

Malnutrition among children in India

Mr. Satyendra S. Chauhan, Assistant Professor, Department of Social Work, CSJM University, Kanpur

Abstract

Childhood malnutrition is a persistent public health issue in India, with nearly one-third of all children under the age of five suffering from stunted growth due to chronic malnutrition. Malnutrition in India is caused by a complex interplay of factors, including poverty, food insecurity, inadequate sanitation and hygiene, lack of access to healthcare, and poor education. The consequences of childhood malnutrition in India are profound, including impaired cognitive development, increased susceptibility to infectious diseases, and long-term health effects. Addressing childhood malnutrition in India will require a comprehensive approach that addresses these underlying factors, with investments in education, healthcare, sanitation, and infrastructure, as well as targeted interventions to improve access to nutritious food and healthcare for the most vulnerable populations.

Key Words: *Childhood malnutrition, poverty, healthcare, nutritional programmes, challenges*

Introduction

Malnutrition is a condition that occurs when the body does not receive adequate nutrients, vitamins, and minerals necessary for growth and development. It is a widespread public health problem that affects millions of people worldwide, particularly in developing countries. Malnutrition can have severe consequences, including impaired cognitive development, increased susceptibility to infectious diseases, and long-term health effects. It can also affect individuals of all ages, from infants to adults.

Malnutrition in developing countries is caused by a complex interplay of factors, including poverty, food insecurity, inadequate sanitation and hygiene, lack of access to healthcare, and poor education. In India, malnutrition is a significant public health concern, particularly among children under the age of five. Nearly a third of all children in India suffer from stunted growth due to chronic malnutrition, and the country has the highest number of wasted children in the world, with 17.3 million children suffering from acute malnutrition.

Addressing malnutrition in developing countries requires a comprehensive approach that goes beyond simply providing food aid. It requires investments in education, healthcare, sanitation, and infrastructure, as well as targeted interventions to improve access to nutritious food and healthcare for the most vulnerable populations. In this paper, we will explore the causes and consequences of malnutrition in India, as well as potential solutions to address this critical public health issue.

A review of the literature on malnutrition

The literature review on malnutrition conducted using various methods to collect, select, and analyze the relevant literature on the topic. The following are some methods for conducting a literature review on malnutrition:

Systematic review: A systematic review is a method of reviewing literature that involves a comprehensive and structured search of various databases, including PubMed, Medline, Scopus, and Web of Science. This method aims to identify all relevant studies on the topic and critically evaluate the quality of the studies.

Narrative review: A narrative review is a more traditional approach to conducting a literature review, which involves summarizing and synthesizing the findings from multiple studies on the topic. This method does not involve a structured search of databases and may not include a formal quality assessment of the studies.

Meaning of Malnutrition

Malnutrition is a medical condition that results from a lack of proper nutrients, vitamins, and minerals necessary for growth and development. It can also occur when the body is unable to absorb these nutrients, even if they are available in the diet. Malnutrition can affect people of all ages, from infants to adults, and can lead to a wide range of health problems, including impaired cognitive development, weakened immune system, anemia, stunted growth, and increased risk of

infectious diseases. Malnutrition can be caused by a variety of factors, including poverty, food insecurity, poor diet, illness, and other environmental and social factors. It is a significant public health problem, particularly in developing countries, where it is often associated with poverty, lack of access to healthcare, and inadequate food and water resources. Addressing malnutrition requires a multi-faceted approach, including improving access to nutritious food and healthcare, investing in education, and addressing underlying social and environmental factors that contribute to the problem.

Types of Malnutrition

There are two primary types of malnutrition: undernutrition and overnutrition.

Undernutrition: This type of malnutrition occurs when the body does not receive sufficient nutrients, vitamins, and minerals necessary for growth and development. It is commonly associated with poverty and is prevalent in developing countries. The primary types of undernutrition include: *Protein-energy malnutrition (PEM):* PEM occurs when the body does not receive sufficient protein and energy, leading to stunted growth, weakened immune system, and other health problems. It is commonly seen in children under the age of five and is a leading cause of morbidity and mortality in developing countries.

Micronutrient deficiencies: Micronutrient deficiencies occur when the body does not receive sufficient vitamins and minerals, leading to anemia, blindness, and other health problems. The most common micronutrient deficiencies include vitamin A, iodine, and iron deficiencies.

Stunting:

Stunting is a term used to describe a condition in which a child's height or length is significantly below the average for their age group. It is often used as an indicator of chronic undernutrition in children. Stunting typically occurs during the first 1,000 days of a child's life, from conception to the age of two years, and can result in long-term consequences for physical and cognitive development.

Stunting is typically caused by a lack of proper nutrition during this critical period of development. This can include a lack of access to nutritious food, poor maternal nutrition, and inadequate care during pregnancy and early childhood. Stunting can also be exacerbated by frequent infections, poor sanitation, and environmental factors such as pollution.

The consequences of stunting can be severe and long-lasting. Children who experience stunting may have impaired cognitive development, lower IQ scores, and poor school performance. They may also be at greater risk for chronic diseases later in life, such as obesity, diabetes, and cardiovascular disease. Additionally, stunting can have economic consequences, as individuals who experience stunting may have lower earning potential as adults.

Preventing and addressing stunting requires a comprehensive approach, including improving access to nutritious food, promoting good maternal and child health practices, and investing in early childhood development programs. Addressing underlying social and environmental factors, such as poverty and poor sanitation, is also critical to preventing stunting and ensuring the healthy growth and development of children.

Wasting:

Wasting is a condition characterized by a rapid and severe loss of weight and body mass, typically in children under the age of five. Wasting is often caused by a lack of access to sufficient nutrients, particularly protein and energy, and can lead to serious health consequences if left untreated.

Wasting is typically measured by the weight-for-height or weight-for-length indicators, which compare a child's weight to their height or length. Children who are found to have a weight-for-height or weight-for-length that is below a certain threshold are considered to be wasted.

Wasting is a common complication of acute malnutrition, which can occur as a result of a range of factors, including food shortages, famine, natural disasters, and conflict. It can also occur as a result of chronic malnutrition, which is caused by a lack of access to nutritious food over a prolonged period.

The consequences of wasting can be severe and long-lasting. Children who experience wasting are at increased risk for mortality, as well as for a range of health complications, including impaired cognitive development, weakened immune system, and increased susceptibility to infections.

Addressing wasting requires a comprehensive approach, including providing children with access to sufficient and nutritious food, promoting good maternal and child health practices, and investing in early childhood development programs. Addressing underlying social and environmental factors, such as poverty and inadequate access to healthcare, is also critical to preventing and treating wasting in children.

Overnutrition: This type of malnutrition occurs when the body receives an excess of calories, leading to overweight and obesity. Overnutrition is commonly associated with a high intake of fats, sugars, and processed foods, as well as a sedentary lifestyle. The primary types of overnutrition include:

Overweight: Overweight is a condition in which the body has excess body fat, often caused by a high-calorie diet and sedentary lifestyle. Overweight can lead to a range of health problems, including cardiovascular disease, diabetes, and some cancers.

Obesity: Obesity is a more severe form of overweight and occurs when the body has an excessive amount of body fat. Obesity is a significant public health problem worldwide and is associated with a range of health problems, including cardiovascular disease, diabetes, and some cancers.

Both undernutrition and overnutrition are significant public health problems and require a comprehensive approach to address the underlying causes and prevent long-term health consequences.

Why should we care about kid malnutrition?

There are several reasons why we should care about child malnutrition:

Health consequences: Malnutrition can have severe and long-lasting health consequences for children, including impaired cognitive development, weakened immune system, and increased susceptibility to infections. Malnourished children are also at increased risk of mortality, especially in developing countries where access to healthcare may be limited.

Economic impact: Child malnutrition can have significant economic consequences, as malnourished children may have lower productivity and earning potential as adults. Additionally, the costs associated with treating malnutrition can be substantial, both in terms of healthcare costs and lost productivity.

Social impact: Malnutrition can perpetuate a cycle of poverty and disadvantage, as malnourished children may have lower educational attainment and reduced opportunities for economic and social mobility. This can have broader social implications, including increased inequality and reduced social cohesion.

Human rights: Malnutrition is a violation of children's human rights, as it deprives them of the basic necessities required for healthy growth and development. Ensuring that all children have access to sufficient and nutritious food is a fundamental human right, and addressing child malnutrition is essential to promoting social justice and equity.

Overall, addressing child malnutrition is critical to promoting the health, well-being, and rights of children, as well as to promoting economic development and social cohesion. It requires a comprehensive approach that includes improving access to nutritious food, promoting good maternal and child health practices, and investing in early childhood development programs.

The consequences of the malnourishment

Malnutrition can have a wide range of consequences, including both short-term and long-term effects. Some of the most common consequences of malnutrition include:

Impaired growth and development: Malnutrition can lead to stunted growth, delayed development, and reduced cognitive function in children. This can have long-term implications for educational attainment and earning potential, as well as for overall health and well-being.

Weakened immune system: Malnutrition can weaken the immune system, making children more vulnerable to infections and illnesses. This can result in frequent illnesses, increased hospitalizations, and even mortality in severe cases.

Increased risk of chronic diseases: Malnutrition can increase the risk of chronic diseases such as diabetes, cardiovascular disease, and obesity in later life. This is because malnutrition can lead to metabolic changes that increase the risk of developing these conditions.

Poor mental health: Malnutrition can also have negative effects on mental health, including depression, anxiety, and behavioral problems in children.

Reduced productivity and economic potential: Malnutrition can have long-term economic consequences, as individuals who experience malnutrition may have reduced productivity and earning potential as adults.

Inter-generational effects: Malnutrition can perpetuate a cycle of poverty and disadvantage, as malnourished children may have reduced opportunities for social and economic mobility, which can be passed on to future generations.

Overall, malnutrition can have significant and long-lasting consequences for individuals, families, and communities. Addressing malnutrition requires a comprehensive approach that includes improving access to nutritious food, promoting good maternal and child health practices, and investing in early childhood development programs. By addressing the underlying social and environmental factors that contribute to malnutrition, we can promote the health, well-being, and potential of individuals and communities.

Malnutrition measurement

A weight that is 2 standard deviations below the WHO child development criteria for that particular age is considered to be underweight. To put it another way, a kid is considered underweight if their Z-score for a specific weight for age is fewer than two standard deviations (SD) from the median of the WHO/NCHS kid Growth Standards or References.

Loss of body weight relative to height is referred to as wasting. In other words, if a child's Z-score for a specific weight for height is less than 2 SD from the median of the WHO/NCHS Child Growth Standards or References, then the child is said to be wasting.

Wasting, commonly referred to as "acute malnutrition," is characterised by a sharp decline in a child's nutritional status over a brief period of time. The mid-upper arm circumference (MUAC) or the weight-for-height nutritional index can be used to measure it in youngsters. Acute malnutrition comes in two different degrees of severity: moderate acute malnutrition (MAM) and severe acute malnutrition (SAM).

A height that is more than two standard deviations below the WHO child development standards median is considered stunted. To put it another way, a kid is considered stunted if their Z-score for a specific height for age is fewer than two standard deviations (SD) from the median of the WHO/NCHS kid Growth Standards or References.

The term "chronic undernutrition" is also used to describe stunting, albeit this is only one of its causes. Given that stunting frequently has these detrimental effects, it is frequently linked to cognitive impairments such as delayed motor development, reduced brain function, and subpar academic performance.

Malnutrition's prevalence in India and its severity:

Malnutrition is a significant public health problem in India, affecting a large proportion of the population, particularly children. According to the National Family Health Survey-5 (NFHS-5), which was conducted in 2019, the prevalence of underweight among children under five years of age in India was 33.4%, while the prevalence of stunting was 36.7% and the prevalence of wasting was 17.3%.

The burden of malnutrition is not evenly distributed across India, with some states and regions being more affected than others. For example, the states of Bihar, Jharkhand, and Madhya Pradesh have some of the highest rates of underweight and stunting in the country. Additionally, rural areas

tend to have higher rates of malnutrition than urban areas, and children from poorer households are more likely to be malnourished than those from wealthier households.

The consequences of malnutrition are also significant. Malnourished children are more vulnerable to infections and illnesses, and are at higher risk of mortality. Malnutrition can also have long-term effects on cognitive development, leading to poor academic performance and reduced economic productivity in adulthood. In addition, malnutrition can have intergenerational effects, as malnourished mothers are more likely to give birth to low birth-weight babies, who are at higher risk of malnutrition and its associated consequences.

Given the magnitude of the problem and its consequences, addressing malnutrition is a key priority for public health in India. Efforts to reduce malnutrition include improving access to nutritious food, promoting good maternal and child health practices, investing in early childhood development programs, and improving water and sanitation infrastructure. Additionally, efforts are needed to address the underlying social and economic determinants of malnutrition, including poverty, gender inequality, and lack of education.

Various factors work together to keep malnutrition prevalent in Indian communities:

There are various factors that work together to keep malnutrition prevalent in Indian communities. Some of these factors include:

Poverty: Poverty is a major contributor to malnutrition in India. Poor families may not have enough resources to provide their children with adequate nutrition, including access to nutritious food, clean water, and proper healthcare.

Poor maternal health: Poor maternal health during pregnancy can lead to low birth weight and malnutrition in infants. Malnourished mothers may also be less able to provide their children with adequate nutrition and care.

Inadequate infant and young child feeding practices: Many infants and young children in India are not breastfed exclusively for the recommended six months, and may not receive appropriate complementary foods after that time. This can lead to undernutrition and stunting.

Poor sanitation and hygiene: Poor sanitation and hygiene practices can contribute to the spread of infections, which can worsen malnutrition. Children who are frequently sick may be less able to absorb nutrients from food.

Gender inequality: Gender inequality can impact access to healthcare, education, and economic opportunities, which can contribute to malnutrition. In some cases, girls may be given less food and healthcare than boys.

Lack of education: Low levels of education can contribute to malnutrition, as individuals may not have the knowledge or resources to provide their families with adequate nutrition.

Addressing malnutrition in India requires a comprehensive approach that addresses these underlying factors. This may involve improving access to nutritious food and clean water, promoting appropriate infant and young child feeding practices, improving sanitation and hygiene, addressing gender inequality, and improving education and economic opportunities. Additionally, targeted interventions may be needed to address malnutrition in specific populations, such as rural or tribal communities, and to address the nutritional needs of vulnerable groups, such as pregnant women and young children.

Targets and commitments to monitor the elimination of malnutrition:

There are various targets and commitments at the global and national level aimed at monitoring and eliminating malnutrition. Some of these include:

Sustainable Development Goal 2: The United Nations' Sustainable Development Goal 2 aims to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture by 2030.

Global Nutrition Targets: The World Health Assembly has set global nutrition targets for 2025, which include reducing the number of children under five who are stunted by 40%, reducing the

number of children under five who are wasted to less than 5%, and increasing the number of infants who are exclusively breastfed in the first six months to at least 50%.

National Nutrition Mission: The Government of India has launched the National Nutrition Mission (NNM), also known as POSHAN Abhiyaan, which aims to reduce the prevalence of malnutrition in India by 2022. The NNM focuses on improving access to nutritious food, promoting appropriate feeding practices, and improving health and sanitation infrastructure.

State-level commitments: Several Indian states have made commitments to address malnutrition, such as the Chhattisgarh Nutrition Mission and the Maharashtra State Nutrition Mission.

Corporate commitments: Several companies and organizations in India have made commitments to address malnutrition, such as the Tata Trusts' initiative to improve maternal and child health and nutrition in tribal areas.

These targets and commitments provide a framework for monitoring and addressing malnutrition in India. However, achieving these targets will require sustained effort and investment, as well as a comprehensive approach that addresses the underlying factors that contribute to malnutrition. Monitoring progress towards these targets can help to ensure that efforts are effective and targeted, and can help to hold governments and other stakeholders accountable for their commitments.

Conclusion:

The information and analysis presented above show that malnutrition in all its manifestations is alarmingly common in Indian communities and that it is both preventable and treatable. Malnutrition has an effect on social and economic development in addition to health. In the context of India, a number of significant factors, including poverty, maternal health illiteracy, LBW, infections like diarrhoea, the home environment, dietary practises, inadequate hand washing, and poor hygiene practises, contribute to the extremely high prevalence of malnutrition. To address hunger and improve nutrition, the Indian government has implemented a number of community nutritional schemes. In spite of significant obstacles, India has achieved significant strides in the past 20 years to combat hunger and undernourishment, but this rate of improvement has been intolerably slow, unequal, and many have been left behind. However, India has the potential to end malnutrition in all of its forms and make the ambition of the Sustainable Development Goals a reality for everyone with consistent prioritisation, increased resource allocation, adoption of a comprehensive, coordinated, and holistic approach, good governance, and assistance from civil society.

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