

MALNUTRITION & ITS TYPE

- Malnutrition is an imbalance between the nutrients human body needs to function and the nutrients it gets. It can mean undernutrition or over nutrition.
- Malnourishment can be an overall lack of calories, or a protein, vitamin or mineral deficiency.
- It also means excess calories than human body knows what to do with.
- Human body needs a variety of nutrients, and in certain amounts, to maintain its tissues and its many functions
- Malnutrition happens when the nutrients it gets don't meet these needs.
- Human body is malnourished from an overall lack of nutrients, or it may have an abundance of some kinds of nutrients but lack other kinds.
- Even the lack of a single vitamin or mineral can have serious health consequences .
- On the other hand, having an excess of nutrients can also cause problems.

TYPES OF MALNUTRITION

UNDERNUTRITION

- Malnutrition can mean undernutrition or overnutrition.
- It can also mean an imbalance of macronutrients (proteins, carbohydrates, fats) or micronutrients (vitamins and minerals).
- Undernutrition is what most people think of when they think of malnutrition.
- Undernutrition is a deficiency of nutrients.
- One may be undernourished if she/he don't have an adequate diet, or if her/his body has trouble absorbing enough nutrients from the food.
- Undernutrition can cause visible wasting of fat and muscle, but it can also be invisible.
- One can be overweight and undernourished.

MACRONUTRIENT UNDERNOURISHMENT

- Also called protein-energy undernutrition, this is a deficiency of macronutrients: proteins, carbohydrates and fats.
- Macronutrients are the main building blocks of human diet, the nutrients that human body relies on to produce energy to maintain itself.
- Without them — or even just one of them — human body soon begins to fall apart, breaking down tissues and shutting down nonessential functions to conserve its low energy.
- Micronutrients are vitamins and minerals.
- Human body needs these in smaller amounts, but it does need them, for all types of functions.
- Many people are mildly deficient in certain vitamins and minerals from a lack of variety in their diet.

- A mild vitamin deficiency remains unnoticed even when it affects human body.
- As micronutrient under nutrition becomes more severe, it can begin to have serious and lasting effects.

OVERNUTRITION

- The World Health Organization has recently added over nutrition to its definition of malnutrition to recognize the detrimental health effects that can be caused by excessive consumption of nutrients.
- This includes the effects of overweight and obesity, which are strongly associated with a list of non communicable diseases (NCDs).
- It also includes the toxicity that can result from overdosing specific micronutrients.

MACRONUTRIENT OVERNUTRITION

- When your body has an excess of protein, carbohydrate and/or fat calories to use, it stores them away as fat cells in your adipose tissue.
- But when your body runs out of tissue for storage, the fat cells themselves have to grow.
- Adipose tissue is a connective tissue primarily composed of adipocytes (fat cells).
- It serves as a storage site for energy in the form of triglycerides and also plays crucial roles in insulation, cushioning, and hormone production
- Adipose tissue is not just a passive storage depot; it's a dynamic organ with endocrine functions, influencing various aspects of metabolism and overall health.
- Enlarged fat cells are associated with chronic inflammation & with a host of metabolic disorders that follow.
- These can lead to NCDs such as diabetes mellitus, coronary artery disease and stroke.
- It is an overdose on vitamin and mineral supplements.
- In general, micronutrient overnutrition is uncommon and doesn't occur from diet alone.
- But if you take mega doses of certain supplements, it can have toxic effects.

STUNTING

- At least one in three children under 5 is affected by malnutrition in its most visible forms: stunting, wasting and overweight
- Children affected by stunting are too short for their age, and their brains may never develop to their full cognitive potential, hindering their ability to learn as children, earn as adults, and contribute fully to their societies.

WASTING

- Children with wasting are desperately thin, have weakened immune systems, and face an increased risk of death.
- They require urgent treatment and care to survive
- **OVERWEIGHT** : – As global food systems shift and the consumption of processed foods high in fat, sugar and salt increases, childhood overweight is on the rise in every region of the world, particularly in middle-income countries
- Less visible forms of malnutrition, such as hidden hunger, can occur when children become deficient in essential vitamins and other micronutrients.
- Today, many countries are facing a double or triple burden of malnutrition – with concurrent problems of stunting, wasting, micronutrient deficiencies, and overweight.
- From pregnancy, through childhood, and in adolescence, poor diets are a leading cause of malnutrition in all its forms.

EFFECTS OF MALNUTRITION

- The common contributors to Malnutrition : – Lack of knowledge of nutrition, lack of access to a variety of foods, sedentary modern lifestyles and economic disadvantages.
- Certain populations are more at risk of certain types of malnutrition.
- Malnutrition in children, adolescents, and women can impair health, educational attainment, & increase the likelihood of low birth weight children.
- For example, insufficient iron can cause anaemia, particularly in pregnant women, and can lead to pregnancy complications.

MORE VULNERABLE POPULATIONS

- **Poor and low income**: – Whether in a developed country like the U.S. or in developing countries with fewer resources overall, poorer communities have less access to adequate nutrition.
- **Children**: – Children have greater nutritional needs than adults in order to grow and develop. Disadvantaged children are especially at risk of under nutrition and its consequences.
- **Chronically ill** : – Many chronic illnesses can directly affect appetite and/or calorie absorption. Some increase caloric needs. Spending time in the hospital is also a risk factor for under nutrition.
- **Elderly** : – As adults advance in age, their nutrition can deteriorate for several reasons, including reduced mobility, institutionalization, reduced appetite and reduced absorption of nutrients

POPULATIONS VULNERABLE TO OVERNUTRITION

- **Poor & low income** : – In developed countries, poorer communities often have easier access to fast foods, which are high in calories but low in nutritional value, than they have to nutritious whole foods.
- This can lead to macronutrient over nutrition with micronutrient undernutrition.

- **Sedentary**: – Desk jobs, family obligations, health and social factors that keep people sitting all day instead of out and moving about can lead to significant weight gain.
- People with protein-energy undernutrition are often visibly emaciated. Children may have stunted growth and development.
- One of the first systems to begin to shut down is the immune system.
- This makes undernourished people highly prone to illness and infection and slower to recover.
- Wounds take longer to heal. Cardiac activity also slows down, leading to low heart rate, low blood pressure and low body temperature.
- People may feel faint, weak and apathetic about life.
- They may lose appetite, and parts of their digestive system can atrophy.
- Some of the complications of severe undernutrition conditions, such as marasmus and kwashiorkor, result from particular vitamin deficiencies.
- For example, vitamin A deficiency can cause vision problems, and vitamin D deficiency can cause soft bones.
- Some people may consume a lot of calories, but not enough vitamins and minerals.
- In these cases, the effects of malnutrition may be less obvious.
- People may be overweight from macronutrient over nutrition but may have symptoms of anemia — weakness, faintness and fatigue — due to the lack of minerals or vitamins.
- People who have over nutrition may show symptoms of metabolic syndrome, such as insulin resistance and high blood pressure.

THE CASE OF INDIA

- The first National Family Health Survey (NFHS) in 1992-1993 found that India was one of the worst performing countries on child health indicators.
- The survey reported that more than half the children under four were underweight and stunted. One in every six children was excessively thin (wasted)
- Despite decades of investment to tackle this malaise, in the 2024 Global Hunger Index (GHI), India's rank is 105th out of 127 countries. The GHI score for India is 27.3, which is categorized as "serious" — behind some of its neighbors like Nepal, Bangladesh, and Sri Lanka, which fall under the "moderate" category.
- The bane of child and maternal malnutrition is responsible for 15 per cent of India's total disease burden.
- As per National Family Health Survey round Fifth , 2019-20 , In 7 states, more than 90% of the births in the last five years were institutional births. Only 46% of the births in Nagaland were institutional births.

- The average out of pocket expenditure on a delivery in a public health facility increased in 8 of the 17 states.
- In West Bengal, the average expenditure on deliveries declined by Rs 5,236 per delivery (66% of the cost in 2015-16), and the proportion of institutional births increased from 75% to 92%.
- IMR has marginally declined in nearly all states. Assam has seen one of the largest drops in IMR, from 48 deaths (per 1,000 live births) to 32 deaths. IMR remains high in Bihar (47 deaths per 1,000 live births).
- However, nutritional status of children below 5 years of age is worsening.
- Stunting or chronic malnutrition (i.e., low height with respect to age) has increased in 11 of the 17 states.
- Proportion of severely wasted children has increased in 13 of the 17 states.
- Wasting or acute malnutrition refers to low weight with respect to height.
- Children who are stunted or wasted are more vulnerable to diseases and illness.
- The proportion of children who are underweight (low weight with respect to age) has increased in 11 of the 17 states. In Bihar and Gujarat, 40% or more of the children under the age of five years are underweight.
- The proportion of women and men, between the age of 15-49 years, who are overweight or obese have increased across nearly all states (except Gujarat and Maharashtra). Overweight or obesity is measured through the Body Mass Index of persons.
- In Andhra Pradesh, Goa, Karnataka, Telangana, Kerala and Himachal Pradesh, nearly one-third of men and women (between 15-49 years of age) are overweight or obese.
- 99% households in Kerala have an improved sanitation facility, while only 49% households have it in Bihar.
- The proportion of households using clean fuel for cooking has also increased across nearly all states. Telangana has seen a nearly 25%-point increase in access to improved sanitation facility and clean cooking fuel as compared to NFHS-4.
- The Survey measured the proportion of women (15-24 years) who are using hygienic methods of protection during their menstrual period. This has increased across almost all states. The largest increase was seen in Bihar and West Bengal (28%-point). However, it still remains low in Bihar (59%), Assam and Gujarat (66%).
- The proportion of married women (between 18-49 years of age) who have ever faced spousal violence has increased in 5 states. In Karnataka, it has doubled, from 21% to 44%.

- More than a third of the married women face spousal violence in Karnataka (44%), Bihar (40%), Manipur (40%), and Telangana (37%).

EXISTING POLICIES & INFRASTRUCTURE

- The Integrated Child Development Services (ICDS) serves as the most critical instrument in addressing India's child malnutrition challenge.
- It facilitates a supplementary nutrition programme, growth monitoring and promotion, nutrition and health education, immunisation, health check-ups and health referrals, as well as pre-school education.
- The primary beneficiaries are children below five years, as well as pregnant and lactating women. It operates through a network 1,012,374 Anganwadi Centres and is connected to 8.36 crore beneficiaries.
- India launched the POSHAN Abhiyan, a flagship national nutrition mission to improve nutrition among children, pregnant women and lactating mothers in 2017.
- With the aim of meeting the second United Nations-mandated Sustainable Development Goal (SDG): Ending hunger, achieving food security and improved nutrition.
- The status of malnutrition and its consequences can be partly attributed to the inadequate political focus on budgetary allocation made to tackle this issue.
- Research suggests that \$1 (Rs 84.08) spent on nutritional interventions could generate \$34.1 to \$38.6 in public economic returns — three times more than the global average.
- Studies reveal that India loses up to 4 per cent of its gross domestic product (GDP) and up to 8 percent of its productivity due to child malnutrition.
- The budget for child malnutrition has been allocated as components under the new Saksham Anganwadi and Mission POSHAN 2.0 schemes.
- These schemes have been formulated by merging four existing schemes: The Anganwadi Services, POSHAN Abhiyaan, Scheme for Adolescent girls and National Creche Scheme.
- For the fiscal year 2024-2025, the budgetary allocation for Saksham Anganwadi and POSHAN 2.0 was Rs 21,200 crore – 0.52% of the total budget.
- Utilisation of funds by the Ministry has varied over the years – Between 2021-22 and 2023-24, on average, spending under Mission SHAKTI and Mission VATSALYA was 30% and 19% lower than budgeted
- As per the National Family Health Survey-5 (2019-21), prevalence of anaemia among both women and children has increased and remains high.
- Between 2019-20 and 2020-21, about two-thirds of the children aged 6-59 months were found to be anaemic.

- About 52% of pregnant women and 57% of non-pregnant women were also found to be anaemia.
- Anaemia among children can impair cognitive development, stunt growth
- A joint report on Transforming Child Nutrition by NITI Aayog and UNICEF (2023) termed the progress in the last two decades to be slow.
- The National Family Health Survey-5 (2019-21) estimated that about one third of children in India are stunted (low height for age).
- About one-third of children in India were also found to be underweight (low weight for age)
- As of June 2024, out of about 14 lakh Anganwadi Centres in India, 37% did not operate for a minimum of 25 days in a month (as recommended by the scheme guidelines), while 13% were not open for at least 15 days a month.
- According to a report by Niti Aayog (2021), payment of honorariums to Anganwadi workers and helpers remains one of the key barriers to the formalisation of their status.

TREATMENT & PREVENTION

FOR UNDERNOURISHMENT

- It is treated with nutritional supplements.
- Severe under nutrition can take weeks of refeeding to correct.
- But refeeding can be dangerous, especially in the first few days.
- Human body changes in many ways to adapt to under nutrition.
- Refeeding asks it to change back to its old way of operating, and sometimes that change is more than it's prepared to handle.

- It's best to begin refeeding under close medical observation to prevent and manage the complications

FOR OVERNUTRITION

- Over nutrition is generally treated with weight loss, diet and lifestyle changes.
- Losing extra weight can help reduce the risk of developing secondary conditions such as diabetes and heart disease.
- Weight loss treatment may include diet and exercise plans, medications or medical procedures.
- One may also need to treat an underlying condition, such as thyroid disease, or a mental health disorder.
- This may involve long-term support systems such as counseling, behavioral therapy, support groups and education in nutrition.

PREVENTION

- Poverty and a lack of understanding of nutrition are the leading causes.
- Worldwide education and support for the disadvantaged, including access to clean water, nutritious whole foods and medicine.
- Children and elders who may not be able to advocate for themselves are especially at risk and may need closer attention paid to their diet and health condition.
- The best way to prevent malnutrition is to eat a well-balanced diet with a variety of nutritious whole foods in it.
- If one has enough of all the nutrients in her body needs, she will be less likely to overeat trying to satisfy those needs