

AN INDIAN RECIPE TO QUELL MICRONUTRIENT MALNUTRITION

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December 01, 2022 12:08 am | Updated 01:45 am IST

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At a noon meal centre, in Thiruvananthapuram | Photo Credit: S. GOPAKUMAR

When it comes to nutrition, or more specifically [micronutrient malnutrition](#), there is an urgent need to address the maladies that poor nutrition can inflict on the masses, especially given the diverse populations in India.

Malnutrition exacerbates the magnitude of the public health crises we face, and is India's most serious challenge and concern. As in National Family Health Survey-5 data, every second Indian woman is anaemic, every third child is stunted and malnourished, and every fifth child is wasted. According to an FAO Food Security Report for 2021, India ranks 101 out of 116 countries in the Global Hunger Index 2021, with a 15.3% undernourished population, the highest proportion of stunted children (30%), and wasted children (17.3%).

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The picture the Global Nutrition Report 2021 paints is cause for concern, noting that stunting among children in India is significantly higher than the Asian average of 21.8%.

Since the 1920s, developed countries and high-income countries have successfully tackled the issue of malnutrition through food fortification. Of late, the low-and middle-income countries, such as India, have pursued food fortification as one of the strategies to tackle micronutrient malnutrition. Put simply, food fortification is the process of adding nutrients to food. For instance, rice and wheat are fortified with iron, folic acid and vitamin B₁₂, and salt fortified with iron and iodine. Iodised salt has been in use for the past few decades.

Pilot projects on the distribution of fortified rice have been taken up in select States, including Maharashtra (Gadchiroli district) as part of a targeted Public Distribution programme for the masses. The programme has been a success in terms of preventing cases of anaemia — from 58.9% to 29.5% — within a span of two years, prompting the central government to declare the scaling up of the distribution of fortified rice, the major staple diet of 65% of the population, through the existing platform of social safety nets such as the PDS, ICDS and PM-POSHAN.

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Experiences from the different States on the fortified rice project, so far tally with the results of global programmes that use fortified food as a cost-effective strategy. The health benefits accruing from food fortification have made 80 countries to frame laws for the fortification of cereal flour, and 130 countries with iodised salt, where 13 countries have mandated rice fortification. The encouraging results of the pilot programme in Gadchiroli have prompted the proposed large-scale food fortification programme, which includes fortified rice in all safety net government schemes. The study found a promising reduction (29.5%) in the prevalence of anaemia among women, adolescent girls, and children put together in Gadchiroli district.

In Gujarat, an eight-month long study on multiple micronutrient fortified rice intervention for schoolchildren (six-12 years) in 2018-2019, as part of the Midday Meal Scheme, found increased haemoglobin concentration, 10% reduction in anaemia prevalence, and, more importantly, improved average cognitive scores (by 11.3%).

Iron deficiency anaemia is a major public health concern, because it is responsible for 3.6% of disability-adjusted life years or DALYs (years of life lost due to premature mortality and years lived with disability) according to the World Health Organization (WHO) — i.e., a loss of 47 million DALYs, or years of healthy life lost due to illness, disability, or premature death (2016).

According to NITI Aayog (based on WHO meta-analysis on the impact of rice fortification), a rice fortification budget of around 2,800 crore per year can save 35% of the total or 16.6 million DALYs per year with no known risk of toxicity. In India, the cost of one DALY lost due to iron deficiency anaemia (IDA) is approximately 30,000, while the cost of averting an IDA-related DALY is only 1,545, resulting in a cost-benefit ratio of 1:18. Rice fortification, which costs less than 1% of the food subsidy bill (2018-19), has the potential to prevent 94.1 million anaemia cases, saving 8,098 crore over a five-year period.

Despite the programme's proven efficacy, activists have expressed concern that excess iron overload from fortified rice has been dangerous for Jharkhand's tribal population suffering from sickle cell anaemia and thalassaemia. Iron levels in fortified rice range from 28 mg to 42.5 mg, folic acid levels from 75 mcg-125 mcg, and vitamin B₁₂ levels from 0.75 mcg to 1.2 mcg (FSSAI standards). Considering the per capita intake, in a family of three members with a rice consumption of approximately 60 grams per person, the additional intake is 2.45 mg of iron. This in fact compensates our daily losses of iron from the body, which is 1 mg-2 mg per day.

Food fortification, according to stalwarts of nutrition, is a cost-effective complementary strategy to address multiple micronutrient deficiencies. Thus, given its proven efficacy and cost-effectiveness, food fortification can help us in reducing micronutrient deficiencies and address overall health benefits. The intervention, carried out with precautions, is the key to the malnutrition issue which the nation continues to grapple with.

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