

Infant and Young Child Feeding: a Key area to Improve Child Health

Habibolah Taghizade Moghaddam¹, Gholamreza Khademi², Maryam Ajilian Abbasi³,
*Masumeh Saeidi⁴

¹ Department of Biochemistry, Mashhad University of Medical Sciences, Mashhad, Iran.

² Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

³ Ibn-e-Sina Hospital, Mashhad University of Medical Sciences, Mashhad, Iran.

⁴ Students Research Committee, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Abstract

Good nutrition is essential for survival, physical growth, mental development, performance, productivity, health and well-being across the entire life-span: from the earliest stages of fetal development, at birth, and through infancy, childhood, adolescence and on into adulthood. Poor nutrition in the first 1,000 days of children's lives can have irreversible consequences. For millions of children, it means they are, forever, stunted.

Every infant and child has the right to good nutrition according to the Convention on the Rights of the Child; so the World Health Assembly has adopted a new target of reducing the number of stunted children under the age of 5 by 40 percent by 2025. The first 2 years of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduces the risk of chronic disease, and fosters better development overall. Breastfeeding and complementary feeding are a critical aspect of caring for infants and young children.

Key Words: Breastfeeding, Infant, Nutrition, Child Health.

*Corresponding Author:

Masumeh Saeidi, Department of Pediatric, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Email: Masumeh_Saeidi@yahoo.com

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1- Introduction

6.6 million children under the age of five died in 2012 - more than 750 every hour. Most of these children could survive and thrive with access to simple, affordable interventions. The loss of a child is a tragedy - families suffer and human potential is wasted. WHO is improving child health by helping countries deliver integrated, effective care in a continuum, starting with a healthy pregnancy for the mother, through birth and care up to five years of age. Investing in health systems is a key to delivering this essential care (1).



2- Materials and Methods

The current study is a review survey which was conducted to evaluate of Infant and Young Child Feeding in the world by studying WHO website, Centers for Disease Control and Prevention (CDC), United Nations Children's Fund (UNICEF) and United Nations (UN) websites and scientific texts about this subject. To evaluate the texts and websites, the singular or combination forms of the following key words were used: "Child feeding", "Infant feeding" "Worldwide" and "Nutrition". To evaluate the electronic databases the following websites were searched: Google, Ministry of Healthcare, Google Scholar, Scopus and PubMed. Library search was performed by referring to the journal archives of libraries, and evaluating the available Persian and English references and also, articles of

research-scientific journals, and articles of the annual seminar of Nutrition and Public health.

3- Results

3.1: Key facts about infant feeding

- Every infant and child has the right to good nutrition according to the Convention on the Rights of the Child.
- Undernutrition is associated with 45% of child deaths.
- Globally in 2013, 161.5 million children under 5 were estimated to be stunted, 50.8 million were estimated to have low weight-for-height, and 41.7 million were overweight or obese.
- About 36% of infants 0 to 6 months old are exclusively breastfed.
- Few children receive nutritionally adequate and safe complementary foods; in many countries less than a fourth of infants 6–23 months of age meet the criteria of dietary diversity and feeding frequency that are appropriate for their age.
- About 800 000 children's lives could be saved every year among children under 5, if all children 0–23 months were optimally breastfed (2).

3.1-Infant and Young Child Feeding and Nutrition

Breastfeeding and complementary feeding are a critical aspect of caring for infants and young children. Appropriate feeding practices stimulate bonding with the caregiver and psycho-social development. They lead to improved nutrition and physical growth, reduced susceptibility to common childhood illnesses and better resistance to cope with them. Improved

health outcomes in young children have long-lasting health effects throughout the life-span, including increased performance and productivity, and reduced risk of certain non-communicable diseases (3).

3.2-Global Strategy for Infant and Young Child Feeding

Infant and young child feeding is a cornerstone of care for childhood development. In 2005, one third of children under five in developing countries were estimated to be stunted as a consequence of poor feeding and repeated infections. Even in resource poor settings, improved feeding practices can lead to improved intakes of energy and nutrients, leading to better nutritional status.

Over the past decades, the evidence on the biological requirements for appropriate nutrition, recommended feeding practices and factors impeding appropriate feeding has grown steadily. Moreover, much has been learned about interventions that are effective in promoting improved feeding. For example, studies in Bangladesh, Brazil and Mexico have demonstrated the impact of counselling, in communities and health services, to improve feeding practices, food intake and growth.

The Global Strategy for Infant and Young Child Feeding, endorsed by WHO Member States and the UNICEF Executive Board in 2002, aims to revitalize efforts to protect, promote and support appropriate infant and young child feeding. It builds upon past initiatives, in particular the Innocenti Declaration and the Baby-Friendly Hospital Initiative, and addresses the needs of all children including those living in difficult circumstances, such as infants of mothers living with HIV, low-birth-weight infants and infants in emergency situations. The Strategy is the guiding framework through which WHO prioritizes research and development work in the area of infant and young child

feeding, and provides technical support to countries to facilitate implementation(3).

Optimal breastfeeding is so critical that it could save about 800 000 under 5 child lives every year. However, many infants and children do not receive optimal feeding. For example, only about 36% of infants aged 0 to 6 months worldwide are exclusively breastfed over the period of 2007-2014.

Recommendations have been refined to also address the needs for infants born to HIV-infected mothers. Antiretroviral drugs now allow these children to exclusively breastfeed until they are 6 months old and continue breastfeeding until at least 12 months of age with a significantly reduced risk of HIV transmission (3, 4).

3.2-1: Breastfeeding

Breastfeeding is the act of milk transference from mother to baby that is needed for the survival and healthy growth of the baby into an adult. Breastfeeding creates an inimitable psychosocial bond between the mother and baby enhances modest cognitive development and it is the underpinning of the infant's wellbeing in the first year of life even into the second year of life with appropriate complementary foods from 6 months. Furthermore, breastfeeding reduces the risk of neonatal complications respiratory and other varieties of illnesses (5).

Exclusive breastfeeding for 6 months has many benefits for the infant and mother. Chief among these is protection against gastrointestinal infections which is observed not only in developing but also industrialized countries. Early initiation of breastfeeding, within one hour of birth, protects the newborn from acquiring infections and reduces newborn mortality. The risk of mortality due to diarrhoea and other infections can increase in infants who are either partially breastfed or not breastfed at all.

Breast milk is also an important source of energy and nutrients in children aged 6 to 23 months. It can provide half or more of a child's energy needs between the ages of 6 and 12 months, and one third of energy needs between 12 and 24 months. Breast milk is also a critical source of energy and nutrients during illness, and reduces mortality among children who are malnourished.

Adults who were breastfed as babies are less likely to be overweight/ obese. Children and adolescents that have been breastfed perform better on intelligence tests. Breastfeeding also contributes to the health and well-being of mothers; it reduces the risk of ovarian and breast cancer and helps space pregnancies—exclusive breastfeeding of babies under 6 months has a hormonal effect which often induces a lack of menstruation. This is a natural (though not fail-safe) method of birth control known as the Lactation Amenorrhoea Method.

Mothers and families need to be supported for their children to be optimally breastfed. Actions that help protect, promote and support breastfeeding include:

- adoption of policies such as the International Labour Organization's Maternity Protection Convention 183 and Recommendation No. 191, which complements Convention No. 183 by suggesting a longer duration of leave and higher benefits;
- the International Code of Marketing of Breast-milk Substitutes and subsequent relevant World Health Assembly resolutions;
- implementation of the Ten Steps to Successful Breastfeeding specified

in the Baby-Friendly Hospital Initiative, including:

- skin-to-skin contact between mother and baby immediately after birth and initiation of breastfeeding within the first hour of life;
- breastfeeding on demand (that is, as often as the child wants, day and night);
- rooming-in (allowing mothers and infants to remain together 24 hours a day);
- not giving babies additional food or drink, even water, unless medically necessary;
- provision of supportive health services with infant and young child feeding counselling during all contacts with caregivers and young children, such as during antenatal and postnatal care, well-child and sick child visits, and immunization; and
- community support, including mother support groups and community-based health promotion and education activities. To enable mothers to establish and sustain exclusive breastfeeding for six months, WHO and UNICEF recommend:
 - Initiation of breastfeeding within the first hour of life;
 - Exclusive breastfeeding - that is, the infant only receives breastmilk without any additional food or drink, not even water;
 - Breastfeeding on demand - that is, as often as the child wants, day and night;
 - No use of bottles, teats or pacifiers (3-8)

¹Adapted from: WHO/UNICEF Integrated IYCF counseling course, 2007

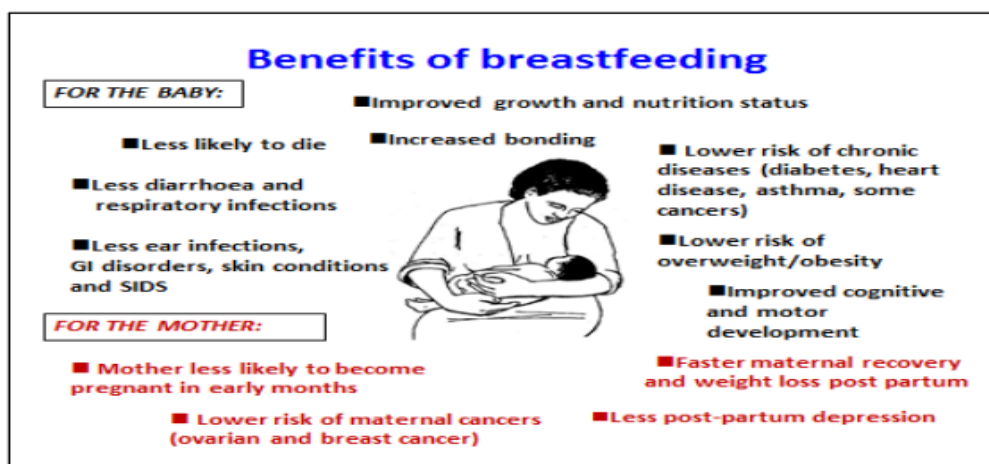


Fig 1: Benefits of breastfeeding¹

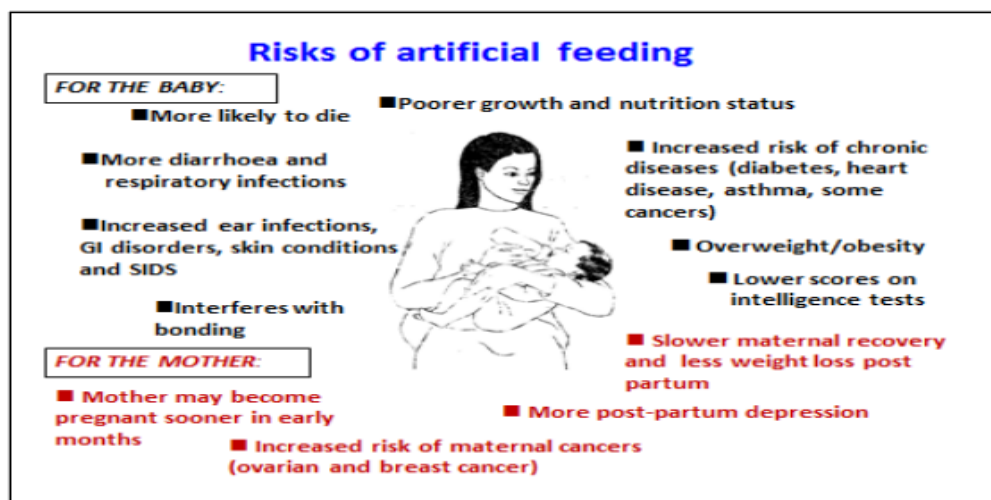


Fig 2: Risks of artificial feeding¹

3.2-2: Complementary feeding

When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. Complementary feeding typically covers the period from six to 24 months of age, and is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age worldwide.

Around the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary foods are necessary to meet those needs. An infant of this age is also developmentally ready for other foods. If complementary foods are not introduced around the age of 6 months, or if they are given inappropriately, an infant's growth may falter. Guiding principles for appropriate complementary feeding are:

- continue frequent, on-demand breastfeeding until 2 years of age or beyond;
- practise responsive feeding (e.g. feed infants directly and assist older children. Feed slowly and patiently, encourage them to eat but do not force them, talk to the child and maintain eye contact);
- practise good hygiene and proper food handling;
- start at 6 months with small amounts of food and increase gradually as the child gets older;
- gradually increase food consistency and variety;
- increase the number of times that the child is fed: 2-3 meals per day for infants 6-8 months of age and 3-4 meals per day for infants 9-23 months of age, with 1-2 additional snacks as required;
- use fortified complementary foods or vitamin-mineral supplements as needed; and
- during illness, increase fluid intake including more breastfeeding, and offer soft, favourite foods (4, 6).

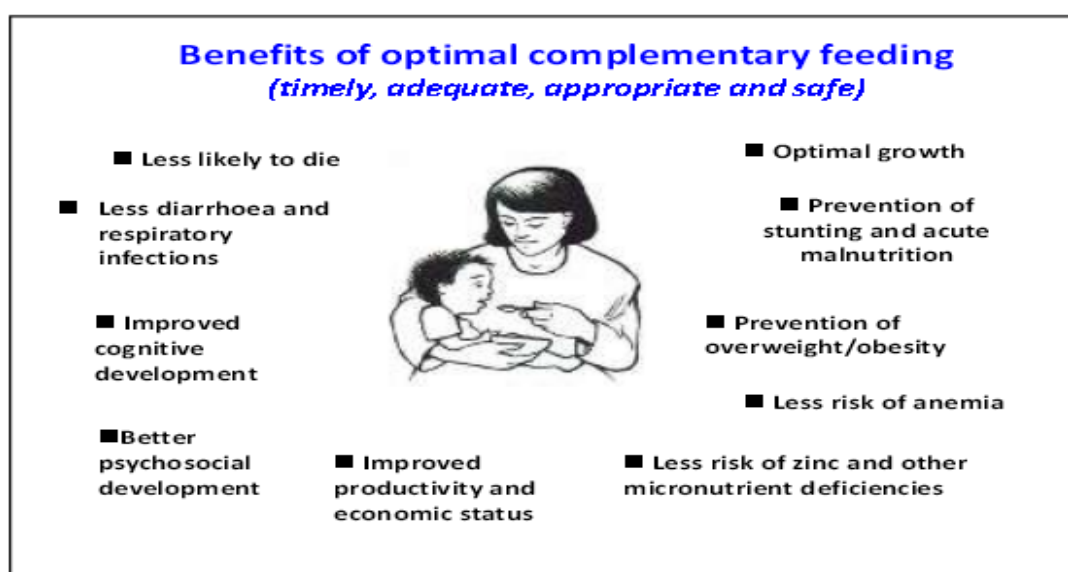


Fig 3: Benefits of complementary feeding¹

3.3-Feeding in exceptionally difficult circumstances

Families and children in difficult circumstances require special attention and practical support. Wherever possible, mothers and babies should remain together and get the support they need to exercise the most appropriate feeding option available. Breastfeeding remains the preferred mode of infant feeding in almost all difficult situations, for instance:

- low-birth-weight or premature infants;
- HIV-infected mothers;
- adolescent mothers;
- infants and young children who are malnourished; and
- families suffering the consequences of complex emergencies (4, 6).

3.3-1: Difficult circumstances refer to situations faced by particularly vulnerable groups such as:

- HIV-infected mothers and their infants;
- People suffering the consequences of complex emergencies, including natural or human-induced disasters such as floods, drought, earthquakes, war, civil unrest and severe political and economic living conditions;
- Low birth-weight or premature infants;
- Infants and young children who are malnourished;
- Adolescent mothers and their infants;
- Children living in special circumstances such as foster care, or with mothers who have physical or mental disabilities, or children whose mothers are in prison or are affected by drug or alcohol abuse.
- MCA develops technical guidelines and materials for infant and young child feeding for vulnerable groups, in particular as it relates to HIV and infant feeding, infant feeding in emergency situations, feeding of malnourished children and feeding low-birth-weight and premature infants.
- Children who are malnourished are often found in environments where improving the quality and quantity of food intake is particularly problematic. They need extra attention both during early rehabilitation and over the longer term. For infants and young children, continued frequent breastfeeding and, when necessary, relactation are important measures.
- In addition, a recently developed home-based treatment for severe acute malnutrition is improving the

lives of hundreds of thousands of children a year. Ready-to-use Therapeutic Food (RUTF) has revolutionized the treatment of severe malnutrition – providing foods that are safe to use at home and ensure rapid weight gain in severely malnourished children (6).

WHO recommends exclusive breastfeeding for six months, and sustained breastfeeding with appropriate complementary foods up to two years or beyond. Families in difficult circumstances require special attention and practical support to be able to feed their children adequately. Wherever possible, mothers and babies should remain together and be provided with the support they need to exercise the most appropriate feeding option under the circumstances (6).

3.3-2: HIV and infant feeding

Breastfeeding is normally the best way to feed an infant. A woman infected with HIV, however, can transmit the virus to her child during pregnancy, labour or delivery, or through breastfeeding. However, breastfeeding, and especially early and exclusive breastfeeding, is one of the most valuable interventions for improving child survival. Breastfeeding also confers many benefits in addition to reducing the risk of child mortality.

The dilemma has been to balance the risk of infants acquiring HIV through breastfeeding with the risk of death from causes other than HIV, in particular malnutrition and serious illnesses such as diarrhoea and pneumonia among non-breastfed infants. For these reasons, health workers in countries where both HIV is common and many children die from these other illnesses, have faced a real challenge in identifying and promoting the best feeding practice for infants in their care whose mothers are HIV-infected.

A large body of evidence on HIV and infant feeding has accumulated in recent years which shows that giving antiretroviral drugs (ARVs) to either the HIV-infected mother or HIV-exposed infant can significantly reduce the risk of transmitting HIV through breastfeeding. In view of this evidence, in 2010 WHO released new guidelines on HIV and infant feeding containing revised principles and recommendations for infant feeding in the context of HIV and a summary of evidence that resulted in the guidelines. At the same time, new recommendations were released on antiretroviral therapy for infants and children, as well as for adults and adolescents, and for the prevention of mother-to-child transmission of HIV. Together, the recommendations provide simple, coherent and feasible guidance to countries for promoting and supporting improved infant feeding by HIV-infected mothers (9).

3.4-Promoting proper feeding for infants and young children

Malnutrition or malnourishment is a condition that results from eating a diet in which nutrients are either not enough or are too much such that the diet causes health problems. It may involve calories, protein, carbohydrates, vitamins or minerals. Not enough nutrients is called undernutrition or undernourishment while too much is called overnutrition. Malnutrition is often used specifically to refer to undernutrition where there is not enough calories, protein, or micronutrients. If undernutrition occurs during pregnancy, or before two years of age, it may result in permanent problems with physical and mental development (10-13). Some of signs of malnutrition are shown in (Table.1) (14).

Table 1: Some of Signs of Malnutrition

Site	Sign
Face	Moon face (kwashiorkor), simian facies (marasmus)
Eye	Dry eyes, pale conjunctiva, Bitot's spots (vitamin A), periorbital edema
Mouth	Angular stomatitis, cheilitis, glossitis, spongy bleeding gums (vitamin C), parotid enlargement
Teeth	Enamel mottling, delayed eruption
Hair	Dull, sparse, brittle hair, hypopigmentation, flag sign (alternating bands of light and normal color), broomstick eyelashes, alopecia
Skin	Loose and wrinkled (marasmus), shiny and edematous (kwashiorkor), dry, follicular hyperkeratosis, patchy hyper- and hypopigmentation, erosions, poor wound healing
Nail	Koilonychia, thin and soft nail plates, fissures or ridges
Musculature	Muscles wasting, particularly in the buttocks and thighs
Skeletal	Deformities usually a result of calcium, vitamin D, or vitamin C deficiencies
Abdomen	Distended - hepatomegaly with fatty liver, ascites may be present
Cardiovascular	Bradycardia, hypotension, reduced cardiac output, small vessel vasculopathy
Neurologic	Global development delay, loss of knee and ankle reflexes, poor memory
Hematological	Pallor, petechiae, bleeding diathesis
Behavior	Lethargic, apathetic

Malnutrition is responsible, directly or indirectly for about one third of deaths among children under five. Well above two thirds of these deaths, often associated with inappropriate feeding practices, occur during the first year of life. Malnutrition is estimated to contribute to more than one third of all child deaths, although it is

rarely listed as the direct cause. Lack of access to highly nutritious foods, especially in the present context of rising food prices, is a common cause of malnutrition. Poor feeding practices, such as inadequate breastfeeding, offering the wrong foods, and not ensuring that the child gets enough nutritious food,

contribute to malnutrition. Infection – particularly frequent or persistent diarrhoea, pneumonia, measles and malaria also undermines a child's nutritional status.

Nutrition and nurturing during the first years of life are both crucial for life-long health and well-being. In infancy, no gift is more precious than breastfeeding; yet barely one in three infants is exclusively breastfed during the first six months of life. The World Health Organization recommends that infants start breastfeeding within one hour of life, are exclusively breastfed for six months, with timely introduction of adequate, safe and properly fed complementary foods while continuing breastfeeding for up to two years of age or beyond (15-17).



Fig 4: Measuring height in children to assess growth

4- Conclusion

All children and adolescents should have the means and the opportunity to develop to their full potential. Life, survival, maximum development, access to health and access to health services are not just basic needs of children and adolescents, but fundamental human rights (17, 18). Under nutrition is estimated to cause 3.1 million child deaths annually or 45% of all child deaths. Infant and young child feeding is a key area to improve child survival and promote healthy growth and development. The first 2 years of a child's life are particularly important, as optimal

nutrition during this period lowers morbidity and mortality, reduces the risk of chronic disease, and fosters better development overall. Optimal breastfeeding is so critical that it could save about 800 000 under 5 child lives every year. WHO and UNICEF recommend:

- Early initiation of breastfeeding within 1 hour of birth;
- Exclusive breastfeeding for the first 6 months of life; and
- The introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond.

5- Conflict of Interest: None.

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