



FOOD SECURITY IN INDIA: FROM FOOD AVAILABILITY TO NUTRITION SECURITY—A PUBLIC HEALTH REVIEW

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ABSTRACT

Food security is not established by food supply alone: households must also be able to obtain suitable foods and use them in ways that support health. In India, grain production and public food distribution have helped protect access to staples, yet diet quality remains shaped by income, prices, unequal household resources and environmental disruption. This narrative review considers the four dimensions of food security and examines the roles of NFSA, ONORC, POSHAN 2.0 and PM POSHAN. The literature suggests that grain entitlements provide an important safety net, but cannot independently secure dietary diversity or adequate micronutrient intake. A public-health approach therefore needs to connect food access with nutrition services, fair allocation within households and resilience to climatic and economic shocks (World Bank, n.d.; Das et al., 2025; Government of India, 2013). Multiple indicators are needed to distinguish access problems from nutritional outcomes.

KEYWORDS : Food Security; Food Insecurity; Nutrition Security; Climate Change

INTRODUCTION

Food security is a public-health concern because national production figures do not show whether every household can obtain an adequate diet. The concept includes access to food, the ability to benefit from it nutritionally, and continuity of access when circumstances change (World Bank, n.d.; World Health Organization, 2024). A country may produce sufficient food while some people remain constrained by low income, high prices, social disadvantage or diets with limited variety (Drewnowski, 2022; Gillespie & van den Bold, 2017).

In India, cereal production and the public distribution system have helped buffer households against shortages of staple grains. These protections do not remove all barriers to nutrition: the foods people can afford, market conditions, household decision-making and everyday food practices also matter (Government of India, 2013; Harris-Fry et al., 2017). This review examines the links between food-system supply, household access, dietary quality and health.

The review treats food security as a chain of connected conditions rather than a synonym for food production.

Methodology of the Narrative Review

This narrative review drew on PubMed and reports or webpages from WHO, FAO, UNICEF, the World Bank and the Government of India. The search focused on material published from January 2010 through September 2026, with earlier sources retained where they established core concepts. Search terms included food security, nutrition security, India, food insecurity, dietary diversity, climate change, food prices, gender and social protection. Sources were selected for relevance to the review questions and to Indian policy and public-health practice. The review was not designed as a systematic review: formal risk-of-bias assessment, duplicate screening and meta-analysis were not performed.

Concept and Dimensions of Food Security

Four dimensions are commonly used to describe food security. Availability concerns whether food is present through production, stocks, trade or distribution. Access asks whether people can physically obtain food and afford it. Utilization concerns food safety, diet quality and the body's use of nutrients, which are affected by health and care. Stability refers to whether availability, access and utilization can be maintained over time, including during shocks (World Bank, n.d.). These dimensions help connect food-system conditions

with household experience and nutrition outcomes (Gillespie & van den Bold, 2017).

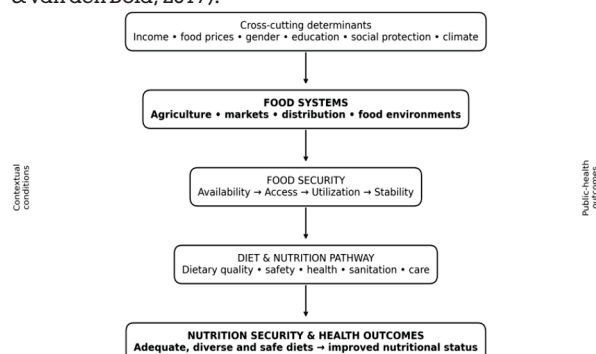


Figure 1. Conceptual Pathway Linking Food Systems, Food Security and Nutrition Security in India.

Determinants of Food and Nutrition Security

Household resources and the cost of food influence the range of diets people can sustain. When prices rise faster than earnings, families may reduce variety or substitute less costly foods, even if staple calories remain available (Headey et al., 2024). Education and nutrition information can inform choices, but information alone cannot compensate for insufficient purchasing power. Social-protection measures may soften shocks; their effects depend on eligibility, accessibility and reliable delivery (Gillespie & van den Bold, 2017).

Food is not always shared equally among household members. Who controls money, makes purchasing decisions or provides care may affect the type and quantity of food received by different people. A South Asian review found that allocation patterns vary with gender and socioeconomic circumstances, cautioning against treating household-level access as proof that every member has equal dietary access (Harris-Fry et al., 2017).

Climate Change and Food–Nutrition Security

Climate-related pressures can affect several parts of the food system at once. Heat, irregular rainfall, drought and floods may disrupt crops, livestock, water supplies and livelihoods, while associated price changes can make nutritious foods harder to afford. Households with fewer savings or fewer livelihood options generally have less room to adapt (Das et al., 2025; Gupta & Pathak, 2016). When budgets are tight, a

price shock can lead families to protect calorie intake by narrowing the foods they buy (Headey et al., 2024).

The nutritional implications of climate change may involve food composition as well as harvest size. Research on elevated carbon dioxide reports changes in the concentrations of some minerals in certain crops; the size and relevance of effects vary by crop and conditions (Loladze, 2014). This evidence supports monitoring diet quality and crop composition alongside production and affordability, rather than assuming a uniform nutritional decline (Das et al., 2025).

Millet, promoted in Indian policy under the name Shree Anna, provide one example of how agricultural resilience and nutrition goals can intersect. The 2023 International Year of Millet increased their visibility, but greater promotion alone does not ensure better diets. Their contribution depends on price, local supply, cultural acceptance and how they fit within varied meals. They should complement—not replace—broader action on affordability and dietary quality (Das et al., 2025; Ministry of Women and Child Development, n.d.).

Major Food and Nutrition Security Programmes in India

National Food Security Act (NFSA), 2013. The Act establishes entitlements to subsidized food grains for eligible groups and is a central instrument for protecting access to staple cereals (Government of India, 2013). This is an important safeguard against food shortages, but cereal entitlements do not automatically provide a varied diet or adequate micro-nutrients; complementary nutrition and health measures remain necessary.

One Nation One Ration Card (ONORC). Portability allows eligible beneficiaries to access ration entitlements away from their registered location, which can help people who migrate for work. In practice, its value depends on awareness, functioning authentication and connectivity, and accessible fair-price shops (Department of Food and Public Distribution, Government of India, n.d.).

Saksham Anganwadi and POSHAN 2.0. Anganwadi-linked services include growth monitoring, nutrition counselling and coordination across relevant services for eligible groups (Ministry of Women and Child Development, Government of India, n.d.). Programme impact depends not only on the design of the platform but also on regular service delivery, adequate inputs, staff capacity and community reach.

PM POSHAN. School meals can add to children's food intake and may support participation in schooling. The nutritional value of the programme depends on menu composition, meal safety, consistency and local implementation—not simply on whether a meal is listed as provided (Ministry of Education, Government of India, n.d.).

Measurement: Complementary Indicators

Different indicators answer different questions. The prevalence of undernourishment (PoU) estimates the proportion of a population experiencing habitual dietary-energy inadequacy; the Food Insecurity Experience Scale (FIES) captures reported experiences of constrained access to food. Child stunting and wasting describe nutritional outcomes and are also shaped by illness, care and living conditions. The Global Hunger Index (GHI) combines several population-level indicators and should not be read as a direct measure of an individual household's food access (Food and Agriculture Organization of the United Nations, n.d.-a, n.d.-b; Global Hunger Index, 2025).

Table 1. Complementary Indicators Relevant to Food Security and Nutrition Security.

Indicator	What it captures	How to interpret it
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Prevalence of Undernourishment (PoU)	Estimated population share with habitual dietary-energy intake below requirements.	Describes chronic energy inadequacy at population level; does not describe overall diet quality.
Food Insecurity Experience Scale (FIES)	People's reported experiences of difficulty accessing sufficient food.	Shows perceived access constraints and should be read alongside other indicators.
Child stunting and wasting	Anthropometric outcomes associated with chronic and acute undernutrition, respectively.	Reflect nutritional status; diet, infection, care and living conditions can all contribute.
Global Hunger Index (GHI)	Composite of undernourishment, child wasting, child stunting and child mortality.	Supports broad population comparisons but does not diagnose household food insecurity.

The 2025 Global Hunger Index assigns India a score of 25.8, classified as serious. The index combines undernourishment, child wasting, child stunting and child mortality, making it useful for broad comparisons and contextual discussion. It cannot, on its own, identify which households lack food or explain the local causes of food insecurity (Global Hunger Index, 2025).

DISCUSSION

The reviewed evidence points to a distinction with practical consequences: dependable access to staple foods is essential, but it is not equivalent to nutrition security. Distribution systems can protect a minimum level of cereal consumption; a nutritious diet also requires affordability, diversity, safe food and access to services that support nutritional well-being (Government of India, 2013; Gillespie & van den Bold, 2017).

The Indian programmes discussed here serve related but different purposes. NFSA provides the legal basis for subsidized grain entitlements, while ONORC makes those entitlements more portable for eligible migrants. POSHAN 2.0 and PM POSHAN connect nutrition support with Anganwadi services and school meals, respectively. These measures can reinforce one another, but their contribution depends on coverage and implementation, and none should be treated as a complete substitute for the others (Department of Food and Public Distribution, Government of India, n.d.; Ministry of Education, Government of India, n.d.; Ministry of Women and Child Development, n.d.).

Household-level averages may conceal unequal access among members. Gendered control of resources can shape diet, and market or climate shocks can be hardest on families with limited capacity to absorb additional costs (Harris-Fry et al., 2017; Das et al., 2025). Monitoring should therefore consider who can obtain nutritious food, not only how much food is available nationally.

Taken together, the sources support assessing food security through several connected lenses: supply, affordability, reported access constraints and nutrition outcomes. No single indicator represents all these dimensions, so results should be interpreted according to what each measure was designed to capture (Food and Agriculture Organization of the United Nations, n.d.-a, n.d.-b; Global Hunger Index, 2025).

Public Health Implications and Way Forward

Public-health planning should link food entitlements with

nutrition services and social protection rather than treating these as separate agendas (Gillespie & van den Bold, 2017; World Bank, n.d.). Useful priorities include tracking food affordability and dietary diversity; improving coordination among food, health, education and nutrition services; identifying barriers that affect women and other household members unequally; and incorporating climate risks into local food-system planning. Shree Anna and other locally appropriate nutrient-rich foods may contribute where people can afford and accept them.

CONCLUSION

India's food-grain distribution system provides an important foundation for protecting access to staples. Yet nutrition security also depends on whether households can afford varied foods, use them safely, share them equitably and maintain access during economic or climatic disruption. Linking food policy with public-health services, nutrition programmes and context-sensitive resilience measures offers a more complete route from food supply to improved nutritional outcomes (Das et al., 2025; Drewnowski, 2022; Headey et al., 2024; Gillespie & van den Bold, 2017).

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