



## Impact of COVID-19 on Childhood Malnutrition in India and the North-Eastern States

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### Abstract

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**Abstract:** It is expected that the COVID-19 pandemic will increase the risk of all forms of malnutrition. Since the period of this crisis is unknown, and its full impacts on food, health, and social protection systems are yet to be realized. With the global concern regarding the status of India and along with one of the most malnutrition burdened states in the north-eastern part of India, Assam, it is a big-time to “think local with the locals”. Assam with its long history of early childhood malnutrition crisis since generations needs a rapid change in the implementation of the malnutrition mitigation programs. Without adequate action, the profound impact of the COVID-19 pandemic on early life nutrition could have intergenerational consequences for child growth and development and life-long impacts on education, chronic disease risks, and overall human capital formation.

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### Keywords:

Malnutrition;  
Food Security;  
Acute Respiratory Infections;  
Sustainable Development Goals;  
National Food Security Act.

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## Introduction:

The COVID-19 pandemic has set severe derailing development gains in several nations. It compounded pre-crisis levels of food insecurity and malnutrition with job losses, supply chain disruptions, and declines in revenue from key exports and remittances to the home countries. Adding to the disparate situation, common natural hazards in the region, such as drought, floods, landslides and storms have also affected the supplies in some places which in return has created further pressure on food security. International conflict and insecurity across the borders within regions to counties also compounded the risk of hunger in some countries especially in Asia and the Pacific. Restrictions in the movement have further exacerbated the issue.

The most badly hit are the slum-dwellers, informal labourers and low-paid daily wage workers from affected sectors like tourism and export industries are among those most at risk of hunger and malnutrition due to income loss. Many governments across have taken prompt actions by launching short-term emergency relief programs to reduce the human, social and economic pain inflicted by COVID-19, but very few of these affected groups have access to national social protection systems. Due to the pandemic, the short-term risks for the food supply chain include demand uncertainty, uncertain input availability, labour shortages, plant shutdowns and slowdowns, unavailability of freight and logistics, bottlenecks at ports and warehouses, storage facility shutdowns or limited storage capacity.

As a result of which, globally, the World Food Program(WFP) predicts that the number of people facing acute food insecurity around the world will almost double to 270 million, including 121 million newly food insecure due to COVID-19. For India, the projected GDP growth for the fiscal year-2020 by the International Monetary Fund (IMF) and World Bank are 1.9% and 2.8% respectively [2].

## 1. Objective:

The main interest of this paper is to understand the impacts of COVID-19 on childhood malnutrition and nutrition-related mortality in India and its northeastern states. To understand the aforementioned objective it is also required to find out the pre-COVID-19 malnutrition status of children in India and its northeastern states. Then to figure out the changes that took place both positive and negative in the last twenty-five years considering the inception of plenty of childhood malnutrition eradication initiatives by the government and international bodies. With these pieces of information, we will deep dive to find out that northeastern state which is mostly

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affected by malnutrition and the effects of COVID-19 on that specific northeastern state. Also, we will find out how sustainable development goals(SDGs) to eradicate malnutrition in this state is pushed back in comparison with the set targets by global malnutrition eradication bodies.

## 2. Literature Review

### 3.1 India and its malnutrition

Adequate nutrition is essential for human development. Malnutrition includes both under nutrition as well as over-nutrition and refers to deficiencies, excesses or imbalances in the intake of energy, protein and/or other nutrients. Benefits of good health are perceived not only at the individual level but also at the level of society and country-level as well. The health of an individual is determined by an interplay of various factors like social factors, economic factors, dietary factors, lifestyle-related factors, environmental factors, government policies and political commitment, etc. [4]. According to a UNICEF report, the coronavirus pandemic has disrupted optimal care for children, especially those who are malnourished and dependent on state help. The report mentioned that the outbreak may deepen the problem of malnutrition in the country, with massive disruptions in continuity of food availability and livelihoods as anticipated. Malnutrition impacts a child's immune system, making them more vulnerable to infections. Several children in India die because of many other infectious diseases that are directly linked to malnutrition. With the lack of food during the lockdown, the malnutrition rate is going to increase and ultimately the children would be more vulnerable to Covid-19.

Adequate nutrition is critical to child development. The period from birth to two years of age is important for optimal growth, health, and development. At this age, children are particularly vulnerable to growth retardation, micronutrient deficiencies, and common childhood illnesses such as diarrhea and acute respiratory infections (ARI).

Malnutrition in women and men can result in reduced productivity, slow recovery from illnesses, increased susceptibility to infections, and a heightened risk of adverse pregnancy outcomes [6].

### 3.2 North-Eastern States and its malnutrition status

The malnutrition status of northeastern states of India is quite alarming. According to the India Health Report Nutrition, jointly prepared by Public Health Foundation of India (PHFI) and the International Food Policy Research Institute (IFPRI), 2015, 42.9 per cent of the total children under the age of five in Meghalaya are stunted, while 40.6 children in Assam are found to be undersized. The rates are above the national average rate of 38.7 per cent. Malnutrition is a



multidimensional problem. And the main determinants of malnutrition are (i) stunting (ii) wasting and (iii) under-weight. Stunting is the inadequate height for age, which is indicative of chronic or cumulative nutritional deprivation in early childhood. Wasting is an inadequate weight for height, which points to acute or short-term malnutrition and underweight refers to low weight according to the age of an individual. With the proper knowledge of the determinant of malnutrition, the facts and figures of the seven sister states are distressing. Mizoram has recorded a 13 percentage-point decline in stunting with 26.9 per cent children under the age of five are found to be stunted in 2014 against 39.8 in 2006. The stunting rate in Manipur is 33.2 per cent, Tripura 31 per cent, Nagaland 29.1 per cent, Arunachal Pradesh 28.4 per cent and Sikkim 28 per cent.

Arunachal Pradesh recorded more number of wasted children (17 per cent) than other states of the Northeast. The national average of wasted children is 19.8 per cent. Mizoram recorded 14.3 per cent in wasting rate, Meghalaya 13.1, Nagaland 11.8, Assam 9.7, Manipur 7.1 and Sikkim recorded 5.1 per cent. The report reveals that the northeastern states also have a good number of underweight children. Mizoram's share in the total number of underweight children in the country is 1 in 32, Arunachal Pradesh's 1 in 83, Assam's 1 in 40, Manipur's 1 in 52, Meghalaya's 1 in 53, Nagaland's share 1 in 40 and Tripura's 1 in 88. Arunachal Pradesh recorded more number of child marriages in the Northeast. According to the report, 52.5 per cent women aged from 20-24 years were married before the age of 18 years in Arunachal Pradesh, 32.5 per cent in Assam, 22.9 per cent in Manipur, 23.3 per cent in Meghalaya, 9.1 per cent in Mizoram, 10.4 per cent in Nagaland and 40.8 per cent women in Tripura. The report cites open defecation and inadequate hand washing as reasons for poor health among children, leading to malnourishment. Tripura and Mizoram in the Northeast successfully have addressed the issue of open defecation.

The lack of education among married women also adds to the malnourishment of their children. Manipur has more women having 10 or more years of schooling. The report reveals that 38.5 per cent married women in Manipur have 10 or more years of schooling, while it is 21 per cent in Arunachal Pradesh, 18 per cent in Assam, 21.1 per cent in Meghalaya, 32.5 per cent in Mizoram, 24.9 per cent in Nagaland and 25.1 per cent in Tripura.

### 3. Methodology:

One of the metrics to measure the malnutrition is known as DALY. DALY is a scientific procedure, as defined by the World Health Organisation (WHO). One DALY can be thought of as one lost year of "healthy" life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and



disability. According to the research paper [1], “Impacts of COVID-19 on childhood malnutrition and nutrition-related mortality” MIRAGRODEP’s macroeconomic trend has projected an increase in wasting in each country is combined with a projected year average of 25% reduction in coverage of nutrition and health services. MIRAGRODEP is a global Computable General Equilibrium (CGE) model based on MIRAGE (Modelling International Relations under Applied General Equilibrium). As a global CGE, MIRAGRODEP provides a rich set of indicators for a particular region, which allows one to measure the impact of any policy changes on macroeconomic aggregates and inequality indicators. Such indicators include: change in production, production factor uses, real wages, value-added by sector, real GDP, real income, exports, terms of trade, land-use changes, calories consumption and production per capita, and poverty headcounts. As per the report, Sustainable Development Goals (SDG) as mentioned in [3] Global malnutrition eradication concerning bodies are mainly focusing by 2030, on ending hunger and achieving food security by improving nutrition and by promoting sustainable agriculture globally. As aforementioned, it targets by 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and elderly and indicators are primarily prevalence of stunting, wasting and overweight among children under 5 years of age.

#### 4. Discussion and Analysis:

All the data has been collected based on the malnutrition status as mentioned in the National Family Health Survey (NFHS) reports 2, 3 and 4 published in the years 1998-99, 2005-06, 2015-16 respectively. From all the NFHS reports it is observed that the worst childhood malnutrition affected the northeastern state is Assam. The state of Assam has a considerable percentage of its population under the poverty line and its marginalized population solely depend upon food entitlements mandated under The National Food Security Act (NFSA), 2013. Despite numerous features which could set it on the upward trajectory of development, Assam does not have shown much improvement in its health and nutrition indicators. With 36.4% of children under 5 years of children stunted, Assam continues to be one of the bottom five states of the country and the only state in the northeast. Various studies suggest that a 1% loss in adult height due to stunting contributes to a 1.4% loss in productivity and stunting may reduce IQ by 5-11 points.



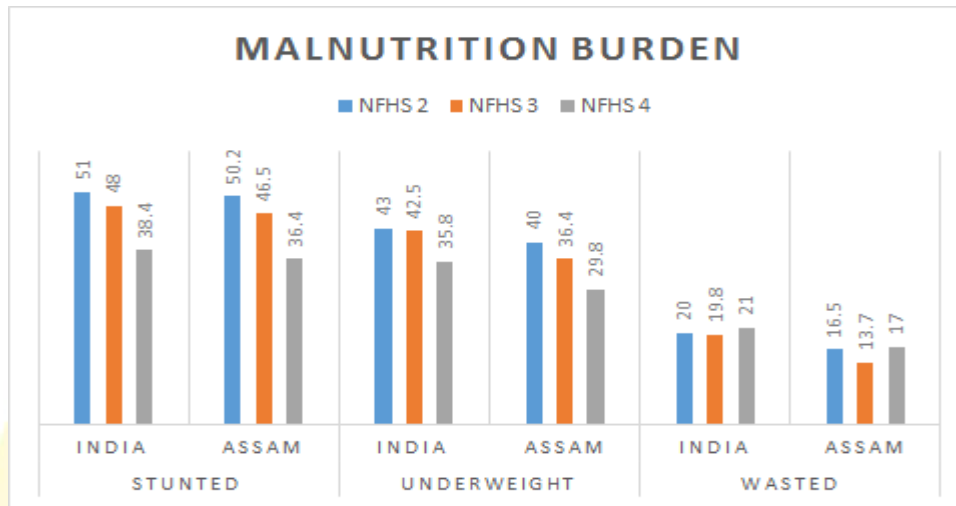


Fig 1: Malnutrition burden comparison among India and Assam (Source: NFHS reports).

Figure 1 represents the malnutrition burden of Assam and India as a nation as a whole for the period of the last twenty years as reported in the respective NFHS reports. The Global Nutrition Report 2018 also reaffirmed the crisis of malnutrition in the nation by concluding that India topped the list of the most number of stunted children with 46.6 million children being recorded as having low height for their age.

Since the last NFHS was conducted in the year 2015-16 and to understand the pre-COVID-19 malnutrition status of India and Assam we referred to “State-Level Trends of Malnutrition Burden and its Indicator” [5], a report published on September 2019 by Indian Council of Medical Research (ICMR), Public Health Foundation of India (PHFI) and Institute for Health Metrics and Evaluation (IHME), in collaboration with the Ministry of Health and Family Welfare. This report helped us to understand the state-wise malnutrition burden in India specific. Among the north-eastern states, Assam performed the worst in the malnutrition measuring metrics. Assam with the lowest population of the four states, where for every one lakh under-five children there are sixty thousand or more children in the malnourished category. Hence the facts and the figures are quite disturbing because in the other way only forty or less than forty per cent of the children are nourished.

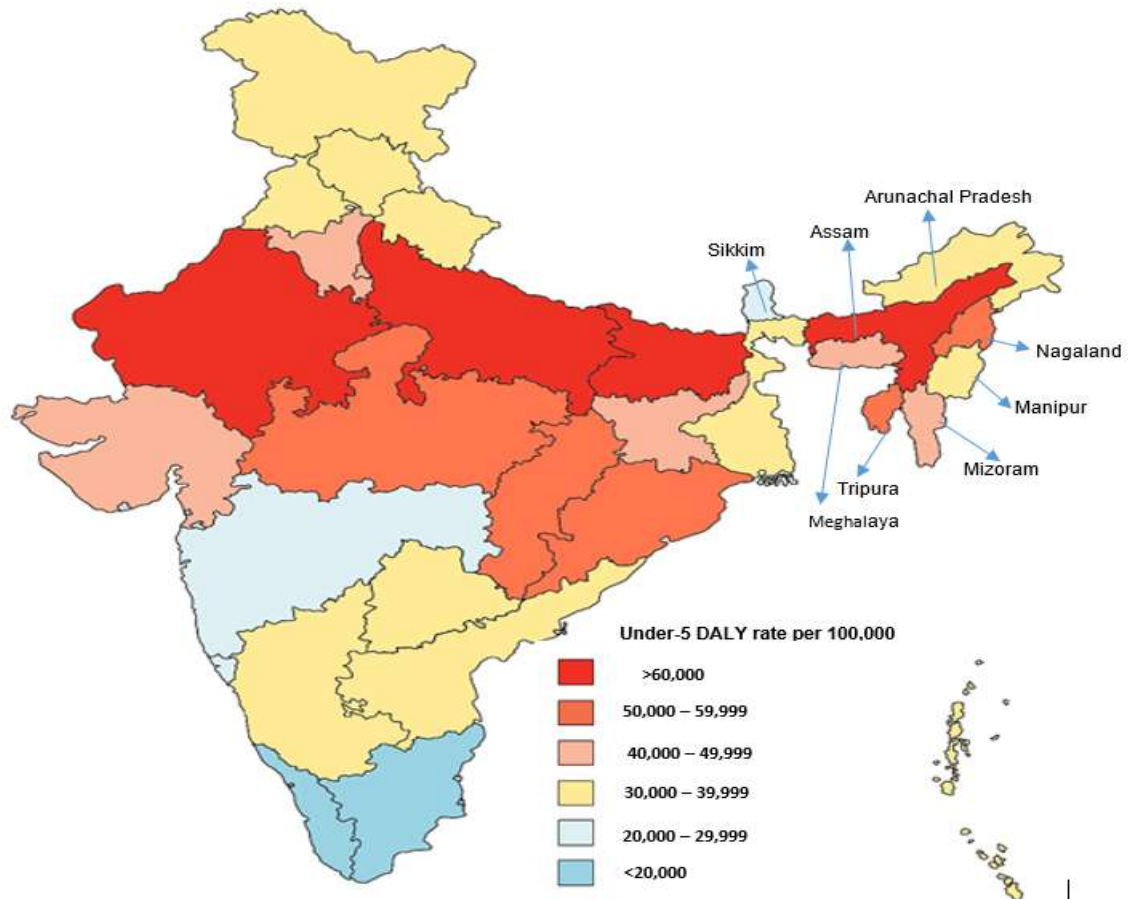


Fig. 2: Variation between the states in DALY rate. (Source: Malnutrition Burden Indicator Report, 2019).

The first documentation of the NFHS started in the year 1992-93, followed by sequential reports and solutions to mitigate the major concern of malnutrition across all the states in India. But even after implementing many malnutrition eradication programmes, the recent NFHS-4, 2015-16, was able to capture a minute positive trend on malnutrition. In India, there are four states whose malnourished population is the same as the population of the United Kingdom. Assam in the northeast is one of these four states. And due to its reachability, literacy, awareness, availability of health care centers, Assam is bound to carry the burden of childhood malnutrition for the next several generations. Adding to the concern, COVID-19 will support the state of Assam to fall



back more and more on the vicious cycle of childhood malnutrition until and unless proper measures, initiatives and specialized plans are executed on the land.

In addition to the schemes such as Mid- Day-Meal (MDM), Integrated Child Development Services (ICDS), Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN), a localized solution such as school kitchen gardens, establishing community health centers, incorporating nutrition awareness curriculum in the school levels, encouraging local and organic farming by giving agricultural and animal husbandry loans with a low rate of interest. In the apprehended programs of community enhancement and awareness initiatives to mitigate childhood nutrition, the best possible way to execute is to “think local with the locals.”

### 5. Result:

As per “State-Level Trends of Malnutrition Burden and its Indicator”[5], a report published in September 2019, the National Nutrition Mission 2022 and WHO/UNICEF 2030 aims at a major decrease in malnutrition burden.

Indicator	National Nutrition Mission 2022 targets	WHO/UNICEF 2030 targets
<i>Child stunting</i>	Prevalence of 25% by 2022	50% drop in the number of children under-5 who are stunted: 2012-2030
<i>Child underweight</i>	2% decrease points prevalence annually: 2017-2022	
<i>Child wasting</i>		Prevalence of less than 3% by 2030

Table1: NNM 2022 and WHO/UNICEF 2030 Targets for Malnutrition Indicators.





Due to the emergence of COVID-19, all the malnutrition eradication programmes such as Integrated Child Development Services (ICDS), Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN), Mid-Day Meal (MDM) has been interrupted for the last 7 months which has and will adversely affect the childhood malnutrition and nutrition-related mortality. With context to the current reality trend in India and around the globe, as projected by MIRAGRODEP's macroeconomic trend, there is an increase in wasting in each country which combined with a projected year average of 25% reduction in coverage of nutrition and health services. The average 25% reduction in the nutrition and health services coverage eventuated due to the disruption in the food supply chain. MIRAGRODEP's macroeconomic trend also projected that the impact of COVID-19 on the will be adverse on the nations who fall under the category of most malnourished countries across the world. Facts and figures to be believed India tops the list of the most malnourished countries in the world. This will in return jolt the targets to eradicate malnutrition for another half a century or more especially in the context of the north-eastern states of India.

## 6. Conclusion:

The disruption of food and health services during lockdowns will further compromise maternal and child health and mortality. And with the deepening of economic and food systems crises, other forms of malnutrition, including child stunting, wasting, under-weight, micronutrient malnutrition, and maternal nutrition, are expected to increase. With the disruption in the malnutrition eradication program across the country the severely affected states especially Assam due to its far-flung terrain geographical location, it needs special initiatives to uproot the childhood malnutrition crisis. As one of the major challenges to Assam is reachability along with illiteracy and no proper nutrition awareness among the people, it is highly recommended to start working with all generations starting from incorporating holistic education on nutrition awareness from elementary to higher secondary students. Encouragement to kitchen garden plantations at schools to educate the community on handling community kitchen which will provide nutritious meals at a nominal charge. To successfully execute the initiatives government must join hands with more and more non-government organisations (NGOs), individuals as well as accept innovative ideas and set up educational centers to culture the several solutions to this vicious generation encroaching problem of malnutrition.



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