

Analysis of Factors Influencing Exclusive Breastfeeding Practice among Mothers Working at a Tertiary Health Institution in South West Nigeria

Oyekunle FE¹, Ike EU¹, Oyekunle EO²

Departments of ¹Clinical Nursing and ²Radiation Oncology, University College Hospital, Ibadan, Nigeria

ABSTRACT

Background: In Sub-Saharan Africa, with high rates of infant mortality, only 33% of infants are exclusively breastfed.

Objective: This study investigated factors influencing exclusive breastfeeding (EBF) practice among mothers working at a prominent teaching hospital in South West Nigeria.

Materials and Methods: One hundred and sixty mothers comprising seven categories of staff were randomly selected from various departments at the teaching hospital in south-Western Nigeria. Demographic data and perceptions of the participants were obtained through the use of a self-structured questionnaire. Data were analysed with SPSS at a 5% level of significance.

Results: Participants' mean age was 37.7 ± 5.6 years. Majority (96.3%) of the respondents were aware of EBF practice. Many participants (95%) opined that EBF is economical and the knowledge that it can reduce the risk of premenopausal breast cancer (80.6%) by 50% are the most important encouraging factors. Very busy work schedules and inadequate creche facilities in proximity to the hospital constituted the major constraints to EBF. The practice of EBF for the infants of respondents at the hospital was put at 53.1%. The study showed there is no ($P = 0.219$) significant relationship between the education level of the mothers and the practice of EBF. This is the same ($P = 0.332$) with respect to mothers' professions. However, a statistically significant ($P = 0.008$) relationship between respondents' level of awareness and EBF practice was found.

Conclusions: Effective practice of EBF among mothers was mainly hindered by busy work schedules. The promotion of EBF should include programmes involving nursing mothers and other members of the public. Facilities such as crèche should be provided by government and private organisations at various workplaces to make EBF easily practicable.

Key words: Breastfeeding, exclusive, factors, infants, influencing, mothers

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INTRODUCTION

Breastfeeding remains the simplest, healthiest and least expensive feeding method that fulfils the infant's needs.¹ It is an unequalled way of providing ideal food for the healthy growth and development of infants. It is also an integral part of the reproductive process with important implications for the health of mothers.² The numerous benefits of breastfeeding are of public health relevance for developing countries as well as for industrialised nations.³ Breast milk is produced by the

breasts or mammary glands of a human female for her infant for the purpose of feeding. It continues to provide up to half or more of a child's nutritional needs during the second half of the year and up to one-third during the 2nd year of life.⁴

Exclusive breastfeeding (EBF) can be defined as a practice whereby the infants receive only breast milk without mixing it with water, other liquids, tea, herbal preparations or food in the first 6 months of life, with the exception of vitamins, mineral supplements or medicine.⁵ EBF is beneficial in saving children's lives and its benefits include protection against the six childhood killer diseases (poliomyelitis, whooping cough, pertussis,

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Address for correspondence: Mrs. Oyekunle FE,
Department of Clinical Nursing, University College Hospital, Ibadan, Nigeria.
E-Mail: Funmilayooyekunle7@gmail.com

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tetanus, diphtheria and measles), provision of adequate nutrition and creation of a strong infant–mother interaction and bond, lowered risk of otitis media, gastroenteritis, respiratory illness, sudden infant death syndrome, obesity among others in infants. Maternal outcomes include reduced risk of premenopausal breast and ovarian cancer, Type 2 diabetes, osteoporosis and postpartum depression. Societal benefits include decreased health care-related cost and fewer absences from work. Others include saving money directly because breastfed babies are less frequently and less severely ill.⁶

Studies have identified various factors that influence breastfeeding practices, such as inadequate knowledge of the health benefits of breastfeeding; inadequate antenatal counselling on breastfeeding and the belief that breast milk is insufficient.^{7,8} Maternal and child health attributes such as marital status, economic status and child age could also influence the practice of EBF. Making better feeding choices requires specific and appropriate information that responds to their constraints and concerns.⁹

The last two decades have witnessed different regions of the world reporting increase in the rates of EBF, which could be attributed to the recent worldwide acceptance of EBF. While sub-Saharan Africa had reported an increase from 22% in 1996 to 30% in 2006, East Asia/Pacific (excluding China) had a rise from 27% in 1996 to 32% in 2006. Latin America and the Caribbean (excluding Brazil and Mexico) further reported an increase from 30% in 1996 to 45% in 2006. Yet, these rates are disturbingly low according to the WHO recommendations, as the overall rate of EBF globally is only 35%.¹⁰

In response and acknowledgement of the importance of EBF, all hospitals in Nigeria were encouraged to establish Baby-Friendly Hospital Initiatives with the assistance of UNICEF. This has been implemented in some cities, namely Lagos, Ibadan, Ile Ife, Benin, Enugu, Maiduguri, Jos and Port Harcourt, among others.³ The aim was to provide mothers and their infants with a supportive environment for breastfeeding, as well as promote appropriate breastfeeding practices, thus helping to reduce infant morbidity and mortality rates. Despite global/national efforts to promote EBF, it is still sub-optimally practiced in many developing countries, including Nigeria. This study intends to investigate factors influencing the practice of EBF among mothers working at the prominent government hospital in south-western Nigeria.

MATERIALS AND METHODS

Study site

This study was conducted at a popular public health institution in the south-western part of Nigeria. The hospital is a referral centre for diverse health issues.

Study design

This study adopted a descriptive survey to assess the factors influencing the practice of EBF among mothers working at the teaching hospital.

Study population

This comprised mothers working at the government hospital. Respondents were drawn proportionally from different professions. Different categories of personnel were considered to have the views of diverse workers on the subject of interest. The population of the female workforce for each professional category were retrieved from relevant records and are highlighted in Table I.

Sample size

The sample size for this study is determined using Slovin's formula as follows:

$$n = \frac{N}{(1 + N(e^2))}$$

where,

n is the desired sample size and N is the estimated population (2067)

e is the level of precision or relative error of estimator = 0.08 (5%–10% precision)

Applying Slovin's equation, n was determined as 145.27

Considering attrition of 10.0% (i.e. 10% of 145.27) = 15, the minimum estimated sample size is 145 + 15 = 160 respondents.

The distribution of research instruments to different categories of personnel was performed based on the following equation used:

$$n \text{ (for a given staff category)} = \frac{N \text{ (for a given staff category)}}{\text{Total } N} \times \text{Estimated sample size}$$

Sampling technique

Simple random technique was adopted for this study to ensure each portion of the population undergoing study has a chance to be selected at random. This is to engender a more accurate selection of the population so that the array of data reflects every subset of the populous.

Research instrument

The instrument was a self-structured questionnaire developed after literature review. Questions that are relevant to the objectives of this study were developed. The instrument is a 50-item questionnaire divided into five sections. Section A consists of 13 items that will be used to elicit information on the demographic characteristics

Table I: Composition of female workforce

Professional category	Female population	Estimated sample size
Nurses	1137	88
Resident doctors	240	18
Pharmacists	60	7
Administrative staff	58	4
Ward assistants/attendants	480	36
Health record officers	65	5
Security personnel	27	2
Total	2067	160

of the participants. In Section B, there were 17 items that elicited information on the awareness of mothers towards EBF. Section C consists of six items that sought information on the proportion of working mothers practicing EBF. In Section D, there are five items that elicited information on the factors which encourage EBF. On the contrary, the final section (E) elicited information on the factors which discourage EBF.

Inclusion criteria

The study included mothers of child-bearing ages working at the tertiary health institution during the study period from January to April 2017.

Validity and reliability of instruments

A comprehensive review of related literature was carried out, and salient variables related to factors influencing the practice of EBF were extracted. This guided in the formation of research questions and objectives that were used in the development of the questionnaire for the study. The instrument was critically structured, and validated and necessary corrections that were made were effected. It was pretested on mothers working at another hospital within the same city of the study centre. The reliability of the questionnaire was determined from the pre-test reliability method.

Data collection procedure

Data were collected using a structured questionnaire to obtain all of the required information. The language of communication in the questionnaires was English. Participating mothers were asked for their consent to participate in the study in addition to the obtained ethical approval.

Data analysis

Data analysis was performed using the Statistical Package for the Social Sciences. Univariate analysis was performed to determine the proportions of mothers who practiced EBF, mixed feeding, replacement feeding and other types of infant feeding. Bivariate analysis was performed to measure the association between the dependent variable, which is EBF and the independent variables. Variables that showed significant association ($P < 0.05$) to the dependent variable (EBF) were further analysed in the logistic regression model to identify factors that were true associated with EBF.

Ethical consideration

The assurance of confidentiality was given on the front page of the questionnaire to build confidence in the prospective respondents and engender a high willingness in responding to the questions raised. Ethical approval was obtained from the institution's ethical review committee to undertake the research

RESULTS

The mean age of respondents was 37.7 ± 5.6 years. The mean duration at work was 9.1 ± 2.9 h with a range of 8–24 h. Details of age classifications and other demographic data are presented in Table II. Table III shows the proportions of mothers and children involved in EBF practice at the

centre. About 68.8% of the study participants had practiced EBF and 53.1% affirmed implementation of EBF to all

Table II: Socialdemographic characteristics (n=160)

Demographic variables	Frequency (%)
Age (years)	
21-30	11 (6.9)
31-40	99 (61.9)
41-50	50 (31.3)
Minimum-maximum	25.0-50.0
Mean	37.7±5.6
Marital status	
Married	158 (98.8)
Widow	2 (1.3)
Tribe	
Yoruba	142 (88.8)
Igbo	16 (10.0)
Hausa	2 (1.3)
Level of education	
Primary education	2 (1.3)
Secondary education	14 (8.8)
Tertiary education	144 (90.0)
Nature of duty	
Shifting	132 (82.5)
Non-shifting	2 (1.3)
Call duty	26 (16.3)
Work duration (h)	
Minimum-maximum	8.0-24.0
Mean	9.1±2.9

Table III: Proportions of mothers and children involved in exclusive breastfeeding practice

Variables	Options	Frequency (%)
Any practice of exclusive breast feeding?	Yes	110 (68.8)
	No	50 (31.3)
If yes, number of children who had been exclusively breastfed	All	85 (53.1)
	1 in 3 children	21 (13.1)
	2 in 4 children	8 (5.0)
	2 in 5 children	2 (1.3)
	None	44 (27.4)
Knowledge of any working mothers who practiced EBF	Yes	102 (63.8)
	No	58 (36.3)
	None	65 (40.6)
If yes, how many of such mothers was personally known?	1-5	72 (45.0)
	6-10	16 (10.0)
	>10	7 (4.4)
	None	67 (41.9)
How many of their children were personally known to be exclusively breastfed?	1-5	72 (45.0)
	6-10	16 (10.0)
	>10	5 (3.1)
Sources of information on exclusive breast feeding	Friends	8 (5.0)
	Media	22 (13.8)
	Health workers	111 (69.4)
	Teachers	10 (6.3)
	Internet	2 (1.3)
	Other sources	7 (4.4)

EBF: Exclusive breastfeeding

their children. Majority (69.4%) of the participants sourced information about the practice from health workers. In Table IV, highlights on the awareness of mothers towards EBF are listed. Majority of the respondents affirmed that babies can survive on breast milk alone for 6 months (97.5%), EBF provides complete and perfect nutrition (98.7%) and the practice can help birth spacing (85.6%). Table V lists various factors that influenced EBF among the mothers. An important encouraging factor is the knowledge that EBF can reduce the risk of premenopausal breast cancer by 50%, and this was demonstrated by a considerable (80.6%) number of participants. Very busy schedules of work as a discouraging factor was fairly demonstrated by 41. About 9% of the women in the study, while inadequate creche facilities in proximity to the hospital also constituted a constraint to EBF. Analysis showing whether or not education level, awareness of EBF, profession and number of children have a significant relationship on the implementation of EBF is presented in Table VI. A significant ($P = 0.008$) relationship existed only between respondents' level of awareness and practice of EBF.

DISCUSSION

The mean daily duration of the study participants at work as evaluated in this study was 9.1 ± 2.9 h of range 8–24 h. In Nigeria, work hours are normally expected to be at least 8 h for 5 days in a week.¹¹ About 82.5% of the respondents were engaged on shift duty. We considered work duration to be an important factor that could determine mothers' compliance level of feeding infants with breast milk.

Breast milk is unique in its physical structure, types, concentrations of the seven components of a balanced diet, enzymes, hormones, anti-inflammatory agents and other vital constituents. Globally, only 36% of infants are exclusively breastfed, while in Sub-Sahara Africa, including Nigeria, which has high rates of infant mortality, the statistics are

barely 33%.¹² This number is very low and unacceptable. Our study demonstrated that 53.1% and 15.6% of the participating mothers practiced EBF for all (100%) and some of their children, respectively, thus representing 68.8% of the study participants. This would readily imply that a high percentage of infants delivered by the staff of the study centre were exclusively breastfed. The clinical environment, in which they work could have largely contributed to this trend.

Besides, 63.8% had known other working mothers who practiced exclusive breastfeeding. These statistics are considered similar to that of Maduforo *et al.*,¹³ who found that in Nigeria today, 40% of babies most likely to be breastfed within an hour of birth are delivered by a doctor, nurse or midwife at a health facility in an urban area. His study also revealed that 30% of babies least likely to start breastfeeding early are delivered without any assistance at home in rural areas. Early initiation rates in Nigerian states had been mainly demonstrated by Kogi (74%), Kwara (71%), Borno (68%) and Abia (64%) and these are similar to that of this study.

Most respondents attended antenatal clinics regularly during each pregnancy and delivered their children at the study centre. In this study, 96.3% of the respondents had heard about EBF and 98.8% had received guidelines from nurses on EBF. A previous study had shown that successes in increasing the levels of EBF have relatively been modest.¹⁴ Our study showed that an average of 95% of respondents had knowledge on the benefit of EBF, whereas 80.0% had knowledge on the prevention of infants and its nutritional value. 93.5% of the respondents understood the importance of breastfeeding only. In line with De Paoli, 2002¹⁵ who claimed that attending an urban clinic was found to be the strongest predictor of knowledge on EBF by mothers with a reason that the health-care staffs in urban clinics have better education which is imparted to mothers.

In this study, 97.5% accepted giving only breast milk with no water as the definition of exclusive breastfeeding and claimed

Table IV: Awareness of mothers towards exclusive breastfeeding

Items for measurement	Yes, <i>n</i> (%)	No, <i>n</i> (%)
Is it necessary to give the infant water in the first 24 h of life?	16 (10.0)	144 (90.0)
Babies should be given artificial milk so that they can be feed well?	9 (5.6)	151 (94.4)
Have you heard about exclusive breast-feeding before?	154 (96.3)	6 (3.8)
Are you aware of the advantages of breast-feeding?	156 (97.5)	4 (2.5)
Has any nurse explained to you the benefits of exclusive breast feeding?	58 (98.8)	2 (1.3)
Exclusive breast feeding provides benefits to mother and the child	156 (97.5)	4 (2.5)
The amount of milk the baby gets is dependent on the right sucking position	123 (76.9)	37 (23.1)
A baby can survive on breast milk alone for 6 months without water	156 (97.5)	4 (2.5)
Increasing duration of breast-feeding can contribute to cognitive development of a child	44 (90.0)	16 (10.0)
EBF can provide complete and perfect nutrition	158 (98.7)	2 (1.3)
EBF can help birth spacing	137 (85.6)	23 (14.4)
EBF cannot prevent allergies in infants	50 (31.3)	110 (68.7)
EBF cannot prevent diarrhea in infants	38 (23.8)	122 (71.3)
EBF cannot prevent malnutrition in infants	22 (13.8)	138 (86.2)
EBF cannot promote food security in the family	36 (22.5)	124 (77.5)

EBF: Exclusive breastfeeding

Table V: Factors revealed by the study to be associated with exclusive breastfeeding

Factors and perceptions evaluated	SA, n (%)	A, n (%)	U, n (%)	D, n (%)	SD, n (%)
Encouraging factors					
EBF is cheap and economical	140 (87.5)	12 (7.5)	6 (3.8)	2 (1.3)	0
EBF will enable the child to develop well and keep healthy	136 (85.0)	18 (11.3)	6 (3.8)	0	0
Costs of baby processed foods are high and unaffordable	63 (39.4)	55 (34.4)	20 (12.5)	15 (9.4)	7 (4.4)
EBF can reduce the risk of pre-menopausal breast cancer by 50%	93 (58.1)	36 (22.5)	22 (13.8)	6 (3.8)	3 (1.9)
Discouraging factors					
It is faster to feed the baby with artificial milk by spoon and cup than breastfeeding the child	9 (5.6)	12 (7.5)	23 (14.4)	51 (31.9)	65 (40.6)
EBF is too time consuming and there is therefore wastage of precious time	7 (4.4)	6 (3.8)	23 (14.4)	54 (33.8)	70 (43.8)
Only mothers that have facilities to keep their babies with them can do EBF	21 (13.1)	30 (18.8)	21 (13.1)	48 (30.0)	40 (25.0)
Career woman cannot exclusively breastfeed their infants	15 (9.4)	31 (19.4)	43 (26.9)	35 (21.9)	36 (22.5)
My schedule at work is too busy to give room to EBF	23 (14.4)	44 (27.5)	28 (17.5)	50 (31.3)	15 (9.4)
EBF will make the woman's breast to sag	5 (3.1)	20 (12.5)	31 (19.4)	46 (28.8)	8 (36.3)
EBF is no longer necessary in these present days	2 (1.3)	2 (1.3)	19 (11.9)	50 (31.3)	87 (54.4)
EBF will increase the chances of my breast to be viewed by people of the opposite sex	2 (1.3)	5 (3.1)	27 (16.9)	60 (37.5)	66 (41.3)
The health of working mothers will be negatively affected if they practice EBF	2 (1.3)	3 (1.9)	30 (18.8)	50 (31.3)	75 (46.9)
EBF deprives older children from getting the needed attention	0	5 (3.1)	25 (15.6)	62 (38.8)	68 (42.5)
EBF causes serious delay to other domestic work and activities	0	16 (10.0)	25 (15.6)	66 (41.3)	53 (33.1)

EBF: Exclusive breastfeeding, SD: Strongly Disagree, SA: Strongly Agree, U: Undecided, A: Agreed, D: Disagreed

Table VI: Analysis showing whether or not education level, awareness of exclusive breastfeeding, profession and number of children have significant relationship on the practice of exclusive breastfeeding

Evaluated parameters	EBF practice		Total (n=160)	χ^2	df	P
	Practiced (n=85), n (%)	Not practiced (n=75), n (%)				
Level of education						
Primary	0	2 (100.0)	2	3.034	2	0.219
Secondary	6 (42.9)	8 (57.1)	14			
Tertiary	79 (54.9)	65 (45.1)	144			
Awareness of EBF						
Yes	85 (55.2)	69 (44.8)	154	7.065	1	0.008
No	0	6 (100.0)	6			
Profession						
Doctors	10 (55.6)	8 (44.4)	18	6.876	6	0.332
Nurses	52 (59.1)	36 (40.9)	88			
Pharmacists	4 (57.1)	3 (42.9)	7			
Administrative staff	1 (25.0)	3 (75.0)	4			
Ward assistant	15 (41.7)	21 (58.3)	36			
Health record officer	3 (60.0)	2 (40.0)	5			
Security	0	2 (100.0)	2			
Number of children						
0-1	17 (42.5)	23 (67.5)	40	8.977	2	0.011
2-3	60 (62.5)	36 (37.5)	96			
4-5	8 (33.3)	16 (66.7)	24			

EBF: Exclusive breastfeeding

their sources of information on exclusive breastfeeding were from health workers by 69.4% of the respondents. This supported Aidam,¹⁶ who asserted that health workers are responsible for health education, including infant feeding practices and counselling in pre- and post-natal period in health facilities, hence imparting knowledge to mothers on infant feeding practices.

Notions that EBF will enable the child to develop well and keep healthy was agreed to by 96.3% of the participants and

that the cost of baby processed foods are high and unaffordable was affirmed by 73.8%. According to Leshabari *et al.*,¹⁷ who pointed that, a lack of funds to purchase infant formula feeds, poor hygienic conditions and risk of social repercussions were more commonly reported as reasons for mothers to opt for breastfeeding rather than exclusive replacement feeding. The study further reports that, in situations where mother's household income was high, they were more likely to practice exclusive replacement feeding, which is the safest way to

prevent any form of infection. 81.6% of our participants concurred that EBF could reduce the risk of premenopausal breast cancer by 50%. Chowdhury *et al.*¹⁸ had previously found that maternal outcomes include reduced risk of premenopausal breast and ovarian cancer, Type 2 diabetes, osteoporosis and postpartum depression.

The present study highlights factors that discourage the practice as breast sagging, wasting of time of mother, opposite sex viewing the breast of the mother, health of working mother negatively affected opined by an average of 11.2% of the respondents. Previous studies had reported that some mothers had to go out to look for job or do household chores such as collecting water to cope with family demand. This has therefore led to nonadherence to exclusive breastfeeding.^{17,19} Our studies found that constraints such as work conditions, lack of a place to keep the child during work, older children not getting required attention and serious delay to other domestic work and activities were alluded to by an average of 21.9% of the participants. Experts advocate the introduction of crèches by businesses to enable working mothers to stay close to their babies and breastfeed their infants on demand. It will enhance productivity because the heart of these mothers will be settled at work, and they are likely to perform better.¹⁹

Statistical analysis was carried out to validate the research questions in this study. Inferential tests performed had shown the level of significance between each of the four variables, namely education level, awareness level, profession and number of children and the practice of EBF. Our findings showed that there is no significant relationship between the level of education of working mothers and their practice of exclusive breastfeeding ($P = 0.219$). This implies that the level of education did not influence working mothers in the study to practice this act. Previous studies have, however, showed that mothers with high education levels have better knowledge on the correct timing of complementary feeding and those with little education tend to introduce complementary feeding at inappropriate times.^{20,21} We also found that there is no significant relationship between the working mothers' professions and the practice of EBF ($P = 0.332$). In contrast to the EBF rate of 53.1% obtained in this study, a previous study in a hospital setting obtained an EBF rate of 69%. This could be attributed to the involvement of only full-time housewives in his study, who had enough time to carry out breastfeeding for longer. Working mothers' level of awareness of EBF was found to have a significant relationship with their practice of exclusive breastfeeding ($P = 0.008$). In East Africa, EBF promotion and support programme had assisted awareness and increased the practice of EBF from 30% to 63%. Furthermore, a significant relationship existed between the number of children of working mothers and their practice of EBF ($P = 0.011$). Some mothers who stopped breastfeeding before 6 months did so because of the onset of a new pregnancy.²² In the study area, the widely held cultural belief is that the new pregnancy produces milk that is contaminated and thus harmful to the child hence the need to put the child off the breast. This

practice has far-reaching implications for growing children as they are exposed to malnutrition and denied all the benefits of breastfeeding. The most common reason for the stoppage of breastfeeding in this study was that the child was old enough and could eat solid foods. It is hoped that investigating the factors influencing EBF practice among mothers working at the hospital will assist nurses and midwives towards the type of health education to give antenatal and postnatal mothers.

Limitation of the study

Researchers planned and intended that the study would involve participants greater than the calculated (minimum) sample size. However, the poor responsiveness to the questionnaires constituted a major constraint that limited participation in the study to just the sample size, thus, generalisation of the present findings is limited. The work, however, presented some findings which are noteworthy and should be given attention in a bid to promote EBF practices in the country.

CONCLUSIONS

Our findings showed that the effective practice of EBF was mainly hindered by the structure of work schedules among the respondents. The study recommends the creation of facilities such as crèche by government and private organisations at various workplaces to make EBF easily practicable. The findings of this study are expected to inform practice and policy decisions in the development of appropriate interventions to promote EBF hence the improvement of child health at the study centre and in Nigeria at large. Furthermore, the result of this study will constitute a resource material for future related studies. An in-depth qualitative study is suggested to explore the experience and barrier to compliance with practice of EBF in Nigerian hospitals.

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Conflicts of interest

There are no conflicts of interest.

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