



Malnutrition Cases in Global Health Context

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Abstract: *In this research paper, the prevalence of malnutrition in the world, with increasing cases of malnutrition in mothers and especially in infants, has been found to be extremely high. This study looks at how malnutrition affects children, mothers, and socio-economic living standards. It also includes guidelines on how to control the rising incidence of malnutrition in mothers and children.*

1. INTRODUCTION:

In 1974, the World Food Conference declared, “Every man, woman and child have the inalienable right to be free from hunger and malnutrition.” Since 1990, the number of malnourished individuals has fallen by 21 percent. Yet, from 2011 to 2013, one out of every eight people in the world almost one billion people was still not getting enough food for an active and healthy life. Most (98%) of these individuals lived in developing economic regions (global prevalence of malnutrition in children under five). Socially vulnerable groups such as children and childbearing women shoulder the largest burden of malnutrition.

UN Standing Committee on Nutrition identifies malnutrition as the single largest factor impacting the global disease burden. In 2013 malnutrition was the underlying cause of death for at least 3.1 million children. Malnutrition increases an individual’s susceptibility to disease by hindering the immune system, which increases vulnerability to infectious diseases such as TB, HIV and hepatitis C.

In 2013, the Food and Agriculture Organization of the UN (FAO) estimated the annual global cost of malnutrition from loss of productivity and healthcare expenditures was USD 3.5 trillion. Underweight is responsible for nearly 15 percent of the total DALY losses in countries with high child mortality. Studies of low-income Asian countries estimate that micronutrient deficiencies decrease adult productivity by 5-17 percent.

Preliminary data from the cost of hunger in Africa (COHA) study suggest malnutrition costs Uganda, Ethiopia, Swaziland and Egypt each 1.9 – 16.5 percent of their national GDP, depending on factors including the intensity of illnesses and treatment measures in underweight children.

2. Defining malnutrition:-

Malnutrition is a broad term that refers to “all deviations from adequate and Optimal nutritional status “ resulting from specific nutrient deficiencies or diets based on inappropriate combination or proportions of foods. There are two forms of malnutrition: overnutrition and undernutrition. Overnutrition is the hyper consumption of calories and nutrients beyond levels necessary for growth, development, and metabolic functioning. Overnutrition can lead to obesity. Undernutrition, often used interchangeably with malnutrition, results primarily from inadequate intake of dietary energy but may also be caused by infection that limit absorption of key nutrients.

Undernutrition is further subdivided into two fluid disease categories that have different impact: micronutrients deficiencies result from insufficient consumption of vitamins (for example, vitamin A , vitamin B),and minerals (for example ,zinc ,iodine, iron); and protein – energy malnutrition results from insufficient calorie and macronutrient(for example, protein) consumption.

The severity of chronic and acute malnutrition is diagnosed using anthropomorphic measures . Those with moderate acute malnutrition (MAM) or moderate chronic malnutrition (MCM)are 2-3 standard deviations below the population ‘s weight -for- age and hight-for-weight averages. Similarly, those who are severely acutely malnourished (SAM) or severely chronically malnourished (SCM) are least 3 standard deviations below the population ‘s growth averages.



3. Malnutrition in Childhood :-

Malnutrition is among the four leading causes of child mortality around globe. In 2013 , the World Health Organization (WHO) reported malnutrition was linked to 45 percent of all childhood deaths . Malnutrition is a contributing factor in the deaths of 60.7 percent of children diagnosed with diarrheal diseases, 57.3 percent of deaths associated with malaria , 52.3 percent deaths associated with pneumonia , and 44.8 percent of deaths from measles . The UN Standing Committee on Nutrition estimated 26.5 percent of children in developing countries were stunted in 2005,5 and one year later , the United Nations Children’s Fund (UNICEF) reported South Asia had a 46 percent prevalence of stunting in children under five.

Children are particularly vulnerable to malnutrition during the first 1,000 days following conception . Inadequate nutrition during this period can lead to delayed and impaired cognitive and physical development. This malnutrition-based damage is largely irreversible and can lead to poor school and work achievement and an increased risk for developing diseases later in life. In 2007 , the International Child Development Steering Group found that children raised with limited access to nutritional resources were less likely to be socially and economically productive adults . This finding supported the inextricable link between childhood malnutrition and poverty later in life.

4. Causes of malnutrition:-

Food insecurity, or an inability to access enough food , is often cited as cause of malnutrition. The FAO has outlined six factors that work together to predispose individual to food: agriculture production of food; the preservation of food (including processing); the population, in terms of child speaking and overall density; the prevalence of poverty; political ideologies; and disease and infection epidemiology (figure 4.6 for further details on the six determinant). Usually there is not one single cause of malnutrition, but various factors at both the individual and communal levels that contribute.

➤ **Clinical Causes :-**

At the most fundamental level , a body becomes malnourished when it does not obtain a sufficient quantity and / or quality of food and nutrients . In addition to water, six different nutrient groups are critical for the body to sustain itself and grow : proteins , carbohydrates , minerals (e.g. , zinc , calcium , sodium) , fats , vitamins , and indigestible and un- absorbable particles such as fibre .

In order for the body to benefit from nutrients consumed , it must be able to digest , absorb , and use the nutrients effectively . Infections and health problems such as cancer , diarrheal diseases , and HIV can limit the body’s ability to absorb sufficient nutrients and calories , predisposing an individual to malnutrition .

Physical ailments can also contribute to the degradation of nutritional status. Poor dental hygiene resulting in tooth decay , for example , can limit the amount and types of food consumed , and leprosy related amputations and other mobility reducing handicaps can impede physical access to food .

The early cessation of breastfeeding for cultural reasons or due to the mother’s lack of production contributes to childhood malnutrition . Ceasing breastfeeding often limits an infant’s intake of calories and of vital antibodies that support immune system functioning and prevent diarrheal disease.

➤ **Social Causes:-**

Poverty can be both a cause and a result of malnutrition . Low wages can lead to household food insecurity , making family members more vulnerable to infection or other clinical causes of malnutrition. As discussed , children growing up malnourished are less likely to be productive adults and become trapped in the cycle of poverty .

➤ **Environmental Causes :-**

Malnutrition tends to affect rural areas more than urban. Food security in rural communities depends on natural and human resources that are vulnerable to change, including rain or weather patterns , access to tools , agriculture knowledge, and human capital.

Other environmental causes of malnutrition include diarrhea due to poor sanitation, which impedes nutrient absorption . In India , for exam stunting from chronic malnutrition afflicts 65 million children under the of 5 , including one third of children from the nation’s wealthiest socioeconomic class with secure access to food. In 2011, an estimated 620 million people , about half of India’s population , defecated outdoors . Outdoor defecation stems from necessity – only 47 percent of Indian households have a toilet – as well as cultural norms and low educational attainment. Extensive population growth suggests that more Indians are being exposed to pathogens in human waste than ever before . In children , repeated bacterial infections flatten intestinal linings , reducing the body’s ability to absorb nutrients by 33 percent , as well as decrease levels of normal digestive bacteria .

5. Malnutrition Management:-

➤ **Pathophysiology:-**

Malnutrition can lead to various secondary health conditions that impact morbidity and mortality. Deficiencies of vitamin A, found in a variety of green and leafy vegetables, can lead to blindness and increased rates of infection. Long term vitamin C deficiency can cause scurvy, a micronutrient disease whose symptoms begin with general malaise, anaemia, and gingivitis, but if left untreated can cause loss of teeth, neuropathy, and even death. Other trace nutrient deficiencies such as those from iron and iodine yield anaemia and goitres, the enlargement of the thyroid gland.

Undernutrition affects almost every organ system, including the cardiovascular system, liver, genitourinary system, gastrointestinal tract immune system, endocrine system, metabolism and circulation, cellular function, skin, and glands (Figure 4.7 for more on implications of malnutrition by organ system). Concurrent conditions may exhibit themselves differently in undernourished individuals.

➤ **Diagnosis and Measurement:-**

Most malnutrition children are not diagnosed until a health crisis, such as an infection, leads them to seek medical attention. Because malnutrition is a broad – spectrum disorder and not linked to a specific pathogen, there is no single test to confirm a diagnosis. In 1999, the WHO introduced a set of measurement guidelines for the identification and treatment of acute malnutrition based upon the practices of facilities with the lowest rates of mortality. There are three forms of SAM: kwashiorkor, caused by insufficient protein intake and characterized by skin and hair changes; marasmus, caused by rapid deterioration in nutritional status and characterized by extreme wasting of fat and muscle; and marasmic kwashiorkor a combination of the two previous forms.

➤ **Prevention :-**

The best way to prevent malnutrition is to eat a nutrient diverse and balanced diet. Immunizations and supplementary nutrients for children can also lower the burden of severe and moderate malnutrition. In contexts where access to sufficient foods is limited, malnutrition prevention initiatives are critical to identifying and reducing chronic and acute malnutrition, especially among children.

For the first six months of life, exclusive breastfeeding is the best source of nutrition for infants under six months. It enhances infant and maternal health by providing essential antibodies, enzymes, and easily digestible nutrients. Breastfed infants are less likely to suffer from infectious diseases, diarrhea and severe bacterial infections, reducing infant morbidity and death. Exclusive breastfeeding also contributes to women's health by lowering female fecundity and increasing birth intervals, possibly benefitting infants for years to come.

➤ **Treatment:-**

There is no 'silver bullet', or instant cure, for malnutrition. The most apparent solution, giving an individual more to eat, can cause harm and lead to refeeding syndrome a rapid shift in electrolyte and fluid levels that can lead to death. The WHO, WFP, United Nations High Commission for Refugees (UNHCR), and UNICEF have outlined specific interventions for the safe and efficient reduction of malnutrition in both emergency and endemic settings through phased therapeutic feeding programs.

For over 30 years, therapeutic feeding programs were inpatient and available only at regional hospitals. When staffed and managed adequately, the programs were highly effective in treating severe malnutrition. However, access was limited. To receive treatment, patients (and their parents and guardians) faced high opportunity costs forgoing the care of other children, household responsibilities, and/or employment. This expensive and fixed capacity model was hard to scale or tailor to demand but was the only point of access to therapeutic high calorie and high nutrient supplements administered by trained health professionals until the early 2000s.

The treatment standards for SAM shifted with the mass localized production of energy dense, micronutrient enhanced pastes called ready to use therapeutic foods (RUTF). Unlike other refeeding treatments, RUTF do not have to be administered in the clinic setting. In 2013, UNICEF was the world's largest purchaser and distributor of RUTF.

There has been debate about how to classify RUTF. Proponents of treating it like a drug highlight the benefits that would come with it being an "essential drug" while others protest that doing so would prohibit local manufacturing which could enhance local jobs and possibly lower production costs; they believe RUTF should be treated as manufactured food products.

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