A Comparative Study on the Predictors of the Practice of Exclusive Breastfeeding in Two Nigerian Cities.

[1]E.N. Umahi, [2]S. Atinge,[3]S.O. Adejohand,[4]T.A. Alabi

[1]Department of Public Health, Faculty of health Sciences, Taraba State University Jalingo, Nigeria
[2]Taraba State Health Services Management Board, Jalingo, Nigeria
[3]Department of Social Work, Faculty of Social Science, University of Lagos, Nigeria
[4]Department of Sociology, Faculty of Social Science, University of Lagos, Nigeria

Abstract

Although women are encouraged to exclusively breastfeed their babies, there still exists the challenge of suboptimal practice among many. Generally, breastfeeding practices vary within and between different regions.This study investigated variations in the factors that predicted breastfeeding practices among nursing mothers with babies aged 7-12 months in Lagos and Taraba States of Nigeria. Cross-sectional survey design were adopted. An interview-administered questionnaire was used to collect data from 500 respondents' selected using random sampling. The Statistical Package for the Social Sciences version 20 was used for data analysis. Binary logistic regression models were utilized to determine predictors of breastfeeding practices.The study found that employment and place of delivery were predictors of breastfeeding within the first hour of birth in Lagos, while in Taraba, the predictors were nature of delivery and education. Place of delivery and infant's sex were predictors of exclusive breastfeeding in Lagos while nature of delivery and education were predictors of same in Taraba State. Some significant variations exist in breastfeeding within the first hour of birth (X^2 = 90.642; df = 1), exclusive breastfeeding (X^2=58.086; df = 1) and intended duration of breastfeeding (X^2=24.262; df = 1) between the two states. Hence, strategies to promote breastfeeding practices cannot be generalized across states in the country.

Keywords: Predictors, Breastfeeding, Lagos, Taraba

Introduction

Almost all women in Nigeria breastfeed their babies.[1]Some exclusively breastfeed while others practice mixed feeding. The duration of breastfeeding for some lasts for few weeks to months and up to 24 months or longer for others.

Correspondence to:

Umahi E.N
Department of Public Health,
Faculty of health Sciences,
Taraba State University Jalingo, Nigeria
Email: essygatu@gmail.com;
Phone: +234 7065355578

Breastfeeding has a host of benefits both for the infant and for the mother.[2]For the infant, breastfeeding helps to increase the relationship between infant and mother, improve growth and development, reduce childhood infections and danger for childhood obesity in the future.[3] For the mother; it prevents postpartum hemorrhage, decreases the menace of cancers of the breast and ovary, and allows for better pregnancy spacing among women.[4]

Worldwide, more than one-third of infants between 0 to 6 months are breastfed exclusively.[5]The World Health Organization (WHO) aims that by 2025, the rate of exclusive breastfeeding (EBF), defined as feeding of babies with only breastmilk for the first six months of birth, would have increased to at least 50%.[6]Previous studies have linked breastfeeding to better diet, health and greater welfare for mothers and children, which constitute the fundamental aims of the 2030 Sustainable Development Agenda.[7]The lives of over 820,000 children under the age of five can be saved by increasing the number of infants who are breastfed.[3] EBF rates vary widely in Sub-Saharan Africa, and ranges from 87.3% in Rwanda to 17% in Nigeria.[8]

The Baby-Friendly Hospital Initiative (BFHI), which was introduced in Nigeria in 1992, led to several improvements in initiation of breastfeeding within the first hour of delivery.[9] However, the practice and duration of exclusive breastfeeding fall short of the projected levels necessary to attain considerable declines in childhood death. Breastfeeding practices were very key to the achievement of the Millennium Development Goal 4 (MDG-4)[10], nonetheless existing evidence showed that the aim was not achieved in Nigeria.[11] Research has shown that prompt commencement of breastfeeding is vital for the mother as well as the child.[12] In Nigeria, the National Demographic Health Survey (NDHS) reported that breastfeeding within the first hour of birth took place in only one third of infants.[13] In South-West Nigeria, it was reported that more than half (56.5%) of women-initiated breastfeeding within the first one hour of birth.[14] Evidence has shown that more than a quintile (about 22%) of neonatal mortality can be prevented once breastfeeding within the first hour is initiated.[15]

According to evidence, several factors affect the decision of a mother to practice EBF, including

maternal, child-related and socio-demographic factors.[16,17,18]Breastfeeding awareness, including the awareness of benefits of EBF and the risks of not doing same, plays a significant role in nursing mothers' capability to make an informed decision to exclusively breastfeed her infant. In Sub-Saharan Africa, a number of studies have examined factors that influence EBF practice. Nevertheless, findings differ within and across countries. For instance, a study in Northeastern Tanzania concluded that EBF can be predicted by mother's age, and good knowledge of EBF.[19] Another study in Northwest Ethiopia found income, employment, postnatal and antenatal clinics attendance and health facility delivery as predictors of EBF.[17] Also, in Ghana, it was found that factors associated with EBF among nursing mothers were education, infant's age and EBF knowledge.[20] Similarly, in Nigeria, nature of delivery, socioeconomic class, maternal education and infant's first feeding have been found to be predictors of EBF in South-Eastern part of the country.[21]The strongest predictor of EBF in the north-central region of Nigeria was prenatal intention to practice EBF.[22]

Although several studies have been done to determine factors that predict breastfeeding practices in some Nigerian states, few or no study has compared variation in factors that predict EBF practices in two different regions that differ widely in geographical, socio-cultural and economic indices in the country. Consequently, uniform intervention policies such as the Baby-Friendly Hospital Initiative (BFHI) are often introduced to all the states in the country regardless of their diversity, cultural peculiarities and differences. This study aims to investigate predictors of breastfeeding practices among nursing mothers in Lagos and Taraba States of Nigeria. The choice of the two states was informed by the cosmopolitan-success and conservative-failure hypothesis which suggests that healthy behaviors are promoted and embraced more in states/areas considered metropolitan and polished than in areas that are considered conservative.[23]Taraba State from Northern Nigeria can be regarded as conservative area in comparison to the cosmopolitan Lagos in southwest Nigeria. The study hopes to test this hypothesis with a view to understanding whether or not uniform intervention policies are apposite to improve breastfeeding practices across states in the country.

Materials and Methods

Study setting: The study was conducted in Somolu Local Government Area of Lagos State in the South-Western part of the country, and JalingoLocal Government Area of Taraba State in the North-Eastern part of the country.Lagos is the most populous and urbanized city in Nigeria. According to a 2016 Lagos State Abstract of Statistics, Somolu Local Government has the 4th largest population density in Lagos. Jalingo on the other hand is the Taraba State capital. Its population is heterogeneous in nature with numerous indigenous ethnic groups as well as those of other parts of Nigeria.

Study design: descriptive cross sectional study of predictors of the practice of EBF among nursing mothers in Lagos and Taraba States.

Study population and sample size: study population consisted of nursing mothers with infants aged 7-12 months. Based on the WHO recommendation of 6 months of exclusive breastfeeding, these mothers should ideally have practiced and completed exclusive breastfeeding. The 2006 population census in Nigeria puts the total population in both states at 11.4 million. Using a margin of error of 5% and confidence level of 95%, the Raosoft online sample size calculator[24]recommended a sample size of 385. The sample size was increased to 600 in order to increase the power of statistical tests and give room for low response rate.

Sampling and research instruments: an aggregate of 600 respondents were selected usingrandom sampling, 300 from each state. A total of 500questionnaires, 246 from Lagos and 354 from Taraba states, were qualified out of 600 returned from the field. The remaining of the questionnaire (26) were excluded due to no response to main questions.

A semi-structured, interview-administered questionnaire consisting of 8 sections and 43 questionswas used to obtain information from respondents in September 2018.

Measurements: the dependent variables were three. First, initiation of breastfeeding was operationalized by whether or not respondents breastfed their infants within the first hour after birth. Respondents were asked “Within the first hour after birth, did you breastfeed your child?” with options “Yes” and “No”. Next, EBF was operationalized by whether or not the respondents practiced EBF when their infants were between 0 to 6 months old. Respondents were asked “What did you feed the infant with when he/she was between ages 0 and 6 months?” with options “breast milk only”, “pap only”, “complementary breastfeeding”, “solid foods” and “infant formula only”. Those who selected only the first option were regarded to have practised exclusive breastfeeding. Lastly, intended duration of breastfeeding was operationalized by whether or not the respondents intended to breastfeed their infants for “one year”, “one and half years”, “two years”, “more than two years”. To determine the factors that predicted breastfeeding practices in the two states, the researchers asked questions on age, employment status, awareness of benefits and risks of not breastfeeding, place and nature of delivery, and infant's sex.

Data management: After cleaning, data was entered intoStatistical Package for Social Sciences (SPSS)software version 20 (SPSS Inc., Chicago, Il, USA). Simple frequencies and percentages were used at the descriptive level. An association between categories was sought using Chi-square test. $P < 0.05$ was considered as statistically significant. Binary logistic regression was used to determine predictors of breastfeeding practices. The confidence level was set at 95%. Employment, place of delivery, nature of delivery and infant's sex had two outcomes. Awareness of risks and benefits of breastfeeding had three outcomes-awareness of both was tagged "fully aware"; awareness of either one was tagged "partially aware". There were six regression models presented -two for each research question. Separate models were ran for each state to enable ease of comparison. The first option was used as reference category for all the predictor variables.

Ethical clearance: to carry out the study was sought from the Department of Public Health, Taraba State University and the Department of Sociology, University of Lagos. Verbal informed consent of all respondents was obtained from each participant. They were assured of confidentiality of the information and their right of voluntary withdrawal from the study at any point.

Results

Majority of the mothers in Lagos (72.8%) were from the Yoruba ethnic group while in Jalingo, Taraba

Table 1: Socio-Demographic characteristics of respondents

Variables	Lagos Freq. (%) (N=246)	Taraba Freq. (%) (N=253)	Chi square value	P value
Mother's Age				
</=20	18 (7.3)	5 (2.0)	51.68	</= 0.001
20-24	62 (25.2)	46 (18.1)		
25-29	96 (39.0)	69 (27.2)		
30-34	53 (21.5)	58 (22.8)		
35 and above	17 (6.9)	76 (29.9)		
Ethnicity				
Yoruba	179 (72.8)	15 (5.9)	323.37	</= 0.001
Igbo	44 (17.9)	15 (5.9)		
Hausa	18 (7.3)	69 (27.2)		
Others	5 (2.0)	155 (61.0)		
Education				
No formal education	21 (8.5)	44 (17.3)	34.12	</= 0.001
Primary education	57 (23.2)	37 (14.6)		
Secondary education	113 (45.9)	75 (29.5)		
Tertiary education	55 (22.4)	98 (38.6)		
Current Employment Status				
Employed	161 (65.4)	141 (55.5)	6.30	0.043
Unemployed	85 (34.6)	113 (44.5)		
Employment During Six Months Of Birth				
Employed	140 (56.9)	139 (54.7)	3.56	0.168
Unemployed	106 (43.1)	115 (45.3)		
Awareness of Benefits of BF				
Not aware	79 (32.1)	62 (24.4)	6.28	0.099
Aware	167 (67.9)	192 (75.6)		
Awareness of Risks Related to BF				
Not aware	133 (54.1)	77 (30.3)	33.29	? 0.001
Aware	113 (45 9)	177 (69.7)		
Place of Delivery				
Hospital	197 (80.1)	193 (76.0)	61.52	? 0.001
Trado-medical clinic	43 (17.5)	8 (3.1)		
Home	6 (2.4)	53 (20.9)		
Nature of Delivery				
Vaginal delivery	211 (85.8)	217 (85.4)	4.02	0.134
Caesarean section	35 (14.2)	37 (14.6)		
Infant Sex				
Male	119 (48.4)	131 (51.6)	0.70	0.705
Female	127 (51.6)	123 (48.4)		

Table 2: Variations in breastfeeding practices among mothers in Lagos and Taraba States

	Breastfed within the first hour after birth					
				X^2value	**df**	**P**
State	**No (%)**	**Yes (%)**	**Total (%)**			**value**
Lagos	185 (75.2)	61 (24.8)	246 (100.0)			
Taraba	86 (33.9)	168 (66.1)	254 (100.0)	90.642	1	<0.001
Total	271 (54.2)	229 (45.8)	500 (100.0)			
	Exclusive Breastfeeding					
	No (%)	**Yes (%)**	**Total (%)**	58.086	1	<0.001
Lagos	170 (69.1)	76 (30.9)	246 (100.0)			
Taraba	89 (35.0)	165 (65.0)	254 (100.0)			
Total	259 (51.8)	241 (48.2)	500 (100.0)			
	Intended duration of breastfeeding					
	No (%)	**Yes (%)**	**Total (%)**	24.262	1	<0.001
Lagos	231 (95.1)	12 (4.9)	246 (100.0)			
Taraba	202 (80.5)	49 (19.5)	254 (100.0)			
Total	433 (87.7)	61 (12.3)	500 (100.0)			

df denotes 'degree of freedom'

Table 3: Binary Logistic regression model showing variations in the predictors of early initiation of breastfeeding

Variables	**Model 1 (Lagos) n = 246**		**Model 2 (Taraba) n = 254**	
	B	**Odds ratio**	**B**	**Odds ratio**
Age	-0.060	0.942	0.045	1.046
Employment between 0-6 month				
Unemployed (Ref. category)	--	--	--	--
Employed	1.449	4.258***	0.305	1.357
Awareness of Benefits and Risks related to BF				
Not aware (Reference category)	--	--	--	--
Partially aware	-0.764	0.466	-1.122	0.326
Fully aware	0.665	1.945	-0.593	0.552
Place of delivery				
Hospital (Reference category)	--	--	--	--
Others	-1.440	0.237*	-0.720	0.487
Nature of delivery				
Vaginal delivery (Ref. category)	--	--	--	--
Caesarean section	-1.166	0.311	-1.543	0.214***
Education				
No formal education (Ref. cat)	--	--	--	--
Primary education	-0.455	0.635	0.666	1.946
Secondary education	0.491	1.634	1.132	3.101*
Tertiary education	0.318	1.374	1.246	3.477*
Infant's sex				
Male (Ref. category)	--	--	--	--
Female	-0.372	0.690	-0.062	0.940
Constant	-0.440	0.644	-0.688	0.502
Omnibus Test	50.723 (0.000)		30.844 (0.001)	
Hosmer and Lemeshow Test	9.724 (0.285)		6.197 (0.625)	

Note. *- p =0.05; **- p = 0.01; *** - p =0.001.

State, 27.2% of the mothers were Hausa while 61.0% were from other minority ethnic groups found in the State like the Jukun, Mumuye, Tiv, Chamba, et cetera. There was a statistically significant difference in ethnicity between the two states (p<0.001).More than half of respondents from both states,(55.7%) in Lagos and (54.7%) in Taraba, were employed during the first 6 months of delivery. Three-quarter (75.6%) of women from Taraba were aware of benefits of BF while two-third (67.9%) had the awareness of same. The differences in employment status and awareness of BF between the two states were not statistically significant.

Table 4: Binary logistic regression model showing variations in the predictors ofEBF

Variables	Model 3 (Lagos) n = 246		Model 4 (Taraba) n = 254	
	B	Odds ratio	B	Odds ratio
Age	-0.018	0.983	-0.504	0.947
Employment between 0-6 month				
Unemployed (Ref. category)	--	--	--	--
Employed	0.361	1.435	-0.661	0.516
Awareness of Benefits and Risks related to BF				
Not aware (Reference category)	--	--	--	--
Partially aware	0.491	1.634	-0.827	0.437
Fully aware	2.725	15.261***	0.943	2.569*
Place of delivery				
Hospital (Reference category)	--	--	--	--
Others	-1.410	0.244*	-0.771	0.462
Nature of delivery				
Vaginal delivery (Ref. category)	--	--	--	--
Caesarean section	-0.485	0.616	-1.250	0.287*
Education				
No formal education (Ref. cat)	--	--	--	--
Primary education	0.947	2.578	-0.695	0.499
Secondary education	1.035	2.814	1.113	3.043*
Tertiary education	0.569	1.767	1.918	6.808***
Infant's sex				
Male (Ref. category)	--	--	--	-
Female	-0.853	0.426*	0.057	1.058
Constant	-2.326	0.098	1.632	5.114
Omnibus Test	79.907 (0.000)		65.441 (0.000)	
Hosmer and Lemeshow Test	9.697 (0.287)		6.400 (0.602)	

Note. *- p =0.05; **- p = 0.01; *** - p =0.001

Majority of respondents from both states (80.1%) and (76.0%) in Lagos and Taraba delivered in the hospital, but a higher proportion in Lagos (17.5%) than Taraba (3.1%) utilized trado-medical centres whereas more home deliveries occurred in Taraba (20.9%) than Lagos (2.4%). The difference in place of delivery was significant (p<0.001) [Table 1].

Less than one-quarter (24.8%) of respondents in Lagos State breastfed their baby within the first hour of birth compared with more than two-thirds (67.5%) in Taraba (p<0.001). In the same vein, less than one-third (30.9%) practised EBF in Lagos State compared with near two-third (65%) in Taraba (p<0.001). In Lagos, less than one-tenth (4.9%) of the respondents intended to breastfeed their baby for two years compared with approximately a quintile (19.5%) in Taraba State (p<0.001). All differences between the two states were statistically significant(Table 2).

In model 1(Lagos), two factors (employment between 1-6 months and place of delivery), were significant predictors of initiation of breastfeeding within 60 minutes of birth: Mothers who were employed between 1 – 6 months of the birth of their infants were 4.3 times most likely to start breastfeeding within the first 60 minutes of birth than mothers with no employment;mothers who gave birth in other places like home or trado-medical centre were less likely to start breastfeeding within the first 60 minutes of birth (OR = 0.237) than those who gave birth in the hospital. Whereas in model 2 (Taraba), two factors (nature of delivery and education) clearly stood out: Mothers who had cesarean section were less likely to initiate breastfeeding within the first 60 minutes of birth (OR = 0.311);mothers who had secondary and tertiary education were 3.1 and 3.5 times, respectively likely to start early BF than mothers with no formal education [Table 3].

Mothers who were fully aware of the benefits of breastfeeding and the risks involved with not breastfeeding were 15.3 times the most likely and 2.6 times more likely to practice exclusive breastfeeding in Lagos and Taraba, respectively than those who were not. Among other variables in Lagos, place of delivery and infant gender remained significant

Table 5: Binary logistic regression model showing variations in the predictors of intended duration of breastfeeding

Variables	Model 5 (Lagos) n = 246		Model 6 (Taraba) n = 254	
	B	**Odds ratio**	**B**	**Odds ratio**
Age	0.054	1.055	0.063	1.065*
Employment between 0-6 months				
Unemployed (Ref. category)	--	--	--	--
Employed	1.766	5.845	-0.444	0.642
Awareness of Benefits and Risks related to BF				
Not aware (Reference category)	--	--	--	--
Partially aware	0.932	2.541	0.093	1.097
Fully aware	1.775	5.902	0.417	1.517
Place of delivery				
Hospital (Reference category)	--	--	--	--
Others	-0.841	0.431	0.200	1.222
Nature of delivery				
Vaginal delivery (Ref. category)	--	--	--	--
Caesarean section	0.291	1.338	0.341	1.407
Education				
No formal education (Ref. cat)	--	--	--	--
Primary education	-1.323	0.266	1.763	5.828
Secondary education	-1.803	0.165	2.605	13.536*
Tertiary education	-1.918	0.147	2.253	9.520*
Infant's sex				
Male (Ref. category)	--	--	--	--
Female	0.358	1.431	0.041	1.042
Constant	-5.584	0.004*	-5.617	0.004***
Omnibus Test	13.517 (0.196)		17.401 (0.066)	
Hosmer and Lemeshow Test	3.210 (0.920)		22.051 (0.005)	

Note. Dependent variable: 0= less than two years; 1= two years
*- p =0.05; **- p = 0.01; *** - p =0.001.

predictors:Mothers who delivered at other places other than the hospital were less likely to practice EBF(OR = 0.244, those who had male infants are 1.4 times more likely to practice EBF than those who had female infants. Other significant predictors of EBF in Taraba include nature of delivery and education: Mothers who had cesarean section were less likely to practice EBF (OR = 0.287) than those who had caesarian sectionwhile those who had secondary and tertiary education were 3.0 and 6.8 times, respectively most likely to practice EBF than those with no formal education[Table 4].

When all the factors were set together in Model 6 (Taraba), age and maternal education were the factors that significantly predicted intended duration of breastfeeding. Older age of mothers had effect on the intended duration of breastfeeding. The effect is likely to be stronger after each addition of two years to the previous age. Secondary and tertiary levels of education were 13.5 and 9.5 times likely to have positive effect on mothers intended duration of breastfeeding than no formal education. In model 5 (Lagos), all the factors had no significant association with intended duration of breastfeeding [Table 5].

Discussion

This study found that 24.8% of respondents in Lagos State breastfed their baby within the first hour of birth compared with 67.5% in Taraba; 30.9% practised EBF in Lagos State compared with 65% in Taraba; 4.9% of the respondents intended to breastfeed their baby for two years in Lagos compared with 19.5% in Taraba State. The three findings clearly show that the cosmopolitan-success and conservative-failure hypothesis is not valid as much as breastfeeding practices are concerned. Taraba State, which is considered a non-metropolitan/conservative state, has improved breastfeeding practices than Lagos State- a well-known metropolitan state in the country.

Early initiation of breastfeeding is important for the mother as well as the child.[12]Our study showed thatmothers who were employed were 4 times more likely to start breastfeeding early than those not employed in Lagos. A possible explanation for this may be that these women were more exposed to quality antenatal and postnatal care services. This study also found that place of birth is significantly associated with breastfeeding within 60 minutes of birth in Lagos as

mothers who gave birth in places other than the hospital were less likely to start breastfeeding within the first hour of delivery. This finding is in agreement with the studies done in Ethiopia, Bangledesh, Uganda and Lagos.[15,25-27]They reported that delivery outside formal health facilities has implication for delayed initiation of breastfeeding. Specifically, in Ethiopia, it was found that health institution delivery was 34 times more likely to start breastfeeding than in context of home delivery.[15] NDHS's report revealed that starting breastfeeding within 60 minutes of birth differs according to place of delivery - 40% among children born in a health facility and 29% among those delivered at home.[13]Generally, mothers who deliver in hospitals are better advised and supported in the care of the new born, particularly with regards to good practices of breastfeeding. In addition, home or trado-medical centre deliveries are commonly associated with pre-lacteal feeding for cultural reasons. This is buttressed by a study that was carried out in Ethiopia, which discovered that mothers who give pre-lacteal feeds to infants within 72 hours of life were 7 times less probable to start breastfeeding within 60 minutes of birth.[12]This could inform why this factor is not significant in Taraba State.

Furthermore, nature of delivery was significantly associated with early initiation of breastfeeding in Taraba but not in Lagos State. This study found that a mother who gave birth through cesarean section is less likely to start breastfeeding within the first 60 minutes of birth than the one who gave birth through vaginal delivery. This finding is consistent with a study in Ethiopia that found that mothers who delivered through the vagina were likely to start breastfeeding early than those who gave birth through cesarean section.[15]His study attributed the delay to the pain associated with caesarean section and effects of anaesthesia, and exhaustion that make it herculean to start breastfeeding early. Recovery time is also dependent on the type of anesthesia used. If an epidural anesthesia is used for the surgery, the woman will remain awake throughout the surgery period and recovery time is faster. The case is not the same when general anesthesia is used. This could explain why this factor is not a predictor of early initiation of breastfeeding in Lagos. It is possible that most of the caesarian sections done in Lagos use epidural anesthesia. Similar to this finding in Lagos, it was reported "no significant association between delivery method and breastfeeding initiation"[28]

Our study found that education is a strong predictor of breastfeeding within the first 60 minutes of birth in Taraba: mothers who had secondary and tertiary educations were 3.1 and 3.5 times more likely to start breastfeeding early than mothers with no formal education. This finding is consistent with NDHS's report that the likelihood of infants of mothers with higher education to be breastfed within the first 60 minutes of birth is higher when compared to infants of mothers with no higher education.[13]This could be because higher education levels are connected with knowledge and practices of positive health behavior.[29]In addition, educated mothers seem to have better access to contemporary health information and to make good use of them as well. However, in Lagos, higher level education is not a predictor of early initiation of breastfeeding. The study argued that mothers who have less education but who are well exposed could equally be aware of the benefits of breastfeeding. A study in Sudan did not find a link between education and early initiation of breastfeeding.[30]

In Taraba, education was a significant predictor of EBF: mothers who had secondary and tertiary education were 3.0 and 6.8 times, respectively most likely to engage in EBF than their counterparts who have no formal education. The possible reason could be the positive effect of recent investments in education in Taraba. The state has placed emphasis on women's education to enable them "contribute to life, develop and broaden their young adolescents and adults to be able to cope with domestic and family life".[31]Hence, better education empowers women and leads them to a positive health seeking behavior, access to contemporary health information as well as practice of health enhancing behaviors as in the case of EBF. This is congruent to findings from a similar study done in Bayelsa State, which also revealed that women's education and that of their partner was significantly related to increasing prevalence of EBF.[32] This finding is also similar with the findings of the study conducted in Lagos which revealed that the higher the level of education, the more likely it is that a woman will practice EBF.[27] In contrast,a study in Ghana found that mothers with tertiary education were less likely to do EBF.[33] They attributed this findingto the fact that mothers with higher education have the propensity to be absorbed in formal employment in Ghana, and those engaged in official employment are less likely to exclusively breastfeed.[34] Better-educated women mostly breastfeed their babies for shorter periods.[35]This may explain why this factor is not significant in Lagos.
Mothers who had male infants were 1.4 times more likely to practice exclusive breastfeeding than those who had female infants in Lagos. This could be influenced by the cultural pressure on the mothers to take better care of the male infants who are often times more valued than females. Son's preference could be a deciding factor in women's health as scholars have established it as a factor that can influence fertility and reproductive behavior.[36] The present finding of male infants being exclusively breastfed less than female infants in Lagos was similar to that found by a study in Brunei and Suddan.[37,30] This finding is incongruent with study conducted in Sao Paula, Brazil that found

that the prevalence of EBF to female infants under six months to be 34% higher than the male infants.[38] Some mothers believe in cultural factors such as that female infants suck less than their male counterparts suck and therefore are more likely to exclusively breastfeed them for six months. As is in the case of Taraba, other studies elsewhere have also not observed any significant difference in exclusively breastfeeding both male and female infants.[39,40]

This study also reveals that intended duration of breastfeeding did not differ with respect to employment, awareness of benefits of breastfeeding and risks, nature of delivery and place of delivery in the two States. This may suggest that mothers who are employed and aware of benefits of EBF, irrespective of place and nature of delivery may not necessarily practice breastfeeding as recommended. But longer duration of breastfeeding practices was better among nursing mothers with increasing age and mothers with at least secondary education in Taraba. In Taraba, the age of the mothers predicted breastfeeding intention. Older mothers were found to have twice-increased likelihood to intend to breastfeed longer compared to those who are younger. This could be due to the fact that majority of the mothers in this study were found to be older in age, hence have acquired more experience and have good understanding of the relevance of breastfeeding.

Conclusion

Findings revealed considerable spatial variations in breastfeeding practices. Results show that age, education of mothers, place of delivery, nature of delivery, awareness of benefits of exclusive breastfeeding and risks, and infant's gender vary in predicting breastfeeding practices in the two States. Education was significant across the three dependent variables (breastfeeding within the first 60 minutes of birth, EBF and intended duration of breastfeeding) in Taraba. A key factor in Lagos State is place of delivery, which is significant in two of the three dependent variables (breastfeeding within the first 60 minutes of birth and EBF). It therefore means that strategies to promote breastfeeding practices cannot be generalized but must take into cognizance the predictors that are relevant to each population based on what is significant in the area. Furthermore, the germaneness of breastfeeding needs to be taught and demonstrated to women during antenatal visits as this can inspire and enhance the practice after delivery.

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Ethics Declarations

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Conflict of interest:

The authors have no conflicts of interest to declare that are relevant to the content of this article.

References

1. Obinna C. Nigerian mothers denying babies' exclusive breastfeeding. Vanguard Nigeria Newspaper. 2017, August 8. Retrieved from https://www.vanguardngr.com/2017/08/nigerian-mothers-denying-babies-exclusive-breastfeeding/

2. Vijayalakshmi P, Susheela T and Mythili D. Knowledge, attitudes, and breastfeeding practices of postnatal mothers: A cross sectional survey. Int J Health Sci (Qassim). 2015; 9(4):364–374.

3. Victora CG, Bahl R, Barros AJ, FrançaGV, Horton S, Krasevec J, Murch S, Sankar MJ, Walker N, Rollins NC and Group TL. Breastfeeding in the 21st Century: Epidemiology, mechanisms, and lifelong effect. The Lancet Breastfeeding, 2016; 387(10017):475–490. https://doi.org/10.1016/S0140-6736(15)01024-7.

4. Chowdhary, R., Sinha, B., Sankar, M. J., Taneja, S., and Bhandari, N. (2015). Breastfeedin g and maternal health: A systematic review and met-analysis. Actapediatric.104(467):96-113. doi: 10.1111/apa.13102. PMID: 26172878;

5. WHO. Exclusive Breastfeeding for optimal growth, development and health of infants. Geneva. The Netherlands, 2014. Retrieved from https://www.who.int/elena/titles/exclusive_breastfeeding/en/

6. WHO. Exclusive breastfeeding for optimal growth, development and health of infants. 2017. Retrieved fromhttp://www.who.int/elena/titles/exclusive_breastfeeding/en/

7. WHO. Breastfeeding and the Sustainable Development Goals Factsheet 2016. Retrieved from worldbreastfeedingweek.org/2016/pdf

8. UNICEF. Infant and young child feeding Global Database: 2010–2016. Geneva, Switzerland 2016. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding/(Assessed on 26 April, 2019).

9. Ogbo JE, Andrew P, Amit A, Anne M, Bin J, Elaine T, et al. Prevalence and determinants of cessation of exclusive breastfeeding in the early postnatal period in Sydney. Australia Int Breastfeed J. 2017; 12(1):16. https://doi.org/10.1186/s13006-017-0110-4.

10. United Nations.The Millennium Development Goals Report. United Nations, New York 2014.

11. OleribeOO and Taylor-Robinson SD. Before sustainable development goals (SDG): Why Nigeria failed to achieve the millennium development goals (MDGs). Pan Afri Med J. 2016; 24:156. https://doi.org/10.11604/pamj.2016.24.156.8447.

12. Hailemariam TW, Adeba E, andSufa A. Predictors of early breastfeeding initiation among mothers of children under 24 months of age in rural part of West Ethiopia. BMC Public Health,2015; 15(1):1076. doi: 10.1186/s12889-015-2420-z.
13. National Population Commission (NPC) {Nigeria}and ICF International. Nigeria
Demographic and Health survey, (NDHS) 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International. 2014.
14. Akinyinka MR, Olatona FA and OluwoleEO. Breastfeeding knowledge and practices among mothers of children under 2 years of age living in a Military Barrack in Southwest Nigeria. Int. J MCH AIDS. 2016; 5(1):1-13.
15. Belachwe A. Timely initiation of breastfeeding and associated factors among mothers of infants age 0–6months old in Bahir Dar City, Northwest, Ethiopia, 2017: A community based cross-sectional study. Int Breastfeed J. 2019; 14:5. https://doi.org/10.1186/s13006-018-0196-3.
16. Dun-DeryEJ and Laar AK. Exclusive breastfeeding among city-dwelling professional working mothers in Ghana. Int Breastfeed J.2016; 11:23. https://doi.org/10.1186/s13006-016-0083-8.
17. Asemahagn MA. Determinants of exclusive breastfeeding practices among mothers in Azezo district, Northwest Ethiopia. Int Breastfeed J. 2016; 11:22. https://doi.org/10.1186/s13006-016-0081-x.
18. Chale LE, Fenton TR and Kayange N. Predictors of knowledge and practice of exclusive breastfeeding among health workers in Mwanza city, northwest Tanzania. BMC Nurs.
2016; 15:72. https://doi.org/10.1186/s12912-016-0192-0.
19. Maonga AR, Mahande MJ, Damian, DJ and Msuya SE. Factors Affecting Exclusive breastfeeding among women in Muheza District Tanga Northeastern Tanzania: A mixed method community based study. Matern Child Health J. 2016, 20:77. https://doi.org/10.1007/s10995-015-1805-z.
20. Mogre V, Dery M and Gaa PK. Knowledge, attitudes and determinants of exclusive breastfeeding practice among Ghanaian rural lactating mothers. Int Breastfeed J. 2016; 11:12. https://doi.org/10.1186/s13006-016-0071-z.
21. Onah S, Osuorah DI, Ebenebe J, Ezechukwu C, Ekwochi U and Ndukwu I. Infant feeding practices and maternal socio-demographic factors that influence practice of exclusive breastfeeding among mothers in Nnewi South-East Nigeria: A cross-sectional and analytical study. Int Breastfeed J. 2014; 9:6. https://doi.org/10.1186/1746-4358-9-6.
22. BalogunOO, Kobayashi S, Anigo KM, Ota E, Asakura k and Sasaki S. Factors influencing exclusive breastfeeding in early infancy: A prospective study in North Central Nigeria. Matern Child Health J. 2016; 20(2):363-75.
23. Kunnuji MO, Robinson RS, ShawarYR and Shiffman J. Variable implementation of sexuality education in three Nigerian states. Studies in family planning. 2017; 48(4), 359-376.
24. Calculating the Sample Size Using Raosoft Software. https:www.researchgate.net/fig Assessed on 14/8/2021
25. Karim F, Billah SM, Chowdhury MAK, Zaka N, Manu A, El Arifeen S and Khan ANS. Initiation of breastfeeding within one hour of birth and its determinants among normal vaginal deliveries at primary and secondary health facilities in Bangladesh: A case-observation study. PLoSONE 2018; 13(8). https://doi.org/10.1371/journal.pone.0202508.
26. Kalisa R, Malande O, Nankunda J and TumwineJK. Magnitude and factors associated with delayed initiation of Breastfeeding among mothers who deliver in Mulago Hospital, Uganda. Afr Health Sci. 2015; 15:1130–5. https://doi.org/10.9790/1959-04220107.
27. Okafor IP, Olatona FA and Olufemi OA. Breastfeeding practices of mothers of young children in Lagos, Nigeria. Niger. J Paediatri. 2014; 41 (1):43 – 47. https://doi.org/10.4314/njp.v41i1,8.
28. Ahluwalia IB, Li R and Morrow B. Breastfeeding practices: Does method of delivery matter? Matern Child Health J. 2012; 2(23):1-7. https://doi.org/10.1007/s10995-012-1093-9.
29. Adam VY and Aigbokhaode AQ. Sociodemographic factors associated with the healthcare-seeking behavior of heads of households in a rural community in Southern Nigeria. Sahel Med J. 2018; 21:31-6. https://doi.org/10.4103/1118-8561.232781.
30. Hassan AA, Taha Z, Ahmed MAA, Ali AAA and Adam I. Assessment of initiation of breastfeeding practice in Kassala, Eastern Sudan: A community-based study. Int Breastfeed J. 2018; 13:34. https://doi.org/10.1186/s13006-018-0177-6.
31. Timisola R. (2017).Women Education in Taraba. Retrieved from
https://www.docsity.com/en/women-education-in-taraba/2097960/
32. Gayawan E, Adebayo SB and Chitekwe S. Exclusive breastfeeding practice in Nigeria: A Bayesian stepwise regression analysis. Matern Child Health J. 2014; 18:2148–2157. https://doi.org/10.1007/s10995-014-1463-6.
33. Asare BY, Preko JV, Baafi D and Bismark D. Breastfeeding practices and determinants of exclusive breastfeeding in a cross-sectional study at a child welfare clinic in TemaManhean, Ghana. Int Breastfeed J. 2018; 13:12. https://doi.org/10.1186/s13006-018-0156-y.
34. Safari JG, Kimambo SC and Lwelamira JE.

Feeding practices and nutritional status of infants in Morogoro Municipality, Tanzania. Tanzan J Health Res 2013; 15(3):178-85.
35. Kim J. Female education and its impact on fertility. IZA World of Labor 2016; 228 https://doi.org/10.15185/izawol.228.
36. Jiang Q, Li Y and Sanchez-BarricarteJJ. Fertility intention, son preference, and second childbirth: Survey findings from Shaanxi Province of China.Soc Indic Res. 2016; 125(3):935–953. https://doi.org/10.1007/s11205-015-0875-z.
37. Alhaji MM, Sharbawi R, Majeed A and Tuah N. Sociodemographic factors associated with uptake of exclusive breastfeeding practice in Brunei Darussalam. Brunei Int Med J.2017; 13 (1):1.
38. DalcastagnêSV, GiuglianiERJ, Nunes LN, Hauser L and Giugliani C. Practice of exclusive breastfeeding and its associated factors in a suburban area in Angola: a cross-sectional study. Sao Paulo Med J. 2018; 136(6):533-542. https://doi.org/10.1590/1516-3180.2018.0262161118.
39. Agunbiade OM and OgunleyeOV. Constraints to exclusive breastfeeding practice among breastfeeding mothers in Southwest Nigeria: Implications for calling up. Int Breastfeed J. 2012; 7:5. https://doi.org/10.1186/1746-4358-7-5.
40. Qureshi AM, Oche OM, Sadiq UA and Kabiru, S. Using community volunteers to promote exclusive breastfeeding in Sokoto State, Nigeria. Pan Afr Med J. 2011; 10: 8.