



Food Security and Public Distribution System: An Analysis of Nutritional Well-being in India

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Abstract

Problems of undernutrition and malnutrition still persisted in spite of high spectacular economic growth and self-reliance in foodgrain production for a long time. The government formulated and implemented various social assistance programmes and policies to reduce poverty, hunger, and malnutrition. But these programmes have ridden with corruption, leakages and inefficiency in their functioning. Government, from time to time, has introduced various technological reforms to curb malpractices and make these programmes well-functioning that may translate maximum benefits to the beneficiaries. Access to food, to a large extent, depends on the household's productive assets, purchasing power and social assistance programmes in place. Sometimes, access to these programmes are mediated through the caste, class, ethnicity and gender, and in turn, worsens the food security situation. The solution to all these problems lies in the strong will power of the state to make the programmes well-functioning by adopting ICT based techniques and a strong grievance redressal mechanism.

Keywords:

Food and Nutrition Security; The PDS; The NFSA; Access to foodgrains; Malnutrition.

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1. INTRODUCTION

It is a well-known fact that India has become food secure in the 1970s. It was a landmark achievement in Indian history since independence. But people are not food secure at the household level; they are facing acute problems of malnutrition and undernutrition; among them, children and women, are more prone. In India, 38 percent of the children under the age of five years are stunted, which refers to chronic undernutrition. 21 percent of the children under the same age group are wasted, which is a sign of acute undernutrition, while 36 percent of the children under the age of five years are underweight [1]. The Global Hunger Index ranks India at 102 out of 117 countries in terms of the severity of hunger in 2019 [2]. India accounts for more than one-third of the malnourished children in the world [3], [4]. In India, 2 in every 3 children die due to malnutrition [5]. Energy intake is also decreasing in both the rural and the urban areas since the 1990s. Food security is a broad term; it does not include the availability of food but also the accessibility of food and dietary preferences to the people at all times without interruption. As food security was defined by the UN Food and Agricultural Organisation, "food security exists when all people at all times, have physical and economic access to sufficient and safe nutritious food to meet their dietary needs and food preferences for an active and healthy life." [6]. There are four dimensions of food security: physical availability of food, economic and physical access to food, food utilization, and stability of three dimensions over time. India has achieved at a first dimension that is food availability and, in other three dimensions, to be lacking behind. So, the mere availability of food could not be considered as food security at the household level if it is not accessible to the most disadvantaged and marginalised groups of people. The likelihood of being food insecure is higher for the people who are unemployed and reported a low level of education and household income. Food insecurity can affect people in many ways, with potentially negative consequences for mental, social and physical wellbeing [7].

Recently the concept of food security has undergone many changes; till the seventies, food availability and accessibility considered a good measure of food security, and achievement of food self-sufficiency accorded high priority in food policies in India. India has been successful in achieving food security by increasing food production and also improved its capacity to cope with year to year fluctuations in food production, and it could not solve the problem of chronic household food insecurity. Necessitated change in approach and as a result, food energy intake at the household level is given prominence in assessing food security. A distinction is made between transient and chronic food security because both have different implications in policymaking. Transient food insecurity is associated with the risk to either relate to access or availability of food during the off-seasons,



drought, inflationary years, and so forth. In contrast, chronic food insecurity is associated with poverty and arises due to continuous inadequate diets. Policies related to price stabilisation, credit, crop insurance, and temporary employment creation are initiated for stabilising the consumption of vulnerable groups. Chronic food insecurity can be handled by raising agricultural productivity, increasing employment opportunities, infrastructure, and human development in rural parts of India. Empowering the local poor with assets like land and small industries at the village level would help in individual access to food. Off-farm employment opportunities would also be helpful in reducing the poverty level of an individual. The incidence of high poverty is the main hurdle to achieve food security. India has introduced a broad spectrum of programmes for improving food security. It has already made substantial progress by giving priority to self-sufficiency in food grains through the food procurement and public distribution system, employment programmes as well.

2. Objectives

1. To identify factors affecting access to the social assistance programmes in India.
2. To assess the functioning of the PDS under the National Food Security Act.
3. To identify the level of food insecurity and nutritional wellbeing of the people in a different socio-economic and spatial context.

3. Methodology

Various sources of secondary data have been used to assess and analyse the problem persisted in the achievement of the nutritional wellbeing. Data related to food grain production is obtained from the Ministry of Agriculture and Farmers Welfare, Government of India, while data related to nutrition indicators are obtained from the NFHS different rounds. Department of Food and Public Distribution System (DFPD) provides data related to the functioning of the PDS. These data calculated, tabulated and analysed to understand the real problems of food insecurity and malnutrition. Finally, cross-tabulation, charts and figures are prepared to present the data in a more meaningful way.

4. Review of Literature

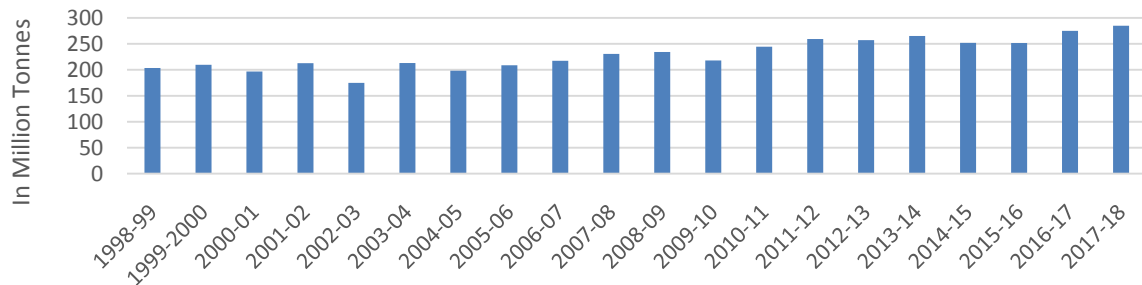
4.1. Four Dimensions of Food Security:

The concept of food security is multidimensional in nature, and it is determined by a whole range of issues such as domestic production of foodgrains, import, and export of food, the purchasing power of the people to access food as well as factors that influence food security can be classified into four categories: 1- Physical availability of food which refers to the supply side factors and determined by the level of foodgrain production, stock level, net trade. India has achieved self-sufficiency in the physical availability of food long before. In spite of this, problems of food insecurity have not been solved. The solution does not only lie in the availability of food but the accessibility of this food on a continuous basis. 2- Access to food by the people can be insured through high economic growth and generating income and reducing inequalities at the households' level. For instance, Food security and food access depend on income, markets, expenditure, and prices. The fluctuation of prices affects the level of access to the food by the people. The income of an individual also largely determines the calorie intake and preferences for food. The third component of food security is food utilisation- the way the body makes the most various nutrients in the food. It also depends on food preparation, diversity of diets, and intra-household distribution of foods, and nature of the working condition of a man and quality of the environment in which he is living to a large extent. The fourth component of food security is the stability of all over time.

4.2. Trends in Food Production:

India has made significant progress over the year in foodgrain production. The annual growth rate of foodgrain production was 2.1 in 1960, which increased to 3 percent in the subsequent decade and further to 3.8 percent during the 1990s. The annual growth rate of foodgrains was 1.6 percent between 1996-99 and 2015-18. The growth rate for wheat was higher at 1.8 percent while for rice 1.4 percent during 1996-99 to 2016-18. In the last two decades, the total foodgrain production has increased from 203 million tonnes to 284 million tonnes in India. Since 1996, the per capita net availability of foodgrains has increased from 475 to 484 gm/day in 2018, while per capita availability of pulses has increased from 33 gm to 55 gm/capita/day (Ministry of Statistics and Programme Implementation, 2019).

Figure 01: Trends of Total Foodgrains Production (in Million Tonnes) in India, 1996-2018



Source: Ministry of Agriculture and Farmers Welfare, Government of India

There is declining in the prices of food grains during the nineties when compare to the previous period due to the high production of the foodgrains. India needs an agricultural growth rate of 4.0 percent to reduce poverty and food insecurity significantly[8]. This is within reach. At this growth rate, agriculture development would diversify into dairying, animal husbandry, fisheries, and floriculture, horticulture, and other areas. These techniques would be labour intensive. The challenges to food security come from the mainly slow growth of the purchasing power of the people in the rain-fed ecosystem. All efforts should be made to develop high resistant seeds, effective dryland farming techniques. In addition to water harvesting technique, moisture conservation, and intercropping are imperative techniques to stabilise and improve the production in the dry land area. It is also essential to explore the cost of effective techniques for irrigation. Reasonable prices of the electricity and the fertilisers for agriculture should be maintained to facilitate the farmers in the production process. This would help in improving the income of the farmers.

4.3. Food and Nutrient Intake:

The poor spend a higher share of total expenditure on food, which shows lower purchasing power, which is related to the access dimension of food security. On average, people of India spend 49 and 39 percent of their monthly expenditure on food in rural and urban areas. This share is higher among the poorest 30 percentile expenditure groups. The lowest 30 percent spend as much as 60 percent and 55 percent on food in rural and urban areas. The share expenditure on cereal and cereal substitutes has declined, from 57 and 36 percent to 25 and 19 percent between 1973-73 and 2011-12 in rural and urban areas, respectively. The per capita consumption of energy is 1811 kcal/day, which is lower than as prescribed by the Indian Council of Medical Research (ICMR) with 2155 kcal/day.

NSS consumption data reveals that the per capita consumption of cereals has been declining since the early seventies[9],[10], [11]. Between the 1970-1971 and 1997-98, the per capita cereal consumption declined by 0.72 percent per annum in the rural areas and by 0.74 percent per annum in urban areas. Moreover, nutrient deficiency is common among vulnerable groups like women and children. These two groups are more prone to the deficiencies than the adult and other groups. Iodine deficiencies are common among the population living in the Himalayan regions and other hilly regions of the country. Iron deficiencies widely prevalent among pregnant women. Fifty-three percent of the women still have anaemia at age 15-49.

5. Government Policies and Programmes Related to Food and Nutrition Security:

India has introduced several policy measures to secure food to all individuals on priority bases. India has several programmes that provide food to the poor at very marginal prices or free of cost. These programmes are Antyodaya Anna Yojana (AAY), Integrated Child Development Services (ICDS), Mid-Day Meal Scheme (MDMS), National Rural Employment Guaranty Scheme (NREGA), and the Public Distribution System (PDS). Among them, the PDS is the world's largest food assistance programme which covers 67 percent of the total population of the country, including 75 percent of the rural and 50 percent of the urban area.



5.1. The Integrated Child Development Services (ICDS):

It was launched in 1975 aims at the holistic development of the children up to six years of age with a special focus on the children up to two years. This is carried out through packages of six services: health check-ups, immunization, referral services, supplementary feeding, non-formal pre-school education, and advice health and nutrition. In spite of its wide coverage, it has no significant impact on addressing the problems of children and maternal malnutrition. Maternal malnutrition has a bearing effect on a child's health.

5.2. Mid-Day Meal Scheme:

The Mid-Day Meal Scheme (MDMS) has been revised and universalised at the primary level from 1 Sep 2004. Recently, the MDMS has been extended to Upper Primary School from 1 October 2007. There are problems with the Scheme regarding the allocation of funds and the quality of food served under this. Out of the sixteen states that send data to the commissioner, thirteen states have 45 percent separate kitchen. Some suggestions are made to improve the MDM; these are promoting the locally grown food for the child, hygiene, and fresh drinking water, proper management of the local resources, transparency in the allocation of funds, revive the school health programmes. Promote social audit and online monitoring.

5.3. Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA):

The MNREGA was introduced in 2005 as legal enforcement of the right to work. It provides 100 days of guaranty wages employment in a financial year to every household. The primary objective is employment creation. The auxiliary objective is regenerating a rural resource base and creating productive assets. This is the first time that the right based approach for employment has been introduced throughout India. This generates purchasing power among the local people and, in-turn helpsthe intake of nutritious food.

5.4. Public Distribution System in India:

The Public Distribution System (PDS) has been a major programme in India that provides food on a subsidised rate to poor people. The government has first started the PDS in 1939 as a wartime rationing measure. The British Government introduced it in Bombay and later extended to other regions. The food shortage in the mid-sixties highlighted the need for strengthening the PDS to protect people from chronic hunger. Subsequently, the PDS covers a larger portion of the population ranging from BPL to APL cardholders. But it has not benefited to the targeted population due tohigh leakage in foodgrains transfers. There have been some defaults in identifying beneficiaries at the ground level due to data inadequacy. The main criterion that was taken into consideration is the poverty line weather APL or BPL for the identification of the beneficiaries. It did not include the people just above the poverty line who suffer from food shortage, undernutrition as well as malnutrition. Sometimes people below the poverty line did not holdration cards require for acquiring ration from the Fair Price Shops (FPSs). Ration distributed through the fair price shop is not of good quality. Most of the time, it is recognised as substandard in quality. Considering all drawbacks of the previous PDS, the government announced the Universal Public Distribution System to cover the large portion of the population by almost 85 percent. Subsequently, later on,targeting was introduced and Revamped Public Distribution System was launched in 1992 with a view of strengthening and streamline the PDS as well as to improve its reach in the far-flung, hilly and inaccessible areas where a substantial section of the poor lived. It extended to the 1775 blocks in which some area-specific programmes were introduced, such as Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), Integrated Tribal Development Project (ITDP) and certain Designated Hill Areas (DHA). Foodgrains issued under the TPDS to the states at 50 percent lower than the central issue price. A cardholder was entitled 20 Kg. of foodgrains. The main thrust of the Revamped Public Distribution System was to improve the infrastructure and FPSs in the remote areas so that the beneficiaries could access commodities; distributed under the RPDS. Additional commodities were also distributed like soaps, pulses, tea, and salt through the FPSs outlets [12].

The Targeted Public Distribution System (TPDS) was introduced in 1997, which categorised the households into two groups BPL and APL households. Every household entitled to receive 20 Kg. of foodgrains, which is later on, increased to 35 Kg. per household. BPL and APL households received ration at 50 percent and 90 percent of the economic costs. Dual pricing system and increased arbitrage provide opportunities to the FPSs dealers to divert the foodgrains to the open market.

With an objective to provide more subsidised foodgrains to the poor and destitute families, a new scheme called the Antyodaya Anna Yojana (AAY) was launchedin December 2000. The AAY cardholders were entitled to receive 35 Kg/month/household on 25 percent FIC economic cost. It was realised by the National Sample



Survey observation that 5 percent of the total population slept hungry without two square meals a day. One crore families brought under the purview of the AAY scheme so that it could be focused and targeted towards the poorest of the poor. Respective states were given the responsibility of identification of the poor and to bear the cost of the transportation, distribution, margins to the dealers and retailers so that the entire subsidy reached the identified poor families under the scheme. The scale of issue price under the AAY was label as Rs. 2/Kg. for wheat and Rs. 3/Kg. for Rice. Identified families under the scheme were entitled 25 Kg. of foodgrains/family/month that was later increased to 35 Kg. of foodgrains/family/month with effect from 1st April 2002.

Targeted PDS was criticised on various grounds by a spectrum of academia and policymakers. Leakages in the PDS became so large, and households at the grassroots level received a very meagre amount of their legal entitlement from the PDS.

6. Diversion of the PDS Food Grains under the PDS:

Previous Studies highlighted that as much as 55 of the foodgrains had been diverted by the inter-mediators involved in the operation of the system, especially by fair price shop dealers [13], [14]. Another study conducted by the Indian Planning Commission stated that the cost of diverted foodgrains as much as 70 percent. The government has spent nine rupees to transfer one rupee to poor households [15]. Leakage from the PDS as high as 54 percent in 2004-05 and came down to 41 percent in 2009-10 that indicates beneficiaries received less than half of their entitlement [16], [17]. Corruption in the PDS has been the main concern in recent years [16], [18]. It was suggested by the government agencies that for every Rs. 3.65 transfer by the central government, only Rs. 1 eventually reached to the BPL households in the programme [19]. More than 40 percent of the total subsidised food grains wheat and rice means to the distribution to the poor households through the FPSs get diverted to the open market [20]. These large scale diversion and leakages from the PDS gives way to the debate that resulted in a new reform in the system. After long discussion and debate, the Indian parliament has passed a historic act which is known as the National Food Security Act (NFSA), 2013 which has a provision of extended coverage and lower issue prices. It covers 67 percent of the Indian population which includes 75 percent of the rural and 50 percent of the urban population. The foodgrains are distributed at a much subsidised price. Households are divided into two categories: Priority Households and Antyodaya Anna Yojana (AAY), and they get rice, wheat and coarse grains at 3, 2 and 1 rupees per Kg.

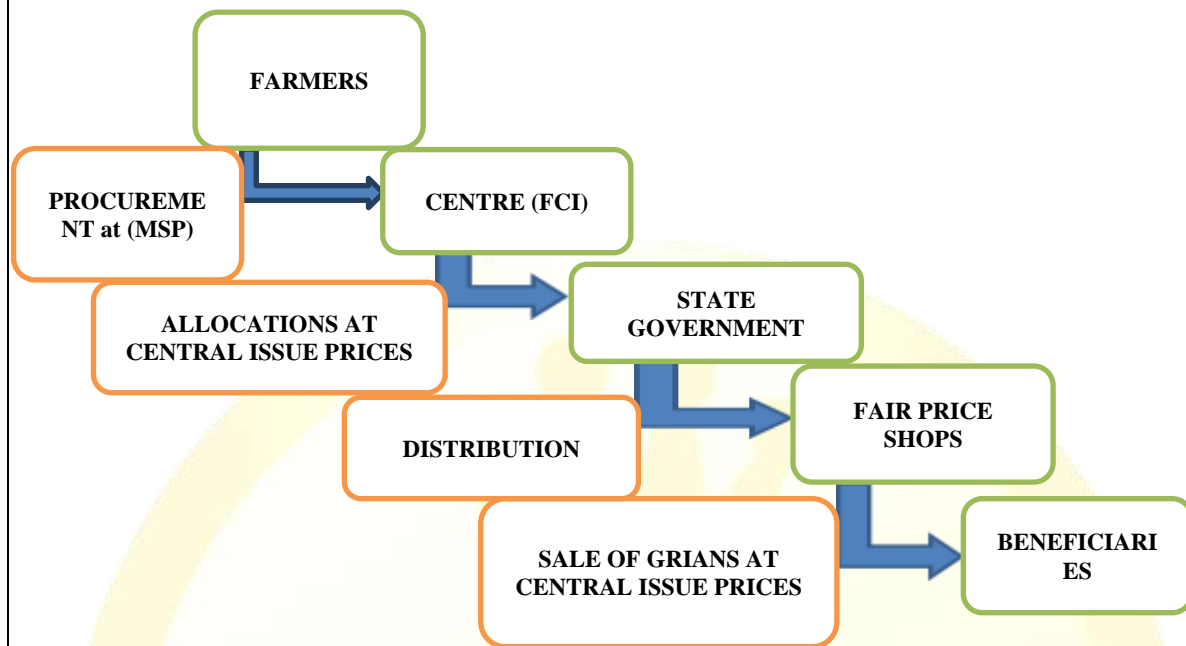
Table No. 2: Entitlement and Revised Prices under the NFSA

Household categories	Foodgrains per month	Price per kg
Antyodaya	35 Kg. per household	Rs 1 = Millets Rs 2 = Wheat
Priority	5 Kg. per person	Rs 3 = Rice
Excluded	-	-
Price fixed for three years after which they may be revised		

7. Mechanism of the Public Distribution System:

Rations are given to the beneficiaries under the PDS are procured from the farmers by the Food Corporation of India through various agencies. Procurement of foodgrains is done on Minimum Support Prices (MSP) during harvesting seasons. Centre allocates rations to the states based on the number of beneficiaries and previous three years average offtake of foodgrains and delivers to the FPSs from where consumers could take their entitlement at the much-subsidised rate. Both the centre and the state have the responsibility of identifying beneficiaries, procuring, and delivering foodgrains. States have their mechanism of distribution of rations. Entitlement and issue prices differ state to state depending on the financial capacity and commitment of the state to provide a social safety net to the poor. Procurement by the centre and the state agencies help in two ways: first providing genuine price to the farmers because procurement took place on the MSP as announced by the government before the harvest; second, help in providing subsidised ration to the poor and eligible households.

Figure No-02: Mechanism of Public Distribution System



Sources: PRS, Sakshi Balani (2013)

8. Results and Discussions

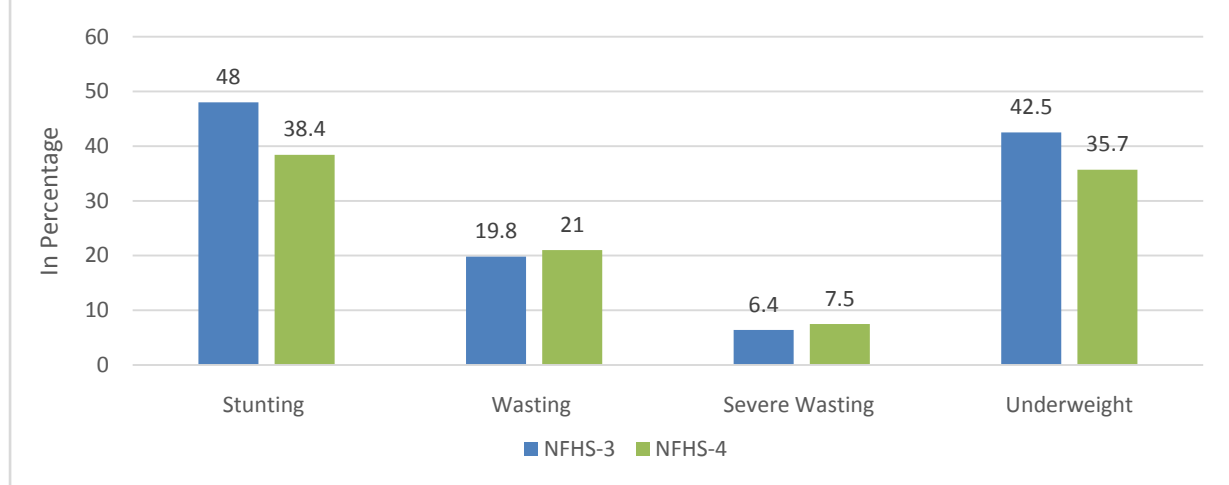
8.1. Nutritional Outcome and Well-being in India:

Malnutrition in children is a public health problem that resulted in great human suffering, both physical and emotional. Malnutrition in India caused 69 percent of deaths under five years of age in India. Every second, a child below the age of five is affected by some forms of malnutrition. Every second, a woman becomes anaemic and it is also the most prevalent under the age of five years. About 36 percent of the population of women are underweight in India[21]. The chances of being anaemic among adolescent girls are twice as compared to adolescent boys[22]. The rate of decrease in malnutrition has not been spectacular in spite of various efforts at national and international levels to reduce it. Still, 38.4 percent of the children below five years of age are stunted, 21 percent and 35.7 percent are wasted and underweight[1].

Three main drivers of undernutrition are (i) household food insecurity (ii) poor maternal and child health practices and (iii) inadequate access to safe drinking water, sanitation, and health services. Gender inequality is another important factor that determines the malnutrition levels. A distinction can be made between direct and indirect but substantive and institutional factors responsible for undernutrition. For example, food intake, diet diversification, health, water, micronutrients, sanitation are direct determinants, while women empowerment, agriculture, rural non-farm sector etc. are indirect determinants of undernutrition.

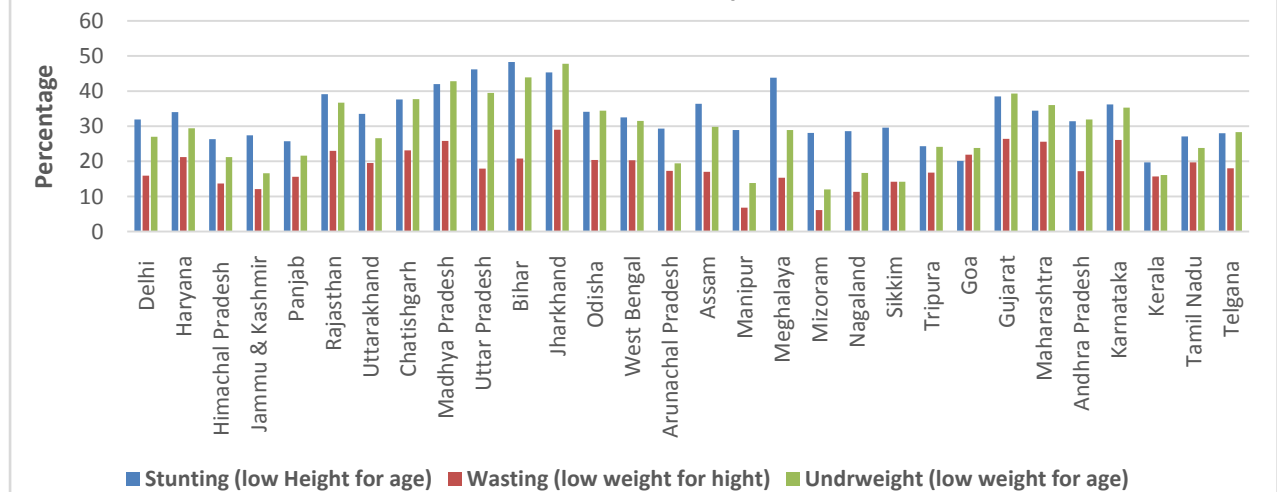


Figure No-03: Malnutrition among Under-five Children in India, 2005-06 and 2015-16



Despite various nutritional schemes and interventions, undernutrition and malnutrition have been a major health concern for India's children. Malnutrition has been a prime reason for 69 percent death of children under the age of five. There is an improvement of 9.6 percent in the case of the stunting of children under five. About 38.4 percent of the children under the same age group are stunted in 2015-16 as compared to 48 percent in 2005-06. The cases of wasting were increased by 1.2 percent. About 21 percent of the children under five were wasted in 2015-16 as compared to 19.8 percent in 2005-06. There was a decline in cases of underweight by 6.7 percent. About 35.7 percent of the children under five were underweight in 2015-16 as compared to 42.5 percent in 2005-06, as shown in (figure no. 3). This improvement in stunting and underweight was attributed to the number of schemes and programmes implemented by the centre and the state government. But this improvement has not been satisfactory as the governments adopted targets not to be achieved.

Chart No-4: Prevalance of Child Malnutrition in Indian States (Under the Age of Five Years)



Source: NFHS-4 (2015-16)

The prevalence of malnutrition is not uniform in all over India; it varies state to state and region to region. Some states show the spectacular growth in a reduction in malnutrition while others have been lagging behind in doing so. On the one hand, Bihar and Uttar Pradesh have high undernutrition and malnutrition in its various forms, while Kerala and Panjab are doing better in reducing it. Bihar has the highest stunting children (48 percent)



below the five years of age, while Kerala has the lowest (19 percent) children in the same age groups, as shown in (chart no 4). Poor nutritional status of the children under five in poorer states is due to their lower financial capacity, government failure of implementation of the programmes, and low level of awareness among the beneficiaries about their rights. On the other hand, well-off states show the remarkable achievement in reducing the undernutrition in its various forms reasons to high economic capacity and their strong will power to implement the programmes with very negligible corruption and leakage during execution stages.

Nutritional well-being of a person depends on several factors such as economic development, the income of the individual, insufficient diets, social assistance programmes in place, market regulation, and means to access to a better quality of food, feeding practices, sanitation, hygiene, and quality of water. Moreover, the mother's education and insufficient knowledge about nutritious food to a large extent, affect the nutritional outcome. Nutrition status of the children is one of the most important indicators of the overall development of the nation. Poor nutritional status affects the development path and economic growth in numerous ways. Poor nutritional status is both cause and consequence for the poor economic wellbeing of a person. The wellbeing of the child depends on maternal nutritional status. Women who are malnourished during their childhood due to gender inequality, poverty, poor diets are most likely have malnourished babies.

There are numerous ways of improving the nutritional status of people. It can be improved through sustainable agriculture development. Sustainable agriculture is needed for maintaining the large stock of food grains with the government. It can be possible through agricultural research, an innovation of new technology, conservation of the soil, minimising environmental impact, rural infrastructure on sound principle, guarding the interest of the farmers as well. The land is limited; it could not be increased to cope with the increasing population. We need to increase agriculture efficiency to raise production. Till now we raise production by bringing extra land under cultivation, but it is not possible in the near future. Now production can be raised by developing dryland farming. There is a large scope for developing dryland farming in the arid and semi-arid regions of the country. Education plays a crucial role in agricultural development. The agricultural university should be open to carry out the research. Drought resistant crops should be developed to overcome food shortage.

9. Conclusion:

Food security is a broad term that includes not only the availability and accessibility of food but also the utilisation of food that depends on several factors such as working conditions, sanitation, safe drinking water, and quality of food consumed. In spite of achieving self-sufficiency in food production, India till now has not solved the problems of malnutrition and undernutrition among the most vulnerable class of the society, especially children and women. National Family Health Survey provided that the percentage of malnutrition decline from 62.5 in 1975-89 to 47.7 percent in 2000. The government has introduced several programmes to tackle the problems of food insecurity at the household level. But it has not been fully solved the problems of chronic food deficiency among the downtrodden people. Problems lie in the implementation of the programmes and the transparency of the system. The prevalence of poverty is another obstacle in achieving nutritional status. Balance diets are needed to overcome the problems of nutrient deficiency. The high growth rate in employment is needed to increase the purchasing power of the poorest of the poor. Economic growth with rising income inequality would not solve the problems of poverty and malnutrition. Therefore, a balance and pro-poor economic growth are required to solve the problems of undernutrition in its various forms. There is a need to create productive assets that would help in reducing the poverty level in the country.

The government has introduced various programmes and policies to combat poverty and malnutrition, but the desired result could not be achieved. These programmes are plagued with a high level of corruption; that is why the poor are not getting whatever is transferred to them by the government. The benefits of these programmes deviate through the caste, socio-economic hierarchies, elitism, and power-relationship. The poor and marginalised groups of the people are being excluded due to elite capture of the programmes. The poor are excluded at both the stages at programmes designs and implementation due to institutional and officials biasness. To overcome all these drawbacks, the state should take a strong initiative to safeguard the interest of the needy people. There is a need for strengthening the grievance redressal mechanism, which is in place. The effectiveness of any programme depends on the strong will-power of the state, so the state should take bold steps to make programmes more profitable for those most in need and struggling for mere survival day by day.



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