Breastfeeding Knowledge, Exclusive Breast-feeding Duration, and Perception of Insufficient Breast Milk Supply among Lactating Mothers in Ikwuano LGA of Abia State

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ABSTRACT

***Background:** The rate of exclusive breastfeeding in Nigeria is still suboptimal Mothers' breastfeeding knowledge and perception of breast milk supply is integral to achieving optimum breastfeeding.*

***Objective:** This study determined exclusive breastfeeding (EBF) knowledge, duration, and Perception of Insufficient Milk Supply (PIMS) among lactating mothers in Ikwuano LGA.*

***Methods:** Three hundred and fifty lactating mothers were randomly selected from five Primary Health Care centers in Ikwuano LGA. A semi-structured questionnaire that comprised of socio-demographic characteristics, EBF knowledge and practice questions and Perceived Insufficient Milk Supply scale was used to elicit information from mother and infant (0-9 months) pairs. Data were analyzed using descriptive statistics.*

***Results:** Results revealed that 58% of mothers had a good EBF knowledge. The mean duration of exclusive breastfeeding was 3 months and only 24.1% practiced exclusive breastfeeding for 6 months. About 54% of the respondents perceived insufficient milk supply Mothers used less sensitive indicators such as infant satiety cues and enough breast milk in the breast to identify PIMS, while sensitive indicators like weight gain and wet diapers were less reported. Inadequate food and drink intake was found to be responsible for most (65%) of mothers perceived reason for insufficient milk supply.*

***Conclusion:** The duration of exclusive breastfeeding and exclusive breastfeeding rate was below the national target. Improving mothers' breastfeeding knowledge and educating them on the correct way of identifying insufficient milk supply are important determinants in achieving the six months EBF practices.*

Keywords: Exclusive breastfeeding, knowledge, lactation, duration, perception

INTRODUCTION

Breastfeeding is the appropriate form of nutrition for infants because breast milk contains all the essential nutrients needed for growth and development. As stated by WHO, breastfeeding an infant exclusively for the first six month of life is the optimum method of feeding an infant (1). Exclusive breastfeeding is important for the mother and the child (2). Increasing the prevalence of exclusive breastfeeding has been noted to reduce under-five mortality by 13% in low income countries (3).

The benefits of exclusive breastfeeding (EBF)

depend on the initiation time and duration of breastfeeding (4). Despite the WHO/UNICEF recommendations, low rates of exclusive breastfeeding are still reported, globally, the prevalence of EBF is around 30-50% (4, 5). Only 23 countries have met the 2030 Global goal of exclusive breastfeeding for six months (6). This low prevalence was also noted in recent studies in Nigeria (7, 8). It has been shown that more than 90% of lactating mothers commence breastfeeding after birth but only 29% breastfeed exclusively for six months in Nigeria (9, 10). Poor breastfeeding knowledge still persists among mothers and early introduction of water and foods before six months is a common behavior among Nigerian mothers and caregivers (11, 12). These call for urgent attention and research exploring factors hindering the goal of achieving breastfeeding exclusivity need to be undertaken for effective intervention and strategies to be planned.

Reasons for lack of breastfeeding exclusivity and suboptimal breastfeeding have been highlighted in previous studies globally (13, 14). Perceived insufficient milk supply is one of the reasons for the lack of breastfeeding exclusivity (13-16). The perception of insufficient milk supply (PIMS) is defined as a mother's belief that her breast milk is inadequate in amount or nutritional quality to meet her infant's need (17). A large percentage of mothers reported insufficient milk supply as the main reason for the cessation of any form of breastfeeding (13, 14). While the exact prevalence of PIMS is unknown (reported between 30% and 80% of women) many investigators report the rates of PIMS as the percentage of the women who wean early because of insufficient milk supply (18, 19).

Studies also reported that PIMS is one of the common causes of breastfeeding cessation which can linger for several months (20, 21). Perception of insufficient milk supply for lack of breastfeeding exclusivity and breastfeeding discontinuation were reported in Asia (13, 18, 22), East Africa (23) and Nigeria (24). Though multiple studies reported insufficient milk supply, research on self-reported reasons for insufficient milk supply has not been fully explored in Nigeria. Therefore this study aimed to determine the mothers' breastfeeding knowledge, duration of exclusive breastfeeding, PIMS, and reasons associated with PIMS.

METHODOLOGY

Study Design and Location

The study was a descriptive cross-sectional study conducted in Ikwuano Local government Area of Abia State. It is one of the five LGA that make up the Abia Central Senatorial District. The vegetation of the area is predominantly lowland rain forest. Ikwuano is known for its agricultural activities. This has led the area to become a major supplier of food for Abia state (25).

Sample size and sampling procedure

A three stage sampling procedure was used in selecting the mothers. In the first stage, Ikwuano LGA was selected using purposive sampling from five LGA in Abia central Senatorial District. In the second stage, a simple random sampling technique, balloting without replacement was used to select five (5) primary health centers from a list of nine health centers in the LGA. In the last stage, 70 consenting mothers of children 6-9 months from each of the 5 primary health center were selected using simple random sampling technique making the total sample size 350.

Data collection procedure

A semi-structured interviewer-administered questionnaire was designed to elicit information on socio-demographic data, mothers' knowledge of exclusive breastfeeding, duration of exclusive breastfeeding, perception of insufficient breast milk supply and reasons for insufficient milk supply.

Nine breastfeeding knowledge questions were developed from review of literatures (12, 26-28). The questionnaire was pre-tested among mothers outside the study area. Correct answers were awarded 5 and incorrect answers = 0. Except for one question that is on the reverse side, that was scored YES=0 and NO= 5. The maximum score for knowledge questions was 60, and scores were graded as poor knowledge 0-15, average knowledge 20 - 30, and for good knowledge 35 – 45.

Determination of exclusive breastfeeding duration

Breastfeeding duration was measured by the number of months an infant was given breast milk alone and mothers were asked to state how old an infant was when water, formula, herb, or foods were first introduced.

Determination of perception of insufficient milk supply:

The maternal perception of milk supply was determined using the PIMS (Perceived Insufficient Milk Supply) questionnaire adapted from the work of other authors - McCarter-Spaulding and Kearney (9) and Kent et al (17). It is an 8-item questionnaire, one question is a YES and NO question, the seven other questions were 'My breast milk is nutritious enough to nourish my baby', 'My baby appears satisfied after feeding', 'My breast milk have all the nutrition my baby needs', 'My breast seem to have enough milk', My baby is growing well, 'My baby has enough soiled napkins/diapers', 'my infant gained weight'. Mothers completed the PIMS questionnaire on a 4-point Likert scale ranging from 4 (strongly agree) to 1 (strongly disagree).

The maximum score that was obtained is 28, the minimum score was 7 Scores were grouped into two, perceived breast milk insufficiency as 0 – 14, perceived breast milk sufficiency as 15. The scores for each variable were summed and the mean score were calculated.

Reasons for insufficient milk supply were assessed; reasons were derived from literature and included in the questionnaire (16). Mothers were asked to give additional reasons not listed through an open-ended option.

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Statistical analysis

Data were coded and entered into IBM SPSS version 21. Descriptive statistics like frequencies, means, and proportions were used to explain variables. Responses from open-ended questions on reasons for insufficient milk supply.

Ethical approval

This study was approved by the Health Research Ethics committee (HREC), Federal Medical Centre, Umuahia (FMC/QEH/G.596/VOL.10/526). Participants provided verbal informed consent before the study commenced.

RESULTS

As shown in table 1, 350 mother-child pair participated in this study. The mean age of mother was 34 + 4.86 years majority (87%) of the mother were married. About half of the participants have completed their secondary school education and a greater percentage of them were employed. The mean age of the children was 4.2 $\pm$ 2.12 and the males slightly were more than the females.

As shown in Figure 1,the duration of exclusive breastfeeding in the study area were; 34.2%, 20.2% , 21.2% and 24% at 1-2 months, 3months, 4-5 month and 6 months respectively. The mean duration of breast-feeding was 3 months

Results from figure 2 revealed that most of the mothers who did not practice EBF up to 6 months were because baby felt unsatisfied with only breast-milk (30.7%), breast-feeding was not convenient (20.4%) or mother returned to work (16.5%).

Information on individual question on mother's perception of insufficient breast milk is summarized in table 3. Results revealed that more of the respondents perceived breast milk as insufficient to the baby. Also, mean perception revealed that respondents were in agreement to the following factors; breast milk is nutritious and capable of nourishing the child (3.17), baby is growing well (3.15) and records appropriate weight gain (3.28), baby has enough soiled napkins/diapers (3.23)

Results on the categorized level of perceived breast-milk supply revealed that 54% of them felt their breast-milk supply was insufficient

Results from table 4 revealed that insufficient food (31.3%) and fluid (34.6%) intakes were reported by a good number of the respondents as the perceived reasons for breast milk insufficiency.

Table 1: Socio-demographic data of the respondent (n=350)

Variables	Frequency	Percentage
Mothers' age		
≥ 20	75	21.3
31-35	103	29.4
36-40	95	27.1
41-45	48	13.7
≥ 45	29	8.3
Mean age ± standard deviation	34 ± 4.86 years	
Marital status		
Married	305	87.1
Single	38	9.7
Divorced	7	2.0
Highest educational level		
Non-formal	9	2.6
Primary	21	6.0
Secondary	171	48.9
Tertiary	149	42.6
Mothers' employment status		
Unemployed	103	29.4
Self employed	101	28.9
Government Employee	146	41.7
Number of Children		
1 child	94	26.9
2 children	108	30.9
≥ 3children	148	42.2
Child characteristics		
Age in months, mean ± SD	4.2 ± 2.12 months	
Sex		
Male	178	50.9
Female	172	49.1

DISCUSSION

Achieving exclusive breastfeeding rate of 50% by 2025 is one the global targets of the World Health Assembly (29, 30). Having an outstanding knowledge of exclusive breastfeeding can help and foster the practice. In this study, more than half of the mothers were knowledgeable about EBF. This result was consistent with recent findings (12). However higher percentage of EBF knowledge was also reported in Abia (26). This may be as a result of better awareness of the benefit of EBF in the study area.

Most mothers commenced breastfeeding immediately after birth but very few were able to sustain the practice of exclusive breastfeeding until six months. In this study a recall approach was used to determine the duration of exclusive breastfeeding, the duration of exclusive breastfeeding was 34.6%, 22.1%, 24.9% for the first 2 months, 3months, and 4 -5 months, and at 6 months respectively. Therefore exclusive breastfeeding in the study was 24.9%. In line with this, Osibogun et al also reported that more than half of the mothers actually commence EBF but

Table 2: Mothers' knowledge of breastfeeding

	Variables	YES	%	NO	%
1	Breastfeeding should be initiated in the first 1 hour of birth	311	88.9	39	11.1
2	A child should be breastfed on demand	330	94.3	20	5.7
3	Breast feeding duration ≥15 minutes from each breast	315	75.8	32	24.2
4	Breast milk contain antibodies	76	21.9	271	78.1
5	Colostrum good for the child	286	81.7	64	18.3
6	Breastfeeding decreases a mothers weight	119	34.0	231	66.0
7	Complementary foods and water should be introduced at 6 months of age	233	66.6	117	33.4
		TRUE	%	**FALSE**	%
8	Breast feeding is beneficial to the mother and child	158	45.1	192	54.9
9	Breast milk is better than formula milk in fulfilling child necessary dietary requirements	296	84.6	54	15.4

Mothers' EBF knowledge level

Variable	F (%)
Good	203 (58)
Average	91 (26)
Poor	56 (16)

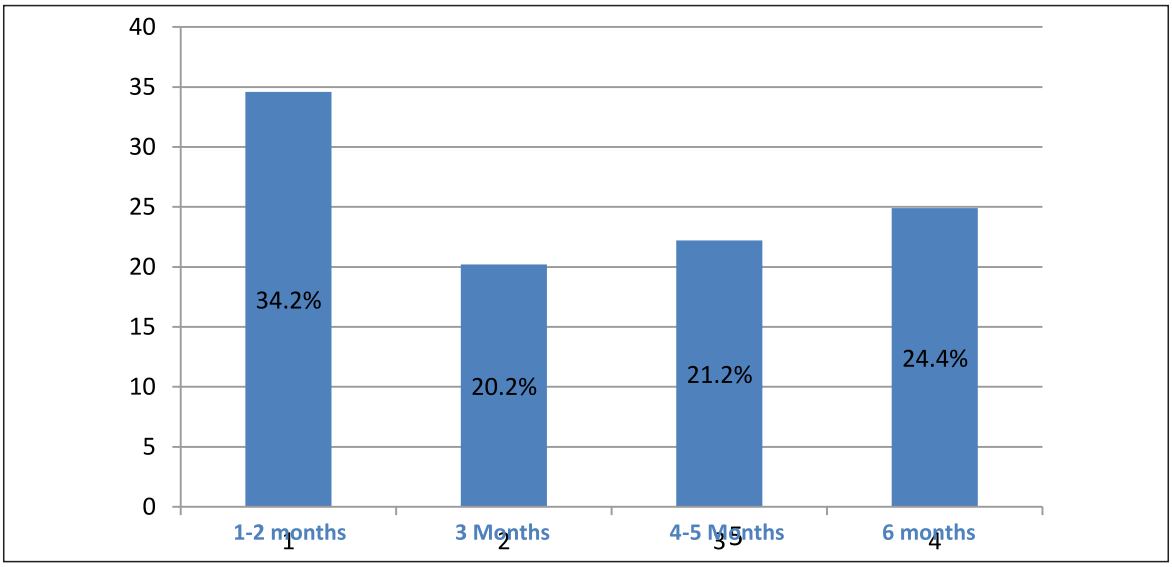

Figure 1. Duration of exclusive Breastfeeding

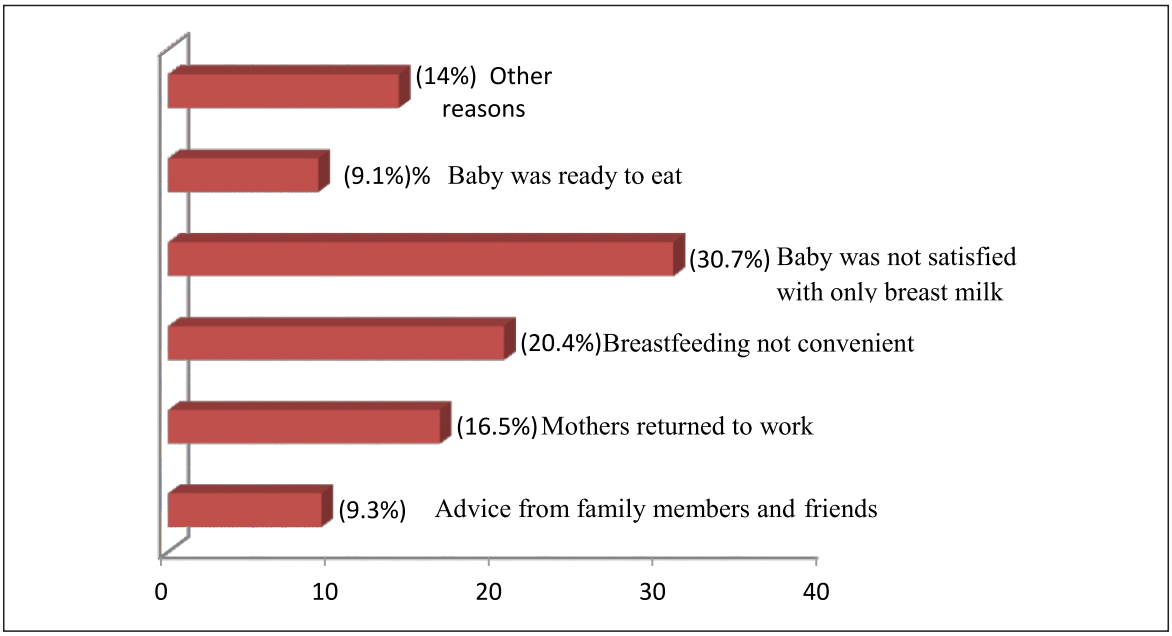

Figure 2. Reasons for non-compliance to exclusive breastfeeding

Table 3: Perception of insufficient milk supply questionnaire

1.	Breast milk can be insufficient for the baby	Yes No	75% 25%			
	Individual items	SA (%)	A (%)	D (%)	SD (%)	MEAN
2	My breast milk is nutritious enough to nourish my baby	61.3	19.0	14.4	5.3	3.17(1.16)
3	My baby appears satisfied after feeding	18.2	15.9	43.6	20.3	**2.12(1.10)***
4	My breast milk contains all the nutrients my baby needs	20.5	30.1	29.1	20.3	**2.24(1.13)***
5	My breasts seem to have enough milk	22.9	18.3	28.7	30.1	**2.30(1.26)***
6	My baby is growing well because of breastfeeding	50.5	37.9	8.0	3.6	3.15(1.10)
7	My baby has enough soiled napkins/diapers	53.0	24.8	14.3	9.2	3.23(1.15
8	Infant gained weight	46.0	47.5	4.9	1.6	3.24(1.12)
	Total mean = 19.4 ± 5.1					

*Less sensitive indicator for breast milk insufficiency

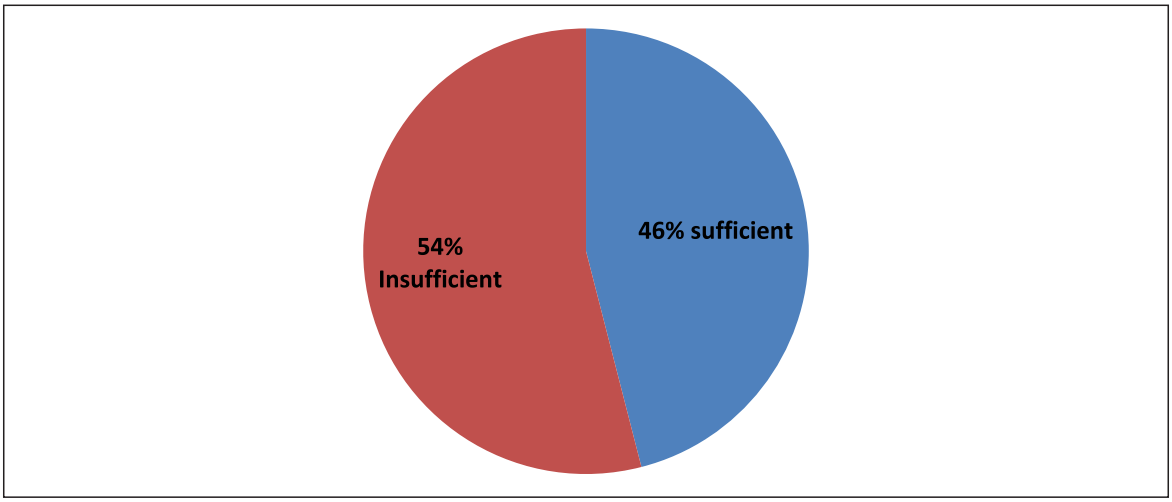

Figure 3. Mother's level of perceived breast-milk supply

Table 4: Reasons for perceived insufficiency (n= 263)

Variables	Percent	Frequency
Insufficient food intake	82	31.2
Insufficient fluid intake	91	34.6
Poor appetite	31	11.8
Lack of rest/stress	30	11.4
No reason	29	11.0

there was a high rate of dropout and only a few (28%) continued until the child is six months of age (11). Despite the widespread publicity of the benefits of exclusive breastfeeding, low rates of exclusive breastfeeding are reported in recent studies, these call for concern as most children are at risk of infection, malnutrition and may not live to celebrate their first birthday(3). In addition, mothers did not have adequate knowledge of EBF, duration of EBF, the importance of colostrum and initiation of complementary food in the study area.

Several reasons were noted to be the cause of inappropriate breastfeeding practices and shorter EBF duration in the study area. The most significant reasons for the early introduction of water and complementary feeding was mothers' concern that breast milk alone was not sufficient for the baby, and this has been reported in previous studies in Nigeria (31, 32) where mothers felt that breast milk was inadequate for their babies. Studies have shown that most women use infant satiety as a primary indication of milk supply (9, 16). This term is a subjective assessment made by mothers telling if their baby appeared satisfied and has been a leading reason breastfeeding in-exclusivity.

Perceived insufficient milk supply has been reported to be a major barrier to exclusive breastfeeding globally (9, 15, 16). The prevalence of self-reported PIM in this study was high. This aligns with existing research (9, 32, 33). The perceptions of not having enough milk in the breast and the perceived babies' dissatisfaction with only breast milk were the prevalent indicator reported in this study, infant satiety was also a prevalent indicator for insufficient milk supply from other studies (9, 23). However, it was also revealed from the study that more sensitive indicators for insufficient breast milk supply such as wet diapers and infant weight gain were less reported. The indicator for insufficient milk supply

was deduced from infant crying and hungry look, mothers attributed infant crying to signs of hunger. This report was similar to other cross-sectional studies (16, 33) however, contradictory results were reported in Australia and North America (9, 17). These results imply that Nigerian mothers were unable to correctly identify the signs of PIM and this could be the reason for early supplementary feeding. Educating mothers on the appropriate signs of PIMS can be a strategy to improve the practice of exclusive breastfeeding for the first six months in Nigeria.

Mothers who perceived inadequacy of breast milk significantly can influence the duration of exclusive breastfeeding and increase the danger of early commencement of complementary feeding (14, 34), a similar study revealed that mothers who perceived breast milk insufficiency where 11 times likely to cease exclusive breastfeeding than mothers who perceived enough breast milk supply (35). This could be a reason for low compliance to the six months exclusive breastfeeding practice and early commencement of complementary feeding in the study area.

Reasons for insufficient milk supply were reported by mothers in this study, inadequate fluid intake was the most frequent reason reported by mothers closely followed by inadequate food intake. This result was in contrast with Lou et al who reported poor appetite as a prevailing reason for insufficient milk supply (16) it therefore, implies that mothers ascribe dietary intake to breast milk supply. This also portrays an important cultural practice among the Igbos in the eastern part of Nigeria where so specific soups and foods are consumed in the first few months postpartum known as "*mmiri Oku ji*" which is believed to enhance breast milk supply. These findings may contribute to the planning of effective nutrition intervention programs designed to improve exclusive breastfeeding and reduced early supplementary feeding.

Limitation

The study was conducted only in PHCs center and may be prone to social desirability bias. The data collected were quantitative. Future research can use qualitative data collection

Conclusion and Recommendation

The study revealed that there was suboptimal breastfeeding practice in the study area. Perceived insufficient milk supply was the major reason for shorter exclusive breastfeeding and early weaning. More than half of the mothers used infant satiety cues as a measure of insufficient milk supply. Strategies such as educating mothers on the physiology of breast milk production before and after delivery should be incorporated in intervention programs. Mothers should get support during breastfeeding initiation, and factors that influence milk let down such as timely initiation, appropriate suckling pattern, frequent breastfeeding, and adequate dietary intake should be explained to mothers. Obstetrics, pediatricians, nutritionist, and dieticians can educate mothers about neonates' and infants' behaviors, appropriate feeding cues, and correct ways to assess infant dietary intake such as checking wet and soil diapers and weight gain. Mothers attributed dietary intake to milk supply. This can also be looked into during nutrition intervention programs.

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