



## Assessment of Antenatal Breastfeeding Education, Early Initiation and Exclusive Breastfeeding practices of mothers attending a secondary healthcare facility in Southern Nigeria

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### Abstract

**Background:** Antenatal Breastfeeding education is teaching women about breastfeeding during pregnancy before the baby arrives. The content of breastfeeding education given to mothers during antenatal care visits can play critical role in the adoption of early breastfeeding initiation in the immediate postpartum period and subsequent increase in the rate of exclusive breastfeeding.

**Objective:** This study assessed the antenatal breastfeeding education, early initiation of breastfeeding and the practice of exclusive breastfeeding among mothers attending a secondary healthcare facility in Benin City, Nigeria.

**Materials and methods:** A cross-sectional study utilizing a mixed method approach comprising both quantitative and qualitative data collection methods. Mothers who had vaginal delivery were recruited consecutively from the postnatal ward to participate in the study. Ethical approval was obtained from the Ethics and Research Committee of Edo State Hospitals Management Board.

**Results:** A total of 360 mothers aged 18 to 42 years were interviewed. Majority, 334 (92.8%) received breastfeeding education while pregnant, predominantly during ANC, 309 (92.5%). The main contents of the breastfeeding education received were importance of exclusive breastfeeding, 265 (79.3%), and care of breast in preparation for breastfeeding 258 (77.2%). Only 170 (47.2%) prepared their breast for breastfeeding, 133 (36.9%) commenced breastfeeding within one hour of delivery, while 276 (76.7%) practiced exclusive breastfeeding at 6 weeks postpartum.

**Conclusion:** This study showed that the content of breastfeeding education given to mothers was inadequate. The preparation of the breast for breastfeeding was inadequate and early initiation of breastfeeding following delivery was low. But the rate of exclusive breastfeeding at 6 weeks postpartum was encouraging.

**Keywords:** Breastfeeding education, Breastfeeding initiation, Exclusive breastfeeding, Antenatal care, Secondary Health Facility, Nigeria.

### Introduction

Breastfeeding is a major public health issue considering its role in reducing child morbidity and mortality rates as well as improving maternal health. Breastfeeding newborns as promptly as possible after birth by making the infant receive colostrum which is rich in immunoglobulins and other protective nutrients, significantly enhances their likelihood of continued existence.<sup>1,2</sup> Globally, only about 44% of infants aged 0 - 6 months were exclusively breastfed over the period of 2015-2020.<sup>3</sup> The prevalence (35%) of exclusive breastfeeding (EBF) is low in sub-Saharan Africa.<sup>4</sup> According to the 2018 Nigeria Demographic and Health

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Survey (NDHS), Nigeria's EBF rate remains low with only 29% of babies 0 - 5 months being breastfed exclusively.<sup>5</sup> Thus, Nigeria has one of the highest infant and under-5 mortality rates in Africa; 67 per 1000 live births and 132 per 1000 live births respectively.<sup>5</sup>

Concerning breastfeeding, the recommended

practice by the World Health Organization (WHO) is early initiation of breastfeeding within one hour of birth, EBF for six months and breastfeeding for at least two years after the postnatal period.<sup>6</sup> Several short and long term beneficial effects in babies have been linked with appropriate breastfeeding practices.<sup>7</sup> Poor breastfeeding practices such as delayed initiation, non-EBF and early weaning can affect infant survival including exposing the child to diarrhea through contaminated water, pneumonia and other infections. Evidence from the National Household's Surveys in Nigeria indicates that the rate of early initiation of breastfeeding increased from 31.9% in 2003 to 38.4% in 2008 but decreased sharply to 33.2% in 2013, and rose again to 42% in 2018.<sup>5</sup>

Antenatal breastfeeding education is teaching women about breastfeeding during pregnancy before the baby arrives.<sup>8</sup> The knowledge and attitudes of mothers regarding breastfeeding play an important role in influencing breastfeeding choices and increases the mothers breastfeeding self-efficacy.<sup>9</sup> Majority of first time mothers are likely to be faced with challenges of initiating breastfeeding and may require postnatal lactation support to initiate breastfeeding especially if not well informed prior to delivery. It is therefore necessary to understand the content of the antenatal breastfeeding education available to expectant mothers in preparation for breastfeeding after delivery of their babies, the breastfeeding initiation experience and EBF practices of mothers who received antenatal breastfeeding education. Although there is a connection between antenatal breastfeeding education and breastfeeding practices, the nature and strength of the connection is unclear.<sup>10</sup> Previous studies had looked at the factors affecting breastfeeding, influence of mothers educational level on breastfeeding, evaluation on the knowledge, attitude and practice of EBF, breastfeeding education for increased breastfeeding duration amongst others, however, there is limited report on studies that examined the information available to expectant mothers on breastfeeding.

The content of the breastfeeding education given to mothers during antenatal visits play a critical role in the adoption of early breastfeeding initiation in the immediate postpartum period and subsequent increase in the rate of EBF, among mothers. Therefore, this study assessed the antenatal breastfeeding education, early initiation of

breastfeeding and the practice of EBF at 6 weeks postpartum among mothers attending a secondary health facility in Benin City, Nigeria.

## Methodology

### Study area and design

This facility-based cross-sectional study was carried out in Central Hospital Benin City, in southern Nigeria, from January to December 2021. The hospital is a secondary healthcare facility offering maternity care in Benin City. The Obstetrics and Gynecology department of the hospital renders antenatal, delivery and postnatal services. There are a total of 21 nurses: 13 at the antenatal and eight at the postnatal sections respectively. The hospital practices the traditional approach of antenatal care (ANC). The ANC is scheduled for five days in a week: one booking day and four days for clinic and health education. The services available include prenatal checkup and health talk on nutrition, breastfeeding, retroviral screening and counseling for prevention of mother to child transmission of HIV, personal hygiene, signs of labour, among others. These services are rendered routinely with no schedule attached to a particular day. There is an average of 150 ANC weekly registrations with an average of 150 women attending antenatal clinic daily. The delivery section has six delivery beds and nine beds for immediate post-delivery care before transfer to the postnatal ward. An average of 10 deliveries takes place daily in the hospital. The postnatal ward consists of two wards: the maternal surgical ward and the non-complications ward, and each ward has 22 beds. Postnatal checkup holds once in a week on Thursdays.

### Study population

This comprised of women who had vaginal delivery without complications in the hospital. Only women who attended at least eight sessions of ANC in the hospital and had singleton delivery were recruited for the study. Mothers of preterm babies, those whose babies were admitted in the Special Care Baby Unit (SCBU), and those who had complications following delivery such as severe anemia, postpartum hemorrhage, postpartum blues or psychosis were excluded from the study.

### Sample size determination and recruitment

The sample size was calculated using the sample size formula for single proportion.<sup>12</sup> The following

assumptions were made: a prevalence (p) of 0.29 (29%) being the proportion of exclusively breastfed babies in Nigeria as documented in the 2018 NDHS, 95% confidence interval and an error margin of 5%. Thus, the sample size calculated was 317, but this was rounded up to 349 in anticipation of a non-response rate of 10%. However, a total of 360 mothers who met the inclusion criteria were recruited consecutively from the postnatal ward of the hospital to participate in the study.

### Data collection

Data was collected using both quantitative and qualitative data collection methods.

**Quantitative data:** A researcher-administered questionnaire adapted from UNICEF breastfeeding documents - key message booklet on community infant and young child feeding, and other relevant literature 'how to breastfeed your baby' was the tool for data collection immediately after delivery (within 48 hours) and at 6 weeks postpartum. With the consent of the mothers, their telephone contacts were collected. They were followed up through telephone calls and text messages to remind them of their postnatal clinic. The questionnaire consists of seven sections: section one to six of the questionnaire was administered to mothers immediately after delivery and comprised of the following: socio-demographic characteristics of study participants, source of breastfeeding education, content of breastfeeding education, influence of antenatal breastfeeding education on breastfeeding practice, experience of mothers in initiation and practice of breastfeeding, and factors influencing breastfeeding education. Section seven of the questionnaire was administered to mothers at 6 weeks postpartum during their postnatal visit. It contained questions on post-delivery breastfeeding practices and experiences.

**Quantitative data:** A non-participant observation technique was employed to collect the qualitative data. One of the researchers acting as a mystery client attended eight sessions of ANC in the hospital in line with WHO standard of essential ANC (one contact in the first trimester, two contacts in the second trimester and five contacts in the third trimester), and completed the observational checklist during the ANC health education sessions. The checklist assessed the content of antenatal breastfeeding education given to mothers and the mode of delivery of the information during ANC, and this comprised of eight sections viz: initiation of breastfeeding,

breastfeeding assessment, exclusive breastfeeding, prevention and management of difficulties while breastfeeding, complementary feeding, breastfeeding and birth control, breastfeeding while HIV positive, and assessment of ANC breastfeeding education.

Both the quantitative and qualitative data collection tools were pretested in a Specialist Hospital in Benin City and necessary adjustments were made before the study. Two trained postgraduate students of the University of Benin assisted with data collection.

### Statistical analysis

Data analysis was done using IBM SPSS version 26 (Armonk, NY: IBM Corp). The outcome variables included: source of breastfeeding education, early initiation of breastfeeding, practice of EBF and factors influencing breastfeeding practice. The association between the socio-demographic characteristics and the outcome variables were tested using the Chi square test. A p-value less than 0.05 was considered as statistically significant.

### Ethical Consideration

Ethical approval for this study was obtained from the Ethics and Research Committee of Edo State Hospital Management Board, Benin City (protocol number: A732/T/1). Institutional permission was also obtained from the Medical Director of Central Hospital Benin. A written informed consent was obtained from the participants after the assurance of confidentiality.

### Results

A total of 360 mothers whose age ranged from 18 to 42 years, with a mean age of  $28.9 \pm 4.7$  years participated in the study. More than two-third, 261 (72.5%) were within the age group of 25-34 years and most, 339 (94.2%) were married. A higher proportion, 208 (57.8%) of them had secondary school level of education, while few, 4 (1.1%) had no formal education. Majority, 298 (82.8%) of the mothers are unskilled: this comprised those that are hairstylist, traders, tailors, housewives, caterers and petty traders. One in ten, 39 (10.9%) of the mothers had delivered four times or more and correspondingly had four or more children (table 1). Majority, 334 (92.8%) of mothers responded in the affirmative that they received breastfeeding education while pregnant. Table 2 shows the sources, provider, and content of breastfeeding education

Table 1: Socio-demographic characteristics of study participants

Variables	Frequency (n=360)	Percent
Age Group (years)		
18-24	52	14.4
25-34	261	72.5
35-42	47	13.1
Mean $\pm$ SD	28.9 $\pm$ 4.7	
Marital Status		
Single	18	5.0
Married	339	94.2
Separated	3	0.8
Religion		
Christianity	353	98.1
Islam	7	1.9
Educational status		
None	4	1.1
Primary	15	4.2
Secondary	208	57.8
Tertiary	133	36.9
Occupation		
Skilled	62	17.2
Unskilled	298	82.8
No. of Deliveries		
1	105	29.2
2	144	40.0
3	72	20.0
$\geq$ 4	39	10.9
No of Children		
1	112	31.1
2	139	38.6
3	70	19.4
>4	39	10.9

received by the mothers. Similarly, 309 (92.5%) mothers received breastfeeding education at ANC health talk session with nurses, 296 (88.6%) and doctors, 30 (9.0%) being the main providers of breastfeeding education. The predominant contents of the breastfeeding education received by the mothers were: importance of EBF, 265 (79.3%), care of Breast in preparation for breastfeeding, 258 (77.2%), breastfeeding hygiene, 171 (51.2%), nutrition for breastfeeding mothers, 164 (49.1%), when to initiate breastfeeding, 158 (47.3%), when to commence complementary, 152 (45.5%), and how to position during breastfeeding, 116 (34.7%). Few mothers received education on breastfeeding for HIV positive mothers, 9 (2.7%), how to prevent breast engorgement, 5 (1.5%), and how to preserve extracted breast milk, 3 (0.8%).

The non-participant observation showed that health talks focusing on different topics were delivered to women by one or two facilitators, followed by question-and-answer sessions. The duration of the health talk sessions is usually between 15 to 30 minutes. For the eight ANC sessions attended, it was observed that a public address system was not used during the health talk, and most times the facilitator's voice could not be heard depending on mothers' sitting position in the ANC hall. The most common

topics during the antenatal health talk were signs of Labour, nutrition in pregnancy, personal hygiene, and care of the newborn. Breastfeeding was not specifically treated as a topic, but the facilitator(s) while talking about feeding of newborns mentioned the following: "Only breastfeeding is allowed for the feeding of new born", "The earlier the breast is introduced, the faster the breast milk will start coming", "Breastfeeding position is sitting down and not lying down", "After feeding the baby gently rub the back for the baby to belch".

Less than half of the mothers, 170 (47.2%) prepared their breast for breastfeeding while pregnant, predominately by cleaning the nipples, 147 (86.5%), while 270 (75.0%) of them planned to breastfeed

Table 2: Sources, provider, and content of breastfeeding education received by the mothers

Variable	Frequency	Percent
	(n=334)	
Source		
ANC	309	92.5
Home	12	3.6
Child Welfare Clinic	7	2.1
Church	3	0.9
Media	3	0.9
Provider		
Nurse	296	88.6
Doctor	30	9.0
Mother	8	2.4
Content*		
Importance of exclusive breastfeeding	265	79.3
Care of Breast in preparation for breastfeeding	258	77.2
Breastfeeding hygiene	171	51.2
Nutrition for breastfeeding mothers	164	49.1
When to initiate breastfeeding	158	47.3
When to commence complementary	152	45.5
How to position during breastfeeding	116	34.7
When breast milk will start flowing	84	25.1
How to latch baby to breast	76	22.8
How to increase breast milk supply	69	20.7
Duration of breastfeeding before weaning	64	19.2
Breastfeeding as a method of family planning	60	18.0
Dangers of mixed feeding for infants less than 6 months	55	16.5
Duration of feeding on each breast	54	15.0
How often to breastfeed	48	14.4
How to know baby needs to be fed other than crying	40	12.0
No need for extra vitamins for EBF baby	38	11.4
How to know baby is eating enough	32	8.9
Prevention and care of cracked nipple	26	7.8
Breastfeeding items	26	7.8
Breastfeeding for HIV positive mothers	9	2.7
How to extract or pump breast	6	1.8
How to prevent breast engorgement	5	1.5
How to preserve extracted breast milk	3	0.8

\*Multiple responses

Table 3: Preparation for and early initiation of breastfeeding by mothers

Variable	Frequency (n=360)	Percent
Prepared breast for breastfeeding during pregnancy		
Yes	170	47.2
No	190	52.8
How breast was prepared for breastfeeding (n=170)		
Cleaning the nipple	147	86.5
Cleaning and drawing out the nipple	12	7.1
Eating healthy	6	3.5
Husband sucking the nipple	5	2.9
Breastfeeding plan at birth		
Exclusive breastfeeding	270	75.0
Mixed Feeding	90	25.0
Reason for planning for EBF (n=270)*		
EBF makes baby strong and healthy	207	76.7
EBF was recommended at ANC	46	17.0
EBF saves money for supplement	24	8.9
Tried EBF before and liked the outcome	7	2.6
EBF makes baby smart	6	2.2
Reason for planning for mixed feeding (n=90)		
Baby needs water	48	53.3
Mothers' health condition	36	40.0
Breastmilk will not be enough for baby	22	24.4
Mothers' nature of job	16	17.7
Baby will not like food after EBF	5	5.6
EBF is stressful	4	4.4
Early initiation of breastfeeding after delivery		
Within 1 hour	133	36.9
After 1 hour	227	63.1

\*Multiple response

exclusively after delivery. The reasons given by mothers who planned to engage on EBF included the fact that EBF makes baby strong and healthy, 207 (76.7%), was recommended at ANC, 46 (17.0%), saves money for supplement 24 (8.9%), and makes baby smart 6 (2.2%). On the other hand, for those who planned mixed feeding, their reasons were mainly that the baby needs water, 48 (53.3%), mothers' health condition, 36 (40.0%), breastmilk will not be enough for their baby, 22 (24.4%), and EBF is stressful, 4 (4.4%). Only little more than a third of the mothers, 133 (36.9%) commenced breastfeeding within one hour of delivery (table 3).

The experiences of mothers in initiating breastfeeding are shown in table 4. More than two-thirds of the mothers, 248 (68.9%) did not experience any challenge in initiating breastfeeding after delivery. However, among the almost a third, 112 (31.1%) who had challenges, painful breast and nipples, 82 (68.3%), delay in producing breast milk, 22 (18.3%), and difficulty positioning baby to latch, 8 (6.3%) were reported. Few, 64 (17.8%) mothers reported receiving breastfeeding support from healthcare providers, of which a higher proportion, 31 (48.4%) and 17 (26.6%) were assisted on breastfeeding position and to check for breast milk supply respectively. Similarly, almost a third, 113

Table 4: Experiences of mothers in initiating breastfeeding

Variable	Frequency (n=360)	Percent
Experienced challenge initiating breastfeeding		
Yes	112	31.1
No	248	68.9
Challenges while initiating breastfeeding (n=112)*		
Painful nipple and breast	82	72.3
Delay in producing breastmilk	22	19.6
Positioning baby to latch	8	7.1
Woman was too weak to breastfeed	7	6.3
Baby refusing to suck	1	0.9
Received BF initiation support from healthcare provider		
Yes	64	17.8
No	296	82.2
Healthcare provider who provided support (n =64)		
Nurse	58	90.6
Doctor	6	9.4
Kind of breastfeeding support received (n=64)		
Breastfeeding position	31	48.4
Check breastmilk supply	17	26.6
Latch baby to breast	8	12.5
Burp baby after breastfeeding	8	12.5
Delay in producing breast milk		
Yes	113	31.4
No	247	68.6
Caregivers' advice on delayed lactation (n = 113)		
Put baby to breast regularly	60	53.1
Eat a particular food	17	15.0
Give baby Formula	15	13.3
Give baby water	8	7.1

\*Multiple response

(31.4%) of the mothers experienced delay in producing breast milk. On these, more than half, 60 (53.1%) were advised by their caregivers to put baby to breast regularly while 15 (13.3%) and 8 (7.1%) were advised to give baby formula and water respectively.

Table 5 shows the EBF practices of mothers at 6 weeks postpartum. Majority, 276 (76.7%) reported that they exclusively breastfeeding their babies, while 84 (23.3%) reported using mixed feeding method, either breast milk and only water or breast milk, water and breast milk supplement. Few, 71 (19.7%) of the mothers received counsel on EBF mainly from their mothers, 37 (10.3%) and sisters, 12 (3.4%) within the 6 weeks postpartum. Spousal support, 151 (41.9%), reported pains and discomfort, 105 (29.2%), and nature of their job, 104 (28.9%) were the predominant factors reported by the mothers to have influenced their practice of EBF. Two-thirds, 181 (65.6%) of the mothers reported having good experience with EBF, 56 (20.3%) reported having a stressful experience, while 12 (4.3%) reported that EBF promoted bonding with baby. However, few, 4 (1.4%) experienced painful nipple with EBF. Most of the mothers 256 (92.8%) did not report any challenges with EBF. However, few mothers reported that combining house chores and EBF was stressful to

Table 5: Exclusive breastfeeding practices of mothers at 6 weeks postpartum

Variable	Frequency (n =360)	Percent
Feeding method		
EBF	276	76.7
Mixed feeding	84	23.3
Received counsel on EBF		
Yes	71	19.7
No	289	80.3
Who gave EBF counsel (n=71)		
Mother	37	10.3
Sister	12	3.4
Nurse	9	2.5
Friend	7	1.9
Doctor	2	0.6
Husband	2	0.6
Father	1	0.3
Neighbour	1	0.3
Factors that influenced EBF		
Spousal support	151	41.9
Pains and discomfort while BF	105	29.2
Nature of job	104	28.9
Baby not getting enough milk	64	17.8
Health challenges	36	10.0
Family belief	30	8.3
Mothers age	10	2.8
Shared experiences on EBF (n=276)		
Nice and Good	181	65.6
Stressful	56	20.3
Bonding with baby	12	4.3
Mother eats a lot	7	2.5
Painful nipple	4	1.4
Baby sucks a lot	3	1.1
Woman feels weak	2	0.7
None	11	4.0
Challenges of EBF (n=276)		
None	256	92.8
Stress from chores	7	2.5
Delay in breastmilk flow	4	1.4
Large food consumption	4	1.4
Sleepless night	3	1.1
Painful nipple	2	0.7

them, 7 (2.5%). Delay in producing breast milk, 4 (1.4%), sleepless nights, 3 (1.1%), and painful nipple, 2 (0.7%) were other challenges reported by the mothers.

Tables 6 and 7 shows the association between the socio-demographic characteristics of the mothers and early initiation of breastfeeding and breastfeeding practices at 6 weeks postpartum respectively. Apart from most married mothers, 128 (96.2%), the proportion of mothers who initiated breastfeeding within one hour was similar across the socio-demographic characteristics. Similarly, apart from the decreasing trend observed with increasing level of education of the mothers, the proportion of mothers who practiced EBF at 6 weeks postpartum was similar across the socio-demographic characteristics. Generally, there was no statistically significant association between the socio-demographic characteristics of the mothers and their initiation of breastfeeding and the practice of EBF at 6 weeks postpartum.

Table 6: Socio-demographic characteristics and early initiation of breastfeeding

Variables	Early breastfeeding initiation		X2	P-value
	Within 1 hour n(%)	After 1 hour n (%)		
Age group (years)			0.398	0.820
18-24	21 (40.4)	31 (59.6)		
25-34	94 (36.0)	167 (64.0)		
35-42	18 (38.3)	29 (61.7)		
Marital status			2.503	0.286
Single	5 (3.8)	13 (72.2)		
Married	128 (96.2)	211 (62.2)		
Separated	0 (0.0)	3 (100.0)		
Education			2.492	0.477
None	1 (25.0)	3 (75.0)		
Primary	3 (20.0)	12 (80.0)		
Secondary	81 (38.9)	127 (61.1)		
Tertiary	48 (36.1)	85 (63.9)		
Occupation			0.304	0.582
Skilled	21 (33.9)	41 (66.1)		
Unskilled	112 (37.6)	186 (62.4)		
Parity			0.003	0.960
Primipara	39 (37.1)	66 (62.9)		
Multipara	94 (36.9)	161 (63.1)		
Number of ANC attendance			0.198	0.656
8 times	49 (35.5)	89 (64.5)		
>8 times	84 (37.8)	138 (62.2)		

Table 7: Socio-demographic characteristics and feeding practices at 6 weeks postpartum

Variable	Feeding Practices		X2	P-value
	EBF n(%)	Mixed feeding n(%)		
Age Group			0.285	0.867
18-24	39 (75.0)	13 (25.0)		
25-34	202 (77.4)	59 (24.4)		
35-42	35 (74.5)	12 (25.5)		
Marital Status			1.112	0.574
Single	13 (72.2)	5 (27.8)		
Married	260 (76.7)	79 (23.3)		
Separated	3 (100.0)	0 (0.0)		
Education			1.744	0.627
None	4 (100.0)	0 (0.0)		
Primary	12 (80.0)	3 (20.0)		
Secondary	161 (77.4)	47 (22.6)		
Tertiary	99 (74.4)	34 (25.6)		
Occupation			0.031	0.860
Skilled	47 (75.8)	15 (24.2)		
Unskilled	229 (76.8)	69 (23.2)		
Parity			0.019	0.891
Primipara	80 (76.2)	25 (23.8)		
Multipara	196 (76.9)	59 (23.1)		
Number of ANC attendance			2.210	0.137
8 times	100 (72.5)	38 (27.5)		
>8 times	176 (79.3)	46 (20.7)		

### Discussion

Breastfeeding is very critical to the health of both the baby and mother. As simple as breastfeeding may appear, it requires in-depth information and some level of skills to be able to practice it effectively, which is why it is essential to provide antenatal breastfeeding education to pregnant mothers to adequately prepare them to breastfeed their babies after delivery. The findings of this study showed that the breastfeeding education given to mothers was unstructured, poorly delivered, and inadequate in terms of content. The preparation of the breast for breastfeeding and early initiation of breastfeeding following delivery was low. However, the rate of EBF

practice by the mothers at 6 weeks postpartum was encouraging, but not without some challenges.

In this study, it was observed that not all the mothers received breastfeeding education from the ANC clinic, and only few received information on when to initiate breastfeeding and how to position the baby during breastfeeding. This finding suggests that a woman can attend 8 ANC sessions while pregnant and still not receive adequate breastfeeding education. This situation may have resulted from the fact that the mode of delivery and the general environment of the ANC health talks were sub-optimal in this study. This has serious implications for preparation for breastfeeding, early initiation of breastfeeding after delivery, and the practice of EBF as recommended by the WHO. This finding corroborated the results of a study in Oyo State, Nigeria, which showed that the content of the antenatal education given to pregnant mothers attending ANC clinic was not structured to provide balanced information for a positive pregnancy outcome.<sup>12</sup> A well delivered antenatal breastfeeding education using acceptable media is a veritable tool to achieve effective breastfeeding of newborns and EBF. A study in Malaysia found that mothers perceived antenatal breastfeeding education as useful and having received it appears to be associated with EBF up to the first 8 weeks postpartum.<sup>13</sup> A person-centered breastfeeding education during the antenatal period should complement the traditional methods of health talks during ANC sessions to ensure that all mothers who attended ANC receive the message. The fact that almost all mothers in our environment have a mobile phone can be leveraged upon to promote breastfeeding education as breastfeeding education videos can be sent to their phones. The usefulness of video-assisted breastfeeding education had been reported in previous studies.<sup>14,15</sup>

In this study, less than half of the mothers prepared their breast for breastfeeding while pregnant. This is an indication that most of the mothers may not be informed on breast preparation in readiness to breastfeeding after delivery. This may be a precursor to delayed initiation of breastfeeding after delivery especially among primiparous mothers with any form of breast abnormality. A study in Haryana, India, reported that under or no preparedness of the mothers for breastfeeding including identification of abnormalities such as inverted and retracted nipple were barriers to early initiation and continuation of

breastfeeding.<sup>16</sup> A related worry from the results of this study is the fact that, one quarter of the mothers intended to practice mixed feeding after delivery. This goes to show that as old as the EBF campaign, it is yet to sink into the hearts and minds of mothers in our environment. Thus, Nigeria has one of the lowest rates of EBF in sub-Saharan Africa.<sup>5</sup> A high prevalence of mixed infant feeding practices among mothers had also been reported in South Africa.<sup>17,18</sup> It is imperative for healthcare providers to step up the game through community and stakeholder engagements to overcome the multiple barriers to EBF in order to usher in an improvement in infant feeding indices in Nigeria.

An abysmally low proportion of mothers received breastfeeding initiation support from healthcare providers and correspondingly only slightly more than a third of the mothers initiated breastfeeding within one hour in this study. This worrisome finding which is comparable to a previous study in Edo State, Nigeria,<sup>19</sup> may have arisen from the delay in handing babies over to their mothers immediately after delivery as practiced in some hospitals, the claims of babies sleeping, mothers not producing breast milk and mothers feeling weak to attempt breastfeeding. A study in Cameroon reported that caesarean delivery, the belief in “spoiled milk”, lack of knowledge about the time to initiate breastfeeding, baby asleep, and lack of instruction given to the mother by the health staff were the main reasons for delaying breastfeeding initiation.<sup>20</sup> A scoping review of early breastfeeding practices in sub-Saharan African countries identified similar household, maternal, and health service characteristics as determinants of early initiation of breastfeeding by mothers.<sup>21</sup> These unjustifiable reasons for delay in initiation of breastfeeding reinforces the important role healthcare providers should play in ensuring the practice of early initiation of breastfeeding by mothers and supporting the entire process.

The initiation of breastfeeding is not without challenges especially for primiparous mothers. In this study, mothers experienced the following challenges while initiating breastfeeding: painful nipple and breasts, delay in producing breast milk, and positioning baby to latch. However, very few of the mothers received lactation support from healthcare providers. These findings buttress the need for healthcare providers to provide timely, effective, and patient-centered lactation support to mothers by

helping them to position the baby to breastfeed, ensuring the baby's mouth latches well on the nipple to prevent cracked nipples, and ensuring they continue to put baby to breast to help increase production of breast milk.

The high prevalence rate of EBF at 6 weeks postpartum was commendable, but slightly higher than the proportion of those who expressed their intention to practice EBF despite the fact that only few mothers received counselling on EBF in this study. This may be attributable to the breastfeeding education on the importance of EBF received by mothers during ANC, and the post-delivery counselling on EBF given by healthcare providers, family members, and relatives. This implies that both healthcare providers, families and relatives can influence mothers' EBF practice. This is encouraging as early infant mixed feeding may lead to less intake of breast milk which can result in reduced lactation and infant under-nutrition. The mothers who practiced EBF in this study gave positive testimonies about it. However, few challenges such as delay in breast milk production, stress from household chores, discomfort from painful nipple and sleepless nights, were reported. Similar challenges have also been reported by mothers in other African countries and other parts of the world.<sup>22-24</sup> This underscores the need for a focused individualized intervention targeted at maternal factors that influence the practice of EBF.

### Study strength and limitations

This was a cross-sectional study utilizing a convergent, parallel mixed method approach. The information provided by the mothers regarding breastfeeding information provided during ANC and the practice of EBF may have been prone to recall bias and social desirability.

### Conclusion

This study showed that the breastfeeding education given to mothers was unstructured and inadequate in terms of content. The mode of delivery and the environment in which breastfeeding education takes place during ANC were sub-optimal. The preparation of the breast for breastfeeding was inadequate and early initiation of breastfeeding following delivery was low. A lower proportion of the mothers received lactation support from healthcare providers while initiating breastfeeding. The rate of EBF practice by the mothers at 6 weeks postpartum was high, but not without some challenges. Spousal support, breast

pains and discomfort, and mothers' nature of job were the predominant factors that influenced the practice of EBF.

We recommend that a focused, person-centered approach should be employed by healthcare providers to deliver a structured breastfeeding education to mothers during ANC sessions. The facilities for delivering breastfeeding education messages should be improved upon to ensure that the message reaches all mothers who get in contact with the healthcare facility during pregnancy. Policies aimed at early initiation of breastfeeding should be effectively implemented in the healthcare facilities.

### References

1. Garcia CR, Mullany LC, Rahmathullah L, Katz J, Thulasiraj RD, Sheeladevi S, et al. Breastfeeding initiation time and neonatal mortality risk among newborns in South India. *Journal of Perinatology*. 2011;31(6):397-403. DOI: 10.1038/jp.2010.138.
2. NEOVITA Study Group. Timing of initiation, patterns of breastfeeding, and infant survival: prospective analysis of pooled data from three randomised trials. *Lancet Glob Health*. 2016;4(4):e266-75. DOI: 10.1016/S2214-109X(16)00040-1.
3. World Health Organization. Fact Sheet on Infant and Young Child Feeding. 2023. Available from <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>.
4. Elyas L, Mekasha A, Assfa E. Exclusive Breastfeeding Practice and Associated Factors Among Mothers Attending Private Paediatric and Child Clinics. Addis Ababa, Ethiopia: A cross-sectional study. *International Journal of Paediatrics*. 2017;2017:8546192. DOI: 10.1155/2017/8546192.
5. National Population Commission (NPC) [Nigeria] and ICF International. Nigeria Demographic and Health Survey 2018. In Abuja, Nigeria, Rockville, Maryland, USA: NPC and ICF International. 2019.
6. World Health Organization. WHO Recommendation on postnatal Care of the Mother and Newborn. WHO. Geneva, Switzerland, 2013. Available from <https://www.who.int/publications/i/item/9789241506649>.
7. Hansen K. Breastfeeding: a smart investment in



- people and in economies. *Lancet*. 2016;387(10017):416. DOI: 10.1016/S0140-6736(16)00012-X.
8. Lumbiganon P, Martis R, Festin MR, Ho JJ, Hakimi M. Antenatal Breastfeeding Education for Increasing Breastfeeding Duration. *Cocharane Database of Systematic Reviews*. 2016; 12 : ( C D 0 0 6 4 2 5 ) . D O I : 10.1002/14651858.pub4.
  9. Dennis CL. Theoretical underpinnings of breastfeeding confidence: a self-efficacy framework. *J Hum Lact*. 1999;15(3):195-201. DOI: 10.1177/089033449901500303.
  10. Serçekuş P, Mete S. Effects of antenatal education on maternal prenatal and postpartum adaptation. *J Adv Nurs*. 2010;66(5):999-1010. DOI: 10.1111/j.1365-2648.2009.05253.x.
  11. Kadam P, Bhalerao S. Sample size calculation. *Int J Ayurveda Res*. 2010;1(1):55-57. DOI:10.4103/0974-7788.59946.
  12. Akinwaare MO, Oyebode AO, Brown VB, Ogunniran AA, Adeleye KK. Content of Antenatal Education and Modalities of Delivery among Nurses in Oyo State, Nigeria. *European Journal of Medical and Health Sciences*. 2021; 2 : 1 8 5 - 1 9 1 . D O I : 10.24018/ejmed.2021.3.2.502.
  13. Tan ML, Foong SC, Ho JJ, Foong WC, Mohd R, Harun Z. Postpartum women's perception of antenatal breastfeeding education: a descriptive survey. *International Breastfeeding Journal*. 2020;15:85. DOI: 10.1186/s13006-020-00328-2.
  14. Metin A, Baltaci N. The effects of video-assisted breastfeeding education given to primiparous pregnant women on breastfeeding self-efficacy: randomized control study. *BMC Pregnancy and Childbirth*. 2024;24:142. DOI: 10.1186/s12884-024-06317-1.
  15. Puspitasari D, Sunarsih T. The Effectiveness of Education Video and Booklet Media for Pregnant Mothers Knowledge on Preparation of Breastfeeding Practice. *Advances in Health Sciences Research*. 2020;34:219-221.
  16. Majra JP, Silan VK. Barriers to Early Initiation and Continuation of Breastfeeding in a Tertiary care Institute of Haryana: A Qualitative Study in Nursing Care Providers. *J Clin Diagn Res*. 2016; 10 ( 9 ) : L C 1 6 - L C 2 0 . D O I : 10.7860/JCDR/2016/19072.8559.
  17. Semenekane NM, Witten CB, Swanepoel E, Kruger HS. Sociodemographic factors associated with mixed-feeding practices among a cohort of mothers with infants aged 4 - 14 weeks in Tlokwe subdistrict, North West Province, South Africa. *Afr J Child Health*. 2022;16(4):192-197. DOI: 10.7196/SAJCH.2022.v16.i4.1808.
  18. Mgolozeli SE, Shilubane HN. Factors contributing to mixed feeding practices amongst mothers and caregivers of neonates at Maloma village, Limpopo Province, South Africa. *Afr. J. Phys. Health Edu. Recreat. Dance*. 2015(Supplement 1:1):84-94.
  19. Atimati AO, Adam VY. Breastfeeding Practices among Mothers of children aged 1–24 Months in Egor Local Government Area of Edo State, Nigeria. *South African Journal of Clinical Nutrition*. 2018;33(1):10-16. DOI: 10.1080/16070658.2018.1493071.
  20. Nguefack F, Ngwanou DH, Kamsu Moyo GP, Ejake L, Mah EM, Wafeu G, et al. Reasons for Delayed Breastfeeding Initiation among Newly Delivered Women in Two First-Category Hospitals in Yaounde, Cameroon. *Open Journal of Pediatrics*. 2020;10:474-485. DOI: /10.4236/ojped.2020.103048.
  21. Shimizu M, Nakat Y, Takahashi K. Current findings and gaps in early initiation of breastfeeding practices in sub-Saharan African countries: A scoping review. *J Glob Health* 2023;13:04036. DOI: 10.7189/jogh.13.04036.
  22. Tampah-Naah AM, Kumi-Kyereme A, Amo-Adjei J. Maternal challenges of exclusive breastfeeding and complementary feeding in Ghana. *PLoS ONE*. 2019;14(5):e0215285. DOI: 10.1371/journal.pone.0215285.
  23. Vázquez-Osorio IM, Vega-Sánchez R, Maas-Mendoza E, Heller Rouassant S, Flores-Quijano ME. Exclusive Breastfeeding and Factors Influencing Its Abandonment During the 1st Month Postpartum Among Women From Semi-rural Communities in Southeast Mexico. *Front. Pediatr*. 2022;10:826295. DOI: 10.3389/fped.2022.826295.
  24. Wang Y, Mao K, Chu M, Lu M. Perinatal maternal factors influencing postpartum feeding practices at six weeks. *BMC Pregnancy and Childbirth*. 2024;24:514. DOI: 10.1186/s12884-024-06711-9.