

Malnutrition A Global Problem: Critical Analysis

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Abstract

Malnutrition, which results from a combination of inadequate food, ill health and inadequate care, primarily affects the more vulnerable in a household, mainly women and children. Poor maternal nutrition results in Low Birth Weight (LBW), and these infants are at higher risk of growth retardation during childhood and adolescence, and thus perpetuates the cycle of malnutrition across generations.

In the developing countries, on an average, more than 60 per cent of the women of child bearing age (WCBA) have been suffering from nutritional anemia, about 20 per cent of them have some degree of Iodine Deficiency Disorders (IDDs), Vitamin A deficiency disorders are still a major contributing factor for diseases and illnesses and so on. The prevalence of Protein Energy Malnutrition (PEM) is still the single most important factor contributing about 55 per cent of child mortality in the developing countries.

The prevalence of different forms of malnutrition varies among children of different age groups. Of the nearly 12 million under five children who die each year in developing countries mainly from preventable causes, over 6 million, or 55 per cent, are either directly or indirectly attributable to malnutrition. Some 2.2 million children die from diarrhea dehydration as a result of persistent diarrhea that is often aggravated by malnutrition. Anemia has been identified as a contributing factor, if not a principal cause, in 20 per cent to 23 per cent of post-partum maternal deaths in Africa and Asia.

It is reliably estimated that globally 226 million children are stunted-shorter than they should be for their age. Stunting is particularly dangerous for women, as stunted women are more likely to experience obstructed labour and are thus, at greater risk of dying while giving birth. A recent analysis on LBW estimates that irrespective of gestational age, LBW accounts for 16.4 per cent of all births, or about 20.5 million infants each year. In developing countries, at least 13.7 million babies are born at term with LBW, representing 11 per cent of all newborns in those countries. This rate is 6 times higher than in developed countries. In developing countries, maternal malnutrition, ranks first among the main factors contributing to LBW due to intrauterine growth retardation (IUGR). Research indicates a link between malnutrition in early life-including the period of foetal growth- and the development later in life of chronic conditions like coronary heart disease, diabetes and high blood pressure, giving the countries in which malnutrition is already a major problem.

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It has been conclusively proved that malnutrition drains the most valuable human resources-IQ, learning capacity and productivity. It threatens the overall quality of human index. As the extent of the problems of malnutrition engulfs majority of the population of the world, it has become an obligation on the part of the policy makers and the sensible persons to address the catastrophic effects of malnutrition with effective policies and programs.

Introduction

Malnutrition is a general term often used for both 'under' and 'over' nutrition and specific nutrient deficiencies. Hunger and malnutrition persist in spite of important achievements in agricultural productivity and economic growth. "Chronic hunger." which is largely found in low-income food-deficit countries, results from continuous inadequate food intake and is perpetuated by poverty. Malnutrition, which results from a combination of inadequate food, ill health and inadequate care, primarily affects the more vulnerable in a household, mainly women and children. Poor maternal nutrition results in Low Birth Weight (LBW), and these infants are at higher risk of growth retardation during childhood and adolescence, and thus perpetuates the cycle of malnutrition across generations.

Magnitude of malnutrition

Malnutrition is widespread among children. Stunting (which measures long-term growth failure) reflects the cumulative effects of chronic insufficient food intake and recurrent infections. On the other hand, wasting (deficit in tissues and fat mass resulting in excessive thinness) can develop very rapidly as a result of sudden reductions in food consumption, such as starvation.

There are inter-regional and inter-country differences in the nature and magnitude of malnutrition. While in many countries in Africa, acute malnutrition is more predominant than chronic malnutrition (high to very high prevalence of wasting coupled with low to moderate prevalence of stunting), a high to very high prevalence of both wasting and stunting is commonly found in countries in Asia and some countries in Africa. On the other hand, a predominance of chronic over acute under nutrition (high to very high prevalence of stunting with a low prevalence of wasting) occurs in some countries in Latin America. Even in year 2001, about 35 per cent of the global population are malnourished, 18 per cent of the total days of a year (based on 65 man-days loss/ year) of the people of the developing countries are being lost due to disease and illness. Health and Nutrition of these people are critically important for the overall growth and development of the individual countries in particular, and the world at large.

It has been revealed from many literature and scientific studies that the major burden of malnutrition is on the population of the developing countries. Women and the minor children are the worst sufferer as depicted by low Body Mass Index (BMI less than 18.5 is considered as chronic malnutrition) and high incidence of LBW (birth weight less than or equal to 2500 gm) respectively. In the developing countries, on an average, more than 60 per cent of the women of child bearing age (WCBA) have been suffering from nutritional anemia, about 20 per cent of them have some degree of Iodine Deficiency Disorders (IDDs). Vitamin (A) deficiency disorders are still a major contributing factor for diseases and so on. The prevalence of Protein Energy Malnutrition (PEM) is still the single most important factor contributing deaths about 55 per cent of child mortality in the developing countries (directly attributable to malnutrition among under five children).

The prevalence of different forms of malnutrition varies among children of different age groups. A recent large-scale nutrition monitoring project in China has shown a sharp rise in the prevalence of stunting during the first year of life, while the prevalence of wasting was greatest among children aged 6 to 24 months. WHO's Global Database on Child Growth reveals similar patterns in most of the developing countries. Of the nearly 12 million children under five who die each year in developing countries mainly from preventable causes, over 6 million, or 55 per cent, are either directly or indirectly attributable to malnutrition. Some 2.2 million children die from diarrhea dehydration as a result of persistent diarrhea that is often aggravated by malnutrition. Anemia has been identified as a contributing factor, in 20 per cent to 23 per cent of all post-partum maternal deaths in Africa and Asia.

Many children suffer from multiple types of malnutrition, so numbers tend of overlap. But it is reliably estimated that globally 226 million children are stunted-shorter than they should be for their age. Stunting is particularly dangerous for women, as stunted women are more likely to experience obstructed labour and are thus, at greater risk of dying while giving birth.

Many children in developing countries are already malnourished at birth. A recent analysis on LBW estimates that irrespective of gestational age, LBW accounts for 16.4 per cent of all births, or about 20.5 million infants each year. In developing countries, at least 13.7 million babies are born at term with LBW, representing 11 per cent of all newborns in those countries. This rate is 6 times higher than in developed countries. In developing countries, maternal malnutrition, (low energy intake or weight gain during pregnancy, low pre pregnancy weight and short stature) ranks first among the major factors contributing to LBW due to intrauterine growth retardation (IUGR). Very high rates of IUGR-LBW are found in many countries in Asia and Africa, while most countries in Latin America and the Caribbean show low to moderate prevalence.

Present nutritional scenario of Bangladesh

Latest reports of UNICEF, NNP and some of the nutrition surveys conducted by various organizations have clearly shown that the women and the children of Bangladesh are the worst sufferer of malnutrition in the world. In Bangladesh, every

alternate child is stunted, every alternate child (born), with LBW, more than 55 per cent of women of childbearing age are suffering from chronic malnutrition as revealed by low BMI. About 70 per cent of them have IDD and nutritional anaemia. Children under 2 years of age are worst victims of anaemia in Bangladesh (80 per cent or more are anaemic).

Types of malnutrition

Depending on the manifestation, malnutrition situation can be classified into two broad categories. Both the types of malnutrition are prevalent in the developing countries.

- **Macronutrient malnutrition:** LBW, low weight of the adult population (mainly of women), low height for age, low weight for age and low BMI are some of the simple examples of this category of malnutrition.
- **Micronutrient malnutrition:** IDDs, Iron deficiency disorder and Vitamin A deficiency disorders are notoriously bad public health problems. In addition, Zinc, vitamins C, selenium and a couple of other micronutrient deficiency problems are also considered as emerging problems in the field of nutrition.

Factors contributing to malnutrition

Diagram 1: illustrates the interrelationship among the causal factors of malnutrition. It is important to recognize that the underlying causes of malnutrition, namely, household food insecurity, inadequate childcare, and insufficient basic health services, exist within a broader macro-economic and political context. The resources are made available by the national governments and determine the success of policies and programs directed at these underlying and immediate causes.

About 841 million people (20% of developing countries' populations) are hungry (food-energy deficient). A wide range of policies and strategies aims at improving both availability of food (such as production and trade) and access to food (such as household income and targeted food assistance.). Hunger and ill-health are interrelated. Both food and health-related interventions are needed to change the food insecurity-malnutrition cycle into a "virtuous" circle of household food security, productivity and adequate nutritional status. The burden of disease continues to take its toll on the most vulnerable that is, women and children. Of the 150 million pregnancies each year, at least 23 million suffer from complications, of which half a million are fatal and another 15 million result in long-term disabilities.

The synergistic relationship between child malnutrition and care is being increasingly recognized. The amount of food consumed by a child, pregnant woman or nursing mother is related not only to food availability at the household level, but also to child care patterns, status of women in the family, and intra-household resource distribution. For example, if caregivers are not informed, breastfeeding can be shortened and inappropriate or insufficient foods given when breastfeeding ceases. Severe malnutrition in children under five was found to be four-fold-higher when they were in the care of uninformed mother-substitutes.

Research indicates a link between malnutrition in early life-including the period of foetal growth – and the development later in life of chronic conditions like coronary heart disease, diabetes and high blood pressure, giving the countries in which malnutrition is already a major problem, new cause for concern (**foetal origin of adult disease**).

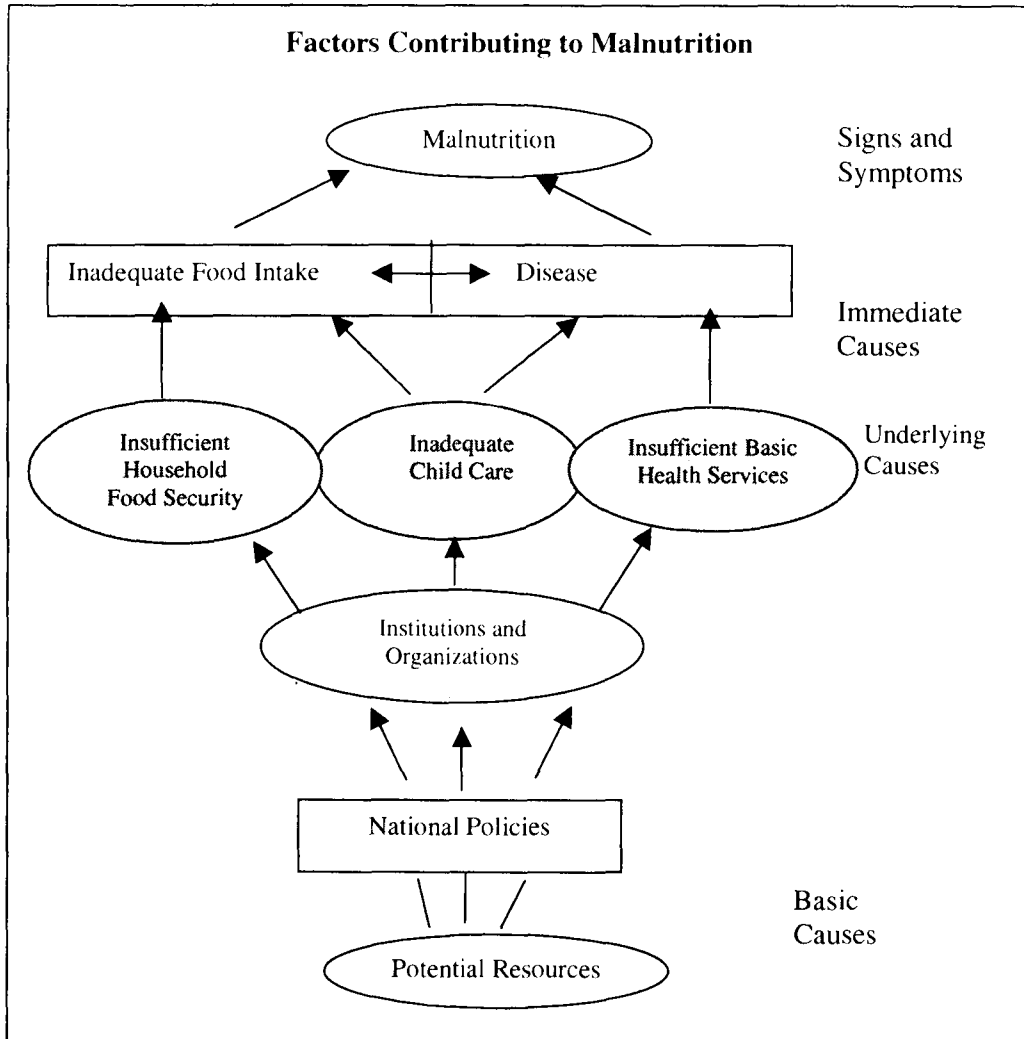


Diagram - 1

Adapted from the Joint WHO/UNICEF Nutrition Support Program in Iringa, Tanzania, 1988.

Cycle of Malnutrition

Studies on maternal nutrition shows a predictive inter-relationship between low pre-pregnancy weight and low weight gain by 5,7 and 9 months of pregnancy and LBW. Low pre-pregnancy weight is suggestive in women of chronic malnutrition commencing in early childhood.

Study found that LBW infants are likely to become malnourished children. Many of these malnourished infants remained malnourished in childhood and adolescence. These effects are especially devastating in the case of girls. In many deprived populations, nutrition and health care of girls during their infancy and childhood is neglected. Chronically malnourished girls are therefore, even more likely to remain malnourished during adolescence and adulthood, and when pregnant, to deliver low birth weight babies (diagram-2).

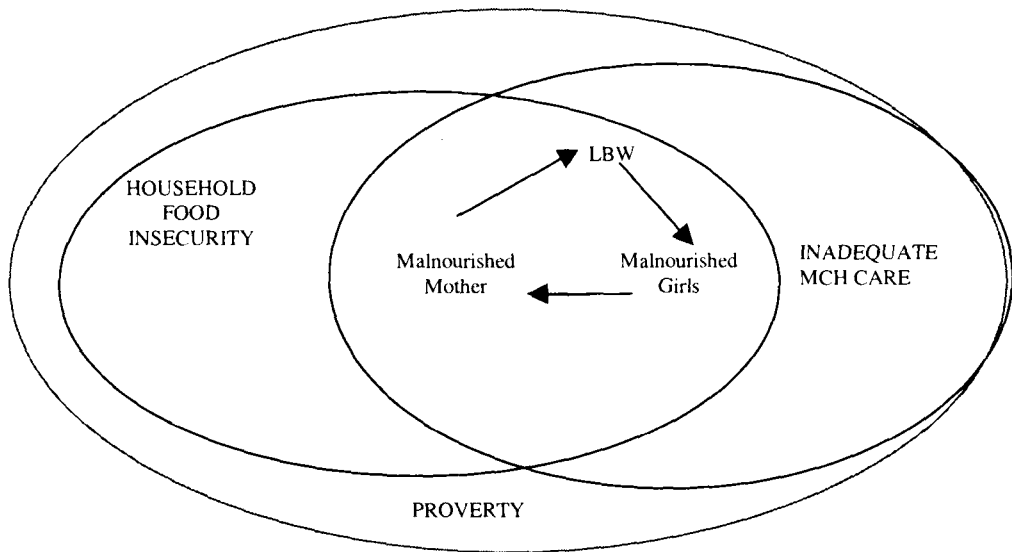


Diagram-2

Malnutrition across population, age and sex:

- Protein-energy-malnutrition continues to be widespread among under-five children.
- Many children in developing countries are already malnourished at birth.
- In developing countries, maternal under nutrition is the main factor contributing to LBW due to intrauterine growth retardation.
- LBW infants are likely to become malnourished children.
- Micronutrient malnutrition, specifically of iron, Vitamin A, and iodine is also widespread among women and children.

- Under persistent adverse conditions, such as inadequate food intake, severe or even moderate protein-energy malnutrition (PEM) in children under five can continue in school-age children and adults.
- Malnutrition in early childhood may adversely affect work capacity during adolescence, which in turn, results in low family income and household food insecurity, perpetuating the cycle of household food insecurity and malnutrition.
- Food insecurity and inadequate health care are major underlying causes of malnutrition among women and children.

Household food insecurity is perpetuated across generations

Study found that children who suffered from malnutrition during childhood continued to exhibit deficits in height, and more particularly in weight during adolescence, with 9% less weight gain between the ages of five and twenty than normally nourished children. Most importantly, the physical work capacity of these adolescents was found that it is significantly related to their current weight. Study revealed that diminished work capacity and work output result in low family income and household food insecurity, thus perpetuating the cycle of household food insecurity and malnutrition (diagram-3).

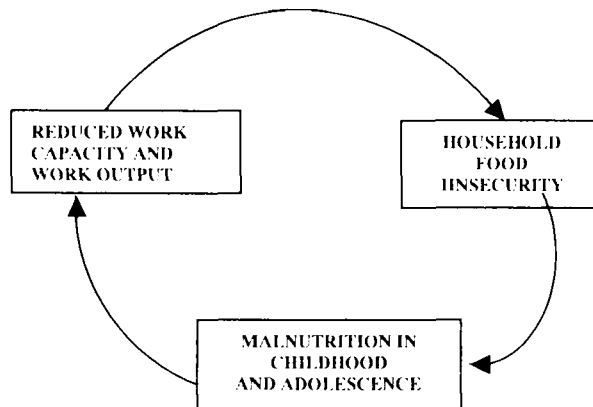


Diagram -3

Relationship between Infection and Malnutrition

The vicious cycle of infection and malnutrition is well established (diagram-4). Worst sufferers of infection and malnutrition are socio- economically disadvantageous group. These vulnerable groups of people are most affected due to sickness, poverty, lack of caring practices, and causing disability or premature death. Prevention, control and proper management of infections ensure improved nutritional status and enhanced productivity, resulting in economic benefit.

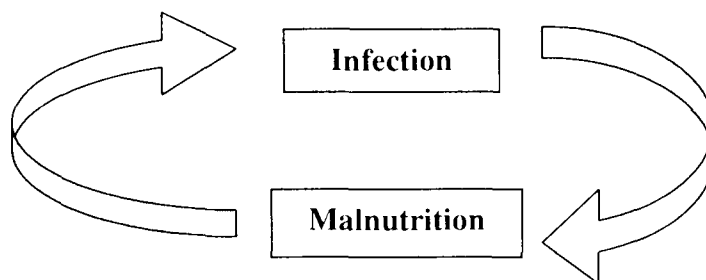


Diagram 4

Malnutrition and Mortality

Malnutrition is known to be a major determinant of mortality in young children (diagram-4). A recent review concluded that more than 55-60 per cent child mortality is attributable to malnutrition by virtue of its synergistic relation with infectious disease. Morbidity, mortality rates in the developing world are substantial because of underlying malnutrition and secondary infection. The association between nutritional depletion and the increased susceptibility to infectious diseases has been recognized for a long time. It appears that depletion adversely affects virtually all components of the immune system. The immune system is dependent on good nutritional status for its optimal function. Immune function itself can provide a broad measure of nutritional deficiency. Malnutrition has been associated with immunosuppression, reduced host defenses, and increased incidence of infections and mortality. Improvement of nutritional status through various nutritional support regimens may restore immunocompetence, and consequently reduce the rate and severity of infections in hospitalized patients. The common communicable diseases like: Diarrhea, Measles, Chicken pox, Mumps, Hepatitis, Typhoid, Tuberculosis, Bacillary dysentery, Malaria, Intestinal worm infection, especially in children that require special attention with respect to nutrition. It is also important to address the nutritional problem that develops from the communicable diseases prevalent among women. These are Mumps, Rubella, Herpes, Malaria and Chicken Pox. The tragic consequences of these infections are miscarriage, abortion, malformation and intrauterine growth retardation.

Conclusion

It has been conclusively proved that malnutrition drains the most valuable human resources- IQ, learning capacity and productivity. It threatens the overall quality of human index. As the extent of the problems of malnutrition engulfs majority of the population of the world (directly or indirectly), it has become an obligation on the part of the policy makers and the sensible persons to address the catastrophic effects of malnutrition with effective policies and programs. The economic loss due to

malnutrition is huge, and thus is directly related to poverty reduction strategies of a nation. It should be the moral obligation of all nations to have an effective nutrition policy to address the nutrition issues, and thus, provide the citizens a economically emancipated, socially balanced and productive country.

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