Mal J Nutr 19(3): 311 - 323, 2013

Influence of Maternal Characteristics on Exclusive Breastfeeding Practice Among Urban Mothers in Umuahia, Nigeria

Ukegbu PO* & Anyika-Elekeh JU

Department of Human Nutrition and Dietetics, Michael Okpara University of Agriculture Umudike PMB 7267 Umuahia, Abia State, Nigeria

ABSTRACT

Introduction: The rate of exclusive breastfeeding is still low among nursing mothers in developing countries. This descriptive cross-sectional study was designed to identify maternal factors affecting the practice of exclusive breastfeeding among a group of urban mothers in Umuahia located in South-east, Nigeria. **Methods:** The study was carried out at four health facilities in Umuahia which were selected randomly from 15 listed facilities. All eligible mothers were consecutively selected using simple random sampling (balloting) technique by trained interviewers for 4 weeks in each of the health facilities until the required sample size of 240 was attained. A structured questionnaire was used to obtain information on socio-demographic characteristics as well as knowledge, attitude and practice of exclusive breastfeeding. Data were analysed using descriptive statistics and Chi square was used to determine maternal characteristics associated with the practice of exclusive breastfeeding. **Results:** The majority of the mothers were in the age range of 26 to 35 years. Their main source of information on breastfeeding was the antenatal clinics (87.9%). Knowledge of the mothers about exclusive breastfeeding was adequate (99.2%), while only one-third (31.7%) had a positive attitude to exclusive breastfeeding (EBF). More than half (64.6%) initiated breastfeeding within the first hour after delivery. Only 22.9% practised EBF for the first six months. Exclusive breastfeeding rate was associated with larger household size, while breastfeeding initiation was associated with maternal older age, higher education, been a civil servant and having a larger household size. **Conclusion:** There is need for intervention programmes which support and promote optimal breastfeeding practices, focusing more on younger and less educated mothers.

Key words: Exclusive breastfeeding, health facilities, practice, urban

INTRODUCTION

The World Health Organization (2003) describes breastfeeding as an unequal way of providing ideal food for the healthy growth and development of infants. It is one of the most cost effective ways to reduce infant morbidity and mortality from diarrheal disease and other infections.

Exclusive breastfeeding (EBF) is defined as the exclusive intake of breast milk by an infant from its mother or wet nurse, or

*Correspondence author: Patricia Ogechi Ukegbu; Email: *ukegbu.patricia@mouau.edu.ng*

expressed milk with no addition of any liquid or solids apart from drops or syrups consisting of vitamins, mineral supplements or medicine, and nothing else (WHO/ UNICEF, 1990; WHO, 2003). EBF is one of the cardinal components of the "Baby Friendly Hospital Initiative" (BFHI) aimed at protecting, promoting and supporting breastfeeding for optimal maternal and child health. It is part of the 1990 Innocenti Declaration which states that all governments should create an environment enabling women to practice EBF for the first 6 months of life and to continue breastfeeding with adequate complementary foods for up to two years (WHO/UNICEF, 1990).

Current recommendations on optimal breastfeeding include initiation of breastfeeding within the first one hour after birth, on demand feeding, and exclusive breastfeeding for the first six months of life with the introduction of safe and appropriate complementary foods for up to two years. Exclusive breastfeeding rates (EBF) reported in national surveys (NDHS, 2003; 2008) are 17% and 13%, respectively, while that by researchers in different parts of the country (Ogbonna, Okolo & Ezeogu, 2000; Otaigbe, Alikor & Nkanginieme, 2005) are also low (0 - 53.9%), despite the promotion of BFHI programmes in health institutions. This is thought to be due to several factors in the mother's environment (Ogbonna *et al.*, 2000). These factors could be social, physical, biological and psychological, and may impact positively or otherwise on the ability and willingness of women to practise EBF (Ogbonna *et al.*, 2000).

There is the need to protect, promote and support exclusive breastfeeding for optimal maternal/child nutrition and health in developing countries. This study was therefore designed to assess the knowledge, attitude and practice of exclusive breastfeeding and maternal factors associated with its practice in an urban area in Umuahia, Abia state in South-east Nigeria.

METHODS

Study area

The study was carried out in Umuahia North Local Government Area (LGA). Umuahia North LGA is an urban area with a landmass of 14,460 square kilometers. The population of the LGA according to the 2006 census was 239,020 (NPC, 2008). All state ministries, departments and the secretariat are centrally located in this Local Government Area. The inhabitants of the town are mostly civil servants, traders, business men, artisans and students. In the LGA, there is one tertiary health institution i.e. the Federal Medical Centre (FMC) and 14 Primary Health Care centers (PHC). All the government health institutions in the LGA are designated as "Baby Friendly Hospitals". These health institutions operate antenatal, postnatal and child welfare clinics which carter for pregnant/lactating women and their babies residing within and outside the local government once a week.

Subjects

The study population were mother-infants pairs attending immunisation clinics of government health facilities in Umuahia North Local Government Area (LGA) of Abia State, Nigeria.

Sample size determination

According to NDHS (2003), the rate of exclusive breastfeeding in Nigeria is 17%. Using Araoye (2003) formulae, sample size for the study was calculated as:

$$n = \frac{Z^2 \times p\ (100-p)}{X^2}$$

where n = sample size

Z = Confidence level; taken as 95% degree of probability which is 1.96%. This was approximated to 2

p = Percentage of mothers practising exclusive breastfeeding in Nigeria i.e. 17% (NDHS, 2003)

100-p = Percentage of women not practising exclusive breastfeeding
X^2 = Level of precision taken to be 5 %

Sample size is:

$$N = \frac{4 \times 17 (100-17)}{5^2} = 225$$

Assuming anticipated 85% response rate and to compensate for attrition, the sample size used was adjusted as follows:

$$\frac{225}{0.85} = 264.7$$

This value was approximated to 265.

Sampling technique

A list of government health facilities in Umuahia North Local Government Area (LGA) offering maternal-child welfare clinics was obtained from the Abia State Ministry of Health. Out of fifteen facilities listed, four were selected by simple random sampling technique. They included Federal Medical Centre (FMC), which is a tertiary health facility, and three Primary Health Care centers (PHC) (Health office Adelabu, Infant Welfare Clinic Ojike and World Bank Health Centre).

From the selected health facilities, a simple random sampling was employed to select the respondents. The respondents were recruited by trained research assistants for four consecutive weeks in each of the health facilities by simple random sampling (balloting) technique. On each clinic day, a list of mother-infant pairs who were registered for immunisation was used as the sampling frame and they were assigned identification (ID) numbers. These were listed in separate pieces of papers and placed into a bag. The papers were shuffled after which ballots were drawn from the bag without replacement. This exercise was repeated on every clinic day until the required sample size of 240 was attained. Inclusion criteria were mothers who delivered normally, had full term babies weighing $\geq$2.5kg, had babies without congenital malformations or deformities and were willing to participate in the study.

Data collection

Eight research assistants made up of nursing and nutrition students were recruited and trained for data collection. They were trained for three days by the researcher(s) on administration of questionnaire and questionnaire interpretation to the local dialect *"igbo"*. The questionnaire was used to elicit information on socio-demographic characteristics (age, occupation, education, income etc) as well as breastfeeding knowledge, attitude and practices of the lactating mothers. This questionnaire was pre-tested by six lecturers in the Department of Human Nutrition and Dietetics and four nurses in the various health facilities in order to modify the instrument. Their suggestions and corrections were incorporated into the final draft of the questionnaire. A pre-test was carried out using mothers attending immunisation clinics at General Hospital Amachara in Umuahia South LGA. These groups of mothers were not used in the final study.

Exclusive breastfeeding in this study referred to the practice of feeding infants breast milk only for six months without the addition of any liquid or solids apart from vitamin drops or medicines.

The questionnaires were sorted for completeness after data collection and incomplete questionnaires discarded. The knowledge of the mothers on breastfeeding was assessed using four tested and scored questions: (a) What is exclusive breast-feeding? (b) What are the advantages of breast milk over formula milk? (at least one correct answer). (c) What are the disadvantages of breastfeeding? (d) When should a mother start to breastfeed her baby after delivery? Each correct answer was scored two points with the scores ranging from 0-8 points. Knowledge scales categorised scores of <2% as poor, 3-5% as fair and >5% as good knowledge.

Likewise, a thirty-eight (38) question instrument on attitude of mothers towards breastfeeding was scored 2 points each to obtain a total score of seventy-six (76). Attitude scores were graded using an agree/ disagree scale. The scales categorised attitude scores of <25% as poor, 26-60% as fair and >60% as good.

Statistical analysis

Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) version 15. Descriptive statistics such as frequencies and percentages were used to analyse data on socio-demographic characteristics. Chi square (X^2) was used to determine maternal factors that significantly influenced rate of exclusive breastfeeding and timely initiation of breastfeeding. A *p*-value of <0.05 was regarded as statistically significant.

Ethical consideration

Approval for the study was given by the ethics committee of the Federal Medical Centre (FMC), Umuahia, which is a federal government tertiary health institution. A letter of introduction and approval was taken to the selected health facilities. Verbal consent was obtained from the respondents after explaining the purpose of the study to them.

RESULTS

A total of 265 questionnaires were distributed and collected; however, twenty-five of the questionnaires were incompletely filled and these were discarded. Table 1 shows the socio-economic characteristics of the nursing mothers. More than two-thirds (71.3%) of the mothers were between the age range of 26-35 years. The majority (97.5%) was married, few (7.9%) had primary education while others (42.9% and 49.2%) had secondary and tertiary education, respectively. Some one-third (37.5%) of the mothers were employed in the civil service while 21.7% were full time housewives. The majority of the mothers had a total family income greater than #20,000, while a high percentage (73.8%) had between 1-3 children. Over half (53.8%) of the surveyed mothers had 4-6 persons in their household.

Table 2 represents breastfeeding knowledge of lactating mothers. Most (91.7%) of the mothers were able to correctly define exclusive breastfeeding as the practice of feeding an infant with breast milk alone without addition of water for the first 6 months. The advantages of breast milk over formula milk were well known to the mothers as majority 233(97%) mentioned at least one advantage. The most frequently mentioned were its health benefits to the baby (57.5%), right constituent of nutrients (51.67%), protective effects (47.92), ready availability (39.17%), cheapness (37.92%) and promotion of mother-child bonding (34.17%) (Table 2).

The majority (89.2%) of the mothers noted that use of breast milk had no disadvantages while very few mentioned the following disadvantages: endangering of mother's health (1.7%), inadequacy of breast milk (3.8%) and possibility of transmitting infections (5.0%). The rest (0.4%) were not sure if breast milk had any disadvantages.

When mothers' knowledge on how long breast milk alone is adequate to meet the baby's nutritional needs was tested, 44.2% indicated that it was for 6 months, while 26.3% were not sure. About 64.6% of mothers knew that breast feeding should be initiated immediately after birth (i.e. $\leq$ 1 hour), while 17.1% felt it should be initiated within 24 hours. Most (87.9%) of the mothers had received information on breastfeeding from ante-natal clinics. Others got information from the media (4.2%). Friends/neighbours/ relations accounted for 2.5% of the information source; about 2.9% claimed they had received information from all sources, while only 2.5% said they never received information on exclusive breastfeeding from

Table 1. Socio-demographic characteristics of the lactating women

Parameters	*Frequency*	*Percentage*
Age		
16-25	51	21.3
26-35	171	71.3
36-45	18	7.5
Total	240	100
Mother's educational qualification		
Primary education	19	7.9
Secondary education	103	42.9
Tertiary education	118	49.2
Total	240	100
Mother's occupation		
Civil servant	90	37.5
Full time housewife	52	21.7
Student	37	15.4
Trader	35	14.6
Artisan	15	6.3
Farmer	11	4.6
Total	240	100
Total family income		
<N20,000	36	15.0
N21,000-50,000	76	31.7
N51,000-100,000	79	32.9
>100,000	49	20.4
Total	240	100
Parity		
1-3	177	73.7
4-6	56	23.3
≥7	7	3.0
Total	240	100
Household size		
1-3	65	27.1
4-6	149	53.8
≥7	46	19.1
Marital status		
Married	234	97.5
Single	4	1.7
Separated/divorced	2	0.8
Total	213	100

any of these sources. The mothers generally had good knowledge (99.2%) of breastfeeding while one-third (31.7%) had poor attitude towards exclusive breastfeeding. About two-thirds (68.3%) had a negative attitude to exclusive breastfeeding (i.e. giving baby water before breast milk starts flowing; exclusive breastfeeding is for mothers who cannot afford formula; breast-feeding spoils the shape of the breast; EBF is more demanding than formula feeding etc).

Table 2. Exclusive breastfeeding knowledge of lactating mothers (n=240)

Parameter	*Frequency*	*Percentage %*
Definition of EBF		
Feeding infants breast milk only for the first 6 months of life	220	91.7
Not sure	15	6.3
Feeding infants breast milk and water for the first 6 months of life	5	2.1
Total	240	100
Advantages of breast milk over infant formula*		
Makes baby healthier	138	57.5
Contains right amount of nutrients and water	124	51.67
Protects baby from infections	115	47.92
Readily available	94	39.17
Cheap	91	37.92
Strengthens mother-child bonding	82	34.17
All of the above	77	32.08
None	7	2.9
Total	240	100
Disadvantages of breast feeding*		
None	214	89.2
Infections can be transmitted through breast milk	12	5.0
Breast milk is insufficient	9	3.8
Can endanger mother's health	4	1.7
Not sure	1	0.4
Total	240	100
How long breast milk alone is adequate		
< 6 months	53	22.1
6 months	106	44.2
> 6 months	18	7.5
Not sure	63	26.3
Total	240	100
Knowledge on time of initiation of breastfeeding		
Immediately after birth (d"1hr)	155	64.6
1-24 hrs	41	17.1
After baby has received other fluids	14	5.8
After 24 hrs	12	5.0
Depends on mother or baby's health	14	5.8
After colostrum has stopped	4	1.7
Total	240	100
Main source of information on breastfeeding		
Antenatal clinics	210	87.9
Media	11	4.2
Friends/relations	6	2.5
Never heard of EBF	6	2.5
All of the above	7	2.9
Total	240	100

* multiple choice answers, EBF= Exclusive breastfeeding.

The breastfeeding practices of lactating mothers are presented on Table 3. The majority (78.3%) of the mothers indicated that they made their own decision to breastfeed. Out of these, 64.6% made the decision before delivery and 35.6% after delivery. Others who influenced breastfeeding decisions included husbands (15%), mothers/mothers-in-law (5%) and grandmothers (1.7%).

Breastfeeding was initiated in less than one hour by 53.3% of the mothers while 34.6% initiated it between 1- 24 hours of delivery and 12.1% did so after 24 hours. Few (17.5%) of the mothers gave prelacteal feeds in the form of plain water (9.2%), glucose water (6.7%) and infant formula (1.7%). The main reason given for the use of prelacteal feeds by these mothers was perceived inability of breast milk to flow on time (11.3%). Colostrum feeding was highly practised (84.6%) by the mothers.

The results on Table 4 using chi square analysis (X^2) revealed that older mothers (>36 years) were more likely to initiate breastfeeding within the first one hour of delivery than younger mothers (X^2=14.657; $p<0.01$). Mothers who had tertiary education were more likely to initiate breastfeeding within one hour of delivery (X^2=17.911; $p<0.01$) than mothers with secondary or primary education. Mothers who were engaged in the civil service were found to be more likely to initiate breastfeeding earlier than mothers engaged in other forms of occupation (X^2=21.611; $p<0.05$). Mothers with a larger household size were more likely to initiate breastfeeding early (X^2=23.827; $p<0.05$) as well as practice exclusive breastfeeding (X^2=12.194; $p<0.05$) up to six months than those with smaller household sizes.

DISCUSSION

The objective of this study was to assess the influence of maternal factors on the practice of breastfeeding by mothers residing in an urban area in Nigeria. The socio-economic characteristics of the respondents are typical of women in urban cities in South-east Nigeria, where high education, medium socio-economic status and low fertility are prevalent. The majority of the respondents were civil servants, highly educated (at least up to secondary school certificate), had a total family income of more than #20,000 and were still in their reproductive age.

The results of the study showed that the majority of the mothers had good knowledge of exclusive breastfeeding. The high proportion of mothers with a good knowledge of EBF observed in this study is not surprising. This is because breastfeeding is culturally accepted in Nigeria. Their good knowledge may be attributed to the fact that most of them received information on breastfeeding from health facilities during antenatal and postnatal clinics. Additionally, through attendance at clinics, these mothers were exposed to breastfeeding education through the 'Baby Friendly Hospital initiative" (BFHI). Similarly, a cross-sectional (Ludvigsson, 2003) and a longitudinal study (Ukegbu *et al.*, 2011) of 502 Bolivian and 228 Nigerian nursing mothers with infants between 0-1 year and 0-6 months, respectively reported that 92.6% and 91.2% of the mothers, respectively, were able to mention at least one advantage of exclusive breastfeeding. On the contrary, studies carried out in Kwara (Illyasu *et al.*, 2005) and Kano (Oche, Umar & Ahmed, 2011) states Nigeria noted that only a few mothers (30% and 31%, respectively) had adequate knowledge of exclusive breastfeeding.

Although, there was high knowledge of exclusive breastfeeding, many (68.3%) still demonstrated poor attitude towards it. This can influence their actual practice as mothers with poor attitude may not practice exclusive breastfeeding optimally even when they know about it. One of the attitudinal statements was that exclusive breastfeeding should be preached to mothers

Table 3. Breastfeeding practices of lactating mothers (n=240)

Parameters	*Frequency*	*Percentages*
Decision on breast feeding practice		
Self	188	78.3
Others (husband, Mother/mother-in-law, Grand mother)	52	21.7
Total	240	100
When decision to breast feed was made		
Before birth	155	64.6
After birth	85	35.6
Total	240	100
How soon after delivery breast feeding was initiated		
<1 hour	128	53.3
1-24 hours	83	34.6
>24 hours	29	12.1
Total	240	100
Prelacteal feeds given		
Nothing was given	198	82.5
Plain water	22	9.2
Glucose water	16	6.6
Infant formula	4	1.7
Total	240	100
Reasons for use of prelacteal feeds (n=42)		
Breast milk did not flow on time	27	11.3
Baby or mother perceived unwell	10	4.2
To enable me rest and regain my strength	3	1.3
Cultural demands	1	0.4
To quench thirst	1	0.4
Total	42	100
Colostrum given		
Yes	203	84.6
No	37	15.41
Total	240	100
Reasons for not feeding colostrum (n=37)		
No reason	16	43.2
Do not know if it came out or not	10	27.0
It is bad breast milk	6	16.2
Culture does not accept it	3	8.1
It causes diarrhea	2	5.5
Total	37	100
Breast feeding pattern for 6 months		
NEBF	185	77.1
EBF	55	22.9
Total	240	100

EBF= Exclusive breast feeding, NEBF= Non exclusive breast feeding.

Table 4. Maternal factors associated with exclusive breastfeeding rate and timely initiation of breastfeeding

Variable	*EBF*	*NEBF*	*Total*	*Timely initiation of breastfeeding*	*Non timely initiation of breastfeeding*	*Total*
Age of mothers						
16-25	16 (6.67)	35 (14.6)	51 (21.3)	26 (10.83)	25 (10.42)	51 (21.3)
26-35	35 (14.60)	136 (56.67)	171 (71.2)	88 (36.67)	83 (34.58)	171 (71.2)
36-45	4 (1.67)	14 (5.83)	18 (7.5)	14 (5.83)	4 (1.67)	18 (7.5)
			240 (100)			240 (100)
	X^2 =2.60	P=0.190		X^2 =14.657	P=0.005*	
Mother's educational qualification						
Primary education	6 (2.5)	13 (5.41)	19 (7.91)	4 (1.67)	15 (6.25)	19 (7.91)
Secondary education	27 (11.25)	76 (31.67)	103 (42.92)	52 (21.67)	51 (21.25)	103 (42.92)
Tertiary education	22 (9.17)	96 (40.00)	118 (49.17)	72 (30.0)	46 (19.17)	118 (49.17)
			240 (100)			240 (100)
	X^2 =2.660	P=0.264		X^2 =17.911	P=0.001*	
Mother's occupation						
Full time housewife	13 (5.42)	39 (16.25)	52 (21.67)	29 (12.08)	23 (9.58)	52 (21.67)
Civil servant	18 (7.5)	72 (30.0)	90 (37.5)	54 (22.5)	36 (15)	90 (37.5)
Farmer	3 (1.25)	8 (3.33)	11 (4.58)	3 (1.25)	8 (3.33)	11 (4.58)
Student	5 (2.08)	32 (13.33)	37 (15.41)	17 (7.08)	20 (8.33)	37 (15.41)
Trader	12 (5.0)	23 (9.58)	35 (14.58)	19 (7.92)	16 (6.67)	35 (14.58)
Artisan	4 (1.67)	11 (4.58)	15 (6.25)	6 (2.5)	9 (3.75)	15 (6.25)
			240 (100)			240 (100)
	X^2 = 7.235	P=0.391		X^2 =21.611	P=0.017*	
Total family income						
<N20,000	10 (4.17)	26 (10.83)	36 (15.00)	17 (7.08)	19 (7.92)	36 (15.00)
N21,000-50,000	21 (8.75)	55 (22.92)	76 (31.67)	34 (14.17)	42 (17.5)	76 (31.67)
N51,000-100,000	17 (7.08)	62 (25.83)	79 (32.91)	47 (19.58)	32 (14.33)	79 (32.91)
N101,000-150,000	4 (1.67)	24 (10.0)	28 (11.67)	20 (8.33)	8 (3.33)	28 (11.67)
N151,000-N200,000	1 (0.42)	16 (6.67)	17 (7.09)	8 (3.33)	9 (3.75)	17 (7.09)
>N200,000	2 (0.83)	2 (0.83)	4 (1.67)	2 (0.83)	2 (0.83)	4 (1.67)
			240 (100)			240 (100)
	X^2 =7.160	P=0.209		X^2 =15.624	P=0.111	
Parity						
1-3	39 (16.25)	138 (57.5)	177 (73.75)	89 (37.08)	88 (36.67)	177 (73.75)
4-6	14 (5.83)	42 (17.5)	56 (23.33)	37 (15.42)	19 (7.92)	56 (23.33)
7-9	2 (0.83)	2 (0.83)	4 (1.67)	2 (0.83)	2 (0.83)	4 (1.67)
10-12	0 (0.00)	3 (1.25)	3 (1.25)	0 (0.00)	3 (1.25)	3 (1.25)
			240 (100)			240 (100)
	X^2 =2.769	P=0.429		X^2 =10.990	P=0.089	
Household size						
1-3	15 (6.25)	50 (20.83)	65 (27.08)	37 (15.42)	28 (11.67)	65 (27.08)
4-6	23 (9.58)	106 (44.17)	129 (53.75)	57 (23.75)	72 (30.00)	129 (53.75)
≥7	17 (7.08)	29 (12.08)	46 (19.16)	34 (14.17)	12 (5.00)	46 (19.16)
			240 (100)			240 (100)
	X^2 =12.194	P=0.030*		X^2 =23.827	P=0.004*	

* = significant at $p<0.05$; EBF= Exclusive breastfeeding, NEBF= Non- exclusive breastfeeding.

who cannot afford formula. This implies that some mothers bottle feed as a status symbol as noted by Okeahialam (1986). Unfortunately, even mothers who cannot afford formula emulate the practice of bottle feeding of their superiors as a status symbol. In a focus group discussion (FGD) (Ukegbu, 2012), a woman said *"she buys and displays tins of formula on her parlor cupboard to show that she "belongs" to 'uwa akagin njo' (well to do)"* Attitudes of husbands and family members such as mothers and mothers-in-law could also influence feeding practices of their daughters and daughters-in-law. About 17.5% significant others influenced mother's decision to breastfeed in this study. Reddy (1995) observed that many women interviewed in India believed the breastfeeding pattern of their sisters and relatives greatly influenced their own breastfeeding behaviour. The influence of family attitudes towards exclusive breastfeeding opens a whole new dimension of maternal and child care. Breastfeeding education should therefore be targeted not only at the mother, but also at the significant individuals in the family as their attitude could either have a positive or negative influence on the practice of exclusive breastfeeding. A study in Jamaica (Chatman *et al.*, 2004) observed that mothers in their study had good knowledge, knew the correct thing to do and may be willing to do so, but probably had other negative influences.

The poor attitude of mothers in this study could also be seen in quite a number (17.5%) of them introducing prelacteal feeds immediately after delivery contrary to WHO (2003) recommendations. Similar observations were made on the use of prelacteal feeds among a group of rural mothers in South-east Nigeria (Ukegbu & Ukegbu, 2010; Ukegbu, Ebenebe & Ukegbu, 2010). Their reason was the perceived inability of breast milk to flow on time. Use of prelacteal feeds would delay the onset of milk flow, reduce the duration and frequency of breastfeeding, increase infant morbidity and mortality as well as serve as a source of infection to the infant (Carvalhaes, Parada & Costa, 2007). There is thus a need to further implement sound hospital practices such as rooming-in and frequent breastfeeding as well as educate mothers on physiology of lactation.

Initiation of breastfeeding in this study was timely as 53.3% initiated it within one hour after delivery. This is quite encouraging because late initiation of breastfeeding deprives infants of colostrum which has anti-infective properties and exposes them to unnecessary death. This was corroborated in a study (Edmond *et al.*, 2006) in Ghana which clearly showed that about 22% of newborn deaths could have been prevented if babies had started breastfeeding within one hour after birth. The rate obtained in this study was similar to that reported by Ojofeitimi *et al.* (2000), Onuoha and Enebong (2005) and Matthew *et al.*, (2009) in Nigeria. It was, however, higher than 20% and 21% reported by Qureshi *et al.* (2011) and Illiyasu *et al.* (2005) among mothers in North-west Nigeria. Colostrum was given by most mothers in this study contrary to a study carried out by Qureshi *et al.* (2011) which noted that their subjects had the underlying perception that colostrum is dirty and this led to late initiation of breastfeeding in their study after 24 hours.

The low rate of EBF (22.9%) in this group of mothers at the end of 6 months further reflects the poor attitudes of mothers despite their high knowledge. Since traditionally, beliefs and habits take a long time to change, the facts highlighted above show that some socio-economic and cultural factors may have influenced their attitudes. Similarly, Uchendu, Ikefuna & Emodi, (2009) in a study conducted in Enugu noted that the mothers studied had high knowledge of breastfeeding, but the EBF rate was low probably due to some other cultural factors. The rate of EBF observed in this study was lower than 31% and 79% reported among a group of Northern mothers in Nigeria (Oche

et al., 2011; Oche & Umar, 2008). The high rates obtained in their study could be attributed to the fact that the subjects they used were full time housewives who therefore had enough time to breastfeed contrary to subjects in this study who were mainly civil servants.

Analysis of data revealed that mothers with a larger household size were more likely to practice EBF for up to six months than those with a smaller household size. It is possible that more people in the household could mean more help to the nursing mothers. This will enable her have more time to rest, relax and breastfeed the baby. There is thus a need for mothers to be relieved of some of the work burden in order for them to breastfeed successfully. This result seems to corroborate that of Uchendu *et al.* (2009) which noted that having smaller family sizes and supportive family members can improve the likelihood of women practising exclusive breastfeeding for a longer time. The findings from this study further suggest a need for the presence of *"doulas"*. These are traditionally accepted helpers or experienced mothers who assist mothers in breastfeeding and new born care (Campbell *et al.*, 2007). This role could be played by mothers/mothers-in-law, aunts or other female relatives. The idea is to help ease off chores from the mother so that she can rest and breastfeed the child well. In addition, mothers with a larger household size may likely practice exclusive breastfeeding for up to six months due to economic reasons. The mothers may not want to spend more money buying infant formula which is usually very expensive and so may decide to exclusively breastfeed their babies.

Older mothers (>36 years) were more likely to initiate breastfeeding within the first one hour of delivery than younger mothers ($p<0.01$). This may be due to more experience and exposure of the older mothers to messages on exclusive breastfeeding. More so, older mothers do not seem to be easily influenced by family pressure, unlike the younger mothers. Omotola *et al.* (2005) also found that older mothers and those who delivered in government hospitals initiated breastfeeding earlier than the younger ones.

Mothers who had tertiary education were more likely to initiate breastfeeding within one hour of delivery ($p<0.01$) than mothers with secondary education or less. This is probably because with increasing education, mothers are more likely to understand the rationale for exclusive breastfeeding. Educated mothers are also more likely to be exposed to information from many more sources such as print/electronic media, hospitals etc. Moreover, mothers with higher education could also be older than those with less education because of the time spent to acquire higher education. It has also been suggested by other researchers (Heck *et al.*, 2006) that educated mothers were more likely to understand the benefits of breastfeeding than less educated ones, as well as have higher breastfeeding rates (Salami, 2006). Improved maternal education could enhance mother's understanding and appreciation of the benefits of timely initiation of breastfeeding.

Mothers who were engaged in civil service were found to be more likely to initiate breastfeeding earlier than mothers engaged in other forms of occupation ($p<0.05$). These mothers in the civil service were more likely to be those who were older, educated and probably more informed.

CONCLUSION

The study revealed that although the level of knowledge of exclusive breastfeeding was high, there was however some substantial gaps in the attitude towards EBF. This could be a barrier to achieving Millennium Development Goal 4 and improving child survival. In addition, having smaller family sizes and supportive family members can improve the likelihood of women practising exclusive breastfeeding for a longer time. Efforts should be made to promote

appropriate breastfeeding practices among younger and less educated mothers.

ACKNOWLEDGEMENTS

The authors wish to thank the Academic Staff Union of Universities (ASUU) for the research grant provided to the principal investigator for this work and mothers who participated in the study.

DISCLOSURE

The authors report no conflict of interest in this work.

REFERENCES

Araoye MO (2003). Research Methodology with Statistics for Health and Social Sciences. (pp 117-119). Nathadex Publishers, Nigeria

Campbell D, Scott KD, Klaus MH & Falk M (2007). Female relatives or friends trained as labor *doulas*: Outcomes at 6 to 8 weeks postpartum. *Birth* 34: 220-227.

Carvalhaes MA, Parada CM & Costa MP (2007). Factors associated with exclusive breastfeeding in children under 4 months old in Botucatu- Sp Brazil. *Rev. Latin O-am Enfermagem* 15(1): 62-69.

Chatman LM, Salihu HM, Roofe ME, Wheatle P, Henry D & Jolly PE (2004). Influence of knowledge and attitude on exclusive breastfeeding practice among rural Jamaican mothers. *Birth* 31(4): 265-271.

Edmond KM, Zandoh C, Quigley MA, Amenga Etogo S, Owusu-Agyei S & Kirkwood BR (2006). Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics* 117: e380-386.

Heck KE, Braueman P, Gilberto FC & Kiely JC (2006). Socio-economic status and breastfeed initiation among California mothers. *Public Health Rep* 121(1): 51-59.

Illiyasu Z, Kabir M, Abubakar IS & Galadanci NA (2005). Current knowledge and practice of EBF among mothers in Gwale LGA of Kano State. *Nigerian Med Pract* 48(2): 50-55.

Ludvigsson JF (2003). Breast feeding in Bolivia information and attitudes. *BMC Paediatrics* 3:4. From *www.pubmedcentral.nih.gov/articlerender.fcgi* [Retrieved November 17 2009].

Matthew AK, Amodu AD, Sani I & Solomon SD (2009). Infant feeding practices and nutritional status of children in North Western Nigeria. *Asian J Clin Nutr* 1: 12-22.

NPC (2008). National Population Commission and ICF Macro, Abuja, Nigeria.

NDHS (2003). Nigeria Demographic and Health Survey. Federal Office of Statistics Lagos, Nigeria. ORC Macro,Calverton, Maryland, USA.

NDHS (2003). Nigeria Demographic and Health Survey(pp.151–154). Federal Office of Statistics Lagos, Nigeria. ORC Macro, Calverton, Maryland, USA

Oche MO, Umar AS & Ahmed H (2011). Knowledge and practice of exclusive breastfeeding in Kware, Nigeria. *African Hlth Sci* 11(3): 519-523.

Oche MO & Umar AS (2008). Breastfeeding practices of mothers in a rural community of Sokoto, Nigeria. *Nigerian Postgraduate Med J* 15(2): 101-104.

Ogbonna C, Okolo SN & Ezeogu A (2000). Factors influencing exclusive breast-feeding in Jos, Plateau state, Nigeria. *West African J Med* 19(2): 107- 110.

Ojofeitinmi EO, Esimal OA, Owolabi O, Olaobaju, OF & Olanuga TO (2000). Breastfeeding practices in urban and rural health centers: Impact of Baby Friendly Hospital Initiative in Ile-Ife, Nigeria. *Nutr Hlth* 14: 119-125.

Okeahialam TC (1986). Breastfeeding practices among Nigerian Igbo mothers. *J Trop Pediatr* 32(4): 154-157.

Omotola BD, Grange AO, Adedoyin JA, Brai BIC, Omotola EB & Njepuome K (2005). Breastfeeding practices in the first 6 months of life in Epe LGA of Lagos State. *Nigeria J Nutr Sci* 26(2): 16-22.

Onuoha N & Enebong HN (2005). Exclusive breastfeeding: mothers' experience, attitude and effect on child health in

Nsukka Urban. *Nigeria J Nutr Sci* 26(1): 34-42.

Otaigbe BE, Alikor EAD & Nkanginieme KEO (2005). Growth pattern of exclusively breast fed infants: A study of babies delivered at University of Port Harcourt Teaching Hospital Rivers, State, Nigeria. *Nig J Med* 14: 137-145.

Qureshi AM, Oche OM, Sadiq UA & Kabir S (2011). Using community volunteers to promote exclusive breastfeeding in Sokoto State, Nigeria. *Pan African Med J* 10:8.

Reddy S (1995). Breastfeeding practices, problems and prospects. *J Fam Welfare* 41(4): 43-51.

Salami LI (2006). Factors influencing breastfeeding practices in Edo state, Nigeria. *African J Food, Agric Nutr Develop* 6(2): 1-12.

Uchendu UO, Ikefuna AN & Emodi IJ (2009). Factors associated with exclusive breast-feeding among mothers seen at the University of Nigeria Teaching Hospital. *South African J Child Hlth* 3(1): 14-19.

Ukegbu PO (2012). Effect of maternal nutrition and body composition on lactation performance and breast milk composition. PhD Thesis, Michael Okpara University of Agriculture, Umudike Abia State Nigeria.

Ukegbu AU, Ukegbu PO, Onyeonoro UU & Ubajaka CF (2011). Determinants of breastfeeding patterns among mothers in Anambra State, Nigeria. *South African J Child Hlth* 5(4): 112-116.

Ukegbu AU, Ebenebe EU & Ukegbu PO (2010). Breastfeeding pattern, anthropometry and health status of infants attending child welfare clinics of a teaching hospital in Nigeria. *South African J Clin Nutr* 5(4): 112-116.

Ukegbu PO & Ukegbu AU (2010). Breastfeeding practices among rural mothers in Imo state, Nigeria. *J Sustain Agric Environ* 12(1): 68-77.

WHO (2003). WHO Global Strategy for Infant and Young Child Feeding. World Health Assembly No 7

WHO/UNICEF (1990). The Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding. WHO/ UNICEF. Geneva WHO.