

RESEARCH ARTICLE

Addressing Nutritional Challenges: Strategies for Improving Health Outcomes in India and Global Hunger Concerns

Arpita Sharma Kandpal

Assistant Professor, Dept. of Agricultural Communication, College of Ag, GBPUA&T, Pantnagar

ABSTRACT

In India, the prevalence of unhealthy dietary patterns and nutritional deficiencies remains a significant public health concern, posing challenges to food, nutrition, and health security. This paper explores key interventions to improve women's and children's health and nutrition, including enhancing diet quantity and quality, preventing micronutrient deficiencies like anaemia, and increasing access to essential nutrition and health services. Additionally, efforts to improve water and sanitation facilities and promote education, particularly regarding nutrition awareness, are highlighted. Empowering women to delay and space pregnancies appropriately is emphasized as crucial for maternal and child health. Despite existing efforts, policies and programs in India have primarily focused on post-childbirth feeding interventions, overlooking the importance of addressing maternal nutrition during fetal development. Recognizing this gap, the paper highlights the paramount importance of addressing maternal nutrition to tackle the root causes of malnutrition and improve health outcomes for both mothers and children.

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INTRODUCTION

In India, the prevalence of unhealthy dietary patterns and nutritional deficiencies remains a significant public health concern, posing a major challenge to achieving food, nutrition, and health security.

Key interventions aimed at improving the health and nutrition of women and children include enhancing the quantity and quality of their diets, preventing micronutrient deficiencies such as anaemia, increasing access to essential nutrition and health services, improving water and sanitation facilities, and promoting education, particularly awareness related to nutrition. Empowering women to delay pregnancies and space them appropriately is also crucial for maternal and child health.

Despite efforts, many policies and programs in India have predominantly centered on post-childbirth feeding interventions. However, it is imperative to recognize that a substantial portion of childhood

growth failure occurs during fetal development due to inadequate maternal nutrition before and during pregnancy. Therefore, addressing maternal nutrition is paramount in tackling the root causes of malnutrition and improving the health outcomes of both mothers and children.

GLOBAL HUNGER INDEX

Based on the 2023 GHI scores and preliminary designations, nine nations face alarming hunger levels, while 34 have serious hunger concerns. Among them, six countries fall within the alarming range of GHI scores: Central African Republic, Madagascar, Yemen, Democratic Republic of the Congo, Lesotho, and Niger. Additionally, three countries are provisionally designated as alarming due to insufficient data for GHI score calculation: Burundi, Somalia, and South Sudan.

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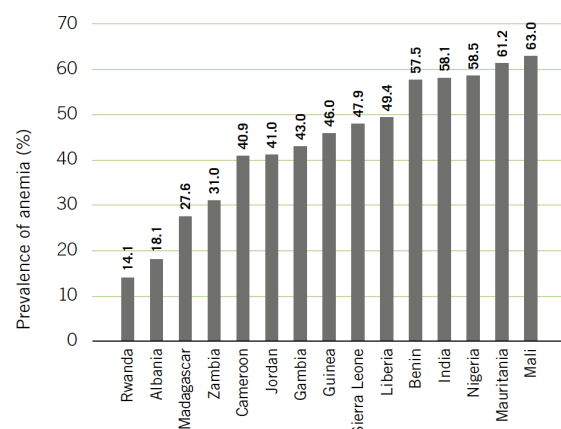
GLOBAL HUNGER INDEX SCORES BY 2023 GHI RANK

2023 Rank	Countries	2000	2008	2015	2023
111	India	38.4	35.5	29.2	28.7
112	Timor-Leste	—	46.5	35.9	29.9
113	Mozambique	48.2	35.6	37.0	30.5
114	Afghanistan	49.6	36.5	30.4	30.6
115	Haiti	40.3	40.2	30.1	31.1
116	Sierra Leone	57.4	45.4	32.8	31.3
117	Liberia	48.0	36.4	32.9	32.2
118	Guinea-Bissau	37.7	29.6	33.3	33.0
119	Chad	50.6	49.9	40.1	34.6
120	Niger	53.3	39.5	35.2	35.1
121	Lesotho	32.5	27.8	30.6	35.5
122	Dem. Rep. of the Congo	46.3	40.2	36.4	35.7
123	Yemen	41.4	37.8	42.1	39.9
124	Madagascar	42.4	36.6	38.9	41.0
125	Central African Republic	48.2	43.7	44.0	42.3

One critical aspect concerning the nutritional requirements of young women pertains to their potential for motherhood and the repercussions of their nutritional status on both themselves and their offspring. Nearly one-third of women in low- and middle-income nations give birth to their first child at the age of 19 years or younger (Sharma and Singh, 2018). The low weight and height of mothers are linked to stunting and wasting in their children, with child undernutrition predominantly observed in regions where maternal undernutrition is prevalent. (Traczyk, et. al., 2021). Anemia often manifests during pregnancy due to inadequate iron intake by the mother, posing health risks for both the mother and the infant. The prevalence of anemia remains high and persistent in numerous countries, with no region of the world currently on track to achieve the 2030 goal of halving the rate of anemia in adolescent girls and women. In India 58.1 per cent women are suffering from anaemia.

Understanding the Complexity of Hunger and Malnutrition

Hunger typically denotes the distress stemming from insufficient calorie intake. According to the Food and Agriculture Organization of the United Nations (FAO), food deprivation, or undernourishment, is characterized by habitual consumption of insufficient calories to meet the minimum dietary energy needs for a healthy and productive life, considering factors such as sex, age, stature, and physical activity level. Undernutrition encompasses more than just calorie



deficiency; it also signifies inadequacies in energy, protein, and/or essential vitamins and minerals. Undernutrition may result from insufficient food intake in terms of quantity or quality, poor nutrient utilization due to infections or illnesses, or a combination of these factors. (Akbarian et. al., 2024). These immediate causes are influenced by various underlying factors, including household food insecurity, inadequate maternal health or childcare practices, and limited access to health services, safe water, and sanitation. Malnutrition, on the other hand, encompasses both undernutrition (caused by deficiencies) and overnutrition (caused by imbalanced diets, involving excessive calorie consumption with or without low intake of micronutrient-rich foods). Overnutrition leads to issues such as overweight, obesity, and noncommunicable diseases, which are increasingly

prevalent worldwide, impacting human health, government expenditures, and the development of food systems. While overnutrition is a significant concern, the Global Hunger Index (GHI) specifically addresses issues related to undernutrition.

Undernourishment: Table 2 indicates that the percentage of undernourishment among children aged 0-2 years was 18.3, followed by 16.2 percent among children aged 7-9 years. For children aged 14 to 16 years, the undernourishment rate was 14 percent, and for those aged about 20 to 22 years, it stood at 16.6 percent.

Child wasting and Child stunting: Data showed that

Percentage of children under five years old for child wasting and child stunting shows in high category.

Child mortality: In 2000, the child mortality rate stood at 9.2 percent, whereas by 2021, it had decreased to 3.1 percent.

Enhancing Food Security and Nutrition: Government Initiatives and Integrated Programs

The approval of the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) signals a significant step towards providing free food grains to Antyodaya Anna Yojana (AAY) and Primary Household (PHH) beneficiaries, effective from January 1, 2023. This integrated scheme aims to bolster the provisions of the

Table 2. Status of Undernourishment, child wasting, child stunting, child mortality

S.No.	Country	Undernourishment (% of population)			
		'00-'02	'07-'09 '	'14-'16	'20-'22
1.	India	18.3	16.2	14.0	16.6
Child wasting (% of children under five years old)					
		98-'02	'06-'10	'13-'17	18-'22
2.	India	17.8	20.0	18.0	18.7
Child stunting (% of children under five years old)					
		98-'02	'06-'10	'13-'17	18-'22
3.	India	51.0	47.8	38.3	35.5
Child mortality (% of children under five years old)					
		2000	2008	2015	2021
4.	India	9.2	6.5	4.4	3.1

National Food Security Act (NFSA) of 2013, ensuring enhanced access, affordability, and availability of food grains for the impoverished populace. Furthermore, a concerted effort is underway to promote millet cultivation and its integration into the Targeted Public Distribution System (TPDS) through a dedicated sub-mission under the National Food Security Mission.

In parallel, initiatives such as the Pradhan Mantri Matru Vandana Yojana and the observance of Poshan Maah underscore the government's commitment to combatting malnutrition by providing financial assistance and fostering awareness. The introduction of Saksham Anganwadi and Poshan 2.0 as an Integrated Nutrition Support Programme during the 15th Finance Commission period aims to address the multifaceted challenges of malnutrition among various demographic groups. Through strategic interventions, including the promotion of diet diversity, food fortification, and leveraging traditional knowledge

systems, Poshan 2.0 endeavors to nurture health, wellness, and immunity across communities.

Under the ambit of Pradhan Mantri Poshan Shakti Nirman (PM POSHAN), provisions for hot cooked meals for school children aim to alleviate hunger and concurrently promote education. Additionally, initiatives like Poshan Vatikas or Nutri-Gardens are being rolled out nationwide to ensure access to fresh, locally produced fruits, vegetables, and medicinal plants, particularly for women and children.

Moreover, the Indian government's efforts extend to agricultural research and innovation, with the development of biofortified crop varieties and the implementation of programs such as Nutri-sensitive Agricultural Resources and Innovations (NARI) and Value Addition and Technology Incubation Centres in Agriculture (VATICA). These endeavors seek to upscale

the production of nutritionally rich crops, thereby addressing dietary deficiencies and enhancing food security.

The resurgence of millets, recognized for their nutritional value, has garnered international attention, culminating in the declaration of 2023 as the International Year of Millets. India's proactive measures, including the launch of the 'Mainstreaming Millets for Nutrition Security' program, underscore its commitment to promoting millet cultivation and consumption. By aligning with the sustainable developmental goals (SDGs) set forth by the United Nations, India's agricultural policies aim to foster a nutritionally balanced and diverse diet, thereby transforming the nutrition landscape for millions of its citizens.

Through these concerted efforts and initiatives, the Government of India is poised to address the complex challenges of food security and malnutrition, ushering in a new era of holistic development and well-being for its populace. Some Government schemes are given as follows:

[1] National Nutrition Policy (1993) and National Plan of Action on Nutrition (1995):

The National Nutrition Policy (1993) and the National Plan of Action on Nutrition (1995) have placed significant emphasis on ensuring adequate nutrition for women and children. In recent years, there has been a more concerted effort in this regard. In 2017, NITI Aayog, under the Government of India, formulated the "Nourishing India" document as part of the initiative to make India "Kuposhan Mukta" (free from malnutrition). This strategy highlights the importance of reducing and preventing undernutrition throughout the life cycle, particularly during the first three years of life, to prevent irreversible and cumulative growth and developmental deficits that can compromise health and survival. High levels of malnutrition also pose obstacles to achieving both national and global Sustainable Development Goals.

The Budget 2014-15 speech highlighted that to halt the deteriorating nutrition situation in our country, there is a dire need for national-level mission mode programme/s. This brought nutrition to the centre-stage and paved the way for formulation and implementation of the POSHAN Abhiyan in 2018. Prime Minister's Overarching Scheme for Holistic Nutrition - POSHAN Abhiyan, the flagship programme of the Ministry of Women and Child Development

(GoI), is implemented in a mission mode for improving the nutritional outcomes of children, pregnant women, and lactating mothers. It involved convergence of various programmes, such as Integrated Child Development Services (ICDS), Pradhan Mantri Matru Vandana Yojana (PMMVY), Scheme for Adolescent Girls (SAG), Janani Suraksha Yojana (JSY), National Health Mission (NHM), Swachh Bharat Mission, Public Distribution System (PDS), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), and initiatives of the Ministry of Drinking Water & Sanitation.

For reducing stunting, under-nutrition, and anaemia among young children, women, and adolescent girls, as well as reducing the low birth weight deliveries in a time-bound manner, some of the key interventions of this Abhiyan are infant and young child feeding (IYCF), food and nutrition, institutional delivery, water sanitation and hygiene (WASH), deworming, provision of ORS-Zinc, food-fortification, dietary diversification, adolescent nutrition, maternal health/nutrition, early childhood development (ECD)/early childhood care and education (ECCE). This Abhiyan has played an important role in modifying the nutrition scenario in our country through its innovative ideas/measures such as the celebration of Poshan Maah (1st-30th September) and Poshan Pakhwada every year, and initiating a Jan-Andolan or People's Movement to create nutrition awareness.

[2] Revised Scheme for Adolescent Girls (SAG):

Under POSHAN 2.0, the revised Scheme for Adolescent Girls (SAG) aims at providing nutritional support, IFA supplementation, Health check-up and Referral Services, Skill development and Nutrition/Health Education to the adolescent girls (aged 14-18 years).

[3] Conditional cash transfer schemes:

Pradhan Mantri Matru Vandana Yojana (PMMVY) and Janani Suraksha Yojana (JSY) cater to the needs of pregnant women/lactating mothers by providing them cash incentives on fulfilling certain conditions. Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA; Ministry of Health & Family Welfare) aims at providing assured, cost-free, comprehensive, and quality antenatal care to all pregnant women on the 9th day of every month and guarantees a minimum package of antenatal care services to women in their 2nd/3rd trimesters of pregnancy.

[4] Janani Shishu Suraksha Karyakram (JSSK):

This scheme was launched in 2011 aims to achieve 100% institutional delivery and elimination of out of pocket expenditure for both pregnant women and the sick neonates. Pregnant women are also entitled to free of cost facilities such as cashless delivery/ caesarean section, drugs/consumables, diagnostics, daily diet (during the stay), transport, etc.

[5] National Iron Plus Initiative (NIPI) or Anaemia Mukh Bharat:

In reducing/tackling malnutrition, contributions of other programmes, particularly those addressing the nutritional needs of women, children, and adolescents - such as the National Iron Plus Initiative (NIPI) or Anaemia Mukh Bharat (the Intensified NIPI) in mission mode, National Programme for Prevention of Blindness due to Vitamin A Deficiency, National Programme for Nutritional Support to Primary Education/Mid-day Meal Scheme (recently renamed as Prime Minister-Poshan Shakti Nirman; PM-POSHAN) are well-documented. The National Policy for Women (drafted in 2016) envisages addressing diverse needs of the women. The Poshan Tracker - a governance tool by the MoWCD (2021) is envisaged to bring transparency and strengthen the nutrition delivery support systems. Apart from tracking nutrition service delivery, technology is being used for the identification of stunting, wasting, and underweight among children.

[6] Pradhan Mantri Poshan Shakti Nirman (PM POSHAN):

India's PM POSHAN program, formerly known as the mid-day meal program, represents a pivotal integration of education with food and nutrition initiatives, in alignment with the recommendations of the National Education Policy (NEP) 2020. As one of the key rights-based Centrally Sponsored Schemes under the National Food Security Act, 2013 (NFSA), PM POSHAN covers approximately 12 crore children in 10.84 lakh Government and Government-aided schools nationwide. Guided by its objectives, the scheme aims to tackle the dual challenges of hunger and education by: [a] Enhancing the nutritional status of children enrolled in Bal Vatika and classes I to VIII in Government, Government-aided schools, and Special Training Centres (STCs). [b] Promoting regular school attendance and classroom engagement among economically disadvantaged children. iii. Providing nutritional support to elementary stage children in drought-affected regions during summer vacations and times of disasters.

[7] School Health and Wellness Programme:

The School Health Programme, a part of AYUSHMAN BHARAT, is a collaborative effort between the Ministry of Health and Family Welfare and the Ministry of Education. This initiative aims to foster an integrated approach to health promotion and optimize learning outcomes at the school level. Within each public school, two designated teachers, preferably one male and one female, serve as Health and Wellness Ambassadors (HWA), trained to promote healthy behaviors and impart disease prevention information through interactive weekly activities in the classroom. To combat anemia among children, the program includes provisions for mid-day meals, weekly iron-folic acid supplementation, nutrition counseling, tobacco prevention, and life skills education.

[8] Mission Saksham Anganwadi and Poshan 2.0:

Implemented by the Ministry of Women and Child Development (MoWCD), this integrated nutrition support scheme aims to enhance its efficiency and effectiveness through various features:

i. TithiBhojan: A community participation program wherein special food is provided to children on special occasions and festivals. ii. School Nutrition Gardens: Establishment of nutrition gardens in schools to provide children with hands-on experience in gardening and nature. Over 4 lakh schools across India are now equipped with such gardens. iii. Mandatory Social Audit of the scheme in all districts. iv. Special provision for providing supplementary nutrition items to children in aspirational districts and districts with high prevalence of anemia. v. Promotion of cooking competitions at all levels to encourage ethnic cuisine and innovative menus based on locally available ingredients. vi. Vocal for Local for Atmanirbhar Bharat: Involvement of Farmers Producer Organisations (FPO) and Women Self-Help Groups in scheme implementation, emphasizing the use of locally grown traditional food items to boost local economic growth.

Under Poshan 2.0, schemes such as Anganwadi Services, Scheme for Adolescent Girls, and Poshan Abhiyan have been realigned to maximize nutritional outcomes. It addresses three primary verticals: nutritional support for women, children, and adolescent girls; early childhood care and education (3-6 years); and Anganwadi infrastructure modernization. Poshan

2.0 aims to tackle malnutrition challenges, promote nutrition awareness, cultivate good eating habits for sustainable health and well-being, and address nutrition-related deficiencies through strategic interventions.

As per data from the Ministry of Women and Child Development, the scheme operates through a network of 7074 fully operational Projects and 13.91 lakh Anganwadi Centres (AWCs) as of June 2022. Services are provided to 951.35 lakh beneficiaries, including 770.98 lakh children under six and 180.37 lakh pregnant women and lactating mothers. Additionally, a total of 303.17 lakh children aged 3-6 years were covered under pre-school education as of June 2022. To ensure real-time monitoring, an ICT-enabled platform named Poshan tracker has been developed, facilitating the monitoring of activities at Anganwadi Centres, service deliveries by Anganwadi Workers, and complete beneficiary management.

[9] POSHAN Abhiyaan:

Launched in 2018 by the Hon'ble Prime Minister, POSHAN Abhiyaan aims to reduce malnutrition in the country and improve the nutritional status of children aged 0-6 years, adolescent girls, pregnant women, and lactating mothers in a time-bound manner.

[10] Poshan Bhi, Padhai Bhi:

Under Mission Saksham Anganwadi and Poshan 2.0, the flagship programme 'Poshan Bhi, Padhai Bhi' was launched by the MoWCD on May 10, 2023. This program focuses on Early Childhood Care and Education (ECCE), covering 13 lakh Anganwadi Centres across the country. It aims to transform Anganwadi centres into both nutrition hubs and education-imparting centres, ensuring holistic development of children under the age of 6 years with a focus on building skills in key development domains identified under the National Education Policy (NEP).

CONCLUSION

In conclusion, the integrated nutrition support schemes spearheaded by the Ministry of Women and Child Development reflect a concerted effort towards addressing the multifaceted challenges of malnutrition and ensuring holistic development among vulnerable populations in India. The Mission Saksham Anganwadi and Poshan 2.0 initiatives, alongside programs like POSHAN Abhiyaan and Poshan Bhi, Padhai Bhi, underscore the government's commitment to enhancing nutritional outcomes and fostering early childhood care and education.

Through innovative features such as TithiBhojan and School Nutrition Gardens, these schemes not only aim to provide essential nutrition but also empower communities to actively participate in promoting healthy lifestyles. The emphasis on social audits, supplementary nutrition provisions, and local economic empowerment initiatives highlights a comprehensive approach towards addressing nutritional deficiencies and promoting sustainable health and well-being.

Moreover, the integration of ICT-enabled platforms for real-time monitoring demonstrates a commitment to transparency and accountability in scheme implementation, ensuring effective service delivery and beneficiary management. As India endeavors to achieve the goal of 'Suposhit Bharat' and mitigate the pervasive issue of malnutrition, these initiatives serve as vital pillars in the nation's journey towards fostering healthier, more resilient communities. By prioritizing nutrition and education, these programs lay a strong foundation for the future well-being and prosperity of the nation's children and mothers, paving the way for a brighter and healthier India.

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