

Original Research Article

Knowledge-practice gap in breastfeeding and the factors influencing it among the urban mothers attending the immunization clinic under a tertiary care hospital in eastern India

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ABSTRACT

Background: Breast milk is a complete food for the newborn. Timely introduction of breast milk and exclusive breast feeding till 6 months of age of a newborn, with proper positioning and adequate attachment to mother's breast is encouraged as Initiation of breast feeding within the first hour after birth, prevents the newborn from the risk of morbidity and mortality. An effective improvement in mother's self efficacy and understanding on breast feeding will be useful in meeting the nutritional goals of the child. Aim of study was to assess the knowledge, perception and practice among the mothers on breast feeding and the factors influencing their practice and to determine probable association of ideal infant weight with exclusive breast feeding.

Methods: Descriptive cross-sectional study among 390 mothers attending the Immunization Clinic of Kalinga Institute of Medical Sciences, Bhubaneswar. They were assessed if they breast fed infant by following the ideal positioning and proper attachment to breast and for their knowledge, perception and practices of breast feeding. Analysis was done using STATA-17.

Results: Good knowledge, perception and practice of breast feeding was present among 88.2%, 83.5% and 69.8% mothers, respectively. Association between ideal weight of baby and proper breast feeding technique was found. Knowledge was more positively related to practice, than to perception.

Conclusions: Children who have been exclusively breast fed, had the right weight for age. Mother and other family members must be aware of proper technique, adequacy and frequency of breast feeding for the best nourishment of the newborn.

Keywords: Breast feeding, Breast milk, Knowledge, Newborn, Perception

INTRODUCTION

The foundation of proper human growth and development is attributed to adequate nutrition.¹ Though India is progressing towards development, malnourishment and hunger in the vulnerable population holds back the progression. In 2019, of the 118 countries, India has been ranked 102 by Global Hunger Index (GHI) report.²

Tackling this problem involves taking the right step from beginning of life by addressing the nutritional needs.

Breast milk is a complete food for the newborn.¹ Initiation of breast feeding within the first hour after birth, prevents the newborn from the risk of morbidity and mortality. Reports suggests that in the developing countries, infant mortality rate is 5 to 10 times more in

the children who have not been breast fed or have been breast fed for less than 6 months.³

Breast feeding is a smart and effective investment towards reduction of financial burden over a country, by laying the brick of foundation of positive health in newborn and under five children.²⁻³ This directly has an influence on growth and cognitive development supporting their physical and mental well being in the future safeguards their quality education. Moreover, there are evidence that breast feeding stands as a preventive factor against childhood obesity.⁴⁻⁵ Timely introduction of breast milk and exclusive breast feeding till 6 months of age of a newborn, with proper positioning and adequate attachment to mother's breast is encouraged.⁶ India is witnessing an inclining trend in exclusive breast feeding and in some states like Odisha, the score has increased to 72.9% from 65.6% in the year 2019-2021 (NFHS-5).⁷ An effective improvement in mother's self efficacy and understanding on breast feeding will be useful in meeting the nutritional goals of the child. This can be done by supporting salient drivers of breast feeding namely, health and nutrition of mother, her knowledge, perception and willingness to practise breast feeding and support from family in terms of the fore mentioned. There is a meagreness of studies to evaluate these salient drivers and determine relationship of weight and exclusive breast feeding in children.

Therefore, aim of this study were to assess the knowledge, perception and practice among the mothers on breast feeding and the factors influencing their practice and to determine probable association of ideal infant weight with exclusive breast feeding and to lay down preventive and health promoting recommendations for the population under study.

METHODS

It was a hospital based, descriptive cross-sectional study conducted from June 2022 till September 2022 in the Immunization clinic of Kalinga Institute of Medical Sciences, Bhubaneswar, Odisha.

The sample size was calculated by considering the awareness of mothers on breast feeding to be 65.1% with reference to a previous study, at 95% desired confidence level.⁸ Required sample size for the study was 384. Presuming a non response of 10%, optimum target sample size taken was 390, in the immunization clinic after considering the inclusion criteria. The study was conducted as part of awareness program for the World breast feeding week after due permission from the head of the institute and department.

To be included in the study, the participant had to be a mother of child of age 1 year or below, irrespective of the gender of the child, engaged in breast feeding practice and who consented to participate. Convenient sampling was applied to enrol the participants. 390 mothers were

interviewed using a semi structured, mixed questionnaire during their visit to the clinic for child's vaccination and also quizzed for relevant history. A team was formed led by the researcher, medical interns and nursing staff. The tool for the interview was developed using references from previous studies.⁹⁻¹¹ The tool was translated into the local language- Odia, for the ease of eliciting answers as every participant did not understand English. This questionnaire was pilot tested for checking its validity among 30 mothers before being finalized to be used in the study.

For the knowledge assessment, 7 questions were asked (knowledge about exclusive breast feeding, the right time to give breast milk to a child after birth, mother's milk protects baby from infections, knowledge regarding colostrum, mother's milk accelerates baby's brain and jaw development, nutrition of mother affects the milk production and proper positioning and attachment of baby to breast affects adequate feeding). For scoring, a 5-point Likert scale was used (Always = 5, Often = 4, Sometimes = 3, Seldom = 2 and Never = 1). The scale score is the sum of the item scores divided by the number of items. The scale score range was 1-5 and a higher scale score indicated a higher level of addiction. A score of 2 or less was labelled as poor knowledge, score between 3-4 was average and score of 5 was good knowledge. The responses on perception variables were calculated using 4 point Likert scale (1 =strongly agree, 2 = agree, 3 = disagree, and 4 = strongly disagree). The participants with a score below the calculated average had negative perception and ones with a score equal to or above the average had a positive perception. Women were also asked about their readiness for breast feeding and if they had any post pregnancy body image issues.

After the interview, the mother was requested to demonstrate the positioning and the attachment of baby to the breast while feeding. This was carried out in a private space (Breast feeding room) available in the clinic after due consent of the participant. The demonstration was observed for the requisite findings. The information included in study are observations of the researcher. In order to judge the positioning and attachment of the child to breast while feeding, scoring system was adopted from WHO.¹² The ideal positioning of baby while breast feeding was defined as "Breast feeding where the mother is comfortably seated with straight and well supported back, trunk facing forward. While the baby's body is straight, close and facing towards mother, the neck is either straight or slightly bent back and the whole body is adequately supported". The ideal attachment of baby to breast while breast feeding was defined as "Breast feeding where baby's mouth is wide open, chin touches the breast and the lower lip is curled out like a fish and more areola is seen above the baby's mouth." The details of the scoring for positioning and attachment have been shown in Table 1.

Following the interview session, an opportunity was taken to enhance the participant's knowledge, perception and practice of breast feeding by showing a slide presentation on "Breast feeding- Its importance, proper positioning and good attachment, adequacy and frequency

of feeding." Every interview ended by recording the anthropometric measurements of the participant's child and the mother's feedback on the entire session on breast feeding.

Table 1: Description of the scoring system for positioning and attachment of baby while breast feeding.

Observation	Score	Interpretation
Scoring for positioning⁽¹²⁾		
1 criterion from the mother's position and 1 criterion from baby's position or both from mother's position	1-2	Poor
At least one criteria from the mother's position and two or three criteria from the baby's position	3-4	Average
At least two criteria from the mother's position and three or four criteria from the baby's position or all criteria	5-7	Good
Scoring for attachment⁽¹²⁾		
Any one of the four criteria	1	Poor
Any two of the four criteria	2	Average
Any three or all the four criteria	3-4	Good

After data collection, it was organized and coded in Microsoft excel and analyzed using STATA-17. The descriptive analysis of the study cohort will be performed with tabulation and cross tabulation to know the distribution of the covariates. Univariate and bivariate analysis was done to find the crude associations in data. Stratified analysis (Mantel-Haenszel technique) was done for association between exposure and outcome in terms of rate ratio adjusted for confounders and possible effect modification, with 95% confidence interval used, to determine the predictors of ideal weight of infant. Logistic regression model was built to find association between ideal weight of infant and EBF. Likelihood ratio test (LRT) will be performed to confirm the association.

RESULTS

The study was conducted among the mothers of children less than 1 year of age to assess their awareness,

perception and practice of ideal breast feeding. The Figure 1 depicts the characteristics of the study participants.

The mean age of the participants was 29.8 years. The mean age of the mothers at marriage was found to be 23.5 years. Majority of the study participants were Hindu (72.5%) followed by Muslim (30.9%). The findings show that majority of mothers who accompanied their baby for vaccination were the primary care taker of the baby, irrespective of working or not. This hints at the awareness among the mothers regarding importance of vaccination. While, out of the rest who were not the primary care taker, reported grandmother (88%) or aunt (12%) of the baby to be the primary care taker. 72% reported to have attended post natal check (PNC) up along with the baby.

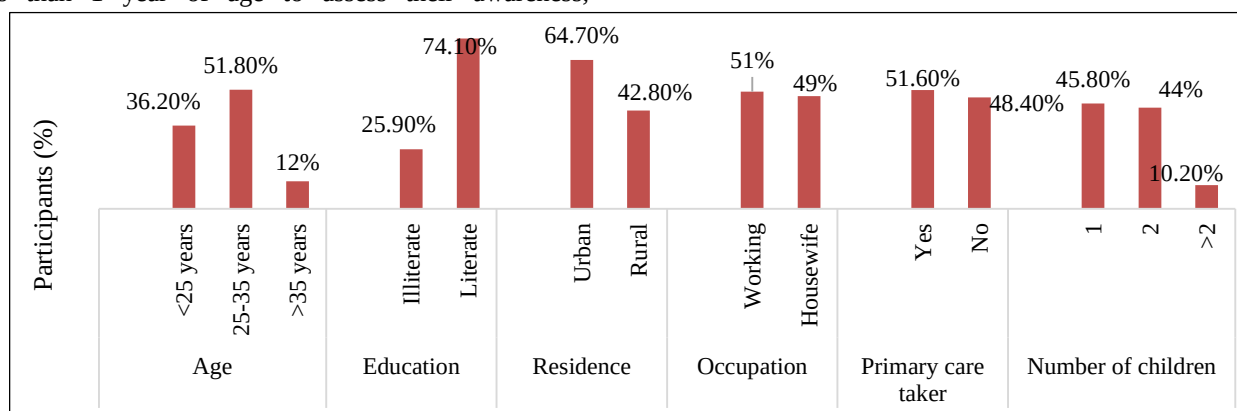


Figure 1: Baseline characteristics of the participants (n=390).

On assessment of knowledge of the mothers on breast feeding, based on the categorization detailed in study

methodology, 88.2% had good knowledge while 9.5% had average knowledge. 92.3% of the participants were

aware of the concept of “Exclusive breast feeding (EBF)” of which 79.5% reported to have gained the awareness during the antenatal visits, 17.2% were rightly influenced by the awareness programs on breast feeding which includes Nukkad Natak (Role play in the community), posters and other IEC materials. It was interesting to witness that 90% of the sample could confidently say that mother’s milk protects baby from infections and diseases by boosting the immunity of the baby. 68.1% of the mothers considered that the right time of giving breast milk to a child was within 1 hour of birth while 61.4% knew about colostrum and its significance.

Only 23% participants knew that mother’s milk accelerates baby’s brain and jaw development while 25.7% were conscious regarding the fact that mother’s milk lacks iron. 72.6% reported to be aware that mother’s nutritional status affects the milk production and only 38.5% had the knowledge regarding proper positioning and attachment of baby to breast affecting the adequate feeding. A very appreciable finding was reported by 89.3% of the mothers regarding the EBF practice by expressing out milk and storing it even if the mother is out. Moreover, on detailed interviewing, 76.4% reported to have received counselling on breast feeding (p value=0.052), out of which 65% received it during the antenatal care (ANC) visit to health care set ups.

Perception on importance of breast feeding was assessed among the mothers where 83.5% of the sample had good perception while 15.2% had average perception. 81% had the correct idea of breast feeding being essential for a newborn (p value=0.012). 89.6% responded breast feeding to be a mode of developing bond between the mother and her child while only 42.6% had the perception that breast feeding is beneficial for the mother also. 85.5% had the perception that if baby falls asleep during

feeding, then the baby is adequately fed. This perception was statistically significant with the birth order (p value=0.041) and number of ANC visits (p value=0.028).

The practice of breast feeding by the study participants was observed and assessed where 69.8% mothers were found to practise good positioning of the baby while feeding whereas 24% had an average practice of positioning, as per the categorization depicted in Table 1. Good positioning was found to be statistically significant PNC visit attendance of the mother (p value=0.001). In 80.9% participants, good attachment of the baby to the breast while feeding was observed. Unfortunately, in 13.4%, it was found to be poor. 65.4% (255) participants reported to have exclusively breast fed the baby till 6 months of age while the rest (34.5%) deviated from it due to barriers to the practice like lack of milk production (18.6%), going back to work outside home (13.7%), body image issues (13.6%), breast infection (1.5%) and misguidance from family (0.7%).

74% of the mothers had the practice of breast feeding the baby while laying down. On asking about the approximate frequency of feeding, 66.8% reported it to be 8-10 times a day. 88.2% reported to hear suckling and swallowing sound while baby takes feed. None of them stopped breast feeding while on medications. Interestingly, 95.7% of the mothers reported to have the practice of keeping a track of change in baby’s weight and height.

The study reports that the babies who have and had been exclusively breast fed for upto 6 months of age, had ideal weight for age (p value<0.001), in comparison to those who were not. The practice of EBF was found to be statistically significant to babies who were delivered institutionally (Table 2).

Table 2: Association of breast feeding practice with characteristic of the babies (n=390).

Variables	Frequency (%)	P value*
Birth weight (in kg) (mean±SD)	2.48±1.2	-
Current weight (in kg)		
<8	6 (1.54)	0.059
8-10	292 (74.87)	
>10	92 (23.59)	
Birth order		
1	183 (47.12)	0.054
2	191 (49.22)	
>2	16 (4.46)	
Place of birth		
Domiciliary	2 (0.51)	<0.001
Institutional	388 (99.49)	
Current type of feeding		
Exclusive breast feeding	245 (62.82)	0.249
Complementary and breast feeding	145 (37.17)	
Frequency of feeding (per day)		
<8 times	106 (27.18)	0.042
8-10 times	188 (48.21)	

Continued.

Variables	Frequency (%)	P value*
>10 times	96 (24.61)	
Duration of exclusive breast feeding		
<6 months	255 (65.38)	0.156
6-9 months	135 (34.62)	
The first liquid the child consumed soon after birth		
Honey	7 (1.79)	0.075
Colostrum	280 (71.79)	
Artificial milk	88 (22.56)	
Water	15 (3.85)	
Frequently suffers from diarrhoea (atleast 5 episodes of illness within 1 year)	125 (32.05)	0.035
Frequently suffers from respiratory diseases (atleast 5 episodes of illness within 1 year)	177 (45.38)	0.494
Maternal complication during delivery	33 (8.46)	<0.001

*LRT p value, after adjusting for socioeconomic status, age and education of the mother.

Table 3: Adjusted estimate of the rate ratio for exclusive breast feeding on ideal weight for age of infant (n=390).

		Adjusted rate ratio*	95% confidence interval	p value**
Exclusive breast feeding	No	1.0	(1.63-3.66)	0.045
	Yes	2.44		

*Adjusted for socioeconomic status, residence, age and education of mother and maternal complication. **From LRT.

It was found that there exists an association between weight for age of baby and ideal breast feeding technique (aRR 1.68, 95%CI: 0.72-2.64, p value= 0.033).

By Mantel-Haenszel technique, the predictors of association between infant weight and EBF identified were socioeconomic status, residence, age and education of mother and maternal complication during delivery.

Upon adapting forward approach in building regression model for the association of exclusive breast feeding and ideal weight of infant, after adjusting for socioeconomic status, residence, age and education of mother and maternal complication during delivery, it was found that the infant not being exclusively breastfed were at 2.44 times risk of not having ideal weight for age (aRR 2.44, 95%CI:1.63-3.66, N=390) (Table 3). After adjustment, there was strong evidence that ideal weight of infant is associated with EBF (p value=0.045).

Table 4: Association between knowledge, perception and practice on breast feeding among the participants.

Pearson correlation coefficient	Practice	Perception
Knowledge	0.302*	0.216*
Practice	-	0.162*

*Correlation is statistically significant at <0.001 level.

Table 4 represents the association between knowledge, attitude and perception on breast feeding among participants. Knowledge was more positively related to practice, $r(390) = 0.302$, p value <0.001, than to perception $r(390) = 0.216$, p value <0.001.

DISCUSSION

The experiences and practices of lactating mothers greatly vary. This spectrum of variation is mostly attributed to the health care services they avail or receive during the antenatal and post-natal period which includes the education and counselling regarding the domains of initiation of breast feeding, proper attachment to breast and good positioning of baby while feeding.

The present study shows that only 38.5% mothers had the knowledge regarding proper positioning and attachment of baby to breast affecting the adequate feeding. 69.8% mothers were found to practise good positioning of the baby which is surely coincidental finding since the prevalence of knowledge was lower. Like findings were noted in a study from Karnataka which showed that 73.7% pregnant women did not receive antenatal education on the techniques of breast feeding but report an appreciable improvement in the KAP scores post educating the women.¹³

68.1% of the mothers in this study knew that the right time of initiating breast feeding was within 1 hour of birth while another study from Odisha in 2015 found the awareness level to be 52.78%.¹⁴ This difference might be explained by the improvement in utilization of ANC and PNC services by the women due to strengthening of maternal and child health care system. In this study, 79.5% mothers reported to have gained the awareness during the antenatal visits to health care facilities, which is higher than the finding of study conducted in Ethiopia (66.2%).¹⁵

The Infant and Young Child Feeding (IYCF) practices includes components- timely initiation of breast feeding, exclusive breast feeding in the first 6 months of life and continue breast feeding till the infant is of 2 years and the timely introduction to complementary feeding.¹⁶ EBF is important as it decreases the risk of respiratory and diarrhoeal diseases among the infants and obesity in the adulthood.¹⁷⁻¹⁸ This practice solely varies with mother's awareness and perception and thus, the current study tried to assess the level of awareness and perception of the mothers.

The present study shows that 88.2% participants had good knowledge regarding breast feeding, of which not all were aware of the EBF practice. This discrepancy in lower prevalence might be due to inadequate training of the health care workers who are the first point of contact post delivery. While the North Eastern part of India reports the lowest EBF prevalence (68.0%), South India shows the highest prevalence (79.2%).¹⁸ A study in Uttarakhand reports only 37.2% to be aware of the ideal time of initiating breast feeding, 12% had knowledge about the benefit of breast feeding, 68.8% fed colostrum to their infant and 62.8% mothers considered breast feeding only on demand.¹⁹ The current study shows that there is a strong association between ideal breast feeding technique and ideal weight of the baby which stands in line with the finding of a cluster randomized control trial done in Udupi where the children in the intervention group (group of mothers who received education/training) gained 794 grams of weight more as compared to those in the control group and study conducted in where 81% mothers were aware that breast milk fed babies gain adequate weight.^{20,21}

This study could not establish causality as data on effect of other possible factors like food habits and hygiene practices of the child, health status of mother, were not included. Residual confounding might arise due to inadequate adjustments on confounding variables or due to unmeasured covariates.

CONCLUSION

The study concludes that children who have been exclusively breast fed, had the right weight for age and were not obese. Timely introduction and good hygiene practices during breast feeding should be encouraged and promoted in the healthiest and safest way. Mother and other family members must be aware of proper technique, adequacy and frequency of breast feeding for the best nourishment of the newborn. Face to face nutrition counselling with the help of pictorial messages or videos on breast feeding should be emphasized. This preferably should be done at least twice - during late ante natal phase and during the early post natal phase to improve the quality of breast feeding immediately after birth. Strengthening and monitoring of Baby Friendly Hospital Initiative is essential.

Moreover, a readily available natural nutrition practice like breast feeding is under used if the social milieu is compromised. Doing mild exercise either at workplace or at home safeguards body image added by breast feeding is a message that needs to be driven into minds of urban women.

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