Original Article

Prevalence of Exclusive Breastfeeding and Knowledge Related to Breastfeeding among Mothers Attending Immunization Center and Well-baby Clinic

Shuvendu Roy, Ashish K. Simalti[1], Bindu T. Nair[2]

Department of Paediatrics, CH (EC), Kolkata, [1]Department of Paediatrics, Army Hospital (R and R), Delhi Cantt, [2]Department of Paediatrics, Army College of Medical Sciences, New Delhi, India

Abstract

Background: The World Health Organization defines exclusive breastfeeding (EBF) as giving baby only breast milk for the first 6 months without adding any additional drink including water or food. We undertook this study with an objective to assess the prevalence of breastfeeding among mothers in North Indian setting. **Aims:** The aims of this study were to assess the prevalence of EBF among mothers attending a well-baby clinic and to look for variable significantly impacting probability of breastfeeding and assessing the challenges faced and existing knowledge regarding breastfeeding. **Materials and Methods:** This was a questionnaire-based one-point survey to assess the prevalence of EBF. The questionnaire was based on the review of literature and included parameters considered significant by various studies. Mother's knowledge regarding breastfeeding was assessed by another questionnaire. **Results:** A total of 970 mothers were approached who visited immunization center and well-baby clinic during the study. After taking out those who were unwilling and did not meet the criteria, we had 634 mothers who participated in our study. They were divided into two groups based on whether they exclusive breastfed their babies for 6 months or not. Comparison of both these groups revealed breastfeeding counseling to be the most important variable. **Statistical Analysis Used:** It is a cross-sectional type of study with a questionnaire-based one-point survey. The minimum sample size required was calculated using Daniel's formula: $n = z^2pq/d$. Consequent sampling was done. Chi-square test for independence was done to assess the association between both the groups for all the parameters recorded. **Conclusions:** All mothers were aware that breast milk is beneficial for their baby; however, the biggest problem was anxiety regarding the adequacy of their breast milk. There is also need for a widespread campaign related to harm done by prelacteals and substitutes of breast milk including cow milk.

Keywords: Breastfeeding, exclusive, mothers, well baby

Introduction

The World Health Organization (WHO) defines exclusive breastfeeding (EBF) as giving baby only breast milk for the first 6 months without adding any additional drink including water or food.[1] Infants should receive complementary foods only after the first 6 months with continued breastfeeding at least up to 2 years of age. Promotion of EBF for the first 6 months of life is the most effective preventive measure for saving the lives of infants and children in country like ours with high burden of under-five mortality. Promoting EBF is a very important mean of the millennium development goal for reducing child mortality.[2] However, despite its unequivocal benefits, the prevalence of EBF remains less than desired. Breastfeeding is supposed to be a well-established traditional practice in India. General impression is that Indian mothers universally breastfeed their babies; however, when it comes to EBF, the scenario is not so encouraging. According to the National Family Health Survey4 (NFHS4), the prevalence of EBF was only 54.9% among Indian infants aged between 0 and 6 months. The problem is much worse in North Indian states, prevalence of EBF being only16.9% in the state of Haryana.[3,4] We undertook this study with an objective to assess the prevalence of breastfeeding among mothers coming to immunization center

Access this article online

Quick Response Code:

Website: www.actamedicainternational.com

DOI: 10.4103/ami.ami_56_18

Address for correspondence: Dr. Ashish K. Simalti, Army Hospital (R and R), Delhi Cantt - 110 010, India. E-mail: ashishsimalti@rediffmail.com

How to cite this article: Roy S, Simalti AK, Nair BT. Prevalence of exclusive breastfeeding and knowledge related to breastfeeding among mothers attending immunization center and well-baby clinic. Acta Med Int 2018;5:79-83.

and well-baby clinic of a tertiary care center of North India. The objectives of this study were to identify the prevalence of EBF, challenges faced by mothers while breastfeeding, and breastfeeding-related knowledge among mothers who were visiting well-baby clinic and immunization center of a tertiary care center.

Materials and Methods

We conducted a cross-sectional type of study with a questionnaire-based one-point survey to assess the prevalence of EBF. The minimum sample size required was calculated using Daniel's formula: $n = z^2pq/d$. The prevalence of EBF was taken as 50% based on the NFHS-4. Keeping confidence interval of 95% ($Z = 1.96$) and precision of 5% ($d = 0.05$), the minimal sample size was estimated to be 384. Consequent sampling was done, and all the mothers whose babies were <12 months old and who reported to immunization and well-baby clinic of a tertiary care hospital in New Delhi between January 1, 2017, and December 31, 2017, were included in the study. Babies with a history of neonatal intensive care unit stay beyond 24 h were not included in the study. Similarly, babies requiring special care were also excluded from the study. Special care included oxygen therapy, supplemental feeds advised by pediatrician such as human milk fortifier, the baby not able to breastfeed due to medical or surgical issues such as neurological deficit or cleft palate. Ethical clearance was taken from the ethical committee while designing the study. The questionnaire was based on the review of literature and included parameters considered significant by various studies. There were 10 close-ended questions in the questionnaire as shown in Box 1. They were communicated to mothers in Hindi, and the answers were translated back in English by investigators. These included the education level of mother, number of antenatal visits, whether they received counseling related to breastfeeding or not, nature of delivery (normal/assisted/cesarean), timing of first breastfeeding, whether or not prelacteal feeds were given, age and sex of the baby, and number of children. The presence or absence of EBF in the first 6 months of the baby was assessed. In the end of this questionnaire, they were asked an open-ended question "what are the problems you faced or continue to face, while breastfeeding your baby" [Box 1]. Following this, a separate questionnaire was given to them to assess their knowledge regarding breastfeeding [Box 2]. Chi-square test for independence was done to assess the association between both the groups for all the parameters recorded.

Box 1: Questionnaire

Questionnaire 1
Birth order of index baby
Education level of mother
Number of antenatal visits (in relation to index baby)
Antenatal counseling regarding breast feeding
Type of delivery
Postnatal counseling regarding breast feeding
Timing of initiation of breast feeding
Prelaceals
EBF for 6 months (for babies more than 6 months of age)
EBF
Challenges faced

EBF: Exclusive breastfeeding

Box 2: Questionnaire 2

Questionnaire 2 (to asses breast feeding knowledge)
1. Is cow milk good for the baby below 6 months?
2. What are the risks associated with bottle feeding?
3. Is the initial deep yellow milk (colostrum) good for the baby or should it be discarded?
4. Does a baby require water or other liquids during initial 6 months?
5. Are prelacteals good for the baby?
6. Should mother breastfeed during illness?
7. Breastfeeding is necessary till what age?
8. EBF is necessary till what age?
9. How frequently should you feed your baby?
10. Should you use both breasts every time or one breast at one time of breastfeeding?

EBF: Exclusive breastfeeding

Results

A total of 970 mothers were approached who visited immunization center and well-baby clinic during the duration of the study. Of these, 189 did not entertain the questionnaire because of lack of time or unwillingness. Among the rest, 147 had to be excluded because of predefined exclusion criteria. Hence, finally, we had 634 mothers who participated in our study [Figure 1]. The demographic profile of respondents is summarized in Table 1.

A total of 346 mothers were first-time mothers. Among all 634 babies, 288 babies were born through normal vaginal delivery with 22 being home delivery while 160 and 186 babies were delivered through assisted and cesarean deliveries, respectively. Of 634 mothers, 507 mothers had received breastfeeding counseling in the postnatal period; however, only 106 mothers remembered receiving breastfeeding counseling during antenatal visits. The prevalence of EBF in our study was 56% with 355 mothers fulfilling criteria for EBF. We divided all the respondents into two groups: EBF and non-EBF groups and tabulated the difference among recorded parameters as shown in Table 1. Chi-square test for independence to assess the association for these parameters revealed that breastfeeding counseling was the only parameter having significant association with EBF with $P < 0.05$.

Challenges faced by mothers are shown in Table 2. The chief obstacle to EBF was mother's perception that the baby was not growing well. Most other problems were initial phase problems which could be handled by postnatal counseling.

The second objective of this study was to assess the knowledge related to EBF. Most of the mothers (577, 91%) said that breastfeeding was good for the baby, 304 (48%) mothers were aware that mother's milk composition was different from cow's

Table 1: Characteristics of exclusive breastfeeding group and not exclusive breastfeeding group

Parameter	Category	EBF ($n=355$)	Non-EBF ($n=279$)	*P*
Birth order	First child	178 (50.14)	167 (59.85)	0.23
	Second	148 (41.69)	97 (34.76)	
	More than second	29 (8.16)	15 (5.37)	
Education level	Uneducated	11 (3.09)	7 (2.50)	0.26
	Less than class 5	20 (5.63)	18 (6.45)	
	High school/intermediate	147 (41.40)	110 (39.42)	
	Graduate	124 (34.92)	101 (36.20)	
	Postgraduate	53 (14.92)	43 (15.41)	
Number of antenatal visits	None	9 (2.53)	10 (3.58)	0.15
	1	57 (16.05)	41 (14.69)	
	2	123 (34.64)	99 (35.48)	
	3	104 (29.29)	78 (27.95)	
	>3	62 (17.46)	43 (15.41)	
Counseling regarding breastfeeding	Antenatal	63 (17.74)	43 (15.41)	0.04
	Postnatal	295 (83.09)	212 (75.98)	
Type of delivery	Normal vaginal	167 (47.04)	129 (46.23)	0.17
	Assisted	89 (25.07)	71 (25.44)	
	Cesarean	99 (27.88)	79 (28.31)	
Timing of initiation of breast feeding	Within 1 h	184 (51.83)	134 (48.02)	0.12
	Within same day	102 (28.73)	85 (30.46)	
	Next day or more	69 (19.43)	60 (21.50)	
Prelacteals given	Yes	94 (26.47)	83 (29.74)	0.1

EBF: Exclusive breastfeeding

Table 2: Challenges faced by mothers during breast feeding

Challenges faced by mothers during breast feeding ($n=634$) (%)	
Breast engorgement	276 (43.53)
Sore nipples	174 (27.44)
Inverted nipple	91 (14.35)
Insufficient production	322 (42.74)
Baby not satisfied after feed	430 (67.82)
Baby not growing well	472 (74.44)
Baby not taking up bottle afterwards	271 (42.74)
Lack of privacy and discomfort in public places	567 (89.43)

milk, 216 (34%) of mothers felt that water is required during summer months, 190 (30%) mothers felt that breastfeeding should be withheld if mother had some illness, and 241 (38%) of the mothers knew that EBF is required until 6 months of age. Giving prelacteals is a traditional practice in most of the rural community, this reflected in our survey also, and 209 mothers (33%) felt that prelacteals should be given to the baby.

Discussion

Many studies, such as The *Lancet* Series on Child Survival 2003, have emphasized that EBF and continued breastfeeding along with complementary feeding are very important determinants in child health including growth and development and even survival.[5] Evidence also demonstrates that lack of EBF is associated with various chronic diseases, and poor academic performance has been correlated with lack

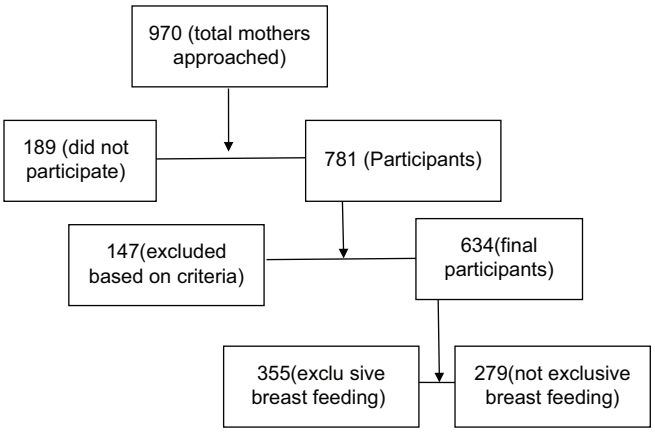

Figure 1: Flow diagram of the study

of breastfeeding. Impact of this even continues later in life with obesity, reduced productivity, and impaired social and intellectual development. Despite having so many benefits, EBF is not a universal practice in India. The prevalence of EBF remains well below the WHO goal of 90%. According to the NFHS, it is 54.9%.[3] The reasons for this shortfall in the actual rate of EBF from the desired rate are many folds. However, while few may be medical, overall breastfeeding is a social behavior and not a medical issue as endorsed by the United Nations International Children's Emergency Fund.[6]

The reported EBF rate in our study was 56% which is comparable to NFHS-4 (54.9%)[3] and also similar to an entirely different sample population of Africa as reported by Tampah-Naah and

Kumi-Kyereme.[7] These values are significantly higher than 30% in a rural population of Haryana as reported by Kishore *et al*.[8] The reason of this can be explained by the change in characteristics of mothers participating in the study. As their study was based on door-to-door survey in the rural setting of Haryana, ours was done among mothers visiting immunization center and well-baby clinic of a tertiary care center. Our index population by default was more aware and proactive regarding preventive healthcare for babies and had access to medical care unlike the rural setup. A number of variables have been noted in the literature to predict EBF practice. Among them are infant's age, maternal age, marital status, formal educational level, and occupation.[9]

From our questionnaire, the most common reason for drop in EBF rate seems perception by mother and other caregivers that the baby is not growing adequately, and excessive cry is because of baby remaining hungry. Most mothers were not aware about the importance of giving one breast at one time and the importance of feeding intervals. The effect of timing of first breastfeed has been documented to be very important on subsequent establishment of breastfeeding and continuation of EBF until 6 months.[10] Besides, it also ensures that colostrum is received, and prelacteal feeds are avoided. Giving prelacteal feeds is part of traditional wisdom in most of rural population worldwide including our country. Second, there is a belief that colostrums are dirty milk and to be avoided.[11]

As shown in Table 1, only a significant difference in both groups was breastfeeding counseling. All other parameters were comparable in both the groups. Antenatal counseling related to EBF was received by only 106 out of 634 mothers, and very few among them remembered breast being examined during any of the antenatal visits. This presents major lacunae and needs to be filled. The importance of antenatal counseling has been well documented. Haider *et al*.[12] showed significant improvement in rates of EBF when antenatal counseling was given. Kishore *et al*. have also shown that lack of counseling had significant negative influence on probability of EBF at 4 months and 6 months.[8]

Based on our questionnaire regarding breastfeeding knowledge, half of the mothers were not aware of importance of colostrum and could not tell whether the baby received colostrums or not. There was a poor understanding of the concept of EBF. Mothers seem to know that breast milk is good for the baby; however, they do not appreciate the risks associated with giving baby feeds other than breast milk. Similarly, water is considered essential by most families during the summer time. Another hindrance for EBF is the traditional wisdom among common people that the cow's milk is universally healthy and harmless for everyone including newborn baby. Thirty-nine percent of the mothers had "satisfactory breastfeeding knowledge" according to the questionnaire used. This suggests a need to focus more on breastfeeding counseling starting antenatally and also introducing breastfeeding education as part of school and community education because mother's knowledge related to breastfeeding also reflects awareness among community. We did not use the questionnaire used in Western literature as our population of North Indian mother would be different.[13]

Our study has some limitations. First, the results from our study may not be applicable universally since the rates of EBF vary significantly between different states. The sample size may not be adequate to pick up the impact of individual factors on the rate of EBF. A much larger sample, preferably multicentric, is required to detect the effects of other potential variables. The questionnaire used by us to assess the breastfeeding knowledge was arbitrary. To assess knowledge, a weighted scoring system should have been used, with every parameter having different score depending on its significance based on the review of literature.

Conclusions

The knowledge regarding breastfeeding and practice of EBF remains suboptimal among the North Indian mothers. Antenatal counseling regarding breastfeeding and continued guidance in the initial months remain suboptimal and if improved can improve this scenario. All mothers were aware that breast milk is beneficial for their baby; however, the biggest problem is anxiety regarding the adequacy of their breast milk. There is also a need for a widespread campaign related to harm done by prelacteals and substitutes of breast milk including cow's milk.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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