

Observational Study

A baseline assessment of the knowledge, attitude, and practices of exclusive breastfeeding among women enrolled in a cluster randomized trial in Anambra State Nigeria

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Submitted: May 18, 2023

Approved: June 07, 2023

Published: June 08, 2023

How to cite this article: Ejie IL, Anetoh MU, Atakulu RO, Ogbonna BO, Nwabanne AT, et al. A baseline assessment of the knowledge, attitude, and practices of exclusive breastfeeding among women enrolled in a cluster randomized trial in Anambra State Nigeria. Clin J Obstet Gynecol. 2023; 6: 051-060.

DOI: 10.29328/journal.cjog.1001129

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Keywords: Exclusive breastfeeding; Knowledge; Attitude; Practice; Mothers; Child nutrition; Public health; Nigeria





Abstract

Background: Exclusive breastfeeding has great benefits for both the mother and the child. Few studies have been carried out on interventions to improve Exclusive Breastfeeding (EBF) practice by childbearing mothers. No study has formulated and/or implemented a hospital-based maternal counseling guide intervention to improve EBF practice. This baseline study assessed the knowledge, attitude, and practice of EBF on mothers who were enrolled in antenatal clinics for a cluster randomized trial and the disparity in the knowledge of EBF based on lactation, age, sex, and source of income.

Methods: We formulated a hospital-based counseling guide on exclusive breastfeeding, which is under implementation by prenatal and nursing mothers, to promote EBF practice in the study area. A cross-sectional study was conducted in two hospitals randomly selected from twelve hospitals in Anambra State. The study was among pregnant women who were in their second trimester. The data collection took place from March to April 2022. The data were analyzed using descriptive statistics and Chi-Square. The test of significance was set at $p < 0.05$.

Results: The control and the intervention arms had an equal number of enrollees (144) each and more than half of the participants were between the ages of 23 – 32 years. The majority of the participants showed adequate knowledge of exclusive breastfeeding as over 90% knew that EBF is important and capable of improving their baby's immunity. The participants demonstrated a positive attitude to exclusive breastfeeding and they had a significantly high level of practice of daily consumption of galactagogues. The study suggested that the majority did not practice breast milk extraction mainly because the process of extraction is painful and some do not know how to carry out the extraction.

Conclusion: The mothers have the requisite knowledge of the benefits of exclusive breastfeeding to their infants and themselves. However, they do not practice EBF. Interventions to improve EBF practice should focus on educating mothers on proper breast milk extraction and storage techniques.

Introduction

According to WHO, Exclusive Breastfeeding (EBF) entails feeding newborns only breast milk, not any other foods or liquids including water - except for medications or vitamins and mineral supplements - for the first six months of life [1]. The practice of EBF has shown to have immense benefits to both mother and child as it provides low-cost, complete nutrition for the infant and protects the infant against infections including but not limited to gastrointestinal infections, hence reducing newborn mortality rates in both developing and industrialized countries [2]. For mothers, exclusive breastfeeding reduces the risk of ovarian and breast cancer and helps space pregnancies, through a natural method known as Lactation Amenorrhea Method [2]. Findings suggest that breastfeeding is associated with a significantly reduced risk of invasive epithelial ovarian cancer (OR, 0.76; 95% CI, 0.71-0.80); longer breastfeeding duration and shorter time since the last breastfeeding episode was associated with a further decrease in risk [3].

Breastfeeding begins in the hour right after a baby is born. The mother is encouraged to engage in skin-to-skin contact with the baby immediately. Research shows that this close contact encourages mother-to-child bonding, and regulates the baby's heart rate and breathing, amongst other benefits to both parties [4]. The first milk a baby gets from the mother's breast, called colostrum, is given to the baby within 30 minutes of delivery. Colostrum, also called "liquid gold" because it has a golden color, is extremely rich in nutrients and antibodies sufficient to get a newborn off to a healthy start [5,6].

The initiation and continuation of breastfeeding are influenced by a variety of variables which include the intention of the mother to breastfeed, a lack of understanding about how lactation can be improved, and a lack of confidence in one's ability to breastfeed [7,8]. A study by Mogre, et al.

(2016) indicated that the most dominant factor in engaging in EBF is the mother's knowledge, attitude, and practice of EBF [9]. In a systematic study by Ejie, et al. breastfeeding women showed inadequate awareness and understanding of EBF, which had an impact on their practice [10]. Mothers were unable to distinguish between exclusive breastfeeding (EBF) and partial and predominant breastfeeding, as well as what EBF entailed and for how long it was advised [10].

Understanding the factors that influence infant feeding will help in the protection, promotion, and support of breastfeeding. Studies have reported the positive impact of breastfeeding education during pre- and post-natal periods and, in some cases, placing more emphasis on prenatal education as an initial action [11]. A study done in a town in Sokoto State reported that 60% of mothers were aware of EBF but only 30% of them had adequate knowledge of EBF, and the main sources of information on EBF were from the mothers of respondents and health workers [12]. Enlightenment of primiparous and parous mothers on the optimal breastfeeding practices following WHO Infant and Young Child Feeding Practices is important to promote the development of positive perception and intention toward EBF. Women will breastfeed as recommended if they are influenced to develop a positive perception of breastfeeding [13].

Several public health strategies promoting breastfeeding have been put in place to enable mothers to breastfeed successfully [14]. One of them is the Baby Friendly Hospital Initiative (BFHI) which developed ten steps to promote successful breastfeeding and optimal clinical care for new mothers and their infants. A study carried out in Osun State to assess the impact of BFHI showed that 61% of new mothers who commenced breastfeeding within 30 minutes after delivery was from a BFHI center [15]. Other strategies include the Innocenti Declaration and the Global Strategy for Infant and Young Child Feeding which builds on past initiatives to



revitalize efforts to support, protect and promote infant and young child feeding [16].

Few studies have been carried out on interventions to improve EBF practice, some of which include: a study in Iran that reported that a smartphone-based educational intervention improved EBF practice, but it was limited to only mothers who own and understand the use of smartphones [17]. In Nigeria, a study conducted using community volunteers to promote exclusive breastfeeding reported that counseling is a useful strategy for promoting the duration of EBF to six months and recommended additional resources to enable nursing mothers to practice EBF [18]. Although there are several studies on interventions to improve EBF practice, however, to the best of our knowledge, no study has formulated and/or implemented a hospital-based maternal counseling guide intervention to improve EBF practice. Interventions promoting optimal Infant and Young Child Feeding practices could prevent 19% of under-five children's deaths in countries with high mortality rates [2]. Such intervention could improve nursing mothers' understanding, acceptance, and practice of EBF. Hence, we formulated a hospital-based counseling guide on exclusive breastfeeding, which is under implementation by prenatal and nursing mothers, to evaluate its effect in improving EBF practice in twelve selected hospitals in Anambra State, Nigeria. As part of achieving the set objectives, a baseline study was done to assess the knowledge, attitude, and practice of EBF on mothers who were enrolled in the trial and the disparity in the knowledge of EBF based on lactation, age, sex and source of income.

Methods

Study design

A cross-sectional study was conducted among pregnant women in their second trimester in two antenatal clinics in Anambra State, Nigeria.

Study location

The study was carried out in Anambra State which is one of the 36 states in Nigeria, located in the south-eastern part of the country, with Awka as its capital.

Study setting

The twelve hospitals were categorized as either urban or rural based on location. Only two State government hospitals were selected out of twenty general hospitals in Anambra State because they have a considerable number of women accessing care in the ante- and post-natal clinics and the majority of the mission hospitals were selected because they have a high number of women accessing care in the ante- and post-natal clinics. Two hospitals were finally selected and used for the study from the twelve by balloting.

Recruitment and data collection procedures

Recruitment and data collection procedures were done by

the trained nurses in the twelve hospitals. The hospitals were visited during the study period on days that were scheduled for the prenatal clinic. Participants were recruited in their second trimester and enrolled in routine antenatal clinic visits, whereby pregnancy registration was done for pregnant women accessing care in the hospital and lasted for two months. This was complemented by a research assistant to ensure high coverage. Those who agreed to participate were taken through the consent process. We explained to them the benefits and risks of participating in the study. Those who indicated interest to participate in the study filled out the informed consent form. The first 24 women who met the inclusion criteria were recruited. On recruitment, a questionnaire to assess the mothers' knowledge, attitude, and practice of EBF was administered face-to-face to the mothers. Participants were assured of confidentiality. All data collection procedures were carried out within 12–18 minutes.

Eligibility Criteria

Inclusion criteria

1. Pregnant women between the ages of 18 to 50 years in their second trimester attending ante-natal care in the two randomly selected hospitals
2. Pregnant women willing to participate in the study by giving oral informed consent
3. Pregnant women who were able to read, write and understand simple English Language.

Exclusion criteria

1. Pregnant women attending the ante-natal clinic in the selected hospitals at the time of the study were mentally unstable or critically ill at the time.
2. Eligible pregnant women who were absent at the time of the study.

Knowledge, attitude and practice (KAP) questionnaire

Questionnaires comprised of closed and open-ended questions were used to collect data from participants. Data collected included socio-demographic characteristics of mothers (age, type of family, marital status, education, occupation, family income, number of successful deliveries, type of delivery last encountered, number of ante-natal clinic visits), knowledge on exclusive breastfeeding (EBF), attitude towards EBF, and practice of EBF. The questions were adapted from a face-content validated questionnaire used in Kenya [20,21]. And modified for this study.

Pretesting of data collection tool

Prior to being used for the study, the questionnaire underwent a pre-test at Iyieniu Specialist Hospital. The questionnaire was given to six women who met the inclusion criteria to test for reliability, and the same mothers were



given the questionnaire again a week later to check on the consistency of their responses. Reliability coefficient calculations came out to be 0.75. The value fell within the permissible range of 0.7-1.0 ($p < 0.05$) [22]. Nutritionists and physicians evaluated the questionnaire for content validity.

Data collection procedure and techniques

The trained nurses, one from each of the 12 hospitals administered the questionnaire directly to the participants during their antenatal clinic visit. The data collection took place from March to April 2022. The questionnaires were retrieved from the respondents same day.

Statistical analysis

The data collected was checked for completeness, cleaned, coded, and entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 25.0. The data were analyzed using descriptive statistics comprising frequencies, percentages, and measures of central tendencies, and Chi-Square was used to describe maternal demographic and socioeconomic characteristics, knowledge, attitudes, and practice of EBF. Statistical significance was set at p - value < 0.05 .

Elimination of potential sources of bias

The study participants were systematically similar in their characteristics compared to the eligible ones who were not selected for the study. The two groups have no differences in important outcome predictors. Self-selection was avoided using 12 trained nurses.

Ethical considerations

Study site permission was independently from the 12 included hospitals and ethical approval was obtained from Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) Awka Anambra State Ethics Committee (COOUTH/CMAC/ETH.C/VOL.1/FN:04/202) before the commencement of the study.

Results

Socio-demographic characteristics of respondents

The control and the intervention arm had an equal number of enrollees (144) each and had similar distribution based on the demographic variables except for the type of family, with a greater number of those in the control arm being from a nuclear family, 131 (91.0%) and 116 (80.6%) for control and intervention respectively, p - value 0.011. See Table 1. More than half of the participants were between the ages of 23-32 years (63.3%). Based on education, both arms had similar distribution for all levels of education. A greater number of the participants have a family monthly income $\leq N = 50,000.00$, especially in the hospital B. About 70% of the participants were self-employed and one-third of the participants were

primigravida while two-thirds delivered through the vagina in their last delivery. Most of the mothers (31.7%) had attended ante-natal clinics three to four times at the time of the study. Data on other variables are shown in Table 1.

Table 1: The sociodemographic variables between the control and the intervention arms of the study.

Variable	Arms (%)		χ^2 - value	P - value
	Hospital A n (%)	Hospital B n (%)		
Age (years)				
18-22	18 (12.5)	27 (18.8)		
23-27	42 (29.2)	51 (35.4)		
28-32	48 (33.3)	41 (28.5)	5.209	0.266
33-37	30 (20.8)	21 (14.6)		
38 and above	6 (4.2)	4 (2.8)		
Type of family				
Nuclear	131 (91.0)	116 (80.6)	6.399	0.011*
Extended	13 (9.0)	28 (19.4)		
Marital status				
Married	132 (91.7)	135 (93.8)		
Single	10 (6.9)	7 (4.9)		
Divorced	1 (0.7)	1 (0.7)	0.563	0.905
Separated	1 (0.7)	1 (0.7)		
Widow	-	-		
Education				
No Formal Education	1 (0.7)	1 (0.7)		
Primary	5 (3.5)	5 (3.5)	0.000	1.000
Secondary	77 (53.5)	77 (53.5)		
University	61 (42.4)	61 (42.4)		
Occupation				
House Wife	18 (12.5)	25 (17.5)		
Self-employed	102 (70.8)	99 (69.3)	1.762	0.414
Government Employed	24 (16.7)	19 (13.3)		
The family income per month				
$\leq N = 50,000$	100 (69.4)	87 (60.4)		
$> N = 50,000-100,000$	36 (25.0)	43 (29.9)	3.160	0.206
$> N = 100,000$	8 (5.6)	14 (9.7)		
Number of successful deliveries				
0 Delivery	43 (29.9)	43 (30.3)		
1 Delivery	35 (24.3)	35 (24.7)		
2 Deliveries	27 (18.8)	30 (21.1)	0.895	0.971
3 Deliveries	22 (15.3)	21 (14.8)		
4 Deliveries	13 (9.0)	9 (6.3)		
5 and above Deliveries	4 (2.8)	4 (2.8)		
Type of delivery last encountered				
Per vagina	91 (63.2)	98 (72.1)		
Cesarean section	13 (9.0)	7 (5.2)	2.974	0.226
Not applicable	40 (27.8)	31 (22.8)		
Number of antenatal clinic visits				
1 to 2	33 (22.9)	39 (27.3)		
3 to 4	52 (36.1)	39 (27.3)	2.648	0.449
5 to 6	33 (22.9)	36 (25.2)		
7 and above	26 (18.1)	29 (20.3)		

*statistically significant values; p - value: < 0.05



Knowledge of respondents about exclusive breast feeding

Similar trends existed in the level of knowledge of the respondents between the two hospitals, except for a significant variation in their knowledge that the growth pattern of breastfed infants is different from the formula-fed infants; 129 (90.2)% and 140 (97.2)% for control and intervention respectively at p - value 0.014. Over 90% of the participants knew that EBF is important (98.6%) and capable of improving a baby's immunity (98.9%). The majority of the mothers are aware of what colostrum is and acknowledged that colostrum is nutritionally beneficial to the baby (98.9%). Well, over 80% of the respondents revealed that EBF protects mothers from pregnancy (84.4%). Not fewer than 95.5% of the mothers knew that breastfeeding should be initiated within one hour after birth. The participants generally had a good knowledge score. However, a good number of the participants

did not know that a pregnant woman can breastfeed her baby (27.8%) and how long EBF should be practiced as 23.0% of the participants responded that EBF should be for < 6 months and 5.2% responded that it should be for > 6 months. Findings on other variables are shown in Table 2.

The attitude of respondents toward breastfeeding

The participants demonstrated a positive attitude to exclusive breastfeeding as the majority (> 80%) of them showed positive affirmations to the different questions on their attitude towards EBF. About 87.2% admitted that they intend to breastfeed their child exclusively for six months, 84.4% said they will not give their child water from birth, 84.7% stated that they will not give their child other additional food (infant formula, cereal, etc.) before the age of 6 months, 86.7% agreed that they will breastfeed their child within one hour of delivery, 81.6% revealed that they will breastfeed

Table 2: Knowledge of respondents about breastfeeding.

Variable	Arms (%)		χ^2 - value	p -value
	Hospital A n (%)	Hospital B n (%)		
Is exclusive breastfeeding important?				
Yes	142 (98.6)	141 (98.6)	0.000	0.994
No	2 (1.4)	2 (1.4)		
Colostrum, the first yellowish milk after delivery, is nutritionally beneficial to the baby				
Yes	143 (99.3)	139 (98.6)	0.359	0.549
No	1 (0.7)	2 (1.4)		
Exclusive Breastfeeding improves the baby's immunity				
Yes	141 (97.9)	144 (100.0)	3.032	0.082
No	3 (2.1)	-		
Exclusive Breastfeeding protects mothers from pregnancy				
Yes	127 (88.2)	116 (80.6)	3.187	0.074
No	17 (11.8)	28 (19.4)		
Breastfeeding should be initiated within one hour after birth				
Yes	137 (95.1)	138 (95.8)	0.081	0.777
No	7 (4.9)	6 (4.2)		
Exclusive Breastfeeding can prevent a child from having diarrhea				
Yes	134 (93.1)	140 (97.2)	2.703	0.100
No	10 (6.9)	4 (2.8)		
Expressed breast milk should be fed to the baby				
Yes	126 (87.5)	132 (91.7)	1.339	0.247
No	18 (12.5)	12 (8.3)		
Growth patterns of breastfed infants differ from formula-fed				
Yes	129 (90.2)	140 (97.2)	6.002	0.014*
No	14 (9.8)	4 (2.8)		
How long should exclusive breastfeeding, be practiced?				
<6 months	29 (20.3)	37 (25.7)		
6 months	105 (73.4)	101 (70.1)	1.644	0.440
>6 months	9 (6.3)	6 (4.2)		
After 6 months, other semi-solid food can be introduced to the baby				
Yes	142 (98.6)	142 (98.6)	0.000	1.000
No	2 (1.4)	2 (1.4)		
A pregnant woman can breastfeed her baby				
Yes	111 (77.1)	97 (67.4)	3.392	0.066
No	33 (22.9)	47 (32.6)		
Foods called galactagogues (such as pap, kunu, almonds, and fenugreek) can improve breastmilk production.				
Yes	135 (93.8)	137 (95.1)	0.265	0.607
No	9 (6.3)	7 (4.9)		

* Statistically significant values; p - value: < 0.05



their infant on demand and 79.5% of the respondents opined that only colostrum (the first yellowish milk after delivery) or breast milk should be used in the first 3 days of life. The respondents in both arms had a similar distribution in their attitude toward exclusive breastfeeding. However, their responses on not giving their baby any other food other than breast milk before the age of six months showed a significant variation in their responses 114 (79.2)% and 130 (90.3)% for the control and intervention respectively at *p* - value 0.03. Other findings were shown in Table 3.

The practice of respondents toward exclusive breast feeding

The majority of the participants (87.2%) stated that they take advice from a lactation counselor/nurse before breastfeeding as shown in Table 4. Over one-third (34.6%) admitted they give pre-lacteal feeds (other foods rather than breast milk only) to their infant before 6 months and amongst the 16 reasons given, delayed milk production (16.7%) was the major reason for not breastfeeding exclusively see Table 4b. Among the first feeds given to their babies at birth, breast milk was significantly higher in both the control and the intervention arm with a *p* - value of 0.001. The number of participants that gave breast milk was, however, higher in the control arm (121, 84%). As shown in Table 4a, the participants in both arms had a significantly high level of practice of daily consumption of galactagogues (106, 75.2%, and 118, 82.5%) for the control and the intervention arms respectively at a *p* - value of 0.038. The three most common galactagogues

consumed by the participants were pap (42.6%), kunu (16.1%), and tea (15.5%) as shown in Table 4c. Other findings are shown in Tables 4a-4c.

Practice and methods of breast milk extraction and reasons for not extracting breast milk between the two arms of the study

Only 33.7% of the participants admitted they extracted and stored breast milk for their babies while 27.8% extracted it manually, and 19.4% extracted using a breast pump as shown in Table 5. Method of breast milk extraction was significant with a greater percentage of the participants in the intervention arm that practiced manual milk extraction, 49 (34.0%) and a higher number of participants in the control arm extracting breast milk through the use of breast pump. The reasons given for not extracting and storing breast milk for their babies were: some of the mothers believed that breast milk should not be extracted (25.3%), some complained of the pain associated with breast milk extraction (21.1%), and some lacked the knowledge on how to extract the breast milk (19.0%). The participants in both arms had similar statistics on their reasons for not extracting the breast milk which was not significant. Other findings on this are shown in Table 5.

Discussion

This baseline study showed that the majority of the respondents had a high level of knowledge about exclusive breastfeeding and its importance, they had a good attitude towards exclusive breastfeeding and a high practice level of exclusive breastfeeding. However, some components of the

Table 3: The attitude of the respondents towards breastfeeding between the two arms of the study.

Variable	Arms (%)		χ ² - value	P -value
	Hospital A n (%)	Hospital B n (%)		
I intend to breastfeed my child exclusively for 6 months. (+ve)				
Disagree	4 (2.8)	3 (2.1)		
Unsure	15 (10.4)	15 (10.4)	0.147	0.929
Agree	125 (86.8)	126 (87.5)		
I will not give my child water from birth				
Disagree	3 (2.1)	2 (1.4)		
Unsure	21 (14.6)	19 (13.2)	0.337	0.845
Agree	120 (83.3)	123 (85.4)		
I will not give my child other additional food (infant formula, cereal, etc.) before 6 months				
Disagree	8 (5.6)	3 (2.1)		
Unsure	22 (15.3)	11 (7.6)	6.989	0.030*
Agree	114 (79.2)	130 (90.3)		
I will breastfeed my child on demand				
Disagree	12 (8.3)	13 (9.0)		
Unsure	18 (12.5)	10 (6.9)	2.534	0.282
Agree	114 (79.2)	121 (84.0)		
I will start breastfeeding my child within one hour of delivery				
Disagree	8 (5.6)	2 (1.4)		
Unsure	14 (9.7)	11 (7.6)	4.280	0.118
Agree	122 (84.7)	131 (91.0)		
Do you think only colostrum (the first yellowish milk after delivery) or breast milk should be used in the first 3 days of life?				
Disagree	10 (6.9)	7 (4.9)		
Unsure	20 (13.9)	22 (15.3)	0.629	0.730
Agree	114 (79.2)	115 (79.9)		

*= Statistically significant values; *p* - value :< 0.05



Table 4a: Practice of exclusive breastfeeding by the participants in the control and the intervention arms of the study.

Variable	Arms (%)		χ ² - value	p -value
	Hospital A n (%)	Hospital B n (%)		
Do you take advice from a lactation counselor/nurse before breastfeeding?				
Yes	127 (88.2)	124 (86.1)	0.279	0.597
No	17 (11.8)	20 (13.9)		
Do you give pre-lacteal feeds (other foods rather than breastmilk only) to your infant before 6 months?				
Yes	57 (39.9)	42 (29.4)	3.476	0.062
No	86 (60.1)	101 (70.6)		
The first feed is given to a child at birth				
Breast milk only	121 (84.0)	100 (69.9)		
Water only	3 (2.1)	4 (2.8)		
Breast milk and water	9 (6.3)	11 (7.7)		
Honey	5 (3.5)	-	22.002	0.001*
Glucose water	5 (3.5)	25 (17.5)		
Baby formula	-	1 (0.7)		
When to start breastfeeding after delivery				
An interval of one hour	116 (80.6)	126 (88.1)		
In two – six hours	19 (13.2)	13 (9.1)		
After 24 hours	5 (3.5)	1 (0.7)	4.535	0.338
After some days	2 (1.4)	2 (1.4)		
Never or not applicable	2 (1.4)	1 (0.7)		
Frequency of breastfeeding the child				
On-demand	102 (70.8)	108 (75.5)		
At specific intervals	23 (16.0)	20 (14.0)	1.031	0.794
At random	14 (9.7)	12 (8.4)		
Never or not applicable	5 (3.5)	3 (2.1)		
Frequency of consuming galactagogues				
Daily	106 (75.2)	118 (82.5)		
Weekly	26 (18.4)	12 (8.4)	6.514	0.038*
Never	9 (6.4)	13 (9.1)		

*= Statistically significant values; p - value: < 0.05

Table 4b: Reasons for giving baby pre-lacteal meal before six (6) months.

Variable*	Frequency (n)	Percent (%)
Delayed milk production	125	16.7
Baby unwell	55	7.3
Sooth stomach-ache	38	5.1
Multiple deliveries	48	6.4
Baby gets too hungry	70	9.4
Advised by relatives	44	5.9
Advised by healthcare providers	46	6.1
Mother not producing enough milk	61	8.1
Sick mother	70	9.4
Mother going to school	55	7.3
Mother going to work	48	6.4
Others	28	3.7
Never or not applicable	61	8.1

*Multiple response questions

practice especially knowledge of the breast milk extraction technique and the need to extract and store breast milk for the baby needs further improvement. Both hospitals in the study had a similar distribution in the KAP study except for a few significant variations. The mothers' knowledge of EBF was generally decent since a large number of them acknowledge the recommended duration for EBF (WHO) and know about lactation amenorrhea. Our findings are similar to a study conducted in Ghana [23]. Which considered all mothers who scored > 70% in the knowledge test to have a high level of knowledge of EBF.

Table 4c: Galactagogues Frequently Consumed.

Variable*	Frequency	Percent
Pap	270	42.6
Tea	98	15.5
Kunu	102	16.1
Almonds	36	5.7
Water (hot)	11	1.7
Bitter leaf soup (Onugbu)	8	1.3
Palm wine	9	1.4
Milk	52	8.2
Soya beans/milk	9	1.4
Dawa	6	0.9
Good food/adequate food	8	1.3
Nsala soup	4	0.6
Tiger nut	2	0.3
Fufu	1	0.2
Fenugreek	7	1.1
Ground nut	-	-
Oji	1	0.2
Yogurt	1	0.2
Maize porridge (Mkpuru oka)	2	0.3
Yam	1	0.2
Rice	1	0.2
Oat	1	0.2
Millet	2	0.3
Zobo	1	0.2
Juice	1	0.2

*= Multiple response question



Table 5: Practice and methods of breast milk extraction and reasons for not extracting breast milk between the two arms of the study.

Variable	Arms (%)		χ^2 value	p - value
	Hospital A N (%)	Hospital B N (%)		
Do you extract and store breast milk for your baby?				
Yes	52 (36.1)	45 (31.3)	0.761	0.383
No	92 (63.9)	99 (68.8)		
How do you extract breast milk?				
Manual (hand)	31 (21.5)	49 (34.0)		
Breast pump	36 (25.0)	20 (13.9)	8.648	0.013*
Never/not applicable	77 (53.5)	75 (52.1)		
Reasons for not extracting and storing breast milk for your baby				
Don't know how to	25 (17.4)	30 (20.8)		
Breast milk should not be extracted	36 (25.0)	37 (25.7)	4.069	0.254
Expressing breast milk is painful	26 (18.1)	35 (24.3)		
Others	57 (39.6)	42 (29.2)		

*= Statistically significant values; p - value: < 0.05

Regarding respondents' attitudes toward exclusive breastfeeding in our study, a majority said they will practice breastfeeding for up to six (6) months and will not administer water or any pre-lacteal foods. Mothers with a positive attitude toward breastfeeding are more probable to breastfeed their babies exclusively. Most of the mothers declared intent to breastfeed within one hour of delivery and on demand. On-demand feeding comes with immense benefits as it is an excellent way to keep milk production in sync with a baby's needs and to provide enough milk for the baby to grow properly [24]. This study's finding is similar to that conducted in Jordan which showed that 72% of mothers examined had a positive attitude toward breastfeeding [25]. It was majorly echoed by their preference to have colostrum as the first feeding to their infants. This finding is also similar to a study conducted in Nepal where 83.3% of children received colostrum [26]. Colostrum, ("liquid gold") contains glycoproteins, including lactoferrin, which has specific antibacterial and antifungal effects [27].

A good number of the respondents accept advice from a lactation counselor before breastfeeding. Anticipating mothers need to understand possible breastfeeding problems they may encounter during breastfeeding and so, prenatal breastfeeding education can influence mothers' breastfeeding latch skills and reduce the risk of nipple pain and fissures [28]. Some respondents admitted to giving their baby pre-lacteal food before six months mostly because of delayed milk supply. Sometimes a mother's health condition may cause a brief delay in milk production; conditions such as premature birth, severe postpartum bleeding, severe stress, obesity, and an infection that includes a fever could cause this [29]. The majority admitted to the use of galactagogues to increase breast milk supply. This is akin to a study carried out in Australia amongst breastfeeding women who consumed certain galactagogues

to improve their breast milk supply [30]. According to our study, the common ones used by mothers are pap, kunu, tea, almonds, and milk. Kunu is a popular drink made from grain such as millet or sorghum, though it can be made from maize as well. It is popularly consumed by Nigerian mothers to increase the volume of breast milk [31].

The fifth step in WHO/UNICEF's "Ten Steps to Successful Breastfeeding" states that support is given to mothers to initiate and maintain breastfeeding and manage common difficulties [32]. Difficulties encountered could include the inability to breastfeed when separated intermittently from the infant for one reason or another. As a result, some mothers extract their breast milk into a bottle and store it properly for their infants. Storage of breast milk at room temperature (up to 25 °C) is recommended for up to 4 hours [33]. And in the refrigerator (4 °C) for up to 4 days [33]. The majority of the respondents in this study indicated that they do not practice breast milk extraction mainly because the process of extraction is painful and they do not know how to carry out the extraction. However, about one-third of the respondents admitted to extracting and storing breast milk. Breast milk extraction is done manually by a majority of the respondents. Research carried out in Perth indicated that more than three-quarters of mothers in the study practiced breast milk extraction in the first month after birth [34]. Using their hand, but the majority use breast pumps to facilitate easy expression.

Conclusion

This study found that breastfeeding mothers have a very good knowledge of the benefits of exclusive breastfeeding for their infants and themselves. They equally had a positive attitude to exclusive breastfeeding but do not practice it. It is paramount that antenatal programs inculcate in-depth lactation education and counseling, and education on breast milk extraction and storage in their clinic.

Limitations

The mothers' behavior and attitude over some time before the study could not be determined. Some of the respondents may have tried to provide socially desirable responses which may have gone undetected.

Recommendations

There is a need for an educational program on exclusive breastfeeding to childbearing mothers, which could be extended to communities to cover even mothers who do not go to hospitals for delivery. This will further boost their knowledge of the importance of exclusive breastfeeding and more importantly the method of extraction of breast milk and storage, especially for working-class mothers.

Acknowledgment

The authors wish to acknowledge the Tertiary Education Trust Fund (TETFund) and Institution Based Research (IBR)



Grant for their financial support which helped to facilitate the study. The authors also appreciate the management and staff of the 12 hospitals especially the nurses involved in the study and ultimately to God Almighty for His mercies and grace.

Funding

Tertiary Education Trust Fund (TETFund) and Institution Based Research (IBR) Grant, reference no; TETF/DR & D/CE/UNI/AWKA/RG/2022/VOL.1).

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