



Lancet Study on Micronutrient Inadequacies

For Prelims: [Malnutrition](#), [Vitamins](#), [Enzymes](#), [Anaemia](#), [State of Food Security and Nutrition in the World' \(SOFI\)](#), [National Family Health Survey \(NFHS-5\) 2019-21](#), [Mission Poshan 2.0](#), [UNICEF](#).

For Mains: Prevalence of Nutrient Deficiency, Measures Needed to Tackle Nutrient Deficiency and Malnutrition.

Source: DTE

Why in News?

Recently, a **study published in Lancet Global Health highlighted the global inadequacy of [micronutrient](#)** intake, particularly for iodine, vitamin E (tocopherol), calcium, iron, riboflavin (vitamin B2), and folate (vitamin B9) across different regions and age groups.

- As the **first global estimate based on dietary intake data**, it underscores the need for nutritional interventions **such as dietary modifications, [biofortification](#), [fortification](#), and supplementation**.

What are Key Findings of the Study?

Category	Nutrient(s)	Key Findings
Global Findings	Iodine, Vitamin E, Calcium	Over 5 billion people worldwide have inadequate intakes.
	Iron, Riboflavin, Folate, Vitamin C	More than 4 billion people have insufficient intakes.
Gender Differences	Iodine, Vitamin B12, Iron, Selenium, Calcium, Riboflavin, Folate	Women have higher inadequacies.
	Magnesium, Vitamin B6, Zinc, Vitamin C, Vitamin A, Thiamin, Niacin	Men have higher inadequacies.
India-Specific Findings	Riboflavin, Folate, Vitamin B6, Vitamin B12	India experiences high levels of inadequacies in these nutrients

What are Micronutrients?

- About Micronutrients:** Micronutrients include [vitamins](#) and **minerals** required by the body

in **very small amounts**. E.g., Iron, Vitamin A, Iodine etc.

- They are crucial for producing **enzymes**, **hormones**, and other substances necessary for normal growth and development.

▪ **Impact of Micronutrient Deficiencies:**

- **Severe Conditions:** Deficiencies in micronutrients can lead to **serious health issues**, particularly in children and pregnant women. E.g., **Anaemia**.
- **General Health:** Lack of micronutrients can cause less visible but significant health problems such as **reduced energy levels, mental clarity, and overall capacity**.
- **Long-Term Effects:** These deficiencies can impact **educational outcomes**, work productivity, and increase susceptibility to other diseases and health conditions.

▪ **Types:**

◦ **Undernutrition:**

- **Wasting:** Low weight-for-height is known as wasting. It occurs when a person has not had enough food to eat and/or they have had an infectious disease.
- **Stunting:** Low height-for-age is known as stunting. It often occurs due to insufficient calorie intake, leading to a low weight for a given height.
- **Underweight:** Children with low weight-for-age are known as underweight. A child who is underweight may be stunted, wasted, or both.

◦ **Micronutrient-related Malnutrition:**

- **Vitamin A Deficiency:** Insufficient intake of vitamin A can lead to vision impairment, weakened immunity, and other health issues.
- **Iron Deficiency:** Causes anaemia, impacting the body's ability to transport oxygen, leading to fatigue and weakness.
- **Iodine Deficiency:** Results in thyroid-related disorders, affecting growth and cognitive development.

- **Obesity:** Excessive calorie intake, often coupled with a sedentary lifestyle, can lead to obesity. It is characterised by an accumulation of excess body fat, posing health risks like cardiovascular diseases and diabetes.

- In adults, **overweight is defined** as a **Body Mass Index (BMI)** of 25 or more, whereas obesity is a BMI of 30 or more.

- **Diet-related Noncommunicable Diseases (NCDs):** It encompasses cardiovascular diseases, such as heart attacks and strokes, often associated with high blood pressure, primarily stemming from unhealthy diets and inadequate nutrition.

WHO's Role in Preventing Micronutrient Deficiencies

▪ **Key Programmes and Interventions:**

- **Ambition and Action in Nutrition:** WHO works with Member States and partners to prevent micronutrient deficiencies through various programmes.
 - The approach is guided by the **WHO's Ambition and Action in Nutrition 2016-2025**, which aims for 'a world free from all forms of malnutrition where all people achieve health and well-being.'
- **Iron and Folic Acid Supplementation:** Provides essential nutrients to prevent deficiencies and related health issues, particularly in vulnerable populations like pregnant women.
- **High-Dose Vitamin A Supplementation:** Aims to prevent **vitamin A** deficiency, which is crucial for vision and immune function, especially in children.
- **Fortification of Foods:**
 - **Salt Iodization:** Effective in reducing iodine deficiency globally.
 - **Wheat Flour Fortification:** Includes iron and folic acid to combat anaemia.

What is the Status of Malnutrition in India?

- **Undernourishment:** As per the **'State of Food Security and Nutrition in the World' (SOFI)** report released in 2024, India is home to 194.6 million (19.5 crore) undernourished people, the **highest** in any country in the **world**.

- **Child Malnutrition:** India is home to one-third of the world's malnourished children.
 - According to the [National Family Health Survey \(NFHS-5\) 2019-21](#), approximately **36%** of children under the age of five are stunted, **19%** are wasted, **32%** are underweight, and **3%** are overweight.
- **Global Hunger Index 2023:** India's 2023 [GHI score](#) is **28.7**, considered serious according to the GHI Severity of Hunger Scale.
 - India's child wasting rate, at 18.7, is the **highest child wasting rate** in the report.
- **National Family Health Survey 5:** The prevalence of malnutrition varies significantly across different groups:
 - **25.0%** in men aged 15-49 years, **57.0%** in women aged 15-49 years, **31.1%** in adolescent boys aged 15-19 years, **59.1%** in adolescent girls, **52.2%** in pregnant women aged 15-49 years, and **67.1%** in children aged 6-59 months.
- **Regional Disparities:** Bihar, Gujarat, Madhya Pradesh, Andhra Pradesh, and Jharkhand have high rates of malnutrition.
 - Mizoram, Sikkim, and Manipur are **relatively better than other Indian states**.

What are the Consequences of Malnutrition?

- **Health Effects:**
 - **Impaired Growth:** Malnutrition in children can lead to inadequate growth, affecting both their physical development and cognitive abilities.
 - **Compromised Immunity:** Those suffering from malnutrition often have weakened immune systems, making them more susceptible to diseases and increasing morbidity and mortality rates.
 - **Nutrient Deficiencies:** Insufficient intake of essential micronutrients can cause deficiencies in iron, vitamin A, and zinc, undermining overall health and immunity.
- **Educational Impacts:**
 - **Cognitive Delays:** Poor nutrition during early childhood can result in cognitive delays, affecting learning capabilities and academic performance.
 - **Higher Dropout Rates:** Children with malnutrition issues are more likely to experience difficulties in regular school attendance and have a higher likelihood of dropping out, which impacts their educational achievements.
- **Economic Consequences:**
 - **Reduced Productivity:** Malnutrition can lead to diminished productivity throughout life, adversely affecting national economic output.
 - **Rising Healthcare Expenses:** The high incidence of malnutrition increases the burden on healthcare services, leading to greater medical costs for both individuals and the government.
- **Intergenerational Effects:**
 - **Maternal and Infant Health:** Anemic mothers are more likely to have anemic babies, continuing the cycle of poor nutrition across generations.
 - **Long-term Health Challenges:** Malnourished children are at greater risk of facing health problems in adulthood, affecting their overall well-being and contributing to long-term public health issues.
- **Social Ramifications:**
 - **Exacerbated Inequality:** Malnutrition predominantly impacts marginalised and economically disadvantaged groups, intensifying social inequalities.
 - **Social Stigma:** Individuals experiencing malnutrition may face stigma and discrimination, which can affect their mental health and overall quality of life.
- **Impact on National Progress:**
 - **Hindered Human Capital Development:** Malnutrition impedes the growth of human capital, limiting opportunities for economic and social advancement.
 - **Increased Strain on Healthcare:** The prevalence of malnutrition contributes to a greater strain on healthcare resources, diverting focus and funds from other crucial health initiatives.

How Can Nutrient Deficiency in India Be Addressed?

- **Food Fortification:** It is the addition of key **vitamins and minerals** such as **Iron, Iodine, Zinc,**

Vitamins A & D to staple foods such as rice, wheat, oil, milk and salt.

- It is a key tool in the fight against **malnutrition** because it increases the **nutritional value of staple foods** by adding vitamins and minerals.

- **Strengthening Integrated Child Development Services (ICDS):** Provide continuous and comprehensive training for [Anganwadi workers](#) to improve their skills in monitoring child growth, delivering nutritional education, and engaging **community support**.
- **Special Nutrition Programme (SNP):** Ensure that SNP provides adequate nutritional supplements, including calories and proteins, consistently across all areas, particularly in tribal and slum regions.
- **Creches for Working and Ailing Women:** Expand the number of **creches** to cover more children, particularly in areas with high numbers of [migrant workers](#) and low-income families.
- **Wheat Based Supplementary Nutrition Programme:** Explore innovative ways to utilise **wheat-based products** to ensure timely and adequate supply of wheat-based supplements to the targeted populations.
- **UNICEF Assistance:** Ensure that [UNICEF's](#) support covers a comprehensive range of services, including health, nutrition, education, and sanitation, to address the multifaceted nature of malnutrition.

What are the Initiatives Taken to Combat Malnutrition in India?

- [Mission Poshan 2.0](#)
- [Integrated Child Development Services \(ICDS\) Scheme](#)
- [Pradhan Mantri Matru Vandana Yojana \(PMMVY\)](#)
- [Mid-Day Meal Scheme](#)
- [Scheme for Adolescent Girls \(SAG\)](#)
- [Mother's Absolute Affection \(MAA\)](#)
- [Poshan Vatikas](#)

Drishti Mains Question:

Q. Evaluate how nutrient deficiencies affect public health and economic development in India, and suggest effective government strategies to combat malnutrition.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Which of the following are the objectives of 'National Nutrition Mission'? (2017)

1. To create awareness relating to malnutrition among pregnant women and lactating mothers.
2. To reduce the incidence of anaemia among young children, adolescent girls and women.
3. To promote the consumption of millets, coarse cereals and unpolished rice.
4. To promote the consumption of poultry eggs.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 1, 2 and 4 only
- (d) 3 and 4 only

Ans: (a)

Q. Which of the following is/are the indicator/ indicators used by IFPRI to compute the Global Hunger Index Report? (2016)

1. Undernourishment
2. Child stunting
3. Child mortality

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) 1 and 3 only

Ans: (c)

Mains

Q. How far do you agree with the view that the focus on lack of availability of food as the main cause of hunger takes the attention away from ineffective human development policies in India? **(2018)**

Q. Hunger and Poverty are the biggest challenges for good governance in India still today. Evaluate how far successive governments have progressed in dealing with these humongous problems. Suggest measures for improvement. **(2017)**

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