

## Skilled Counseling in Enhancing Early and Exclusive Breastfeeding Rates: An Experimental Study in an Urban Population in India

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**Objectives:** The study was conducted to evaluate the effect of breastfeeding counseling and breastfeeding support by trained counselors during the ante-natal period at health facility and post-natal period at home on breastfeeding practices during the first six months of life.

**Design:** This was a randomized controlled study that compared the effect of counseling on breastfeeding during the first 6 months of life.

**Setting:** study was done in a government medical college in northern India, which is situated in an urban area.

**Participants:** 300 healthy pregnant women from an urban population attending the antenatal clinic at Jawaharlal Nehru Medical College, Aligarh Muslim University were recruited for the study.

**Intervention:** Subjects were equally assigned randomly to the intervention (2 antenatal and 8 postpartum home counseling visits

by the counselors) and control (non-counseling) group.

**Main Outcome Measures:** Infant feeding practices including rates of initiation of the breastfeeding within one hour of birth; exclusive breastfeeding and bottle-feeding during the first 6 months of life.

**Results:** Initiation of breastfeeding within one hour of birth was 73.4% in intervention group as compared to 33.6% in control group (P=0.001). More mothers in the intervention group (88.1%) were able to sustain exclusive breastfeeding rates at 6 months of age in comparison to the control group (50%) (OR 7.44, 95% CI 3.98-13.92).

**Conclusions:** This study substantiates positive role of skilled counseling by a trained dedicated breastfeeding counselor during the antenatal and post-natal periods on breastfeeding practices during the first six months of life.

**Keywords:** Breastfeeding, Infant feeding, Pregnancy.

**B**reastfeeding practices like initiation of breastfeeding within one hour of birth and exclusive breastfeeding for the first six months of life have immense public health importance. However, status of breastfeeding practices is far from satisfactory in India where rate of initiation of breastfeeding within one hour of birth is 41.6% while exclusive breastfeeding rate is about 55% [1].

Breastfeeding counseling helps in building mother's confidence, improving feeding technique, and preventing or resolving breastfeeding problems. Several studies and a Cochrane review have reported positive impact of breastfeeding counseling both at hospital and at community in increasing rates of initiation of breastfeeding within one hour of birth as well as duration of exclusive breastfeeding [2,3]. Limited information is available on this subject from India. We conducted this study to evaluate the effect of breastfeeding counseling and breastfeeding support by trained counselors during

the ante-natal period at health facility and post-natal period at home on breastfeeding practices during the first six months of life.

*Accompanying Editorial: Pages 107-8*

### METHODS

It was a randomized control study that compared the effect of counseling on feeding practices during the first six months of life. The study was conducted between March 2016 and December 2016 in the Obstetrics and Pediatrics services in the Jawaharlal Nehru Medical College, Aligarh Muslim University, Uttar Pradesh, India.

The proportion of Exclusive Breastfeeding at 6 months in India and Uttar Pradesh is 46.3% and 51.3% respectively according to the NFHS-3 data. Expecting the proportion of EBF as 50% in the non-counseled group at six months and expecting the proportion of EBF as 70% in

the counseled group at six months with 90% power and 5% level of significance, a sample of 124 subjects per group was required with 1: 1 ratio. After adding 15% as lost to follow-up, the number increased to 146 per group. Thus 300 subjects were planned to be included. The Institutional Ethics Committee of Jawaharlal Nehru Medical College, Aligarh Muslim University approved the study.

Women were recruited from antenatal clinic if they met the following criteria: 18 years or more of age, gestational age of 18-22 weeks, singleton pregnancy, considering breastfeeding to feed her newborn, planning to deliver in the same hospital, willing to stay in Aligarh for at least 6 months after delivery. Informed consent was obtained from the subjects recruited in the study. At the time of the recruitment, data on their socio-economic and socio-demographic status, basic knowledge on breastfeeding practices, her telephone number and house address were obtained in a structured questionnaire. Data of the recruited subjects were entered into the database at the end of every week. Exclusion criteria included mother having any medical complication during the pregnancy or delivery; preterm delivery and neonate having any medical complication. For randomization, the list of eligible women was shared weekly with a statistician who assigned the subjects to intervention and control group using the simple randomization process with SPSS software. List of those women who were assigned to the intervention group was given to the counselors every week. Within one to two week of enrolment the counselor contacted the women and gave the first antenatal counseling. This procedure was repeated every week till 300 eligible subjects were enrolled.

Two nutritionists were recruited to provide counseling to the mothers in the intervention group. They received training from the Breastfeeding Promotion Network of India (BPNI) training team on infant and young child feeding counseling using the 7 days training programme titled "Infant and Young Child Feeding Counseling: A Training course" [4]. Mothers assigned to the counseling group (Intervention group) were offered 2 antenatal visits in hospital and 8 postpartum home visits by the counselors. This was in addition to the routine antenatal, intra-partum and postnatal obstetric care at the health facility. Counselors conducted first antenatal counseling between the first and second week after enrolment of mothers. Second antenatal counseling was scheduled before 36 weeks of pregnancy. Pregnant women were educated about the benefits of exclusive breastfeeding up to the age of six months and dangers of artificial feeding and bottle-feeding. Demonstrations were done for correct positioning and attachment,

expression of breastmilk and cup feeding technique. Women were encouraged to clarify their myths and doubts. They were counseled to initiate breastfeeding within one hour of birth and avoid pre-lacteal feeds. Post-delivery, mothers received routine support for breastfeeding at maternity ward by the regular maternity staff. Once the mothers in the intervention group were discharged, 8 postpartum home visits for counseling were scheduled as follows: at 3<sup>rd</sup>, 7<sup>th</sup>, 15<sup>th</sup> day and 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> months after birth. During each follow-up visit, mothers and family members were counseled for practicing exclusive breastfeeding, answers to any specific queries were provided and skilled support was provided to address any specific breastfeeding problems such as engorgement, sore nipple, mastitis etc. The duration of each visit was about 20-30 minutes. Mothers in the control group were provided with the routine prenatal care advice like diet in pregnancy, delivery related precautions, breastfeeding, and care of newborn that are usually offered to women in the hospital by the health professionals. They did not receive any counseling by dedicated breastfeeding counselor during ante-natal and post-partum period.

Two research assistants were recruited exclusively to conduct antenatal and postnatal interviews with mothers for collecting data on infant feeding practices and to take anthropometric measurements of the infants (weight and height) every month in both the groups. They were trained to administer pre-structured and pre-tested questionnaires a day after delivery (before discharge from the hospital) and at maternity ward to both groups. Detailed information about the antenatal and postnatal experience, like initiation of breastfeeding, pre-lacteal feeding, and infant feeding practices. Subsequently at each home visit, data was collected on infant feeding practices using the 24 hours recall method as defined by the World Health Organization (WHO) [5].

All the activities in the study, namely, enrollment of subjects, recruitment of counselors, training of counselors, scheduling of counseling of mothers, scheduling of data collection interviews were supervised by the team of investigators in the JLN Medical college, Aligarh and BPNI secretariat. Data were processed using the SPSS software (version 16, Chicago IL). Socio-demographic factors and women characteristics between 2 groups at baseline were compared using the t-test and Chi-square analysis. Comparison between groups regarding initiation of the breastfeeding was determined using the Chi-square test. Odd ratio and its 95% CI were calculated for exclusive breastfeeding and bottle-feeding at different age. Chi-square test was used to determine the significance. Detailed information about the

anthropometric data will be reported in a separate communication.

**RESULTS**

Of the 780 pregnant women screened in the antenatal clinic, 300 eligible women were enrolled for the study. **Fig. 1** provides the study flow details.

**Table I** provides the baseline comparison between the groups. The subjects were similar in two study groups. The rates of initiation of breastfeeding within one hour of birth was significantly higher in the intervention group (73.4%) as compared to the control group (33.6%). ( $P < .001$ ) Similar were the results when stratified by mode of delivery (89.2% in intervention vs 55.4% in control group amongst normal deliveries and 34.1% vs 9.1% in cesarian deliveries).

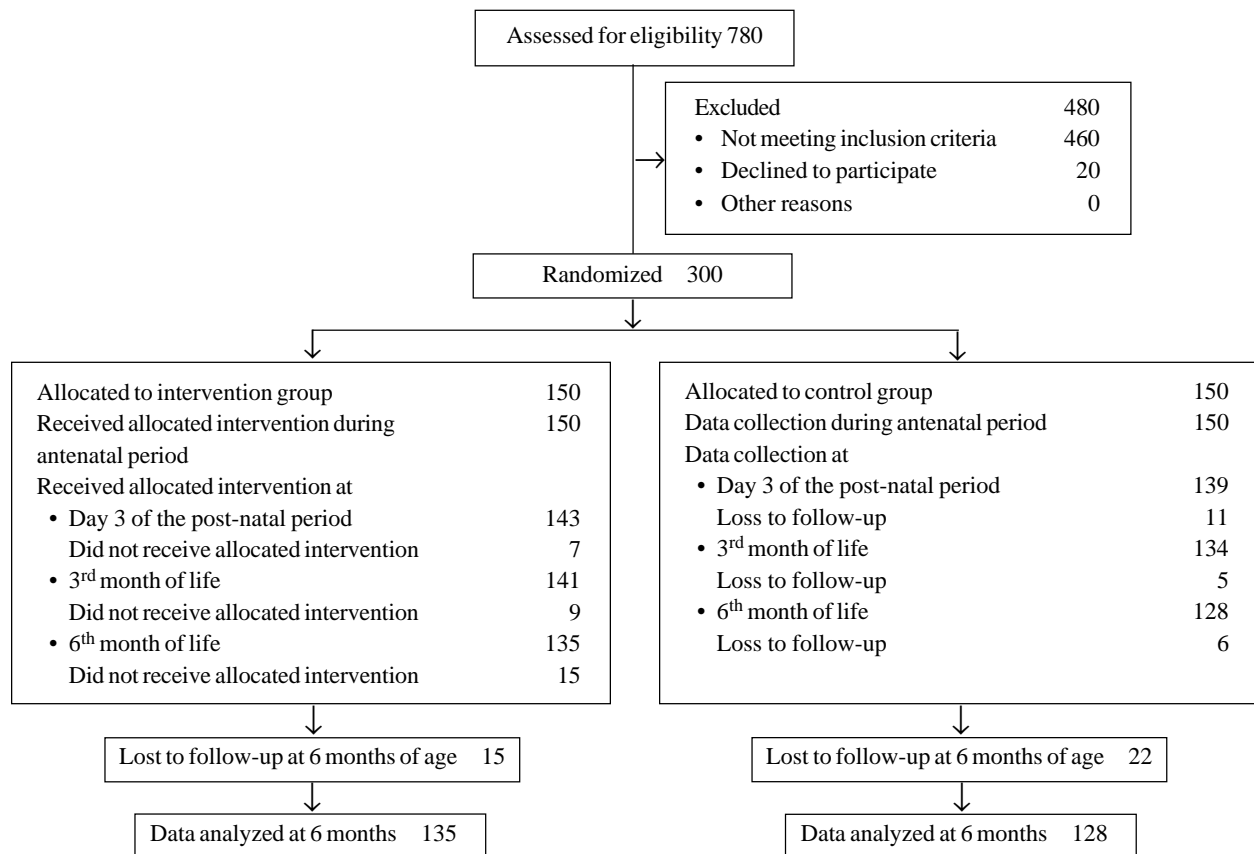
The rates of exclusive breastfeeding at various ages in both the groups are depicted in the **Table II**. The exclusive breastfeeding rate remained significantly high throughout the study period in the intervention group while in the control group; it decreased sharply after 3<sup>rd</sup> month. More mothers in the intervention group were able to exclusive

breastfeeding at 6 months of age in comparison to the control group. At the age of six months, mothers in the intervention group (8.4%) were less likely to practice bottle-feeding than the mothers in the control group (22.9%). (Odd Ratio=0.29; 95% CI, 0.13-0.62).

**DISCUSSION**

In the present study, mothers who received breastfeeding counseling and skilled support during the antenatal and postnatal period by a trained and dedicated counselor in the intervention group could achieve significantly higher rate of early initiation of breastfeeding and exclusive breastfeeding.

A randomized control trial from Bangladesh, which looked into peer counselors support to the pregnant and lactating women during antenatal and postnatal period showed significantly better early breastfeeding initiation rates and higher prevalence of exclusive breastfeeding at 5 months for the intervention group [6]. A systematic review on interventions to improve breastfeeding outcomes has reported that providing breastfeeding counseling in combination settings of health systems,



**FIG. 1** Flowchart of the participants.

**TABLE I** BASELINE SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

	<i>Intervention group (n=150)</i>	<i>Control group (n=150)</i>
<i>Mother's education</i>		
Illiterate	26 (17.3)	33 (22.0)
Primary	16 (10.7)	21 (14.0)
Middle and intermediate school	58 (38.7)	54 (36.0)
Graduate and higher	50 (33.3)	42 (28.0)
<i>Occupation</i>		
Home maker	145 (96.7)	146 (97.3)
Working outside home	5 (3.3)	4 (2.7)
<i>Caste</i>		
Scheduled caste	2 (1.3)	2 (1.3)
Scheduled tribe	1 (0.7)	0 (0.0)
Other backward class	60 (40.0)	76 (50.7)
General	87 (58.0)	72 (48.0)
<i>Religion</i>		
Muslim	139 (92.7)	134 (89.3)
Hindu	10 (6.7)	16 (10.7)
Sikh	1 (0.7)	0
<i>Nuclear family</i>		
	36 (24.0)	27 (18.0)
<i>Place of Residence</i>		
Rural	7 (4.7)	5 (3.3)
Slum	26 (19.3)	46 (30.7)
Urban	114 (76.0)	99 (66.0)
<i>Correct knowledge about infant feeding</i>		
Initiation of breastfeeding	57 (38.0)	72 (48.0)
Exclusive breastfeeding	93 (62.0)	90 (60.0)

*No statistically significant differences between the groups.*

home and family and the community environment results in improved breastfeeding practices [7]. A study from China found antenatal and postnatal breastfeeding support program efficacious and beneficial to mothers in increasing the exclusive breastfeeding duration [8].

Similar results were reported in studies from Turkey and Pakistan in which antenatal breastfeeding education and postnatal support led to high rates of early initiation of breastfeeding resulted in longer exclusive breastfeeding duration [9,10]. A systematic review has reported beneficial role of dedicated lactation specialists and lactation counselors to provide breastfeeding education and support to pregnant and lactating women [11]. Similarly, a study from India on the effect of peer counseling by mother support groups has reported enhanced breastfeeding rates with provision of breastfeeding counseling [12]. Mother's Absolute Affection (MAA) program [13] of Ministry of Health and Family Welfare, Government of India recognizes counseling as a vital intervention to enhance breastfeeding practices. This study provides evidence that counseling by a trained, dedicated breastfeeding counselor during the ante-natal and post-natal period helps in achieving high rates of initiation of breastfeeding within one hour of birth and sustaining exclusive breastfeeding at 6 months of age. To establish the counseling services, allocation of resources and appointment of dedicated counselors in public hospitals and maternity facilities are needed. Government of India should also encourage the private health care facilities to appoint the counselors.

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*Contributors:* All the authors contributed in the conceptualization and designing of the study, supervision of the progress of the study, analysis and interpretation of data, drafting of the manuscript. All the authors approved the final draft.

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**TABLE II** RATES OF EXCLUSIVE BREASTFEEDING AND BOTTLE-FEEDING IN THE PARTICIPANTS (3<sup>RD</sup> DAY – 6 MONTHS)

<i>Age of the infant</i>	<i>Feeding Practice</i>	<i>Intervention Group (n=150)</i>	<i>Control Group (n=150)</i>	<i>Odds Ratio (95% CI)</i>
3 <sup>rd</sup> day	Exclusive breastfeeding (%)	141/143 (98.6)	119/139 (85.6)	11.85 (2.71- 51.73)
	Bottle-feeding (%)	2/143 (1.4)	3/139 (2.2)	0.64 (0.10-3.90)
3 month	Exclusive breastfeeding (%)	135/141 (95.7)	100/134 (74.6)	7.65 (3.09 to 18.92)
	Bottle-feeding (%)	4/141 (2.8)	30/134 (22.4)	0.10 (0.04 to 0.30)
6 months	Exclusive breastfeeding (%)	119/135 (88.1)	64/128 (50.0)	7.44 (3.98 to 13.92)
	Bottle-feeding (%)	10/135 (8.4)	28/128 (22.9)	0.29 (0.13 to 0.62)

**WHAT IS ALREADY KNOWN?**

- For practicing optimal breastfeeding, mothers need access to skilled practical help and counseling support from trained health workers and counselors

**WHAT THIS STUDY ADDS?**

- Providing ante-natal and post-natal counseling support to mothers by a dedicated breastfeeding counselor can significantly enhance rates of early initiation and helps mothers to sustain exclusive breastfeeding in hospital born infants.

*Competing Interest:* Three of the authors (AG, JPD, NT) work with the Breastfeeding Promotion Network of India (BPNI), one of the organization that conducted this study. BPNI works for protection, promotion and support of breastfeeding.

**REFERENCES**

1. National Health and Family Survey - 4, 2015-16: India Fact Sheet. Ministry of Health and Family Welfare, Government of India. Available from: <http://rchiips.org/NFHS/pdf/NFHS4/India.pdf>. Accessed December 17, 2017.
2. Leite AJ, Puccini RF, Atalah AN, Alves Da Cunha AL, Machado MT. Effectiveness of home-based peer counselling to promote breastfeeding in the northeast of Brazil: a randomized clinical trial. *Acta Paediatr.* 2005;94:741-6.
3. Britton C, McCormick FM, Renfrew MJ, Wade A, King SE. Support for breastfeeding mothers. *Cochrane Database Syst Rev.* 2007;24:CD001141.
4. The "4 in 1" Training Programme - Capacity building initiative for building health/nutrition workers' skills in Infant and Young Child Feeding Counseling. Breastfeeding Promotion Network of India (BPNI), International Baby Food Action Network (IBFAN) Asia; Delhi, 2015. Available from: <http://bpni.org/Training/4-in-1-brochure.pdf>. Accessed December 17, 2017.
5. World Health Organization. Indicators for assessing infant and young child feeding practices: part 1: definitions: conclusions of a consensus meeting held 6-8 November 2007 in Washington DC, USA. Available from: [http://apps.who.int/iris/bitstream/10665/43895/1/9789241596664\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/43895/1/9789241596664_eng.pdf). Accessed August 25, 2017.
6. Haider R, Ashworth A, Kabir I, Huttly SR. Effect of community-based peer counsellors on exclusive breastfeeding practices in Dhaka, Bangladesh: A randomised controlled trial. *Lancet.* 2000;356:1643-7.
7. Sinha B, Chowdhury R, Sankar MJ, Martines J, Taneja S, Mazumder S, *et al.* Interventions to improve breastfeeding outcomes: A systematic review and meta-analysis. *Acta Paediatr.* 2015;104:114-34.
8. Liu L, Zhu J, Yang J, Wu M, Ye B. The effect of a perinatal breastfeeding support Program on Breastfeeding Outcomes in Primiparous Mothers. *Western journal of nursing research.* 2017;39:906-23.
9. Vural F, Vural B. The effect of prenatal and postnatal education on exclusive breastfeeding rates. *Minerva Pediatr.* 2017;69:22-9.
10. Ahmad MO, Sughra U, Kalsoom U, Imran M, Hadi U. Effect of antenatal counselling on exclusive breastfeeding. *J Ayub Medical College Abbottabad.* 2012;24:116-9.
11. Patel S, Patel S. The effectiveness of lactation consultants and lactation counselors on breastfeeding outcomes. *J Human Lactation.* 2016;32:530-41.
12. Kushwaha KP, Sankar J, Sankar MJ, Gupta A, Dadhich JP, Gupta YP, *et al.* Effect of peer counselling by mother support groups on infant and young child feeding practices: The Lalitpur experience. *PLoS One.* 2014;9:e109181.
13. MAA program for promotion of breastfeeding. Operational guidelines. Ministry of Health and Family Welfare, Government of India, 2016. Available from: [http://nhm.gov.in/MAA/Operational\\_Guidelines.pdf](http://nhm.gov.in/MAA/Operational_Guidelines.pdf). Accessed December 17, 2017.