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# Complementary feeding practices in India: Current scenario and challenges ahead

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**Abstract**
Complementary feeding is an important transition stage from milk feeding to family foods. It is not just necessary for nutrition but also for developmental reasons as infancy is a period of rapid growth and development. The nutritional requirements of infants are enhanced and thus necessary to be fulfilled. Although complementary feeding is a universal practice, the methods and manners in which it is practiced vary between cultures, individuals, and socioeconomic classes. A number of aspects may be considered as desirable features for satisfactory complementary feeding ranging from timely introduction of complementary foods with maintenance of breastfeeding, considering adequate quantity, quality, consistency, frequency and nutritive value of complementary foods. Food- based approaches may also be applied to improve the nutritive value of home-based complementary foods. A number of indicators for IYCF have been introduced by WHO (2021)**.** Despite the importance of breastfeeding and complementary feeding practices for the healthy growth and development of infants and young children and the health of mothers, the data does not seem to be so encouraging. A number of faulty feeding practices in infants and young children resulting in malnutrition have also been highlighted with suggestive recommendations for improvement.

**Keywords:** complementary feeding, breastfeeding, food-based approaches, IYCF, malnutrition

## Introduction

The importance of nutrition as a foundation for optimal growth and development of the infant is undisputable. Appropriate infant and young child feeding practices constitute a critical determinant of child nutrition, survival, growth and development. (Veenu Seth & Aashima Garg, 2011) Complementary feeding (CF), as defined by the World Health Organization (WHO) in 2002, is ‘‘the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants’’ so that ‘‘other foods and liquids are needed, along with breast milk’’. (*Complementary Feeding*, n.d.). Complementary feeding is an important transition stage from milk feeding to family foods. It is not just necessary for nutritional but also for developmental reasons as infancy is a period of rapid growth and development. The nutritional requirements of infants are enhanced and thus necessary to be fulfilled. It is also a period of great susceptibility to nutritional deficiencies and excesses during which there are marked changes in the diet with introduction to new foods and exploration of new tastes and feeding experiences.

Although complementary feeding is a universal practice, the methods and manners in which it is practiced vary between cultures, individuals, and socioeconomic classes. Complementary feeding (CF), to be highlighted again, refers to giving foods in addition to breastmilk or breastmilk substitutes (in case of non- breastfed infants). The locally prepared or manufactured foods complement the breastmilk or breastmilk substitutes when either becomes insufficient to meet the nutritional requirements of infants. This transition period is often referred to as the *weaning period* and the foods other than breastmilk as referred as *weaning foods* [3]. The use of terminology ‘weaning’ is discouraged since it is viewed to imply termination of breastfeeding and weaning from breast. The use of term ‘complementary feeding’ is preferred as these foods complement breastmilk with the introduction of semi- solid foods. During this period of complementary feeding, the baby is introduced to the family foods and gradually becomes accustomed completely thereby replacing breastmilk to a great extent. Although some children may still be breastfed occasionally or allowed to suckle for comfort.

## Satisfactory complementary feeding: Not A necessity but A responsibility

Within the framework of the global and national Infant and Young Child Feeding Guidelines (IYCF), the prime characteristic of satisfactory complimentary feeding is that foods given should complement rather than replacing breastmilk, which should continue till at least 2 years of age, to meet the nutrient needs of the young child.

Following are a few aspects to consider as desirable features of satisfactory complementary feeding:

### 1. Timely Introduction of Complementary Foods

Timing of introduction to solid foods is considered of importance, as growth dynamics change dramatically during the first year of life, and inappropriate nutritional intake can change infant growth rates, which have been identified as an important risk factor for later obesity [4]. These foods should be introduced in infant’s diet when the need for energy and nutrients exceeds what can be provided through exclusive and frequent breastfeeding.

### 2. Maintenance of Breastfeeding

WHO (2001) recommends the introduction of semi-solid/

soft or solid foods in addition to breastfeeding at completion of 6 months of age, i.e. 180 days.

### 3. Quantity of Complementary foods

Starting at six months of age with small amounts of food, increase the quantity of complementary foods fed to the infants from 2-3 katori/ day (Katori size=150 cc) at 6-8 months of age to 3-4 katori/day and 4-5 katori/day at 9-11 months and 12-23 months of age, meanwhile maintaining breastfeeding.

### 4. Adequacy of Complementary Foods

The nutritive value of complementary foods should be adequate such that it fulfils the nutritional gaps required to be filled in with reduction of breastmilk. Foods should be given in safe and hygienic preparations implying that the steps are taken to minimize the risk of contamination with pathogens. The foods should be given in a way that is appropriate in all conditions, which ensures that foods are of appropriate texture, given in sufficient quantity and frequency.

### 5. Food consistency, meal frequency and energy density

The consistency, frequency and variety of the complementary foods should be increased gradually as the infant gets older also taking into consideration infants requirements and abilities. At the beginning of six months, foods that are pureed, mashed or semi-solid foods can be given. By nine months of age, infants can take *Finger foods* along with semi-solid foods. By 12 months, most infants can eat the same typs of foods as consumed by rest of the family members. The appropriate number of feedings for the infant depends on the energy density of the local foods and local amounts consumed at each feeding.

### 6. Nutritive value of complementary foods

Depending on the country of residence, commercial CF (CCF) and homemade CF contribute differently to dietary intakes. Significant proportions of daily energy from CF consumed are CCF, and intakes of these foods vary by infant age. Homemade CF and CCF generally show differences in nutrient content and variety, with some indication that commercial infant foods tend to have higher carbohydrate contents. (Grote *et al*., 2018). A variety of foods should be fed to ensure that the age- specific nutrient needs of the infants and young child are met. If affordable and culturally acceptable; meat, poultry, eggs or fish must be consumed regularly or as often as possible as they are rich sources of protein. With vegetarian diets, often it might be difficult to meet nutrient needs of infants and young children unless nutrient supplements or fortified products are used. Drinks with low nutritive value must be avoided. It is possible to develop appropriate and nutritious complementary foods using appropriate food combinations, in diverse culture settings, which less privileged mothers can prepare and their children can consume.

### 7. Safe preparation and storage of complementary foods

It is necessary to practice good hygiene and proper food handling behaviours. It includes proper hand washing techniques for personal hygiene for both caregiver and child, proper washing of utensils, hygiene during food preparation and serving and consumption of food, storing foods by covering and keeping at an elevated place, and also avoiding to feed in feeding bottles that are difficult to clean.

### 8. Responsive feeding

Principles of psycho- social care may be applied to practice responsive feeding. This includes feeding the child slowly and patiently and encouraging children to eat but not forcing them, responding positively to their hunger and satiety cues, experimenting with different food combinations, tastes, textures and methods of encouragement. Proper attention must be given to child while feeding and avoiding distractions is important.

### Current scenario

Despite the importance of breastfeeding practices for the healthy growth and development of infants and young children and the health of mothers, the data does not seem to be so encouraging. The NFHS-5-phase-1 (Data from 22 States/UTs) revealed that 88% of women deliver in hospitals, only 51% can begin breastfeeding within an hour of birth whereas 61.9% breastfed exclusively during 0-6 months, 56% received timely complementary feeds at 6-8 months and only 16.1% received adequate diet during 6-23 months. (See Fig.1). 26.9% of children are underweight, 31.9% stunted, 18.1% wasted and 5.5% obese. Even as 88% of mothers deliver in hospitals, only 51% can begin breastfeeding within one hour. The rate of breastfeeding within one hour has come down by 2.5 % points from NFHS-4 (2015). Various challenges hinder breastfeeding practices at various levels that require correction [6].

### Measuring the status of complementary feeding

The guiding principles recommended by WHO for complementary feeding of breastfed children and feeding non-breastfed children 6- 24 months of age provide global guidance on optimal feeding practices for supporting growth, health, and behavioural development for infants and young children (IYC) under 2 years of age. To support programmatic action and to contribute to monitoring progress on IYCH at National and Global levels, indicators for assessing IYCF practices were introduced. The current recommended set of indicators (2021) are population-level indicators and have been designed for data collection in large-scale surveys or by national programs whereas small local and regional programs may also be able to make use of them. These cannot be applied for screening or assessment of individuals and are not intended to meet the needs in program monitoring and evaluation. Unlike in 2008, there has been no distinction made between core and optional indicators in this set of recommendations (2021) [7].

**Table 1**

| ***Complementary Feeding Indicators*** | | | | |
|---|---|---|---|---|
| 1 | Introduction of solid, semisolid, or soft foods 6–8 months | ISSSF | Infants 6–8 months of age | Percentage of infants 6–8 months of age who consumed solid, semi-solid or soft foods during the previous day |
| 2 | Minimum dietary diversity 6–23 months | MDD | Children 6–23 months of age | Percentage of children 6–23 months of age who consumed foods and beverages from at least five out of eight defined |

| | | | | |
|---|---|---|---|---|
| | | | | food groups during the previous day |
| 3 | Minimum meal frequency 6–23 months | MMF | Children 6–23 months of age | Percentage of children 6–23 months of age who consumed solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more during the previous day |
| 4 | Minimum milk feeding frequency for non-breastfed children 6–23 months | MMFF | Children 6–23 months of age | Percentage of non-breastfed children 6–23 months of age who consumed at least two milk feeds during the previous day |
| 5 | Minimum acceptable diet 6–23 months | MAD | Children 6–23 months of age | Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day |
| 6 | Egg and/or flesh food consumption 6–23 months | EFF | Children 6–23 months of age | Percentage of children 6–23 months of age who consumed egg and/or flesh food during the previous day |
| 7 | Sweet beverage consumption 6–23 months | SwB | Children 6–23 months of age | Percentage of children 6–23 months of age who consumed a sweet beverage during the previous day |
| 8 | Unhealthy food consumption 6–23 months | UFC | Children 6–23 months of age | Percentage of children 6–23 months of age who consumed selected sentinel unhealthy foods during the previous day |
| 9 | Zero vegetable or fruit consumption 6–23 months | ZVF | Children 6–23 months of age | Percentage of children 6–23 months of age who did not consume any vegetables or fruits during the previous day |

**Faulty complementary feeding practices**

- Inappropriate feeding practices are often a greater determinant of inadequate intakes and malnutrition, than the availability of foods in the households.
- Undernutrition in children is often not associated with food insecurity but also inappropriate feeding practices, poor hygiene and sanitation, resultant infections and mostly poor access to healthcare services.
- In some cases, complementary foods are introduced earlier than desirable or is often inappropriately delayed.
- The frequency and amounts of the foods that are offered may be less than required for normal growth or their consistency or energy density may be inappropriate in relation to the child's needs.
- Prevalence of micronutrient deficiencies in children is often reported suggesting inappropriate intake or poor nutrient absorption in the body.
- Frequent microbial contamination of complementary foods and the associated high rates of diarrhoeal disease indicate a need for introduction of measures for improved food safety.
- Time constraints on part of caretakers or mothers often resulting in inadequate food and nutrient intake of the child.

**Recommendations & Conclusion**

- The Guiding principles for complementary feeding of the breastfed child, endorsed by the participants, should be used by programme planners and implementers as a guide to develop locally appropriate feeding recommendations.
- Complementary feeding is an interdisciplinary approach, which include maternal nutrition, breast feeding, micro-nutrient supplementation, psycho-social stimulation, feeding and care during and after illness, and illness prevention and control.
- In promoting improved complementary feeding, it must be taken care that no breastmilk substitute formulas are being promoted.
- There is an immediate need to harmonize estimates of nutrient requirements for infants and young children, and to develop precise guidelines for feeding infants and young children who are not breastfed.

The first two years of a child's life are a critical window during which the foundations for healthy growth and development are built. Infant and young child feeding is a core dimension of care in this period. Sustainable development goals for reduction of malnutrition and child mortality will be achieved only if families receive the needed support to adequately care for their children, including their nutritional needs. The challenge now is to translate theoretical knowledge into action.

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