors may cause variation in the composition of HBM such as maternal diet, mammary gland physiology, maternal health and some environmental factors.[3,4] Most important is the immune protective components such as immunoglobulin A (IgA) and lactoferrin which help prevent neonatal infections and could be

Corresponding Author: Dr. Bright Ogbondah

Department of Community Medicine,
College of Medicine, River State University,
Nkpolu Oroworukwo, Port Harcourt, Rivers State, Nigeria.
E-mail: brightogbonda@yahoo.com, Phone: +2348037015565

responsible for preventing about 22% of neonatal death.[5] Therefore, early initiation of breast milk within an hour of birth and exclusive breast feeding (EBF) in the first six months of a child`s life is critical for infant survival.[6] It is in light of this, most major health organization recommends EBF for six months and breast feeding for at least one year[7] with World Health Organization (WHO) recommending EBF for at least six months and continued breast feeding for two years.[8] EBF requires infants to receive only breast milk without any other food or drink including water except medicines prescribed by a doctor or Nurse for six months of life.[9] Several benefits of EBF have been documented including short term benefits to the infants such as reduced risk of diarrhea and pneumonia.[5,10] Long term benefits includes increased chances of high intelligence quotient,[11] reduced risk of atopic dermatitis,[12] reduced chances of asthma (young children), obesity, type 1 and 2 diabetes, childhood Leukemia, sudden infant death syndrome and necrotizing enterocolitis.[13] Maternal benefits of EBF includes reduced risk of type 2 diabetes, breast and ovarian cancer and maternal postpartum depression.[13] EBF has also been documented to serve as a good family planning tool,[14] acting as an effective contraceptive.[15] Generally, any amount of breast feeding is better than none with greater benefits with increased duration.[12] EBF for six months is beneficial than just six weeks or three months or mixed feeding.[1] Based on benefits derived from EBF WHO and united children fund (UNICEF) in the 1980`s launched the "innocenti declaration" known as the Baby Friendly Hospital Initiative (BFHI) whose main objective is early initiation of BF (within 30 minutes of delivery), EBF for six months of life, BF on demand and continuing BF with complementary feeds into second year of life.[16] Nigerian government followed suit, domesticating the project by launching the initiative in Benin, Enugu, Maiduguri, Lagos, Jos and Port Harcourt as a pilot to provide mothers and their infants a supportive environment for promoting BF.[17] It has been documented that delayed BF initiation increases the risk of neonatal mortality,[5] while early initiation of EBF within an hour of birth is Critical for a child`s survival.[18] BF therefore in addition to other factors contributes to reduction of neonatal and infant mortality rate.

BF practices have shown remarkable improvement over the years. There was an increase in the global BF rate from 24.9% in 1993 to 35.7% in 2013.[23] The increasing trend of BF rate would be appreciated when viewed against the backdrop of declining BF rate in the world in the early 1970`s.[23] However, this increased after 1990 with little improvement in EBF.[24] In the United States of America, BF rate increased from 70% in 2000 to 83% in 2014 with more mothers increasing BF duration up to twelve months and beyond. Also, about 57% of children in US breast-fed until six months and more than a third breast-fed up to twelve months.[19,20] In Africa, there has also been an increase in BF rate for infants as witnessed in Tanzania with a remarkable increase in rate of BF up to six months, from 26% in 1991 to 59% in 2015.[21] In Nigeria, the 2018 national Demographic Health Survey (NDHS) reveals that 97% of children were breast-fed with only 29% EBF for up to six months. This was an improvement from EBF rate in 2013 NDHS. However, it has been revealed that the major challenge of BF is not initiation but duration.[25]

Despite the numerous benefits associated with EBF,[I0,11,13] initiation and maintenance of EBF have been a monumental challenge especially with duration.[25] EBF has also been shown to be influenced by several factors.[26,27]

Rational for this study lies on the fact that no study on BF has been conducted in the study area, a rural island with several international oil companies. Also there have not been any recent data on BF in the state, which may be used to influence policy on maternal and child health. The objective of the study therefore is to determine the correlates of EBF among nursing mothers attending child health clinic.

Materials and method

The study is a descriptive cross-sectional study conducted among nursing mothers attending child health clinic in General Hospital Bonny, in Bonny Island, Rivers State, Nigeria. Nursing mothers whose infants were below six months were excluded from the study. Using the formula for calculating the sample size for descriptive cross-sectional study, (28) a sample size of 426 was derived after making adjustments for attrition. All eligible nursing mother who presented at the clinic

were enlisted for the study. Enlistment of eligible participants was done on every child welfare clinic day held on Tuesdays and Wednesdays weekly. Enlistment was carried out until the required sample size was achieved. Participants who have been enlisted previously were not interviewed again when they present to the clinic on a later date for repeat visit. Data was collected using a pretested, interviewer administered, structured questionnaire which was adapted and prepared in English Language. Questionnaire obtained information on socio-demographic characteristic of mother and her partner/spouse, BF patterns and also obstetrics and gynecological history of mother. Data collected was cleaned, coded and entered into Microsoft excel workbook and was transported into statistical package for social sciences version 22.0 standard edition for analysis. Results were presented in simple frequency distribution table. Categorical data was analyzed using multinomial logistic regression model with statistical significance set at 0.05. Written consent was obtained from respondents after describing study protocol to them. Ethical clearance was granted by ethical review committee of Rivers State ethical review Board while permission to conduct the study was obtained from the management of the Rivers State Hospital Management Board.

Results

1.0. The mean maternal age was 30.06±6.12, the most predominant 232(54.5%) age grade among the nursing mothers were women aged 15-30, while men aged 31-40 where the most predominant amongst the spouse 255(59.8%).

2.0. Socio-demographic characteristics and EBF

Maternal age, maternal occupation, religion, spouse occupation and spouse age were significantly associated with exclusive breast feeding.

3.0. Socio-demographic characteristics and EBF

Univariate logistic regression analysis reveals higher odds of EBF with older nursing mothers than young nursing mothers, while women working in private sector and artisan had higher odds of breast feeding exclusively than women engaged in other profession.

Table 1: Socio-demographic characteristics

Variable	Freq. (%) (N=426)
Maternal age	
15-30	232(54.5)
31-40	166(39.0)
41-50	28(6.5)
Maternal occupation	
Unemployed	120(28.2)
Public servant	86(20.2)
Private sector/artisan	18(4.2)
Businesswoman	202(47.4)
Religion	
Christian	407(95.5)
Muslim	15(3.5)
Others	4(1.0)
Maternal education	
No formal education	12(2.8)
Completed primary	12(2.8)
Completed secondary	213(50.0)
Completed tertiary	189(44.4)
Marrital status	
Married	357(83.8)
Single	66(15.5)
Separated/divorced	3(0.7)
Tribe	
Igbo	96(22.6)
Yoruba	27(6.3)
Hausa	18(4.2)
Rivers ethnic minority	186(43.7)
Non-rivers ethnic minority	99(23.3)
Maternal income	
Nil	141(33.2)
0-20,000	138(32.4)
21,00-50,000	102(23.9)
51,000-100,000	33(7.7)
>100,000	12(2.8)
Spouse age	
15-30	48(11.3)
31-40	255(59.8)
41-50	120(28.2)
>50	3(0.7)
Spouse occupation	
Unemployed	9(2.1)
Public servant	180(42.2)
Private sector/artisan	96(22.5)
Businessman	141(33.2)
Spouse education	
No formal education	3(0.7)
Completed primary education	6(1.4)
Completed secondary education	207(48.6)
Completed tertiary education	210(49.3)
EBF	
Yes	288(67.6)
No	138(32.4)
Duration of EBF	
2-3 months	84(29.2)
4-5 months	48(16.7)
= 6 months	156(54.1)

4. Maternal variables and EBF

There was a strong positive statistical association between EBF and ANC attendance, number of ANC attendance, Gestational age, mode of delivery, parity and birth order

5. Maternal variable and EBF

Nursing mothers who attended ANC, and also those who attended greater number of ANC clinic had higher odds of breast feeding exclusively.

Table 2: Socio-demographic characteristics and EBF

Variable	x^2	df	p
Maternal age	9.675	2	0.008
Maternal occupation	8.510	3	0.037
Religion	15.073	2	0.001
Maternal education	5.326	3	0.149
Marital status	4.155	2	0.125
Tribe	1.964	4	0.742
Maternal income	6.717	4	0.152
Spouse age	8.454	3	0.038
Spouse occupation	17.434	3	0.001
Spouse education	1.302	3	0.729

Table 3: Socio-demographic characteristics and EBF

				(95% CI)	
Variable	**AOR**	**SE (±)**	**P**	**Lower**	**Upper**
Maternal age					
15-30	1.475	o.463	0.496	0.481	4.520
31-40	3.086	4.297	0.038	1.063	8.955
41-50	R	R	R	R	R
Maternal occupation					
Unemployed	0.521	0.344	0.058	0.266	1.023
Public servant	1.760	0.388	0.146	0.822	3.769
Private/artisan	1.963	0.686	0.326	0.512	7.531
Business woman	R	R	R	R	R
Religion					
Christian	6.3	0.00	-	6.390	6.390
Muslim	7.103	1967.788	0.982	0.000	-
Others	R	R	R	R	R
Spouse age					
15-30	1.06	0.610	0.000	3.210	3.502
31-40	3.11	0.315	0.000	1.679	5.777
41-50	3.61	0.000	-	3.618	3.618
>50	R	R	R	R	R
Spouse occupation					
Unemployed	2823	1900.21	0.993	000.0	-
Public servant	1.615	0.342	0.162	0.825	3.159
Private/artisan	0.577	0.340	0.105	0.296	1.122
Businessman	R	R	R	R	R

Table 4: Maternal variables and EBF

Variable	x^2	df	p
ANC attendance	4.478	1	0.034
No. of ANC attendance	8.703	3	0.034
Preg. intendedness	2.386	2	0.303
Gestational age	17.232	2	0.000
Mode of delivery	11.593	2	0.003
Parity	9.256	4	0.050
Birth order	15.466	4	0.004
Age diff. with index child and preceding child	2.364	3	0.500

Table 5: Maternal variable and EBF

Variable	AOR	SE (±)	p	95% CI LOWER	UPPER
ANC Attendance					
Yes	3.479	0.595	0.036	1.084	11.161
No	R	R	R	R	R
No. of ANC attendance					
Three	0.182	0.604	0.005	0.056	0.594
Four	0.729	0.273	0.247	0.427	1.244
> Four	R	R	R	R	R
Getational age					
<28 weeks	9389	6988.214	0.998	0.000	-
28-39 weeks	0.763	0.458	0.555	0.311	1.872
>39 weeks	R	R	R	R	R
Mode of delivery					
Vaginal	3.071	0.345	0.001	1.560`	6.044
Elective CS	1.464	0.521	0.465	0.527	4.061
Emergency CS	R	R	R	R	R
Parity					
Nil	2283	0.000	-	228384	228384
1	1.512	0.808	0.609	0.311	7.363
2	0.311	0.608	0.055	0.094	1.023
3	0.832	0.573	0.748	0.270	2.559
>3	R	R	R	R	R
Birth Order					
1st	0.388	0.949	0.318	0.060	2.487
2nd	2.013	0.796	0.379	0.423	9.573
3rd	0.498	0.725	0.336	0.120	2.061
4th	0.345	0.631	0.092	0.100	1.188
>4th	R	R	R	R	R

Discussion

This study identified significant association between exclusive EBF and some maternal variables such as age, occupation and religion. Spouse age and occupation were significantly associated with EBF. Attendance to ANC, GA, MOD, parity and birth order were also significant variables associated with EBF. Exclusive breast-feeding rate irrespective of duration was 288 (67.6%) with 156 (54.1%) of infants exclusively breastfeed for at least six months. The impressive EBF rate recorded in this study is comparable to

EBF rates of 58.8% and 40.9% for infants up to six months recorded in similar studies in south west and north central parts of Nigeria respectively.[29,30] The figure obtained in this study is higher than the global EBF of 40% for infants aged up to six months.31 The figure recorded in this study contrast with national average of 29% and 33.3% recorded in other studies in Nigeria respectively.[32,33] This resounding rate could have been multifactorial, which includes high level of educational attainment, impressive ANC clinic attendance, including the number of ANC attendance. These factors have been shown to have positive significant effect on initiation and duration of EBF.[30,34]

The mean maternal age was 30.06±6.12. EBF was significantly associated with advancing maternal age. The odds for EBF were one and half times in favor of advanced age compared to women of younger age. Other studies corroborate this finding.[34,35] Contrastingly some studies found no significant association between EBF and maternal age.[32,33] Disparities in results obtained could be due to method applied in each research and also different political, socio-economic and cultural background which have been shown to influence EBF.[36] However, it is the opinion of the author, within the context of logical reasoning, that younger nursing mothers might not fully comprehend the benefit of EBF due to insufficient information. Also, they might not have imbibed the discipline required to initiate and most importantly sustain EBF for at least six months. Some may be physiologically and socio-economically disadvantaged which may lead to suboptimal breast feeding.[37] Maternal occupation was found to be significantly associated with EBF. Studies conducted in south-west Nigeria concur with these findings.[33,38] In divergence, some studies found no association between maternal occupation and EBF.[30,35]

Remarkably, artisan and women working in private firm had higher odds of engaging in EBF than women in public service and unemployed mothers in that order. A study conducted in Jos was in conformity with our findings hence they remarked that full time house wife's practice EBF the least.[30] Unarguably, work places that are not "baby friendly" may discourage nursing mothers engaging in EBF. Also nursing mother who return to work early after delivery may reasonably not provide full complement of EBF to their infants. The artisan has her job schedule under her command and can adjust it to suit her desire to breast feed her new-born exclusively. Also, the chain of command in private sector is shorter, with less bureaucratic bottle neck such that seeking permission to engage in activities which will promote EBF for the newborn is easier, faster and with less bureaucratic bottle neck, compared to public sector. Therefore, work schedule might be the overriding factor which disrupts EBF by nursing mothers.[39]

Antenatal care attendance had significant association with EBF. Also increasing number of ANC attendance was associated with higher odds of EBF. Some studies have shown semblance with the findings from this study.[40] Reduced ANC visits was shown to significantly affect EBF, and was reported to be one of the strongest modifiable factors associated with non EBF.[41] It was shown that the relative risk for higher number of ANC was lower compared to low number of ANC visit with respect to EBF.[42] Nutrition counseling during ANC visits is one of the important components of ANC.[43] Nutrition education and counseling has proven to be an important tool used to improve nutritional status of women during pregnancy which significantly enhances fetal, infant and maternal outcome.[44] Women attending regular ANC visits exhibit better knowledge, attitude and antenatal practices compared to those not attending or attending regularly.[45] It is therefore not surprising that women who attended ANC and importantly those who attended a greater number of ANC visits showed significant association with EBF.

Mode of delivery was significantly associated with EBF. Univariate logistic regression analysis reveals that mothers who delivered via vagina had higher odds of engaging in EBF than mothers who delivered via elective or emergency caesarian section. Vaginal mode of delivery showed significant association with EBF. Some scholarly articles have also shown conformity with results obtained in this study.[46,47] Vaginal mode of delivery affords mothers the opportunity to initiate breast feeding immediately after delivery, as they are stronger, conscious and more enthusiastic to initiate breast feeding. However, the zeal to continue and maintain EBF could be drawn from the momentum established at the initiation phase of breast feeding.

It is worthy to emphasis that some delivery via CS do have medical complication associated with the surgical procedure, therefore priority and emphasis will be on safe guarding the mother with less attention paid to the type of breast-feeding practice. This study identified GA as a significant variable related to EBF. GA below twenty-eight weeks had strong positive association with EBF. Results reveal a negative association between GA and EBF. However, there have been disparities with respect to GA and EBF with other studies. Some studies showed conformity[48] while some were not in tandem with our findings.[49] Children borne preterm (below 28 weeks) need special care and attention due to their vulnerability and are usually source of concern to parents. Nursing mothers will rely on the expert advice and opinion of the physician and medical team to ensure their newborn is safe and well. Therefore, strict adherence, compliance and practice of EBF by the nursing mother as prescribed by the medical team will ultimately be applied by the mother who is highly desirous of a strong and healthy baby.

The study also recorded significant association between infant birth order and EBF. Some studies concur with findings in this study.[33,40] Univariate analysis conducted in this study showed strong positive association between second birth order and EBF. Regrettably studies reviewed could not identify which birth order had higher odds association with EBF. The author reasons that, after the first borne child, the mother would have acquired experiences, maturity and personal conviction which prompt her to put these experiences to practice in subsequent birth.

Parity showed significant statistical association with EBF. Our result shows that rate of EBF decreases with increasing parity. Some studies also show concordance with our findings.[33] However, some studies did not show conformity with findings in this study. These studies revealed strong conformity between EBF and multiparity.[34,35] The author believes that nursing mothers will give their newborn the best options and this is more when the mother was nulliparous. The excitement that accompanies the arrival of newborn by expectant mother finally declines with increasing birth. However, the disparities and similarities noticed therefore, calls for more studies into this area. The author believes that a study with larger sample size not limited to one study area might take into account the multifactorial nature of a study like this and conclusively put these controversies and disparities to rest.

Conclusion

Exclusively breast feeding infants for at least six months can significantly be affected by maternal and sociodemographic factors such as; maternal age, maternal occupation, religion, spouse age, spouse occupation, parity, MOD, and birth order of new borne.

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