

## Original Research Article

# Effect of breastfeeding promotions interventions on baby weight at three months of age

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## ABSTRACT

**Background:** Breastfeeding is common in developing countries, but exclusive breastfeeding is rare, and complementary foods are introduced to babies at an early age. Despite the proven risks associated with not exclusively breastfeeding, few mothers exclusively breastfeed their babies for six months as recommended by the World Health Organization. The objective of this study was to determine the effect of breast-feeding promotion interventions on baby weight at three months of age.

**Methods:** A randomized experimental study was conducted for a period of 6 months from February 2019 till July 2019 in a tertiary care hospital. Weight-for-age (WA) indices have been determined for 95 infants from three to four months of age, participating in this study. They included 49 that started received promotion interventions support after delivery (till 2 weeks) and 46 that received routine care (control group). Collected data were analysed using SPSS software ver.11.5.

**Results:** Weight-for-age indices were significantly lower for the early group than the control group ( $p=0.012$ ). They suggest that the breast-feeding promotion interventions are very important educational tools to ensure healthy weight gain in infants.

**Conclusions:** There is evidence that breastfeeding for at least 6 months, compared with feeding formula, prevents the possibility of atopic dermatitis, cow's milk allergy and early childhood wheezing. Poorer nutritional status was significantly associated with earlier complementary feeding. The results suggest that exclusive breastfeeding along with promotion of weaning education should be promoted in India.

**Keywords:** Breast milk, Education, Feeding, Intervention, Weight for age

## INTRODUCTION

Exclusive breastfeeding can adequately support growth and development for the first 4 to 6 months of life. It has the water, adequate nutrients and minerals required for a healthy growth.<sup>1,2</sup> It protects them from diarrhea, and other infections. The World Health Organization (WHO) recommends exclusively breast milk feeding for an infant for the first six months of life to achieve the optimal growth, development and health.<sup>3</sup> The declining rate of exclusive breast feeding and increasing incidence of formula and bottle feeding has risen due to various

factors, which is impacting the baby's weight, growth and development significantly. Breast milk feeding is a natural process, but it requires education, training and proper skill. In primiparous women, the limited experience and information given to them regarding breast feeding is a common problem. In the rural areas, exclusive breast feeding is given only for the first two months and followed by weaning foods as household chores or their laborious work life does not accommodate for it. This leads to a vicious ring of poor feeding practices, delayed growth and development, failure to thrive and malnutrition.

Dyson's review studies have shown that formal and informal educations, based on the requirements, are effective in increasing BMF.<sup>4</sup> Belay showed that prenatal education could increase exclusive BMF rate.<sup>5</sup> Ansari reported that educational program could increase exclusive BMF duration and Artieta-Pinedo believes that antenatal education might increase breastfeeding for first month after birth.<sup>6,7</sup>

Peer support from other mothers who are breast feeding include emotional support, encouragement, breast feeding education, and helps to resolve nursing mothers' difficulties. Several studies have shown the effect of peer support on increasing early breast-feeding initiation, its continuation and increase in duration of exclusive breast milk feeding.<sup>8,9</sup>

Several studies have shown the effectiveness of education and awareness of breast milk feeding for mothers and the impact it has on the infant's growth and development none where the weight gain of the infant has been noted to prove the effectiveness of the promotion.

Exclusive breastfeeding (EBF) rates remain low in both low-income and high-income countries despite World Health Organization recommendations for EBF till 6 months. Breastfeeding has been shown to have a protective effect against gastrointestinal infections, among other benefits. Large-scale interventions focusing on educating mothers about breastfeeding have the potential to increase breastfeeding prevalence, especially EBF, up to recommended standards and also to decrease infant morbidity.<sup>10</sup>

Therefore, this study is to compare the effect of breast-feeding promotion interventions for nursing mothers and its correlation with the weight gain of their baby at three months of age, of women who delivered at a tertiary care centre in Bangalore, India in 2019.

## METHODS

A randomized experimental study was conducted in a tertiary care hospital in Bangalore, India in 2019. The study was conducted over a period of six months from February 2019 till July 2019. All the women participating in the study were requested to give their written informed consent prior to their participation in the study.

### Inclusion criteria

- Mothers with an 8<sup>th</sup> standard education
- Mother with a normal BMI
- Intention to breast feed their baby
- Term (>37 weeks gestation) infants.

### Exclusion criteria

- Any women who did not consent to the study
- Mother's not cooperating with the study

- Any infants who suffered from NICU admission
- Any infants who developed neonatal jaundice
- Mothers with poor lactation in the first 2 days after delivery
- Postnatal admission.

### The research was conducted in four parts

1. Training health care providers with the implementation practices selected for the study
2. Random selection of candidates for the study into two groups
3. Implementing breast feeding interventions on the test group and Routine care for the control group
4. Follow up with the infant at 3 months of age to assess the weight gain.

### Training the health care professionals

Three post graduate students were trained by two professionally trained social health care workers. The two social health care workers trained professionals held training classes 3 times a week for post graduate students for 2 weeks prior to the study, one-hour per session.

After the commencement of the study, the test group was educated 6 days a week for 20 minutes and given individual care and education for 15 minutes on the second day after delivery and the day of discharge from the hospital. The range of stay for most of the patients were four to 8 days. The control group was given routine care and a group counselling session 3 times a week for 30 minutes duration.

Sample size was calculated based on the pilot study. 100 infants were randomly divided equally into test and control groups and study was started.

Exclusive breast-feeding duration and rate was assessed 1 to 2 months after discharge when the infants came for their follow-ups.

### Statistical analysis

Statistical analysis was done and collected data were analysed using SPSS software ver.11.5. The dependent variable was the breast-feeding duration during the follow up at 4 weeks and 8 weeks post-partum. The Chi square test compares exclusive breast-feeding rates among the mother during the post-partum periods. The analysis of variance (ANOVA) and t-test was comparing the exclusive breast-feeding duration among the groups. A confidence coefficient of 95% was used and a  $\alpha$  level of 0.05 was used for the statistical tests.

## RESULTS

A total 5 out of the 100 infants were excluded due to the exclusion criteria as mentioned above, 4 from the control group and 1 from the test group.

The range of birth weight of the participants and two groups were widely spaced and in similar range. Mothers who were in the test group that received breast feeding counselling multiple times during their hospital stay continued breast-feeding counselling longer than the

mothers in the control group as shown in Table 1. The mean duration of exclusive breast feeding of the test group participants at 1 month after birth was  $24.1 \pm 6.6$  days and the mean duration of exclusive breast feeding at 8 weeks was  $21.9 \pm 9.5$  days.

**Table 1: Comparison of age with number of days of breast feeding in test and control group.**

Age	Health care provider counselling (test group)		General group counselling (control group)	
	No. of subjects	Exclusive breast feeding (days)	No. of subjects	Exclusive breast feeding
4 weeks age	49	$24.1 \pm 6.6$	48	$19.1 \pm 8.1$
8 weeks age	48	$21.9 \pm 9.5$	48	$20.1 \pm 5.6$
12 weeks age	49	$22.2 \pm 8.5$	46	$16.9 \pm 4.3$

**Table 2: Comparison of weight at birth up to 3 months among test and control groups.**

Weight	Health care provider counselling (test group)		General group counselling (control group)		p value
	No. of subjects	Mean weight (kg) $\pm$ SD	No. of subjects	Mean weight (kg) $\pm$ SD	
At birth	50	$2.88 \pm 0.46$	50	$2.94 \pm 0.39$	
4 weeks age	49	$3.12 \pm 0.52$	48	$3.09 \pm 0.44$	
8 weeks age	48	$4.14 \pm 0.34$	48	$4.09 \pm 0.33$	
12 weeks age	49	$5.22 \pm 0.29$	46	$4.92 \pm 0.22$	0.012

The weight of babies in both the groups were noted at birth, 4 weeks, 8 weeks, 12 weeks as shown in Table 2. The difference between the two groups showed that the test group had better weight gain than the control group. A p value was 0.012, which was significant.

## DISCUSSION

These above results showed that compared with routine care, health care provider's education show an effect in extending the rate of exclusive breastfeeding.<sup>5,7</sup> The duration of exclusive breast feeding increases in the group that were trained by the health care professionals. This shows that education could increase exclusive breast-feeding rates which are in favor in the present study. The study could have been further explored using various other factors such as family support and spousal behaviour towards breast feeding, telephonic or household checkups to ensure exclusive breast feeding. The mode of delivery is a dependent variable that should have been assessed. Community-based peer support for mothers is effective in increasing the duration of exclusive breastfeeding, particularly for infants aged 3-6 months in low- and middle-income countries. Such support also encourages mothers to initiate breastfeeding early and prevents newborn pre-lacteal feeding.<sup>11</sup> The baby friendly hospital initiative (BFHI) as well as practical hands off -teaching, when combined with support and encouragement, were effective approaches. Mothers benefit from breastfeeding encouragement and guidance that supports their self-efficacy and feelings of

being capable and empowered, and is tailored to their individual needs.<sup>12</sup>

## CONCLUSION

In this study, education by the health care providers increased the number of women who fed exclusively with breast milk, to continue exclusive breastfeeding, and to increase its duration. Various studies have suggested that family and spousal support are very important and if families are educated about the importance of supporting and helping lactating mothers, the growth and development of the infant will improve. All women should be offered education and health care support to breastfeed their babies to increase the exclusive breastfeeding rate.

In a developing country, such as India, support should be extended to the women, as it is unlikely that the lactating mothers will reach out for help. Support should be tailored to the needs of the setting and the population group. Hence ongoing support should be provided every bimonthly in the hospital and primary health care centres. The strength of the study is that it was conducted in 2 groups by multistage randomized sampling method, and then the groups were randomly allocated into a test (health care provider's education) and control groups. The generalisation of this study findings to other breastfeeding women is limited by the small sample size.

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