Impact of Feeding Practices on growth during infancy –
A review.

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ABSTRACT
First year of life is very crucial for growth and development. Adequate nutrition through correct feeding practices not only improves the growth but also decreases infections and morbidities during this period. This review is an attempt to correlate feeding practices with growth during infancy through an online search of longitudinal studies. Exclusive breast feeding for first 6 months followed by nutritionally adequate and safe complementary feeding at 6 mo of age are positively associated with growth during infancy and negatively associated with infections which can cause growth faltering at this age. No significant positive impact of reducing the age (< 6 months) for introduction of complementary food was found on linear growth among low income group. Current IYCF guidelines are perfect for developing countries like India but there is a need to educate appropriate feeding practices to mothers which can prove useful in bringing down the level of childhood undernutrition.

KEYWORDS : Feeding practices, Breast Feeding, Complementary feeding, Growth

Introduction:
Adequate nutrition during infancy and early childhood is fundamental to the development of each child’s full human potential. The first two years of a child’s life is a critical window during which the foundation for healthy growth and development is built. This age is also the most vulnerable age for growth faltering, deficiencies and common childhood illnesses such as diarrhea. 7 Good nutrition, in the early months of life, is more usually determined by feeding practices - whether the right food is given at the right time and in the right way - and by the frequency, severity, and duration of disease. Poor nutrition increases the risk of infections and morbidity during infancy and is the major cause of infant death. Inappropriate nutrition can also lead to childhood obesity which is emerging as a major public health problem globally. Early nutritional deficits are also linked to long-term impairment in growth and health. Malnutrition during the first 2 years of life causes stunting, impaired intellectual performance and reduced capacity for physical work and further implications for national development. Women who have childhood malnutrition can have reduced reproductive capacity, low birth weight babies, and more complicated deliveries. 8 Improvement in child care and feeding practices could positively impact nutritional status of children. Interventions aimed to improve feeding practices need to be at the household level using positive deviance approach and behavioural change communication strategies. 9 This paper is an attempt to define the effect of feeding practices on the growth of infants through an online search of longitudinal studies correlating the effect of feeding practices with growth during infancy on pubmed, Google scholar and websites of nutrition journals. Online search was made using words “feeding practices and growth in infancy”, “impact of breast feeding and complementary feeding on growth during infancy” etc. More than 50 research papers were identified and longitudinal studies correlating infant feeding practices with growth were included in paper.

Recommended infant and young child feeding practices (WHO, UNICEF, 2009) are:

- **Exclusive breastfeeding for 6 months (180 days):** Exclusive breastfeeding (EBF) should be practiced till the end of 6 months and an infant will receive only breast milk and no other liquids or solids, not even water, with the exception of oral rehydration solution, drops or syrups consisting of vitamins, minerals supplements or medicines. 10
- **Nutritionally adequate and safe complementary feeding (CF):** should start from the age of 6 months (mo) with continued breastfeeding (BF) up to 2 years of age or beyond. Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The target age range for CF is generally taken to be 6 to 24 mo of age, even though BF may continue beyond two years. 11

Feeding practices play very important role in growth during infancy. EBF from birth followed by smooth CF  and empowerment to family pot feeding and balanced diet are the steps involved. 12

**Breast Feeding:** BF is shown to be the best natural resource to improve childhood nutrition throughout the world. 13 BF has an important role in the prevention of different forms of childhood malnutrition, including wasting, stunting, over- and underweight and micronutrient deficiencies. Promotion and support of breastfeeding are important to prevent childhood morbidity and mortality. EBF for 6 mo is associated with a lower risk of gastrointestinal infection and no demonstrable adverse health effects in the first year of life. 14

**Complementary feeding:** CF is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The target age range for CF is generally taken to be 6 to 24 mo of age, even though BF may continue beyond two years. 15

![Feeding Practices in India](image)

Figure 1. Comparison of NFHS 3 and NFHS 4 data. Breastfed within 1 hour. Exclusively breast fed for 6 months and complementary food (solid and semi solid food with breast milk)

During past one decade, although India has made some progress in BF practices with increment being recorded in EBF rates among infants (0-6 mo) from 46.4% in 2005-06 (NFHS 3) to 54.9% in 2015-16 (NFHS 4) and initiation of BF within 1 hour of birth . On the other
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BF was positively related to length gain (regression coefficient = 0.27/cm/mo; \(P=0.04\)) and weight gain; among non breast fed infants, complementary food diversity generated a positive effect on weight.

Significant differences in the WFAZ score were observed between babies EBF for 4-6 mo and for > 6 mo (P value = 0.001) while significant differences in development were seen between babies EBF for <3 mo and the others (P value = 0.003 & 0.032).

Appropriate infant feeding practices were associated (P < 0.001) with greater gain in weight and length during infancy. Children with 75th percentile of the infant feeding scales had greater (P < 0.05) attained weight and WFAZ scores and lower proportions of underweight compared with children with the 25th percentile of these scales.

49% infants were EBF for 6 mo. Age-specific body weight and length were not achieved by 30.5% and 29.5% of infants, respectively. Weight for length was not achieved by 25.5% of the infants. Delayed achievements of motor milestones were observed. Mothers' knowledge scores on basic nutrients were low.

Duration of BF was not significantly (p = 0.213) associated with WFAZ but associated with HFAZ. A 1-month increase in the duration of BF was associated with a 1 Z-score reduction in HFAZ at 1 year (p = .003). Minimum dietary diversity and consumption of Iron rich foods at 6 and 9 mo were not associated with growth outcomes at 1 year.

Conclusion: After going through the studies conducted so far, it is observed that BF upto 6 mo not only positively associated with the growth indicators (weight for age and length for age) during infancy and reduced morbidity due to infections but also associated with long term effects such as higher IQ level and reduced chances of chronic diseases during adulthood. Although introducing CF before 6 mo of age showed positive impact on growth in some studies among high income group. On the other hand in low income countries associated with malnutrition and increased cases of infections, revealing that inadequate amount, consistency and inappropriate and unhygienic method of preparation and feeding can be the causative factor. For developing countries like India where availability of nutritious CF is not sufficient in low income groups, recommendations for EBF upto 6 months and initiation of CF at 6 mo suits perfectly but there is a need to educate mothers about which low cost nutritious foods can be used for CF. The amount of food required and how to feed the child is also very important. Educational intervention studies based on correct feeding practices can help in improving the nutritional status of children among countries like India.

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References
2. Infant and young child feeding; Model Chapter for textbooks for medical students and allied health professionals; WHO 2009
4. Infant and young child feeding; Model Chapter for textbooks for medical students and allied health professionals; WHO 2009
13. Emmett PM
18. Schmidt MK, Muslimatun S; Nutritional status and linear growth of Indonesian infants in west Java are determined more by prenatal environment than by postnatal factors. J Nutr August 1, 2002; vol.132, No. 8. 2202-2207.
20. Delgado HL
23. Board of International Nutrition Research Fellowship.
24. 47


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