Health systems and nutrition in the time of COVID-19

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Abstract

As infection rates rise, job losses increase and workers leave cities to walk back home, and there is a silent hunger and nutrition crisis striking the country. Those who will bear the brunt of this are the already vulnerable—namely, children, adolescent girls, nursing and expectant mothers—now denied even basic calories. Among these are some who are also suffering huge weight losses because of the 15 days of high fever. This tragedy will play out in various horrifying ways in the future and must be addressed with urgency. Our stimulus package promises loans, which will take time to reach the poor, and a meager ration of cereals and pulses, while hunger and insufficient nutrition are immediate problems as Raghuram Rajan pointed out recently.

Keywords Health · Nutrition · Poverty · Hunger · COVID19

Introduction

COVID-19 exacerbated an already challenged health and nutrition environment

Ever since our poor nutrition status was highlighted yet again in the HUNGaMA report and termed a national shame in 2012 by the then Prime Minister,¹ we have seen some improvement in a few indicators, though India continues to rank 102 out of 117 countries globally on human development. Over the last 16 years, after the District Level Health Survey in 2004 showed that 53% of children in India's worst affected 100 districts were underweight, there has been a steady decline in these numbers as initiatives were taken to address it. Poshan Abhiyan—initiated about 4 years ago, also created some focused initiatives—most

¹ <https://www.livemint.com/Politics/5v8PgCfRwqbbXffYAq8fPL/Malnutrition-problem-a-national-shame-PM.html>.

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of which have been put on the back burner in the context of COVID-19 and its demands on resources, people and systems.

The 8 months since March 2020 with massive increases in dislocation, unemployment and impoverishment, seem to have caused significant reversals in the progress achieved. Most surveys done in India during the lockdowns show that up to 70% of respondents report food distress.² This COVID-19 outbreak is expected to double food insecurity in 2020, if an immediate response is not developed (FAO, IFAD, UNICEF, WFP and WHO 2020). The number of people facing acute food insecurity globally has increased from 135 million in 2019 to 265 million in 2020, after the coronavirus outbreak (Food Security Information Network and Global Network against Food Crises 2020).

What is even more serious is that the number of undernourished people in the world has increased by approximately 60 million in the last 6 years, with the total in 2019 at 687.8 million. If not arrested, FAO projects that by 2030, the world will have 841 million undernourished people. The enigma continues to be poor nutritional outcomes, particularly in emerging economies like India³ even in the context of several years of robust economic growth.⁴ The fever accompanied by loss of smell and taste also contributes to incremental weight loss and therefore will further worsen the condition of those already malnourished.

With the novel coronavirus taking a heavy toll on populations and economies, global health action has focused on containing the spread of the virus and dedicating resources and effort toward an effective vaccine at the earliest, in addition to various symptomatic treatment drugs. While exposing glaring inadequacies in existing healthcare systems in developed and developing countries alike, the pandemic also threatens to wipe away years of progress in reducing malnutrition and the control of deadly diseases such as AIDS, malaria, dengue and tuberculosis.⁵ Additionally, patients suffering from malnutrition, rare diseases, cancer and other acute and chronic non-communicable diseases (NCDs), have suffered additionally due to delays and disruptions in their treatment and diagnoses. Elective procedures have been postponed, thereby delaying healthcare to patients and cash flows to health care providers.

² <https://southasia.ifpri.info/2020/07/13/lockdown-and-rural-distress-highlights-from-phone-surveys-of-5000-households-in-12-indian-states/> Accessed Oct 12, 2020.

³ “India’s rising GDP has had little impact on food security and the nutrition levels of its population. Per capita availability as well as consumption of food grains has declined; the cereal intake of the bottom 30% of the population continues to be much less than that of the top two deciles of the population, despite the latter group’s better access to fruits, vegetables and meat products; the calorie consumption of the bottom half of the population has been consistently going down since 1987; the percentage of undernourished stunted children was as high as 39% in 2014; and more than half of India’s women and three-quarters of its children are anaemic, with little decline in these estimates in the past eight years, resulting in maternal mortality and underweight babies.” Saxena (2018). Hunger, under-nutrition and food security in India. In *Poverty, Chronic Poverty and Poverty Dynamics* (pp. 55–92). Springer, Singapore.

⁴ Nie et al. (2019).

⁵ <https://edition.cnn.com/2020/07/06/health/death-toll-other-diseases-pandemic-coronavirus-wellness/index.html> Accessed 10 Oct 2020.

Health systems at risk

Much before the corona virus pandemic, India's healthcare system was reeling under the triple burden of disease controlling infectious diseases, growing incidence of non-communicable diseases, as well as a rising wave of drug-resistant pathogens. India is now the third most COVID-19 affected country globally, accounting for 9.2 million recorded cases and over 142,000 deaths, as on the 23rd of November, 2020. The perceived risk of visiting a healthcare facility during the pandemic, as well as restrictions on movement during the lockdown caused an effective decline in preventive screening as well as routine management of disease.

With public health screenings and immunization drives being postponed to avoid large gatherings, the fight against NCDs and vaccine-preventable diseases such as polio, measles, diphtheria, whooping cough and mumps has been affected. Interventions targeted at controlling vector-borne diseases like chikungunya, malaria and dengue have also been delayed. With maternal and family healthcare services adversely impacted, the risk of unwanted pregnancies and maternal and infant deaths has increased substantially. The pandemic is likely to reverse two decades of India's gains in maternal mortality rates.

Despite having the largest global burden of tuberculosis and more than 1400 TB deaths a day, and with nearly 40% of the population being infected,⁶ notifications of incidence of TB across India dropped by over 50 percent since March,⁷ with an estimated 300,000 missed cases recorded until May 30. Fears over the rise of multidrug-resistant tuberculosis have been raised as restricted mobility and mass exodus of migrants interrupted the treatment regimen of several patients. Mobilization of ventilators and beds for COVID-19 patients has negatively affected critical TB patients as well.⁸

It's not only the COVID pandemic and its impact on health that is responsible for these increases, but also the shutting down of schools, internal conflicts, climatic unpredictability and economic slowdown that further aggravates the food crisis. Desert Locust outbreaks in Eastern Africa, Arabian Peninsula, and parts of South Asia, are set to worsen the existing undernourishment in these regions. In developing and underdeveloped nations communicable diseases such as malaria, diarrhea and tuberculosis are still rampant and fatal. Lack of nutrient-rich foods will lead to weakened immune systems that aggravate vulnerability to contact infection.

India's children

Children of 0–5 years comprise 10% (126 million) of the total population, with 71% in rural areas and 29% in urban areas. Malnutrition is the predominant risk factor for death in these children in all states of India, accounting for 68.2% of the total under-5 deaths (Swaminathan et al. 2019). As per the National Family Health Survey-4, 38% of children under five years are stunted, 21% are wasted, 36% are underweight, and 2% are overweight (IIPS and ICF 2017). These numbers are much higher than in other developing countries,

⁶ Sharma et al. (2019).

⁷ <https://www.thehindu.com/sci-tech/science/tb-during-covid-19/article31934632.ece> Accessed 7 Oct, 2020.

⁸ Gupta et al. (2020).

where on an average 25% of children suffer stunting and 8.9 per cent are victims of wasting (Global Nutrition Report 2020). Among children under two years of age, 90.4% did not receive an adequate diet, and 58% of children between 6 and 59 months are anemic. The prevalence of low birth weight in India in 2017 was 21.4% (IIPS and ICF 2017). The prevalence of underweight children is significantly higher in rural areas (38%) than urban areas (29%). The incidence of low birth weight babies varies across different states, with Madhya Pradesh, Rajasthan and Uttar Pradesh witnessing the highest number of underweight childbirths at 23%. Anemia is highly prevalent at 54.6%, across the poorest of the poor in Rajasthan, Gujarat, Madhya Pradesh and Telangana.

The various measures undertaken have helped—but not enough. The best progress has been in stunting, where the percentage of stunted children under 5 reduced from 48% in 2005–2006 to 38.4% in 2015–2016. However, the percentage of children who are wasted, increased from 19.8 to 21% during the same period. A high increase in the incidence of wasting was noted in Punjab, Goa, Maharashtra, Karnataka, and Sikkim. Stunting among boys is marginally higher than girls and there is a large gap between rural and urban children. Stunting and wasting among children see a decline with increase in income and mothers' education. Stunting prevalence is 10.1 per cent higher in rural areas as compared to the urban areas (IIPS and ICF 2017).

Only 23% of children aged between 6 and 23 months received an adequately diversified diet (Agrawal et al. 2019). In 2019, India's ranking in the Global Health Index fell to 102 out of 117 nations, the lowest among South Asian countries, far behind other BRICS nations. Data for 2015–2016 say that 38 percent of children below five years are stunted, that is, they have low height for their age. The ratio is 31% for children living in urban areas and 41% in rural areas. Same is the case with wasting of children. Wasting refers to a process by which a debilitating disease causes muscle and fat tissue to “waste” away. On an average, 21% children in India suffer from wasting and only three other countries in the world have wasting above 20 per cent—Djibouti, Sri Lanka, and South Sudan.

The question often asked is if economic growth alone is enough to solve malnutrition and undernourishment.⁹ In India, the ICDS (Integrated Child Development Services) program was created in 1975, MDM (mid-day meals) in schools started in 1995 and cover 120 million children in primary schools, in addition to the TDPS (Targeted Public Distribution System) in 1997 (an enhancement over the PDS system in place since 1947), all under the National Food Security (NFS) Act, 2013 and designed to address food insecurity and malnutrition in the country. Additionally, POSHAN Abhiyaan—launched in March 2018—aims to prevent and reduce prevalence of stunting among children (0–6 years) in the country by 6%, undernutrition (underweight) by 6% as well as promotes dietary diversification (Press Information Bureau 2018). Even though the programs of the National Nutrition Mission (NNM) have led to a progressive decline in child malnutrition, the decline has been slow, and the improvements have not been equally distributed across the population.¹⁰

⁹ Subramanian et al. argue that.....Evidence from India and other developing countries suggests that economic growth has little to no impact on reducing child under nutrition. We argue that a growth-mediated strategy is unlikely to be effective in tackling child under nutrition unless growth is pro-poor and leads to investment in programs addressing the root causes of this persistent challenge. *Limits to Economic Growth: Why Direct Investments Are Needed to Address Child Under nutrition in India*. Subramanian and Subramanyam (2015).

¹⁰ <https://www.thehindu.com/sci-tech/health/need-a-different-approach-to-address-child-malnutrition/article30420267.ece> Accessed 5 Sept 2020.

In summary, poor nutrition leading to poor health and poor immunity, continue to be a vicious cycle, which starts with the poor health of the mother, leading to the birth of low-weight infants, who grow up wasted or stunted. Underweight adolescent girls are often married before the current minimum age of 18 years and subject to multiple pregnancies also leading to high maternal mortality. Worse still, the cultural beliefs and patriarchal attitudes toward women further exacerbate this vicious cycle, leading to the demographics of India being more a liability than a dividend! Poor nutrition significantly impacts physical growth, cognitive development and learning outcomes, with ACER reports revealing year after year that class 6 or 7 students only have the ability to handle class 2 math!

Why is hunger a crisis in India

Despite adequate food production (including export), India tops the world hunger chart with approximately 200 million Indians sleeping hungry each night. Hunger and malnutrition account for the death of nearly 2 million children born each year, who do not live beyond the age of five.

In the 2019, Global Hunger Index, India ranks 102 out of 117 countries. With a score of 30.3, India suffers from a level of hunger that is serious. Bangladesh at 88 and Pakistan at 94 perform better than India with Sri Lanka at 66 and Nepal at 73, being significantly better. The only country in the region that performs worse than India is Afghanistan at rank 108. The GHI is a tool designed to comprehensively measure and track hunger at the global, regional, and national levels. The GHI is designed to raise awareness and understanding of the struggle against hunger, provide a means to compare the levels of hunger between countries and regions, and call attention to the areas of the world in greatest need of additional resources to eliminate hunger.

How did India, a democratic country, whose economy has been growing at among the fastest rates, fall so far behind? Our performance is both perplexing and worrisome and clearly points to inadequacies in the implementation of several schemes designed to meet the food and nutrition needs of our vast population – PDS that covers 800 million APL and BPL people, ICDS that caters to the needs of pregnant and nursing mothers and children up to 6 years through the 1.4 million Aanganwadi centers, MDMs that cater to hot meals for 120 million children for almost 220 days in school per year. Even though the total proportion of undernourished in our population has declined from 26.9 to 17.5% in the last decade, the absolute numbers at nearly 200 million are the highest of any country and account for nearly 25% of the total under-nourished in the world, estimated at 800 million.

Apart from poor implementation and leakages in the schemes mentioned earlier, our inadequate agriculture infrastructure causes a post-harvest loss/waste of nearly one-third of the food that is produced. More than 40 percent of vegetables (critical to diverse and healthy diets) and 30 percent of cereals harvested are lost due to inefficiencies in the supply chain. The other tragedy is that in our gender unfriendly society, women (who form nearly 75% of agricultural labor, are relegated the more labor-intensive jobs like sowing, de-weeding etc., and paid less than men), account for 60 percent of India's hungry population. Girls are fed poorly, treated badly and often denied food that is first served to their male siblings in patriarchal societies like ours.

The situation that seemed to have improved till recently, has dipped again—from a rank of 95 last year India's position in addressing hunger is 97 this year, indicating that the state has failed yet again in providing the basics to its people, enshrined in its Constitution and

reinforced in the 2015 SDGs (Sustainable Development Goals), to which India is a signatory. COVID-19 and the multi-faceted disruption it has caused—from rising unemployment, to geographic dislocation, to loss of livelihoods for the nearly 85% self-employed in India, will only exacerbate a challenging economic situation, which, in reality had begun to slide in the 8 quarters before March 2020. Announcements of loans, moratoriums and credit are necessary but certainly not sufficient to kick-start consumption in an economy that is fueled by many people, buying a little, that adds up to a lot.

What we should remember is that there is enough evidence that the denial of nutritious food to expectant mothers results in a serious and long term impact on a country's population. The impact of the Dutch Food crisis post World War 2 is a significant case study that shows that pregnant mothers who went without food then, gave birth to children who suffered lifelong disabilities. This is because of the metabolic imprint in the fetus that does not get adequate food. Expectant mothers should never go hungry. It is important to note that roughly 70,000 babies are born every day in our country and those born now face several adversities. Institutional deliveries themselves have come down, mothers are impoverished and hungry, hospitals are prone to opportunistic infection and vaccination facilities have been withdrawn.

Children, malnutrition and COVID-19

The present crisis has disrupted the supply chain in India's fight against malnutrition. UNICEF estimates that 300,000 children could die over the next six months as India's health outreach services are reduced and child wasting increases during the pandemic. Approximately 100 million children below 6 years of age receive supplementary nutrition at *anganwadi* centers (AWC) across the country. This has been seriously disrupted as ASHAs and Anganwadi workers were called away to COVID-19 duties and their focus shifted away from nutrition. There are close to 1.4 million Anganwadi Workers (AWWs) and 1.3 million Anganwadi Helpers (AWHs) in the country. ASHAs are roughly 900,000 in number.¹¹

UNICEF has raised several concerns over disrupted Anganwadi services that will impact childcare for the 20 million babies born between March and December 2020 as well as the ante natal care needed for their mothers. The immense pressure on access to clinics, social workers, water and sanitation under the current situation will adversely impact children¹² and push several of them into malnutrition, together with escalating severity from low to moderate to severely malnourished, who will face dire circumstances.¹³

120 million school going children who get a mid-day meal in school (often the only hot meal they have in 24 h, even in normal circumstances) are now denied access to even that one meal since schools are closed due to COVID-19. With schools and AWCs closed, millions of children and their mothers are now battling deprivation and under nourishment. With almost 40 percent of children in India already malnourished, the COVID-19 pandemic could worsen malnutrition. A study conducted post the onset of COVID-19 in Madhya Pradesh on the nutritional status of children, pregnant and nursing women of

¹¹ <https://pib.gov.in/PressReleasePage.aspx?PRID=1578557> Accessed 5 Sept 2020.

¹² Upadhyay et al. (2020).

¹³ <https://www.thehindubusinessline.com/news/world/12-million-children-could-die-globally-in-the-next-6-months-as-covid-19-weakens-health-systems-unicef/article31572791.ece> Accessed 5 Sept 2020.

underprivileged sections, shows a calorie deficit of 51%, 67% and 68%, respectively, indicating that women on an average only get a third of their recommended dietary allowance, whereas children get about half their daily requirement.¹⁴

Another major impact on nutrition among children will stem from disruption in the supply and administration of iron and folic acid pills, other vitamin and zinc supplements, and ORS etc., critical to addressing malnutrition. The pandemic has already resulted in an increase in prices of food and other essentials, which will also reduce accessibility to nutrient-rich food, even for those who can afford it, resulting in replacement of nutrient-rich foods by calorie dense but less nutritious food. The nutrition levels of children and women will bear the brunt of this pandemic induced food inflation, especially in regions with endemic poverty.

Poverty and hunger

The strong push to fight poverty over the last few decades had seen an impressive decline in people below the poverty line. Several new measures have recently been proposed under a government led mission to bolster India's score on 29 global indices in the four areas of industry, economy, governance and development. In all, 18 nodal ministries and 47-line departments will work with state governments on over 800 parameters. This is a welcome step for the economy which was struggling over the last three years and needs support.¹⁵ However, it is important to recognize that COVID-19 has only aggravated the underlying reality, namely that poverty in India seemed to be on the rise before the COVID-19 pandemic, as was unemployment, in an economy whose rate of growth had considerably slackened.¹⁶

India's factory output shrank by 4.3% to the lowest level in eight years in September 2019, because of a sharp fall in capital goods production. Eight core infrastructure industries declined 5.2% in September from a year ago—the steepest drop in 14 years. A contraction in production in sectors like coal, steel, electricity and natural gas meant a weak overall demand and huge job losses. The job losses have clearly led to a fall in consumption expenditure and among the sectors most hit has been the food sector. With supply chains getting disrupted and food inflation at an all-time high, this was kind of expected. People started eating lesser.

Real consumption expenditure on comparable measures has declined between 2011–2012 and 2017–2018. According to the leaked report, real consumption expenditure

¹⁴ <https://www.theweek.in/news/india/2020/06/04/covid-19-impact-underprivileged-kids-got-less-than-half-of-required-food-in-mp.html> Accessed 5 Sept 2020.

¹⁵ Usually sales pick up during Diwali, in October, when shoppers usually spend on food and gifts. Last year, festival sales were relatively subdued. More than 90% of storekeepers indicated footfalls were lower than last year, according to research by Bank of America Merrill Lynch analysts. Car sales fell 6.3% in October from a year ago—the 12th straight month of decline—after plunging 33% in September, according to data released by the Society of Indian Automobile Manufacturers. Two-wheeler sales were down 14.4% from a year earlier, while demand for trucks and buses were down 23.3%. Growth in bank credit has slowed to around two-year lows amid sluggish demand from companies.

¹⁶ There is a paucity of data on all issues related to labour, wages, sanitation, hunger and poverty. Results of the Periodic Labour Force Survey were not allowed to be released until the Parliamentary Elections were over. Subsequently, results of other surveys including the 75th round (Consumer Expenditure), 76th round (Drinking water, Sanitation, Hygiene, and Housing Conditions) and more recent quarterly data of the PLFS surveys, have also not been released.

declined by 10% per annum in rural areas and increased marginally by 2% per annum in urban areas, with an overall decline of around 4% per annum for the country as a whole, which in simple terms means that Indian consumers have less money to spend because they are earning less than in previous years. Since, this is an average and given the skew of economic inequality, the immediate implication is that poverty levels, in all likelihood, have increased between 2011–2012 and 2017–2018, as against a sharp decline between 2004–2005 and 2011–2012.

Way forward—urgent steps

There are 3 key tasks for the government to ensure that nutrition and health are not compromised any further tackle food insecurity, jump start the economy by putting money in the hands of people who will spend it immediately on their basic needs and fix the broken healthcare system.

Tackling food insecurity is a combination of ensuring that the PDS is used to supply not just basic cereals but also proteins like pulses etc., to the 800 million people who depend on it anyway. Additionally, the most vulnerable, earlier being reached through a combination of home rations in the Aanganwadi centers and MDMs are reached through a renewed focus on Aanganwadi centers, as the schools are likely to be closed for a few more months. Increasing the quantity of take-home rations, even in the context of over-distribution should not be a worry, given that our go downs are stocked with 77 million tones of food grains already and we expect a good monsoon. If not now, when? We also need to strengthen the community-based management of acute malnutrition in the country again.¹⁷

Large data sets like the NSSO should include district questions on people's food and nutrition distress. We should also record carefully antenatal visits, Anganwadi worker outreach and their impact on women's health. The focus on women's education, as enunciated in the New Education Policy will also help improve nutrition outcomes in the long run.¹⁸

Jump start the economy by deploying MNREGA and other schemes to put money in the hands of people who have an urgent and immediate requirement to spend on their basic needs, in addition to the incentives announced for the organized industry, which will hopefully spur investment and create new jobs. At a more local level, shift the emphasis to supporting through loans the approximately 64 million nano- and micro-enterprises, consisting of self-help groups and other craft and skill-based work that came to a grinding halt. During the period of re-habilitation, ensure that the food security needs of this population are met through the measures outlined above.

Fix the basics of the healthcare system—To put things in perspective, the 2014–2016 Ebola virus epidemic that ravaged West Africa, caused a 50 percent reduction in access to healthcare at the time. This resulted in an additional 10,000 people dying of TB, Malaria and HIV during the epidemic. While it goes without saying that efforts must be stepped up to contain the coronavirus outbreak in the country, it would be deplorable to do so at the expense of India's non-COVID patients. As the season for vector-borne disease outbreaks

¹⁷ More than 40 percent of the world's Severe and acute malnourishment cases are found in India. This number will, in all likelihood go up as we are unable to feed our children during the lockdown. CMAM would help as it provides treatment and therapeutic food to those suffering from SAM.

¹⁸ Pillai and Maleku (2019).

looms, public awareness regarding simple and effective ways of disease prevention like use of mosquito repellents and nets must be generated.

The Integrated Disease Surveillance Program (IDSP), India's central disease monitoring network operating under the National Center for Disease Control, has seen a steep decline in the number of reported outbreaks, as compared to previous years. While officials attribute this to behavioral changes such as hand washing and physical distancing that have helped prevent the spread of communicable diseases, the possibility of underreporting as a reason for the sudden dip cannot be overruled. Curiously, IDSP's weekly updates for the period since the twelfth week of 2020 have not been uploaded on the official website. The IDSP must continue to publish weekly updates to help keep a check on future disease outbreaks.

Immunization, public health screening, family planning and other RMNCH programs should be resumed fully with social distancing and other safety protocols in place. Additionally, national healthcare services provided to tuberculosis and HIV patients must continue without disruption. Measures like dual testing for COVID and TB will also help during these times. A critical component of delivering healthcare programs to the most vulnerable populations across the country are the ASHA workers, whose compensation must be immediately reviewed and enhanced, in line with the valuable work they do and outcomes they deliver.

Some additional considerations to help us deal with nutrition related setbacks are:

- The prevention of wasting and treating children can be easily integrated in the existing health infrastructure especially in crowded cities. The high population density allows for easy monitoring and evaluation of the large number of children suffering from wasting
- Community engagement and intervention are critical, for it has been seen that where communities are integrated in interventions, the rate of vaccinations, testing, measurement and monitoring of growth, etc., take place and allows for wasting to be treated.¹⁹ This is also an excellent platform for collaboration with NGOs and corporations as a significant proportion of CSR budgets are allocated to healthcare.
- State governments must enhance the coverage of programs such as PDS, ICDS, MDM and improve the nutritional quality of foods provided through these programs, through micro-nutrient fortification of staples, for which standards exist, through the distribution of nutritious ready-to-eat foods (an excellent avenue for public–private partnerships with food companies) and an emphasis on distribution of pulses, edible oil under PDS—fortified, where possible
- Encouraging religious and charitable organizations to increase their routine of free cooked meals to the poor.²⁰
- Engaging women's Self-Help Groups for better outcomes in ensuring the provision of Take-Home Rations²¹ and cooking for MDMs when schools re-open

¹⁹ Chanani et al. (2019).

²⁰ <https://www.teriin.org/article/covid-19-and-food-insecurity-how-social-schemes-will-help-migrant-workers> Accessed 5 Sept 2020.

²¹ <https://www.worldbank.org/en/news/feature/2020/04/11/women-self-help-groups-combat-covid19-coronavirus-pandemic-india> Accessed 5 Sept 2020.

There is no paucity of targeted and well-designed programs with enormous amount of money and spending behind them across the country. As Ramakrishnan et al. point out,²² “India has a rich portfolio of programs and policies that address maternal health and nutrition; however, systematic weaknesses, logistical gaps, resource scarcity, and poor utilization continue to hamper progress.” Now is the time to change all of that and fulfill for all Indians the fundamental right to food and nutrition enshrined in our Constitution.

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²² Ramakrishnan et al. (2012).