



HS202 PROJECT

2023

"MALNUTRITION IN CHILDREN"

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TITLE

MALNUTRITION IN CHILDREN IN INDIA

ABSTRACT AND SUMMARY :

Malnutrition remains a major public health challenge in India, particularly among children. Despite some progress in recent years, child malnutrition remains a critical issue, with millions of children in India suffering from undernutrition, wasting, stunting, and micronutrient deficiencies.

According to the latest National Family Health Survey released in 2019-2020, more than a third of children under five years of age in India are stunted (low height for age), almost a fifth are wasted (low weight for height), and over a third are underweight (low weight for age).

The consequences of malnutrition in children can be severe and long-lasting, including impaired physical and cognitive development, increased susceptibility to infections, and a higher risk of chronic diseases later in life.

DEFINITION OF PROBLEM

Today there is a serious issue of malnutrition of children in India .We usually see the problem of low height and weight in children, micronutrient deficiency due to lack of access to nutritious food in India . We can see that there is a lack of awareness of education ,proper nutrition ,poor health and sanitation infrastructure .Malnutrition in children has severe and long-lasting consequences, including impaired physical and cognitive development, increased susceptibility to infections, and a higher risk of chronic diseases later in life.

Malnutrition is a major public health concern in India, where a large proportion of the population suffers from undernutrition, micronutrient deficiencies, and obesity. Despite progress in reducing the prevalence of malnutrition in recent years, India continues to have one of the highest rates of malnourished children and adults in the world.

Malnutrition not only affects physical health but also has a significant impact on cognitive development, educational outcomes, and economic productivity.

The problem of malnutrition in India is complex and multifaceted, and requires a comprehensive and sustained ,innovative and technical effort to address the underlying causes and improve nutrition outcomes for all.

There have been several recent developments in addressing malnutrition globally, including in India. Some of the key developments include:

1. Multi-sectoral approach: There is a growing recognition of the need for a multi-sectoral approach to addressing malnutrition, which involves collaboration across sectors such as health, agriculture, water, sanitation, and education.
2. Prevention: Efforts are shifting towards prevention of malnutrition, rather than just treatment, by improving access to nutritious foods and promoting healthy behaviors such as breastfeeding, handwashing, and sanitation.
3. Targeted interventions: Targeted interventions are being developed for specific populations, such as pregnant women and children under five, who are most at risk of malnutrition.
4. Technology: Technology is being used to improve the efficiency and effectiveness of nutrition programs, such as through the use of mobile phone apps to monitor and track nutrition outcomes.
5. Community participation: Community participation is being emphasized as a key strategy to address malnutrition, by empowering communities to take ownership of nutrition programs and drive behavior change at the local level.

Despite these developments, the problem of malnutrition persists in India and much work remains to be done to achieve optimal nutrition outcomes for all.

AIM AND OBJECTIVE

The objective of this project is to develop and propose innovative ideas to minimize or remove malnutrition in children. The primary goal is to provide children with access to nutritious food and education on healthy eating habits, thus improving their overall health and well being.

To achieve this objective, the first step is to research and analyze the root causes of malnutrition in children. This may include factors such as poverty, lack of access to nutritious food, limited education on healthy eating habits, and inadequate healthcare services.

Next, innovative ideas will be developed to address each of these root causes. These ideas should be creative, feasible, and effective in reducing the prevalence of malnutrition in children.

Possible innovative ideas include developing community gardens or urban farms to provide fresh, locally-grown produce to families in need, using technology to provide families with information on healthy eating habits and meal planning mobile food trucks that provide healthy meals to children in food deserts, and developing educational campaigns to promote healthy eating habits and reduce the stigma associated with malnutrition.

The effectiveness of these ideas will be evaluated based on their impact on reducing malnutrition in children, their feasibility and sustainability, and their potential to be scaled up and replicated in other communities.

- According to the Indian Council of Medical Research (ICMR), in 2017, malnutrition was the predominant risk factor for death in children younger than five in every state of India.

REASONS OF MALNUTRITION IN INDIA

Reasons for prevalent malnutrition in India

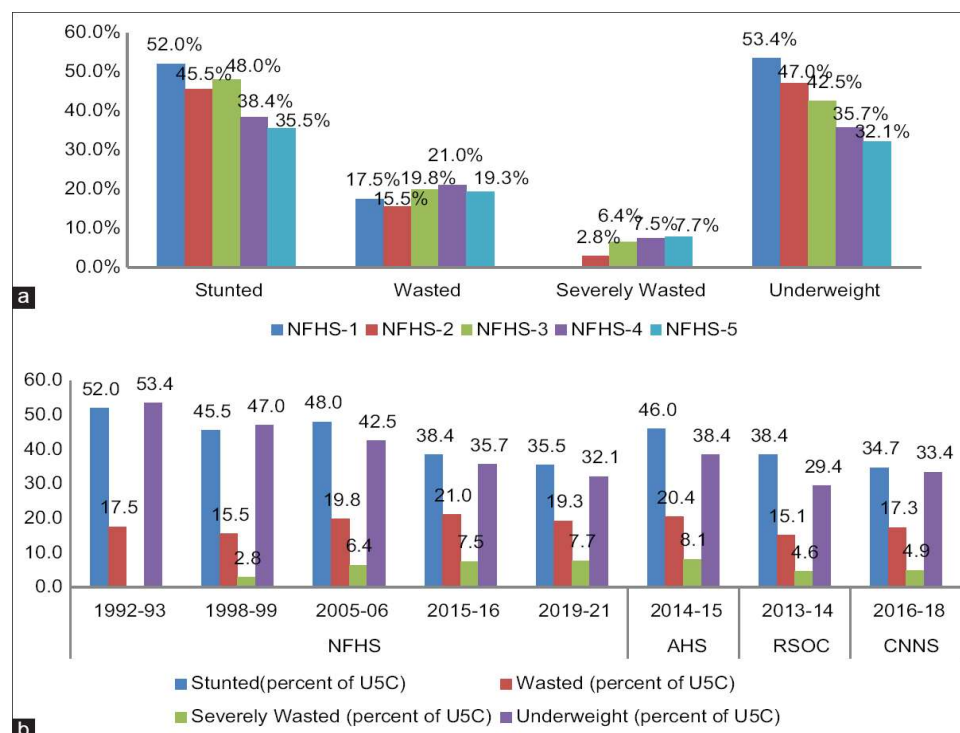
Foodgrain production has increased but it is not sufficient to address the issue of malnutrition. Agriculture sector in India focused on increasing food production, particularly staples (wheat and rice).

1. This led to lower production and consumption of indigenous traditional crops/grains, fruits and other vegetables, impacting food and nutrition for growth.

2. Poverty alone does not lead to malnutrition, it affects the availability of adequate amounts of nutritious food to the children.
3. Lack of sanitation and clean drinking water: Lack of potable water, poor sanitation, and dangerous hygiene practices increase possibility of infectious and water-borne diseases, which are direct causes of acute malnutrition.
4. Migration: Seasonal migrations have long been a livelihood strategy for the poorest households in India, as a means to access food and money through casual labor.

However, children and women are the most affected, suffering from deprivation during migrations impacting their health condition.

5. Malnourished girls become malnourished adolescents who marry early and have children who become malnourished, and so the cycle continues.
6. There is a lack of real-time data that brings all these factors together to show the extent of India's malnutrition.



Trends of malnutrition from 1947-2021 in India under-five children

SURVEY REPORT

SURVEY QUESTIONS

- 1.Do you have sufficient knowledge / aware about the balanced diet needed for proper growth and development?
- 2.Do they earn enough money to bear their family expenses?
- 3.Are you or any of your family members are aware of the welfare programmes implemented by the government of India ?
- 4.Do your children go school on regular basis ? (NGOs etc.)
- 5.Are you satisfied with the hygiene and sanitation near your surroundings?
- 6.Do you consult doctors / nurses if you or your family members are sick due to any reason or just avoid it due to money problem , transportation etc.?
7. Has the household received supplementary food through a food program during last 4 weeks?
8. Do you encourage your children for routine health check-up?
- 9.Are the suffering people able to follow the prescriptions if provided?
- For others
- 10.Do you selflessly donate some useful to the needy one?

SURVEY TABLE

S No.	NAME	AGE	GENDER	OCCUPATION	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	Manpreet	37	F	TAILER	Y	y	y	y	n	n	y	n	y	n
2	Harmeet	48	M	shopkeeper	Y	n	y	y	n	y	n	n	y	y
3	Balwinder	24	M	CAR DRIVER	Y	n	y	n	y	y	y	n	y	y
4	Himansh ujot kaur	20	F	student	N	n	n	n	y	y	y	n	y	y

5	Vaibhav	25	M	journalist	Y	n	y	y	y	n	y	n	y	y
6	Yograj	21	M	student	Y	n	y	n	n	y	y	n	y	y
7	Pankaj	45	M	transport	N	n	y	n	y	y	y	n	y	y
8	Lalit	28	M	LABOURER	N	y	y	y	y	n	y	y	y	y
9	Ranjit Singh	20	M	STUDENT	N	n	y	n	n	n	y	n	y	y
10	Khushwin der	40	M	advocate	N	n	n	y	n	n	y	n	y	y
11	Rahul	35	M	mobile shop	Y	n	y	y	y	y	y	y	n	y
12	Neeraj	29	M	BUSINESS	Y	n	y	y	y	y	y	y	y	y
13	Arshdeep Singh	22	M	student	Y	n	n	y	n	n	n	n	y	y
14	Muskan	21	F	Student	Y	n	y	y	y	y	y	y	y	y
15	Jishnu		M	Packaging	Y	n	y	y	y	y	n	y	y	n
16	Inderjeet	17	M	Student	N	n	n	n	y	n	y	y	y	y
17	Manpreet kaur	31	F	HOUSEWIFE	N	y	y	y	y	y	y	y	n	y
18	Nafiz	31	M	welding	N	n	y	y	y	y	y	n	y	y
19	Rajkumar	34	M	shopkeeper	Y	n	n	n	n	n	n	n	n	n
20	Amit	33	M	salesman	N	n	y	y	n	n	n	y	y	y
21	Gaganjee t	18	M	study	Y	n	n	n	n	n	n	n	y	y
22	Nikhil	21	M	mechanic	N	n	y	n	n	n	n	n	y	y
23	Sunil	31	M	bank employee	Y	n	y	y	n	n	y	n	y	y
24	Hem Singh	32	M	laborer	N	y	n	y	y	n	y	n	n	n
25	Adish	20	M	laborer	Y	n	n	y	n	n	n	n	y	n

26	Nikhil	26	M	unemployed	N	n	y	y	y	n	n	y	y	n
27	Jatin	22	M	study	Y	n	y	y	n	n	n	y	y	n
28	Nitin	22	M	study	N	n	y	y	n	n	n	y	y	n
29	Surjit	35	M	shopkeeper	Y	n	y	y	y	N	Y			
30	Jaspreet	22	M	LETS	N	y	n	y	y	y	y	y	y	N
31	Gurpreet	25	M	zomato	Y	n	y	n	n	n	y	n	y	y
32	Manpreet	23	F	shopkeeper	N	n	y	y	y	n	n	y	y	y
33	Monika	34	F	TEACHER	Y	y	y	y	n	n	y	y	y	y
34	Simranjeet	28	F	finance	Y	y	y	y	y	y	n	y	y	n
35	Simar	18	M	HOUSEWIFE	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
36	Surendra	31	M	LABOURER	N	Y	N	N	Y	N	N	N	Y	Y
37	DEVENDRA	38	M	FARMER	N	Y	Y	Y	N	N	N	Y	Y	N
38	Lakshmi	26	F	HOUSEWIFE	N	N	Y	Y	N	Y	Y	N	Y	Y
39	Chandan	17	M	shopkeeper	Y	Y	Y	Y	N	N	Y	N	n	Y
40	Radhe Mohan	35	M	shopkeeper	Y	N	Y	Y	N	Y	N	Y	y	n
41	Sukhveer	45	M	transport	Y	Y	N	N	Y	Y	Y	N	Y	y
42	Sanamdeep	23	M	LABOURER	N	Y	Y	Y	N	N	Y	Y	Y	Y
43	Gori	18	F	student	N	N	N	Y	N	N	Y	N	Y	Y
44	Naresh	62	M	UNEMPLOYED	N	Y	N	N	Y	N	N	Y	Y	Y



Some glimpse of our survey

SURVEY OUTCOMES

1- After surveying in the Government Hospital ,Ropar and local dispensary near bela chowk and we came to know from the Doctors and compounders that malnutrition is often seen in the family of low income range, where they fail to take care of their babies and it leads to malnutrition and diseases like Kwashiorkor, Marasmus, and Anemia.

2-We interacted with the parents of kids of our NGO(Pehchan ek safar) who reside near our college and the local people of Ropar market and we came to know that they are not aware about the programmes run by the government to fight against malnutrition i.e. government provides Anganwadi schemes in diverse manner and other useful things under BPL(Below Poverty Level) Scheme .

3-We came to know that there are many women who don't know about the proper nutrients that are required for proper growth of children like proteins,vitamins,minerals etc.

4. They don't have proper clothes for their children.

5. People from Ropar market, doctors and government officials motivated us to take such an initiative as we have talked to them for people suffering from malnutrition and any other diseases. They assured us that they will provide financial support, goods and even doctors assured us that they will be available for the free camp in a week.

6. Government officials said that the government is trying their best to counter malnutrition, but we also need the help of NGO that should run on at least state level. People should know about such an NGO and their program and also that the NGO should inform the people about government schemes.

APPROACHES THAT COULD BE TAKEN

Malnutrition is a significant issue in India, affecting millions of people, particularly children under the age of five. Addressing malnutrition in India requires a multi-pronged approach that focuses on both immediate and long-term solutions. Some steps to be taken to combat malnutrition in India:

Promote exclusive breastfeeding:

Promoting and supporting exclusive breastfeeding for the first six months of a child's life is one of the most effective ways to prevent malnutrition. It can help improve a child's immunity and protect them from various infections.

Nutritious food distribution:

The government can distribute nutritious food to families living in poverty, particularly those with young children. This food can include milk, fortified grains, pulses, and oil, which can help ensure that families have access to the necessary nutrients to maintain a healthy diet.

Education and awareness:

Providing education and awareness about the importance of a healthy diet and the dangers of malnutrition can help families make better food choices. This can include education on the importance of a balanced diet, cooking methods that retain nutrients, and the dangers of consuming junk food.

Micronutrient supplementation:

Providing vitamin and mineral supplements to pregnant women and young children can help ensure that they get the necessary nutrients to maintain a healthy diet.

Agricultural reform:

The government can work to improve agricultural practices, particularly in rural areas, to increase the availability of nutritious foods. This can include promoting the cultivation of diverse crops and providing training to farmers on sustainable agriculture.

**GOVERNMENT PLANS AND POLICIES TO ELIMINATE
MALNUTRITION**

Mid Day Meal Scheme It was launched in 1995 as a centrally sponsored scheme. It provides that every child within the age group of six to fourteen years studying in classes I to VIII who enrolls and attends the school shall be provided with a hot cooked meal, free of charge every day except on school holidays. The Mid Day Meal Scheme comes under the HRD Ministry's Department of School Education and Literacy. It was launched in 1995 as a centrally sponsored scheme. It provides that every child within the age group of six to fourteen years studying in classes I to VIII who enrolls and attends the school shall be provided with a hot cooked meal, free of charge every day except on school holidays.

Services	Target Group	Service provided by
(i) Supplementary Nutrition	Children below 6 years, Pregnant & Lactating Mothers (P&LM)	Anganwadi Worker and Anganwadi Helper [MWCD]

(ii) Immunization*	Children below 6 years, Pregnant & Lactating Mothers (P&LM)	ANM/MO [Health system, MOHFW]
(iii) Health Check-up*	Children below 6 years, Pregnant & Lactating Mothers (P&LM)	ANM/MO/AWW [Health system, MOHFW]
(iv) Referral Services	Children below 6 years, Pregnant & Lactating Mothers (P&LM)	AWW/ANM/MO [Health system, MOHFW]
(v) Pre-School Education	Children 3-6 years	AWW [MWCD]
(vi) Nutrition & Health Education	Women (15-45 years)	AWW/ANM/MO

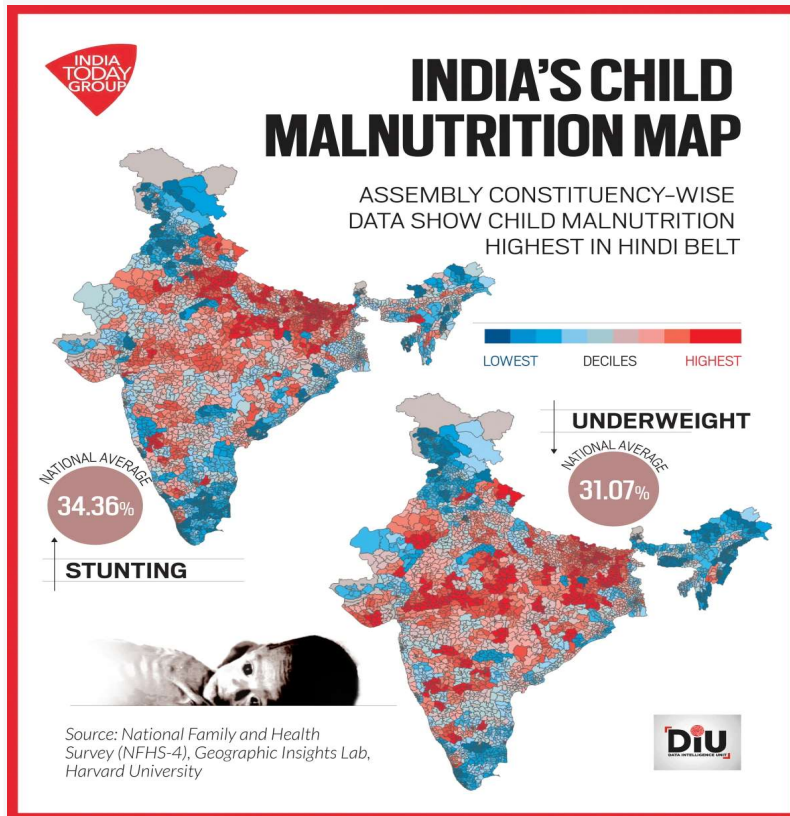
National Nutrition policy 1993 The National Nutrition Policy (NNP) was adopted under the aegis of the Ministry of Women and Child Development. The strategy of NNP was a multi-sectoral strategy for eradicating malnutrition and achieving optimum nutrition for all.

National Health Mission (NHM) The National Health Mission (NHM) was launched by the government of India in 2013. It is being implemented by the Ministry of Health & Family Welfare. The main programmatic components include health system strengthening in rural and urban areas.

NATIONAL NUTRITION MISSION (POSHAN Abhiyaan) seeks to ensure a “malnutrition free India” by 2022. It is India’s flagship program, envisages improving nutritional outcomes for children, adolescents, pregnant women and lactating mothers. However, it would require long-term investments in health, sanitation and nutrition in preventing deaths due to severe acute malnutrition.

Pradhan Mantri Matru Vandana Yojana The scheme was launched in 2017 and its implementation is monitored through the Pradhan Mantri Matru

Vandana Yojana-Common Application Software (PMKVY-CAS).Under the scheme, Rs. 6,000 is transferred to the bank accounts of pregnant women and lactating mothers for availing better facilities and is eligible for the family's first child.



India Child Malnutrition Map Statistics State Wise

SOLUTION OF THE PROBLEM STATEMENT

SOLUTION 1

Donate and make a difference

You may choose to donate to one of our primary field operations or make a general **un earmarked** donation. These un-earmarked donations are essential to enable us to help children and young people in desperate need, but for whom it can be challenging to raise funds as their plight is no longer in the news. To fight against this issue we have planned to make a website for all those people who can help us in our mission of making india malnutrition free .We are attaching a prototype of our website which shows the step by step working of it, where anyone can support us by donating from any corner of the country .People can donate money as well as eatables (cereals, horlicks, milk powder,) to our office from where we can provide to the needful.

A group of people can create awareness among men and women of a particular area about the importance of nutrients ,healthy eating,food hygiene,proper breastfeeding for born babies .

To fight against Malnutrition in this century the need of hour is to think something new so we have decided to make a website where we can collect funds from all over country through this website .We have made **MISSION MEAL** to rise against malnutrition.The site prototype is shown upward we have many options in the site for joining news about etc.**Our website page will daily update the list of items we need to this mission to distribute to locality etc ,people can contribute through two ways .**

1: They can donate money in our bank account or

2: They can order the items that we need through online shopping apps according to their preference and what they can bear .

By executing this method we can also scale our mission for larger areas and can even cover a whole country . Site also provides them an opportunity to join for the noble cause .

The interface of the site is shown below

Our website also have a list of doctors and they have the access to give their free time so that we can reach out to them for free health camps to be conducted .

SOLUTION 2 :

- **AI BASED HEALTH TRACKER**

We can use artificial intelligence-based mobile apps to provide health status . That could help in identifying child malnourishment. The app takes 3D measurements of a child's body using an infrared sensor available on certain smartphones and quickly uploads the data . Then, nutritionists and IT specialists can examine the scans using data to access a child's dietary health and determine if the child is malnourished.

Child Growth Monitor collects data much faster than traditional measuring methods . Users do not need to be anthropometric (experts in the study of measurements and proportions of the human body) to get accurate data and recognize if a child is undernourished.

By using this technology we don't have to worry about doctors' availability everytime and one can easily get data and recognize whether a child is malnourished or not .

TECHNICAL INTERVENTIONS

Technology can play a vital role in removing malnutrition among children in India. Here are some ways technology can be used:

Telemedicine:Telemedicine uses electronic and telecommunication technology to provide an exchange of medical information, despite a person and their doctor not being in the same room.Telemedicine can also help provide nutritional counseling and education to parents and caregivers.

Mobile Apps:

Mobile apps can be used to provide nutrition education, track food intake, and monitor growth and development. These apps can also help parents and caregivers access information on local resources and services.

CHILD GROWTH MONITOR

Child Growth Monitor is an artificial intelligence-based mobile app to provide health status . It helps in identifying child malnourishment. The app takes 3D measurements of a child's body using an infrared sensor available on certain smartphones and quickly uploads the data onto Microsoft Azure, a cloud computing service. Then, nutritionists and IT specialists can examine the scans using Microsoft AI solutions to assess a child's dietary health and determine if the child is malnourished.

Child Growth Monitor collects data much faster than traditional measuring methods . Users do not need to be anthropometric (experts in the study of measurements and proportions of the human body) to get accurate data and recognize if a child is undernourished.

This app is in testing phase in India in three states in India — Madhya Pradesh, Maharashtra and Rajasthan. We could take the help of these apps to counter malnutrition .

We can use these technology to fight against malnutrition so that we dont have problems related to doctor's availability ,we can use it from anywhere and anytime easily .

CONCLUSION

In conclusion, malnutrition among children in India is a severe issue that requires immediate attention. The problem is multifaceted and has roots in poverty, lack of education, and limited access to nutritious food. However, the Indian government has taken significant steps towards combatting malnutrition by implementing various policies and programs, such as food fortification, supplementary nutrition, and school feeding programs. While progress has been made, there is still a long way to go to ensure that every child in India has access to sufficient and nutritious food. It is crucial to continue investing in these initiatives and address the root causes of malnutrition to ensure that every child in India can thrive and reach their full potential.

Ultimately, it is the responsibility of all stakeholders, including government, civil society, and communities, to work together towards a hunger-free and healthy India. We the people of India have the responsibility to fight against this issue and contribute to the building of the nation by using technology and science.

CONTRIBUTION OF GROUP MEMBERS

GROUP 33

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THANK YOU