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Food security in COVID-19 pandemics in India

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Abstract

Food Security and nutrition progress has been slow or reversed globally. The demand for food systems is increasing due to population, income, technology, and climate change. Since the dawn of time, plagues have devastated humans. Pandemics all have a catastrophic effect on the global economy. A study found that COVID-19 has a ripple effect throughout the food supply chain, from farm to table. Food production, processing, distribution, and demand are increasingly major concerns due to recent supply chain issues. Food supply chain financial challenges due to COVID-19 restrictions on worker movement and consumer demand. Governments should therefore promote worker and agricultural product migration. Small farmers and the poor should also be financially assisted. To ensure employee health and safety, facilities must adapt to changing working conditions. Anti-price protectionist policies must be avoided. As the virus spreads, countries must adjust their policies accordingly. Flexible enough to respond to food supply chain challenges. This analysis will study food grain availability in India, assess the impact of COVID-19 on agriculture and food, and outline measures to mitigate the pandemic's impact.

Keywords: Food security, nutrition, food distribution, COVID-19, food supply

Introduction

Food, land, and water systems are facing unprecedented change. The world's population is projected to grow to approximately 10 billion people by 2050 while ageing and declining in some regions ^[1]. Global average incomes are expected to keep increasing at a slow but steady pace. With increasing incomes and the ability of consumers to purchase more and better food in combination with population growth, food demand is projected to grow substantially over the next three decades. Currently, humanity is approaching or exceeding planetary boundaries in some areas, with over-use of limited productive natural resources such as water and phosphate, net emissions of greenhouse gases, and decreases in biodiversity. This all is aggravated by continuous climate change. Much is published about food and agriculture, but no single source focuses regularly and systematically on the future of agriculture and food systems, particularly on the challenges and opportunities faced by developing countries ^[2].

Food and Nutrition Security Analysis

The Ministry of Statistics and Programme Implementation (MoSPI) and the World Food Programme have produced the Food and Nutrition Security Analysis, India, 2019 study, which analyses the available food and nutrition security information in India ^[3].

Food grain availability in India

Production and net availability: In the last 20 years, India's total food grain production has climbed from 198 million tonnes to 269 million tonnes. Wheat and rice are staple foods in India and account for a significant share of food grain production, accounting for around 75% of total food grain production and so providing a major source of income and employment for millions of people. In 1996, per capita net availability of food grains has increased from 475 to 484 gm / day in 2018, whereas per capita availability of pulses has increased from 33 to 55 gm / capita / day. Despite significant increases in rice, wheat, and other cereal output, per capita net availability, has not increased at the same rate due to population growth, food waste and losses, and exports. Uttar Pradesh is the leading producer of wheat, cereals, and food grains, followed by Punjab and Madhya Pradesh. West Bengal is India's 'rice bowl,' followed by Uttar Pradesh, Punjab, and Bihar ^[4].

Production Trends: Between 1996-1999 and 2015-18, the yearly growth rate for food grains was 1.6 percent. Maize grew at the fastest rate (5.9 percent), followed by pulses (2.4 percent), wheat (1.8 percent), cereals (1.6 percent), rice (1.4 percent), and bajra (0.9 percent) from 1996 to 1999. Annual growth rates for Jowar (-2.26 percent), tiny millets (-1.71 percent), and ragi, on the other hand, have decreased (-1.21 percent) [5].

Farm Productivity: In productivity, food grain yields have increased by 33% in the last two decades, they are still far below what is desired. According to the SDG India baseline report (2018), NITI Aayog has set a target for India to reach yields of 5,018 kg/hectare for rice, wheat, and coarse grains by 2030, up from the current combined output of 2,509 kg/hectare. While no Indian state or Union Territory (UT) has yet met this aim, the UT of Chandigarh is close to it, with current yields of 4,600 kg / hectare, followed by yields of 4,297 kg / hectare in Punjab [5].

Access to Nutritious Food

Food Spending: According to Engel's law, the share of income spent on food falls even while overall food expenditure increases. A larger share of total monthly food spending indicates poorer purchasing power and is connected to food access, hence it is a relative indicator of food insecurity. On average, people in India spend 49 percent of their monthly income on food in rural areas and 39 percent in urban areas. The poorest (30 percent) spend the most on food. In both rural and urban settings, the lowest 30% spend as much as 60% and 55% of their income on food, respectively [5].

Food Expenditure Trends: Between 1972-1973 and 2011-12, the share spent on food declined by roughly 33% in rural regions and 40% in urban areas, while non-food expenditure grew. Between 2004-05 and 2011-12, the share of food expenditure among India's poorest fell by 9% in rural and 8% in urban areas. Declining trends indicate that earnings have increased in both rural and urban areas, and that food is no longer the people's primary source of expenditure [6].

Nutritional Intake: The average per capita consumption of energy in rural areas is 1811 kcal / day, which is much lower than the Indian Council of Medical Research (ICMR) requirement of 2,155 kcal / day. Protein intake is 47.5 grammes per day, compared to the norm of 48 grammes per day, while the fat intake is 28 grammes per day, which is the same as the ICMR norm for rural India. In urban regions, per capita energy intake is 1,745 kcal / day, compared to the ICMR standard of 2,090 / day. Protein intake is 47 grammes per day, compared to a norm of 50 grammes per day, while the fat intake is 35 grammes per day, compared to a standard of 26 grammes per day. Current nutrient intake levels, such as energy and protein, were lower than the all - India average and daily minimum consumption required. Only fat consumption in rural and urban regions was equal to or more than the daily minimal need [5, 7].

Public Distribution System (PDS) and Nutritional Intake: The Targeted Public Distribution System (TPDS) has delivered a vital nutritional supplement to individuals in all Indian states. During 2011-12, the average per capita

PDS energy supplementation was 453 kcal / day in rural regions and 159 kcal / day in urban India. Protein supplementation through PDS has averaged 7.2 grammes per day in rural areas and 3.8 grammes per day in urban areas. PDS supplementation has averaged roughly 339 kcal / day for the poorest 30% of the population. It was discovered that the poorest 30% of households had a poorer capacity to get food, and as a result, despite PDS help, they were unable to meet the Recommended Dietary Energy (RDA) levels of energy and protein intake [4, 5].

Multiple Types of Malnutrition Prevalence in Children

The coexistence of any two or all three malnutrition measures: stunting, wasting, and underweight are referred to as a multiple burden of malnutrition. According to the NFHS-4 analysis, 6.5 percent of children under the age of five are stunted, wasted, and underweight, whereas 18.4 percent of children are both stunted and underweight, and 8.2 percent of children are both wasted and underweight. This research aids in identifying the most vulnerable sections of the population, where children suffer from numerous forms of malnutrition. The most frequent types of micronutrient malnutrition in the world are vitamin A, iron, and iodine deficiencies. The primary methods for dealing with these deficits on a wide basis are supplementation and fortification [6, 7].

The Socioeconomic Determinants of Childhood Malnutrition

Malnutrition: Just over half of children born to unschooled mothers are stunted, compared to 24% of children born to schooled moms with 12 or more years of education. The frequency of underweight in children born to uneducated mothers is 47 percent, compared to 22 percent in children born to educated moms. Malnutrition prevalence reduces steadily with increasing wealth by wealth quintile. Malnutrition affects Scheduled Tribes more than Scheduled Castes at the national level, with considerable variation between states. Stunting and increased sanitation have a substantial negative correlation [4, 6].

Recommendations are divided into three categories based on the three pillars of food security: availability, access, and use.

Recommendations to improve availability

Strengthened Safety Nets Programs: Across practically all states, the poorest population's daily per capita energy consumption is below RDA limits. As a result, improving the targeting efficiency of all food safety nets, particularly the Targeted Public Distribution System (TPDS), is critical to ensuring that the poorest are included. Furthermore, fortification of government-approved commodities under social safety net programmes, such as the introduction of fortified rice, can enhance nutritional outcomes, as it is a cost-effective approach to increasing micronutrient intake in low-income households. It is positive that a rice fortification pilot study is underway. There is evidence that a well-implemented Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) has resulted in significantly higher market earnings in rural areas. As a result, strengthening the MGNREGS is the greatest short-term policy choice for vulnerable landless labourer households [8, 18].

Dietary Supplementation Programmes: The Take-Home Rations (THR) provided through Anganwadi under the Supplementary Nutrition Programme (SNP) to children under three years of age and pregnant and breastfeeding mothers should be tailored to the local food patterns of each state. Priority should be given to locally suitable inventions for developing complementary foods. To alleviate vitamin deficiencies among beneficiaries, opportunities to fortify important commodities in THR should be investigated. At the time of THR distribution to each mother, key messages on nutrition and feeding should be conveyed [10, 11].

Mother and Child Care

According to NFHS-4 data, 62 percent of children aged 12 to 23 months are fully vaccinated. Out of the 36 states, seven have more than 80% of their youngsters properly immunized. Only 30% of pregnant women ingested IFA for at least 100 days in 2015-16, and only 21% received complete ANC during their pregnancies. Better performance in all of these areas has the potential to significantly enhance the nutritional status of the entire society [5].

Improving Water, Sanitation, and Hygiene Practices

Achieving India's SDG objective (NITI Aayog, 2018) for WASH by 2030 appears hopeful, thanks to targeted efforts by the Government of India through different programmes such as the Poshan Abhiyan and Swachh Bharat Mission. In 2015-16, over 90% of households had access to improved drinking water, and 40% had access to improved sanitation (NFHS-4). However, access to sanitation has improved significantly during the last four years [12].

Additional Recommendations

Monitoring Progress on SDG 2: While the government and other organizations are taking several steps to improve food and nutrition security, methods and indicators for tracking and monitoring progress are still insufficient to provide a clear picture of the country's progress toward meeting SDG 2 targets. This paper is an attempt to comprehend the current position of food and nutrition security in India and its constituent states. However, unless more disaggregated data with higher frequency is available, this may not be possible. The NITI SDG Index is a positive move in the right way. However, more comprehensive solutions that take into account all aspects of SDG 2 are also required [13].

Understanding of Consumption Patterns and Behaviors:

A more focused strategy based on observed food consumption patterns and mapping of locally available nutritious food items at the state level is an area that has not been sufficiently studied. This knowledge can then be utilized to promote balanced diets among vulnerable households.

Increased Use of Technology: Increasing the use of technology at all levels can improve the flow of information at all levels for the many pillars of food and nutrition security. Increased use of information technology at the production stage to help inform farmers on crops, rainfall, and soil health, particularly through tailored mobile apps and tools in local languages. This could also increase synergies among Kisan Call Centers, Krishi Mitras, and the m Kisan Portal. Similarly, enabling local Self-Help Groups

and Panchayats to use mobile apps will enable them to provide regular input on the operation of food-based safety net initiatives. Furthermore, the application of technology has the potential to provide stronger policy coherence and coordination across food systems, agriculture, and nutrition [14].

The Covid-19 crisis and food security

In consequence of the Covid-19 crisis, India enforced one of the strictest national locks in the world. It resulted in millions of job losses and lower earnings for those who remained in the workforce. As purchasing power plummeted and limits persisted, the economic crisis endured long after the national lockdown. In addition, most states closed schools and Anganwadi (childcare facilities) for the majority of 2020, causing significant disruption to public services, including nutrition. According to the official Health Management Information System, non-Covid health services were also substantially curtailed during and after the lockdown, with coverage for maternity care, child vaccination, and outpatient attendance falling to barely 80%, 74%, and 53%, respectively (HMIS). These setbacks are only partially overcome by relief activities. Between April and November 2020, the PDS doubled food grain rations; MNREGA employment grew by approximately 50%, and some cash transfers were made to old-age pensioners and women's Jan Dhan Yojana (JDY) account. Some state administrations supplemented the national package with relief measures (Khera and Malhotra, forthcoming). Most households lost money as a result of the shutdown and the accompanying economic disaster. JDY is an Indian government initiative to increase citizens' access to financial services such as bank accounts, remittances, and insurance. Some components of the nationwide lockdown (such as school and Anganwadi closures) remained long into June. But April-May 2020 is still a good benchmark for a full-blown countrywide lockdown. The decline of paid work options for women was accompanied by an increase in domestic duties, presumably due to more family members staying home. The growth of MNREGA employment in 2020 appears to have benefited women more than males because they had fewer options [5, 15]. A continuing study based on a survey of informal-sector employees in January-March 2021 confirms this. The NFSA mandates that the PDS cover at least 75% of the rural population and 50% of the urban population. These national ratios have been adjusted by the state to guarantee that poorer states have higher PDS coverage (for example, 86 / 60 in rural / urban Jharkhand). Some states have provided ration cards not covered by the NFSA. The Food Security Act of Chhattisgarh is nearly ubiquitous in rural regions [15].

Several efforts are necessary to ensure the agricultural sector and supply chains continue to operate smoothly [16, 17].

1. The government accurately published lockdown rules, exempting farm activities and supply networks. However, implementation issues that contribute to labour shortages and price declines should be addressed.
2. Maintaining healthy supply chains is critical for food security. It should be remembered that the Bengal famine of 1943 killed between 2 and 3 million people

as a result of food supply problems, not a shortage of food.

3. Farm communities must be secured against the

coronavirus to the greatest extent possible through testing and social isolation.

4. Farmers must maintain market access. This might include both private and public marketplaces.
5. Small poultry and dairy farmers require more focused assistance due to the urgency of their pandemic-related input supply and market access issues.
6. Farmers and agricultural employees should be included in the government's assistance package and any crisis-related social protection measures.
7. As lockdown measures have become more severe, demand for home delivery of groceries and E-commerce has soared. This is a trend that should be fostered and pushed.
8. By avoiding export prohibitions and import restrictions, the government should stimulate trade.
9. Food inspectors across the country were tasked with ensuring the safety of perishable food like meat, vegetables, and fruits to protect consumers' health.
10. Economic stimulus initiatives have been approved to safeguard lives and livelihoods. The first relief package, worth USD 22.6 billion, was designed to create a safety net for the most vulnerable, followed by a second economic stimulus programme, worth USD 13 billion, designed to boost small and medium-sized businesses in agriculture and food.
11. Public-private partnerships at various levels are effective. This collaboration will help policymakers to strengthen the involvement of multiple stakeholders in the food system to protect vulnerable groups' lives.
12. Technological innovations, such as food delivery software, enabled the government to reach out much more effectively to the localized. As a result, effective food systems are ensured, hence reducing hunger.

Conclusion

During this pandemic, it is critical to maintain the flow of supply in the agriculture and food sectors, which are two of the most crucial sectors, along with health, to avoid a food crisis and reduce the negative impact on the global economy. Even though no serious difficulties have been found in food supply systems thus far, the future remains unpredictable. As a result, each country must recognize the gravity of the situation and, depending on the development of the pandemic, may need to tighten or ease its controls. The supply chain should also be adaptable. COVID-19 presents an unusual difficulty for India; the country's enormous population and reliance on informal work make lockdowns and other social distancing measures extremely disruptive. The federal and state governments have identified the threat and responded aggressively, but this should just be the beginning. India must be prepared to scale it up as events develop, mitigating the economic consequences through increased public programme support and measures that keep markets operating respond to issues in the food supply chain.

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