

Dimensions and Causes of Child Malnutrition

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ABSTRACT

Good nutrition is essential for healthy bodies as students grow, develop, and do well in school. Nutritional needs also vary from individual to individual. Improved nutrition has been the corner stone upon which all modern societies and economics were built. Growth during childhood is widely used to assess adequate health, nutrition and development of children, and to estimate overall nutritional status as well as health status of a population.

Malnutrition in children is not affected by food intake alone; it is also influenced by access to health services, quality of care for the child and pregnant mother as well as good hygiene practices. Girls are more at risk of malnutrition than boys because of their lower social status. 1 in 3 of the world's malnourished children lives in India Malnutrition in early childhood has serious, long-term consequences because it impedes motor, sensory, cognitive, social and emotional development. Malnourished children are less likely to perform well in school and more likely to grow into malnourished adults, at greater risk of disease and early death. Around one-third of all adult women are underweight. Inadequate care of women and girls, especially during pregnancy, results in low- birth weight babies. Nearly 30 per cent of all newborns have a low birth weight, making them vulnerable to further malnutrition and disease.

Key Words: nutrition, food intake, malnourished children, disease, underweight.

INTRODUCTION

The future of the society depends on the quality of life of the children. The health of children and youth is of fundamental importance. Over 1/5th of our population comprises of children aged 5-14 years i.e. the group covering primary and secondary education. As today's children are the citizens of tomorrow's world, their survival, protection and development are the prerequisite for the future development of humanity. Without ensuring optimal child growth and development efforts to

accelerate economic development significantly will be unsuccessful (Raghava 2005).

Once a child crosses the age of five, they are considered more or less safe from nutritional disorders. But little attention is paid to the quality of life. School age children are hardly thought of as "at risk" population but this period is a unique intervention point in the life cycle. Malnutrition is common among school children and is usually coupled with iron deficiency anemia. Asia has the largest

number of malnourished children in the world (WHO-UNICEF 2004). About 21.8% of the country's population comprises of school going children and there are still about 21 million children who are unable to attend school. According to NFHS-3, 90.1% of the 6-10 years & 74.2% of 11-14 years old children attended primary school in 2005-06. Though the number of children of primary age group who were out of school has dropped by 33 million since 1999 still 72 million children worldwide were denied the right to education in 2007.

Malnutrition is still considered one of the major public health problems in many countries, affecting more than 30% of children under 5 years of age. Under nutrition is the most important cause of death in this age group in developing countries, in which nutritional deficit is common. Generally, three anthropometric indicators are often used to assess nutritional status during childhood: under weight (low weight-for-age), stunting (low height-for-age), and wasting (low weight-for-height). Growth during childhood is widely used to assess adequate health, nutrition and development of children, and to estimate overall nutritional status as well as health status of a population. It is well documented that chronic under nutrition is associated with slower cognitive development and serious health impairment later in life which reduce the quality of life. The majority of deaths associated with malnutrition occur in children who are marginally malnourished. About 50% of the children under 5 years old in India are moderately or severely undernourished. Moreover, several studies have shown that the degree of under nutrition is higher among the under privileged communities. In general, tribal populations are considered to be under privileged in India.

Malnutrition in India

The World Bank estimates that India is ranked 2nd in the world of the number of

children suffering from malnutrition, after Bangladesh (in 1998), where 47% of the children exhibit a degree of malnutrition. The prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa with dire consequences for mobility, mortality, productivity and economic growth. The 2011 Global Hunger Index (GHI) Report ranked India 15th, amongst leading countries with hunger situation. It also places India amongst the three countries where the GHI between 1996 and 2011 went up from 22.9 to 23.7, while 78 out of the 81 developing countries studied, including Pakistan, Nepal, Bangladesh, Vietnam, Kenya, Nigeria, Myanmar, Uganda, Zimbabwe and Malawi, succeeded in improving hunger condition (Global Hunger Index Report, 2011).

Form of Malnutrition: protein malnutrition (kwashiorkor of hypoalbuminemic malnutrition) and protein calorie (marasmus or protein - energy) malnutrition. The term protein energy malnutrition applies to a group that included-

- Kwashiorkor (protein malnutrition)
- Marasmus (deficiency in both protein and calorie)
- Marasmic kwashiorkor

Kwashiorkor and Marasmus are the two classical syndromes and severe PEM. They occur mostly in children between 1-4 years when they are weaned from breast milk to the adult diet. Because of the bulk, a child cannot consume adequate quantities of the diet and fails to gain weight.

Kwashiorkor:

The term kwashiorkor is taken from the Ga language of Ghana and means "the sickness of weaning". Williams first used in 1933, and it refers to an inadequate protein intake with reasonable caloric (energy) intake. Kwashiorkor also called the disease of weaning in a child when the mother fails to supplement the proteins required but

feeds the cereals and malt which are rich in carbohydrate but poor in protein.

Signs and symptoms:

Growth failure: This is manifested by decreased body length and low weight in spite of retention of water in the body.

Mental changes: The child becomes inactive and irritable. He/She is dull and withdrawn and makes few attempts to talk and move about general apathy and refusal to food is very common.

Oedema: Oedema occurs at first at the feet and lower legs and then may involve the hands, the thighs and face. The oedema is mainly due to lowered serum albumin and probably also due to high sodium and low potassium levels in serum.

Muscle Wasting: Muscle wasting and constant feature of kwashiorkor and a reduction in the Circumference of upper arm is usually evident.

Moon face: The full well-rounded face, known as moon face, is often present in kwashiorkor.

Liver changes: Liver is slightly enlarged and fatty infiltration of liver is usually present.

Gastro-intestinal Tract: Loss of appetite and vomiting are common. Diarrhea is present in most cases.

Skin and Hair Changes: The characteristic skin changes of kwashiorkor are known as 'crazy pavement' dermatitis. In the hair many changes like depigmentation of hair, easy pluckability of hair, flag sign.

Marasmus:

The term marasmus is derived from the Greek word maramos, which means withering or wasting. Marasmus involves inadequate intake of protein and calories and is characterized by emaciation. Marasmus most commonly occurs in children younger than 5 years. This period is characterized by increased energy requirements and increased susceptibility to viral and bacterial infection.

Weaning (the deprivation of breast milk and the commencement of nourishment with other food) occurs during this high risk period. Weaning is often complicated by geography, economy, hygiene, public health, culture and dietetics.

Signs and symptoms:

Growth retardation: This is usually very severe loss of weight is much more marked than decrease in height. The child is usually below 60% of the standard weight.

Wasting of muscle and of subcutaneous fat: The subject is severely emaciated. The muscles are wasted. The arms are thin and the skin is 100 se. subcutaneous fat is practically absent.

Other Changes: The skin is dry and atrophic. The subject shows sign of dehydration. Eye lesions due to vitamin A deficiency and anemia may be present.

Marasmic kwashiorkor:

In countries where the incidence of protein calorie malnutrition (PCM) is high, large number of cases shows signs and symptoms of marasmus and kwashiorkor. These intermediate forms are called marasmic kwashiorkor. In addition, the interrelationship between two major syndromes is such that changing circumstances may result in a transition from one clinical picture to another. A child with early kwashiorkor can develop nutritional marasmus by severe infective diarrhea and ill advised prolonged under feeding. In 2000, the WHO estimated that malnourished children numbered 181.9 million (32%) in developing countries. In addition, an estimated 149.6 million children younger than 5 years are malnourished when measured in terms of weight for age. In south central Asia and Eastern Africa about half the children have growth retardation due to protein energy malnutrition.

Causes of Poor Nutritional Status in Urban Slum Children

1. Inadequate food intake
 - Improper infant feeding practices
 - Lack of exclusive breastfeeding
 - Late introduction of solid mushy foods
 - Dilution of milk
 - Poor caloric and nutritional content of food
 - Inequitable intra-familial distribution (Age and gender differences)
2. Illness (Recurrent diarrheal and ARI morbidity)
 - Poor environmental and housing conditions.
 - Lack of hygiene and sanitation facilities
 - Inadequate access and utilization of health care
 - Poor food hygiene
3. Deleterious caring practices
 - Absence of responsible adult caregiver.
 - Lack of knowledge regarding food requirements.
 - Traditional beliefs
 - Parental illiteracy
 - Poverty
4. Service issues
 - Lack of reach and co-ordination of public sector services.
 - Inadequate training and supervision of service providers in nutritional counseling.
 - Missed opportunities for counseling.
 - Compromised efficiency of services and programs (Urban ICDS, PDS and others).
 - Inadequate targeting of the urban poor.

Malnutrition is the condition that results from taking an unbalanced diet in which certain nutrients are lacking, in excess (too high an intake), or in the wrong proportions (Arthur 2003). A number of different nutrition disorders may arise, depending on which nutrients are under or overabundant in the diet. In wealthier nations it is more likely to be caused by unhealthy diets with excess energy, fats, and refined carbohydrates. Because it contributes to both over nutrition and under nutrition, malnutrition is said to be a “double burden” (Shafique, 2007).

Classification Of Pem

PEM is a spectrum of conditions ranging from growth failure to overt marasmus or kwashiorkor, hence classification has to be based on arbitrary cut-off-points. It is to identify children requiring nutritional or health interventions. Some of the classifications are as follows:

Gomez’s classification

Gomez’s classification is based on weight retardation. It locates the child on the basis of his or her weight in comparison with a normal child of the same age. In this system, the “normal” reference child is in the 50th percentile of the Boston standards. The cut-off values were set during a study of risk of death based on weight for age at admission to a hospital unit. This classification therefore, has a prognostic value for hospitalized children.

Weight for age (%) = weight of the child/weight of a normal child of same age × 100

Between 90 and 110% : normal nutritional status
Between 75 and 89%:1st degree, mild malnutrition

Between 60 and 74%:2nd degree, moderate malnutrition

Under 60%: 3rd degree, severe malnutrition

Weight is widely recorded and the classification is easy to compute. The disadvantages are (a) A cut-off-point of 90 per cent of reference is high (80 per cent being approximately equivalent to -2 SD or the 3rd percentile), thus some normal children may be classified as 1st degree malnourished. (b) By measuring only weight for age it is difficult to know if the low weight is due to a sudden acute episode of malnutrition or to long-standing chronic under nutrition.

Waterlow’s classification

When a child’s age is known, measurement of weight enables almost instant monitoring of growth: measurements of height assess the effect of nutritional status on long-term growth.

Waterlow's classification defines two groups for protein energy malnutrition:

- Malnutrition with retarded growth, in which a drop in the height/age ratio points to a chronic condition—shortness, or stunting.
- Malnutrition with a low weight for a normal height, in which the weight for height ratio is indicative of an acute condition of rapid weight loss, or wasting.

This combination of indicators makes it possible to label and classify individuals with reference to two poles : children with insufficient but well-proportioned growth and those with a normal height, but who are wasted.

Weight/Height (%) = Weight of the child/Weight of a normal child at same height × 100

Height/Age (%) = Height of the child/Height of a normal child at same age × 100

Nutrition status	Stunting (% of height/age)	Wasting (% of weight/height)
Normal	> 95	> 90
Mildly impaired	87.5 – 95	80 – 90
Moderately impaired	80 – 87.5	70 – 80
Severely impaired	< 80	< 70

Source: K. park (2009)

Programs To Address The Causes Of Malnutrition In India

The Government of India has launched several programs to converge the growing rate of under nutrition children. They include ICDS, NCF, National Health Mission.

Midday meal scheme in Indian schools

In order to tackle the malnutrition, the Government of India initiated the school meal program which is called as MDM (Mid Day Meal). This school based meal program is going on in Gujarat since 1984. There was a need to relook at the nutritional scenario of children with regard to the prevalence of malnutrition and IDA (Iron Deficiency Anemia).

Integrated child development scheme

The Government of India has started a program called Integrated Child Development Services (ICDS) in the year 1975. ICDS has been instrumental in improving the health of mothers and children under age 6 by providing health and nutrition education, health services, supplementary food, and pre-school education. The ICDS national development program is one of the largest in the world. It reaches more than 34 million children aged 0–6 years and 7 million pregnant and lactating mothers. Other programs impacting on under-nutrition include the National Midday Meal Scheme, the National Rural Health Mission, and the Public Distribution System (PDS).

National Children's Fund

The National Children's Fund was created during the International Year of the Child in 1979 under the Charitable Endowment Fund Act, 1890. This Fund Provides support to the voluntary organizations that help the welfare of children.

National Plan of Action for Children

India is a signatory to the 27 survival and development goals laid down by the World Summit on children 1990. In order to implement these goals, the Department of Women & Child Development has formulated a National Plan of Action on Children. Each concerned Central Ministries/Departments, State Governments/ U.Ts. and Voluntary Organisations dealing with women and children have been asked to take up appropriate measures to implement the Action Plan. These goals have been integrated into National Development Plans.

United Nations Children's Fund

Department of Women and Child Development is the nodal department for UNICEF. India is associated with UNICEF since 1949 and is now in the fifth decade of cooperation for assisting most disadvantaged children and their mothers. Traditionally,

UNICEF has been supporting India in a number of sectors like child development, women's development, urban basic services, support for community based convergent services, health, education, nutrition, water & sanitation, childhood disability, children in especially difficult circumstances, information and communication, planning and programme support.

National Rural Health Mission

The National Rural Health Mission of India mission was created for the years 2005–2012, and its goal is to "improve the availability of and access to quality health care by people, especially for those residing in rural areas, the poor, women, and children."

The subset of goals under this mission are:

- Reduce infant mortality rate (IMR) and maternal mortality ratio (MMR)
- Provide universal access to public health services
- Prevent and control both communicable and non-communicable diseases, including locally endemic diseases
- Provide access to integrated comprehensive primary healthcare

CONCLUSION

It is concluded from the study the problem of malnutrition is very common in India. Many parameters are used to assess the malnutrition. Adequate nutrition is essential for human development. Malnutrition includes both undernutrition as well as overnutrition and refers to

deficiencies, excess or imbalance in the intake of energy, protein and other nutrients. The Government has accorded high priority to the issue of undernutrition and is implementing several programmes of different ministries/departments through State Government/UT Administration, which have the potential to improve the nutrition situation in India.

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