

Review Article

Malnutrition in Children: A Growing Concern

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Abstract - Malnutrition is still a growing concern affecting children. The current review discusses the causes of poor nutrition in children and provides easy and implementable solutions to mitigate the issue. The major cause of malnutrition in Indian children has been identified as improper dietary intake, especially due to socio-economic conditions. Malnutrition leads to several acute effects, like kwashiorkor, and chronic effects like a weakened immune system, among others. Gut health is also severely affected and can result in Irritable Bowel Syndrome and inflammatory bowel disease. These issues can be effectively addressed through dietary interventions like the use of fiber and probiotics. Gut-friendly foods, lifestyle changes, better sleep quality, and adequate hydration improve the overall health of the gut while alleviating nutritional issues. The role and work of governmental initiatives from India and the USA, such as PM POSHAN and SNAP, respectively, are also highlighted as a means to reach a larger population. The current review presents a multifaceted approach that combines nutritional interventions and governmental policies to provide manageable solutions to the problem of malnutrition in children, thereby improving their overall health.

Keywords - Children, Deficiency, Gut health, India, Malnutrition.

1. Introduction

Gut health is a crucial aspect of life, as a healthy gut enables an individual to support digestion and nutrient absorption, strengthen the immune system, regulate mood and mental health, and play a role in maintaining metabolism and weight control. Sara Berg from the American Medical Association refers to gut health as “The well-being of the digestive system, which is responsible for breaking down food, absorbing nutrients, and eliminating waste from the body” [1]. A person’s diet not only affects physical well-being but also has a profound impact on their mental health. Research continues to highlight the importance of the gut microbiome [2, 3]. Lifestyle factors such as sleep, exercise, stress, and smoking also affect gut health [4]. People around the world must be aware of the consequences of poor dietary choices and be equipped with guidance on nutritional techniques that can promote gut health and prevent long-term health risks [5, 6, 7].

Malnutrition is a key factor affecting the well-being of the gut. WHO defines malnutrition as “deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients” [8]. The main causes of malnutrition are socio-economic conditions, complications during birth, and the level of availability of healthcare and education [9]. Malnutrition makes children more susceptible to diseases due to compromised immunity because of the lack of essential

nutrients and a lack of a beneficial gut microbiome. Consequently, they are more likely to have severe cognitive and physical deficits [10]. In India, approximately 68.2% of under-five deaths are caused by growth and nutritional-related disorders [11].

Maintenance of gut health plays a vital role in controlling malnutrition, especially in children. However, despite the strong link between malnutrition and gut health, there remains limited awareness, scarce child-focused resources, and insufficient integration of gut-health education into public health programmes. These gaps hinder prevention and early intervention efforts.

Currently, there is an information deficit regarding gut-healing nutrition. Additionally, gut health remains a topic that is absent from the curriculum of many schools around the world. Research on gut health is often scattered, highly technical, and not easily accessible to parents or educators, creating a clear gap in child-focused, practical guidance.

Moreover, the wide-ranging effects of poor gut health—such as weakened immunity, reduced concentration, and behavioural challenges—are rarely highlighted in mainstream health education. With an emphasis on children, this study aims to compile information from recent research on gut health, problems caused by a poor gut, its consequences, and provide feasible solutions.



2. General Nutrition Requirements of Children

Adequate and quality nutrition is needed by children to support their physical and cognitive growth [12]. Deficiency of different vitamins is prevalent in even 50% of apparently healthy-looking children [12]. Nutritional requirements are classified as essential and non-essential. Essential nutrients are those that the body needs for proper growth and functioning, but cannot produce on its own [13]. These nutrients need to be sourced externally from food or through sunlight for Vitamin D. The essential nutrients needed by children are categorized into macronutrients and micronutrients. An article from Medical News Today defines macronutrients as “nutrients that people regularly require in large quantities to provide their body with energy to perform bodily functions and daily activities” [14]. The British Nutrition Foundation classifies these macronutrients as carbohydrates, proteins, and fats and mentions that they should be included in every meal [15]. Carbohydrate-rich foods such as potatoes or bread are essential for energy. Proteins such as eggs or pulses are needed for growth and muscle building. Fats such as animal meat or dairy products are needed for balance. Micronutrients are required in small quantities but are vital for the functioning of the body [13, 14]. Calcium-rich foods like milk or soya beans are needed for healthy bones and teeth. Foods rich in iron, such as lean meat or dark green leafy vegetables, are needed for the transport of oxygen in the blood. Iron is especially important for teenage girls to compensate for the loss of blood during menstruation. Vitamin A sources, such as carrots or oranges, are needed for healthy eyes and also to ensure the immune system functions properly.

Table 1 shows the calorie intake requirements of an Indian kid. Indian children are advised to have 4 meals a day: breakfast, lunch, an evening snack, and dinner [16]. In total, they should consume 1710 kcal and 59 grams of protein per day [16, 17]. Additionally, limiting sugar intake to 25-30 grams per day is suggested [17]. For instance, the suggested lunch includes pulses, curd, vegetables, fruits, whole-grain roti, and paneer, representing a nutritionally balanced meal that provides essential macronutrients and micronutrients in recommended quantities. Additionally, the ideal time to eat every meal is crucial for optimal digestion and nutrient absorption [17]. Along with the intake of appropriate nutrition, it is important that children do at least 60 minutes of exercise every day and drink 6-8 glasses of water every day (Table 2) [15, 18].

Table 1. Optimum calorie intake for children

Age of children (years)	Optimum calorie intake (kcal/kg/day)
1-3	80
4-5	70
6-8	60-65
9+	35-45

Reference: Dietary Guidelines for Indians, n.d. [16]

Table 2. Optimum water intake for children

Weight of children (kg)	Optimum water intake (ml/kg)
3.5-10	100 ml/kg
11-20	100 ml/kg for the first 10 kg and 50 ml/kg for every kg above 10 kg
20+	1500 ml for 20 kg and 20 ml/kg for every kg above 20 kg

Reference: Faizan and Rouster (2023) [18]

3. Causes of Poor Nutrition

Poor nutrition is a global issue that affects countries worldwide [8]. The main causes of malnutrition are classified into the following groups: immediate causes, underlying causes, and basic causes [19, 20].

3.1. Immediate Causes

The immediate causes of malnutrition are inadequate dietary intake and disease. Inadequate nutritional intake means the body is not receiving adequate nutrients it needs to perform bodily functions. People, particularly children, may not receive sufficient nutrition due to poverty, inadequate maternal education, limited healthcare access, poor sanitation, and gender discrimination [9, 21]. UNICEF’s 2020 Nutrition Strategy highlights how poor nutrition during early childhood contributes to stunting, which can impair both the cognitive development and physical growth of children [20]. Similarly, WHO mentions how “diarrhea is a leading cause of malnutrition in children under 5 years old” [22]. Diarrhea is mostly caused in areas with poor sanitation and limited supply of clean water. Therefore, there is a recurrent relationship between inadequate nutrition and disease.

3.2. Underlying Causes

The underlying causes of malnutrition are factors that contribute to illness and inadequate food intake in children. These factors include food, health, and care. Household food insecurity, poor maternal and child care practices, limited access to healthcare, and poor sanitation conditions are some of the examples of the underlying causes [17]. Household food insecurity is defined as “the lack of consistent access to sufficient quality and quantity of food” [23]. This may be caused by poverty, rising food prices, or unemployment. For example, studies in low-income countries show how children suffering from food insecurity are more prone to illnesses, anemia, and stunting [23]. Poor maternal and child care practices refer to the health of women during pregnancy, during childbirth, and the postnatal period [24]. Furthermore, if women are not provided enough nutrition during their pregnancy, it can lead to poor development of the fetus [25]. Maternal malnutrition during pregnancy is widely attributed to socio-economic reasons [25]. After childbirth, the infant must receive its required nutrition from its mother’s milk to support healthy development and growth. Limited access to healthcare in remote or underdeveloped areas prevents timely diagnosis and treatment of the illness, causing the condition of

the individual to worsen. Poor sanitation conditions expose people, including children, to frequent infections. This is mainly due to unclean living environments. Collectively, these underlying factors create an environment in which children are unable to grow and develop.

3.3. Basic Causes

The basic causes, also called root causes, are political, cultural, and economic factors along with resource structures [18]. Basic causes influence the underlying causes.

3.3.1. Political Structures

Political structures refer to poor policy-making by the government that causes many people to lack the ability to afford basic dietary needs [26]. For example, the inflation in food prices has caused governmental schools to cut back on the food they serve their children. Although the Indian government has policies in place that offer free grains for meals, they often cut back on other essential foods, such as vegetables, milk, or eggs [27].

3.3.2. Cultural Structures

Cultural structures mean that people in certain cultures are forbidden from eating particular types of food, which may be essential for proper growth and development. For example, some religions in India are restricted from eating meat on certain days or even at all, and meat is a good source of protein.

3.3.3. Economic Structures

Economic structures refer to the distribution of wealth that determines the amount of access people have to nutritional food. India accounts for about 40% of the world’s poverty rate [28]. 64 million children in South Asia are affected by severe poverty, which limits their access to adequate food [29]. As a result, 48% of India’s child population has weakened immune systems, making them more susceptible to diseases [28].

Resource inequality means that there is an unequal distribution of resources such as food, water, healthcare, and education. Rural areas may be more prone to infections like diarrhea, which prevents nutrient absorption, due to a lack of clean toilets and water.

Thus, focusing on socio-economic issues should be the primary approach to finding solutions to the problem of malnutrition in children.

4. Problems Caused by Poor Nutrition

Poor nutrition has both short-term and long-term consequences. Short-term consequences are referred to as acute gastrointestinal diseases, and long-term consequences are referred to as chronic gastrointestinal diseases [30]. The most persistent problem caused by poor nutrition is various types of deficiencies.

4.1. Macronutrient Deficiencies

Mae from Medical News Today (2021) defines macronutrients as “nutrients that people regularly require in large quantities to provide their body with energy to perform bodily functions and daily activities” [14].

4.1.1. Protein-Energy Malnutrition

The lack of protein in adequate amounts is known as kwashiorkor, characterized by swelling in the hands and feet [31]. They are also characterized by a swollen belly due to edema. This deficiency affects one-third of the child population, with 80% being from Asian countries. Marasmus is also caused by a lack of protein and calories. Infants with marasmus are extremely underweight [32, 33]. The Cleveland Clinic mentions that protein deficiency in children leads to fatigue, irritability, poor appetite, brittle hair, muscle wasting, stunted growth, weakened immunity, and a higher risk of infections and delayed wound healing, along with complications such as fatty liver and developmental delays [34].

4.1.2. Carbohydrate Deficiency

Long-term deficiency of carbohydrates causes a condition known as ketosis. However, this can be prevented by eating 50g to 100g of carbohydrates while maintaining a healthy and balanced diet [35]. According to research, low-carbohydrate intake in children has been linked to growth arrest, impaired glycaemic control in those with type 1 diabetes, dyslipidemia due to increased fat intake, and a higher risk of micronutrient deficiencies because of reduced dietary variety [36].

4.1.3. Essential Fatty-Acid Deficiency (EFA)

EFA deficiency is characterized by symptoms such as reduced growth in children and infants, rashes, and increased susceptibility to infections [37]. In addition, the consequences of Essential Fatty-Acid Deficiency (EFA) include neurological abnormalities, poor wound healing, hair loss, dry and scaly skin, and impaired cognitive and visual development [37].

4.2. Micronutrient Deficiencies

Micronutrients are compounds that are only required in minimal amounts, which aid in the growth, development, and maintenance of the body [12, 13, 38]. Table 3 lists the deficiencies due to improper uptake of micronutrients.

Table 3. Micronutrient deficiencies

Micronutrient	Deficiency
Vitamin A	Xerophthalmia
Vitamin C	Scurvy
Vitamin D	Rickets
Magnesium	Hypomagnesemia
Potassium	Hypokalemia
Zinc	Hypo-zincemia
Iron	Anemia
Iodine	Goitre

4.2.1. Vitamin A Deficiency

Vitamin A is needed for preserving the epithelial tissues in the eye, urinary, intestinal, and respiratory tracts. According to the estimation of the WHO, “almost 70-80 million children around the world suffer from subclinical vitamin A deficiency, apparently without clinical symptoms” [35]. This deficiency is known as hypovitaminosis A, and the common symptoms include: poor growth, dryness, and keratinization of epithelial tissues [33].

4.2.2. Vitamin B Deficiencies

Vitamin B consists of eight water-soluble vitamins - B1, B2, B3, B5, B6, B7, B9 and B12 [39]. The most common ones in vitamin B deficiency include the deficiencies of Vitamin B12 and B9. The less common include those of Vitamin B1, B3, and B6 [39, 40].

Vitamin B12

The most common Vitamin B deficiency is that of Vitamin B12 in infants or children. The main causes of this are inadequate intake, genetic metabolic disorders of malabsorption or transport [35, 39].

Vitamin B6

Vitamin B6 acts as a coenzyme for multiple enzymes. Vitamin B6 deficiency is commonly found in alcoholics, anorexic individuals, malnourished individuals, and elderly individuals. Alcoholics are at a special risk for this deficiency since increased alcohol interferes with the absorption of vitamin B6 [35, 39].

Vitamin B9

Vitamin B9 (folic acid, folate) is crucial for thymidylate synthesis, which further helps in DNA synthesis, repair, and stability [35, 39]. This deficiency can be caused by excess alcohol intake, digestive diseases like Crohn’s disease or celiac disease, and even hemolytic anemia [40].

4.2.3. Vitamin C Deficiency

Vitamin C deficiency is known as scurvy. Humans are unable to synthesize vitamin C on their own and therefore rely entirely on dietary sources such as fruits and vegetables to obtain and store adequate amounts. Good sources of vitamin C are citrus fruits, tomatoes, and strawberries [35]. Symptoms include bleeding gums, abnormal formation of bones and teeth, and delayed wound healing [33].

4.2.4. Iodine Deficiency

Iodine is an element that plays a major role in thyroid hormone synthesis, meaning it is vital for regulating human development and growth. If iodine is not received in the early stages of pregnancy, then it can cause iodine deficiency disorder in the fetus as well [35]. Symptoms of this deficiency include an enlarged thyroid gland (condition known as goitre) or hypothyroidism, where the thyroid gland does not secrete thyroid [41].

4.2.5. Iron Deficiency

Iron deficiency is most common in children and premenopausal women. This deficiency is known as anemia. Iron is necessary for hemoglobin synthesis. Symptoms of this include: fatigue, apathy, paleness, and weakness [35].

4.2.6. Zinc Deficiency

Zinc deficiency is known as hypozincemia and was first seen in the 1960s in Egypt and Iran. The main symptoms of this include: skin lesions, diarrhea, night blindness, and poor appetite [42].

4.3. Other Gut Problems

The short and long-term problems are further divided into structural Gastrointestinal (GI) issues, which are when physical changes can be seen in the individual, and functional GI diseases, which are when there are no physical changes in the digestive tract. These issues are further aggravated due to a poor diet [30].

4.3.1. Structural GI Diseases

Structural GI diseases are often more complicated since they are not only improved with lifestyle changes. Examples of this are: hemorrhoids, Inflammatory Bowel Disease (IBD), and colon polyps [30]. National Institute of Diabetes and Digestive and Kidney Diseases (n. d.) defines hemorrhoids as “swollen and inflamed veins around your anus or in your lower rectum” [43]. They can further cause more complications such as blood clots, infection, skin tags, or even anemia [43].

Inflammatory Bowel Disease (IBD) is a chronic condition that causes repetitive inflammation in the digestive tract of individuals [44]. It is an autoimmune disorder where the immune system attacks healthy tissue and causes inflammation, though the cause of this is unknown [44]. If IBD persists, then people are at risk of colon cancer, abscess-infection resulting in tearing of the abdominal wall, or even strictures where the walls of the intestine get narrow [44]. Colon polyps are abnormal growths on the lining of the large intestine (colon or rectum). If colon polyps are not corrected, then they can cause bleeding, diarrhea, bowel obstruction, and there is a chance the growth becomes malignant and might cause colon cancer [45].

4.3.2. Functional GI Diseases

Malnutrition is a leading cause of death and accounts for 45% of the deaths of children under 5 years old [46]. Furthermore, malnutrition causes stunting, where the growth of children is impaired, and they are unable to grow physically in areas such as height increase [46]. Also, it affects the cognitive and neurological development of children. Moreover, it greatly affects the immune system of children. Malnourished children lack beneficial gut microbiota that are needed for digestion, growth, and fighting infections; due to this, they are more susceptible to diseases because their immune systems are weakened [46].

IBS is usually a lifelong problem. The symptoms of IBS are stomach pain/cramps, bloating, diarrhea, and constipation [47]. These functional GI diseases are mainly caused by diet and can be improved through lifestyle and diet changes.

Lastly, intestinal inflammation and barrier dysfunction brought on by microbiota alteration can result in a leaky gut. Intestinal villi are harmed, which lowers the surface area available for absorption and affects their ability to digest food [9].

Thus, poor nutrition leads to a variety of chronic and acute issues mainly involving the gut. These lead to poor cognition and lifestyle issues. Proper management of these issues requires addressing nutritional deficiencies and implementing lifestyle modifications.

5. Cure to Gut Issues

Improving gut health requires a holistic approach that consists of dietary and lifestyle changes. Firstly, one of the most important things to do to improve gut health is to eat enough fiber. A 30g fibre intake every day is recommended by the literature [48]. Examples of high fiber food include: vegetables, fruits, brown rice, and whole grains. Probiotics are live bacteria and yeast that have positive effects on your body, such as improving host immunity by helping the intestinal flora to be able to fight against pathogens and support the growth of good microbes. A study by Wang et al suggests a strong, proven relationship between probiotics, intestinal flora, and immunity [49].

Foods rich in probiotics include: curd, pickles, and kimchi. Probiotic-rich food has various functions that help support gut health, the most important ones include: strengthening the immune system, preventing harmful bacteria from dominating the microbiota in the gut, enhancing the strength of the intestinal barrier, and lastly producing beneficial compounds that act as enzymes, antimicrobials, and organic acids [49, 50].

Besides this, it is important to limit the intake of foods high in sugar or fats. Furthermore, sleep is also essential to help improve gut health; 7 to 8 hours of sleep is needed by every individual. Poor sleep has been linked to circadian rhythm disruption, which raises pro-inflammatory markers like IL-6 and hinders immune cell renewal, according to research [51]. Since a large portion of the body's immune system is located in the gut, problems with the immune system have a direct relation to gut health [50]. Lastly, drinking adequate amounts of water helps improve gut health, too. Research also shows that limiting water intake decreases the abundance of total immune cells and the T-cell population [52].

In conclusion, improving gut health requires an overall strategy that includes enough dietary intake of fiber, sufficient sleep, and adequate water intake.

5.1. Gut-Friendly Foods

Gut-friendly foods are those that support digestion, improve microbial balance, and prevent common gastrointestinal problems. In the Indian diet, staple foods include curd, buttermilk, idlis/dosas, green leafy vegetables, and Indian pickle (achar).

- Buttermilk is a probiotic-rich food that introduces beneficial bacteria and helps in the preservation of the good gut flora [53, 54, 55].
- Curd and idli/dosa are fermented foods that help aid digestion, boost energy and immunity over time, help with gas, bloating, and acidity [55].
- Green leafy vegetables like kale and spinach are good sources of fiber and also contain nutrients like vitamin C, vitamin K, and vitamin A. These vegetables also contain a specific type of sugar that helps promote the growth of healthy bacteria in the gut [56].
- Some Indian pickles are fermented, which means they help boost digestion, are rich in antioxidants, strengthen immunity, and reduce inflammation [53, 54].

Other internationally recognized gut-friendly foods include: kimchi, kombucha, and sauerkraut.

- Kimchi is a food that originates from Korea. Since it is fermented, kimchi is a food rich in probiotics, which helps strengthen one's immune system and positively influence gut microbiota [57].
- Kombucha is a drink that originates from Northeast China. This drink helps reduce inflammation since it is heavily concentrated with antioxidants and polyphenols (plant-based compounds that have antioxidant properties). It also strengthens the immune system due to the presence of vitamin B. Lastly, the enzymes and acids in kombucha help the liver eliminate unwanted compounds in the body, which aids in cleansing [58].
- Sauerkraut is a dish made from fermented cabbage, which has a disputed origin in China, with extreme popularity in the Balkans [59]. This dish contains Short-Chain Fatty Acids (SCFAs) [60, 61]. SCFAs have been researched as having the potential benefits of increasing metabolism and reducing inflammation. Thus, showing that they play an important role in gut maintenance and homeostasis of the immune system [61].

The inclusion of traditional prebiotic and probiotic foods in the daily diet can help overcome malnutrition and is also a preferred way over additional nutritional supplements, tablets, and capsules. Families and school dietary programs should also consider this while planning the diet of children.

6. Governmental Food Plans

There are various government schemes set by the governments of different nations. These policies and schemes are important as they combat the widespread malnutrition on a larger scale. Usually, these schemes provide a diet to kids free or at a subsidized rate. The diet is also planned by

nutritionists and pediatricians. Governments throughout the world implement these policies, and the programs help the children from the poorer sections of society [62, 63].

6.1. Pradhan Mantri Poshan Shakti Nirman scheme (PM POSHAN)

Previously known as the Mid-Day Meal scheme, the PM POSHAN scheme is one of the largest national initiatives to combat malnutrition in Indian children. The scheme aims to address the problem of hunger amongst children by trying to improve their nutritional status.

This scheme is eligible for kids who go to a governmental school from class I to VII. Each child will receive one hot-cooked meal every day with the appropriate amount of nutrients they need (depending on their age or if they are in primary or secondary school). The national government also believes that this would promote and encourage children to attend school more regularly and focus on their classes [64, 65].

6.2. Integrated Child Development Service Programme (ICDS)

Another scheme mentioned by the Food and Agriculture Organization is called 4.1. The Integrated Child Development Service Programme (ICDS) aims to help combat malnutrition in Indian women and children [64]. The ICDS program includes various services- supplementary nutrition, immunization, health check-up, referral, and education services [66]. Through this, ICDS aims to improve the nutritional status of women and children, support their overall development (cognitive and physical), reduce mortality, decrease school dropouts, and empower mothers on the topic of nutrition for their children.

6.3. Special Nutrition Programme (SNP)

Special Nutrition Programme (SNP) is an Indian government program that provides supplementary feeding of about 300 calories and 10 grams of protein to preschool children (under age 6) and about 500 calories and 25 grams of protein to expectant and nursing mothers for six days a week [67]. This policy targets infants below 6 years old and expecting/nursing mothers in the tribal areas or slums [64, 67].

6.4. Balwadi Nutrition Programme

The Balwadi Nutrition Programme was introduced at a similar time (1970-71) as the SNP and is run by the Central Social Welfare Board and some non-governmental organizations in India like national level non-governmental voluntary organisations, namely, Indian Council for Child Welfare, Harijan (Scheduled Castes) Sevak (Service) Sangh (Board), Bhartiya (Indian) Adimjati (Scheduled Tribe) Sevak Sangh and Kasturba National Memorial Trust [64, 67]. The program focuses on providing nutrition for children from 3 to 5 years old. Apart from this, it looks after the social and emotional development of the children.

6.5. Wheat-Based Supplementary Nutrition Programme (WBNP)

The main objective of the Wheat-based Supplementary Nutrition Programme is to provide supplementary nutrition to Indian children while promoting the consumption of wheat [64, 68]. The Ministry of Food allocates 100 thousand tons of wheat from its central reserves per year. Later, they were sub-allocated to different states where they were used to produce wheat-based products. Lastly, wheat was also supplied at heavily subsidized rates to the public. The main goal of this project is to provide supplementary nutrition and reduce the problem of poverty. The WFP provided Soya Fortified Bulgar Wheat, Corn Soya Blend, and edible oil to benefit about 2.1 million preschool children, expectant and nursing mothers. They also funded 12 projects in India, which focused on forestry, irrigation, and supplementary nutrition. As of 2023, the program has emphasized the cultivation and consumption of millets due to their high nutritional value for pregnant and lactating women, and children under 6 years. Hot Cooked Meal (HCM) and Take Home Rations (THR) at Anganwadis are the way these meals are distributed [68].

6.6. CARE Assisted Nutrition Programs

The main aim of the Indo-CARE agreement of 1950 is to provide supplementary nutrition to preschool children under six years old and expectant/nursing mothers [64]. This program is now integrated with the ICDS project that is spread across 10 states in India. In addition to direct food aid, CARE monetized donated oil to generate ₹100 million in funds, which are used to implement supportive activities under ICDS [64, 66]. During 1993–94, CARE provided over 200,000 tons of food commodities, reaching approximately 9 million beneficiaries [66].

6.7. Tamil Nadu Integrated Nutrition Project

The Tamil Nadu Integrated Nutrition Project was started around 1980-1981, along with the World Bank in Tamil Nadu, to improve and monitor the nutritional and health status of pregnant and nursing women [64, 69]. The next part of this project started in 1990-1991. Needy children (6-36 months) were monitored monthly for their weight. The project also focused on the management of diarrhea and deficiencies [69]. Besides nutritional support, it also enhanced inputs in health, training, communications, research, monitoring, and project management.

6.8. Supplemental Nutrition Assistance Program – US Governmental program

The US government has another policy known as SNAP (Supplemental Nutrition Assistance Program), which helps low-income people buy nutritious meals [70, 71]. People who are homeless or stay in temporary housing, other criteria include: income requirements, resource requirements, and work requirements. Unlike the PM POSHAN plan, SNAP gives people income limits via a card, which allows them to spend the money they need on food [70, 71].

Timely dietary and governmental interventions regarding children's diets can effectively address the growing problem of malnutrition on a larger scale. Audits and frequent changing of the food in the diets provided according to season, location, and taste would even increase the engagement of kids to follow these diets.

7. Conclusion

The paper encompasses different aspects of malnutrition in children, from causes to effects, and finally, manageable dietary and lifestyle solutions and governmental programs. The paper also highlights the impact of socio-economic factors on nutrition and emphasizes the importance of a healthy gut on the overall well-being and development of the child. The key findings of this review reveal that food rich in probiotics, prebiotics, paired with other lifestyle changes such as regular exercise and sufficient sleep, can help create a

healthy gut that helps support nutrient absorption, improved immunity, and growth. Additionally, this review highlights the importance of governmental schemes in India, showing their target audience and how successful they have been in addressing the problem of malnutrition. Thus, the parents, lawmakers, nutritionists, media, and governments should come together and focus on providing a nutritious diet to children irrespective of their economic status, as a healthy child equals a healthy future for the country.

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