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Food fortification prevents 7 Bn nutrient gaps annually: The Lancet Global Health

New research in The Lancet Global Health provides first-ever global estimates of how fortified foods improve nutrition – and maps a path to dramatically expand benefits at minimal cost

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Fortification

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Large-scale food fortification—adding essential vitamins and minerals to staple foods like flour, rice, oil, and salt—currently prevents approximately 7 billion nutrient gaps worldwide each year at a cost of just 18 cents per person, according to a new study published in The Lancet Global Health. The landmark study provides the first-ever comprehensive global analysis of both the cost and impact of food fortification and provides a roadmap to triple current impact globally.

High food costs and persistent poverty continue to keep nutritious diets out of reach for billions worldwide, leading to micronutrient deficiencies. These deficiencies affect 1 in 2 preschool-aged children and two in three women of reproductive age globally, and are linked to poor health, increased risk of disease, and poor cognitive development. Food fortification offers a powerful solution to this public health challenge.

"This research confirms that food fortification is one of the most cost-effective public health interventions available," said Dr Mduduzi Mbuya, Director of Knowledge Leadership at the Global Alliance for Improved Nutrition (GAIN) and co-author of the study. "Salt iodization alone prevents 3.3 billion iodine deficiencies each year—reducing global iodine deficiency by 87 per cent. But we're also leaving major gains on the table. With targeted improvements, we could reach billions more people."

The study, led by researchers at GAIN with collaborators from the University of California, World Bank, and Tufts University, revealed that improving and expanding fortification programs could triple the impact to prevent 25 billion nutrient gaps every year.

Researchers modelled the impact of fortification across 185 countries, covering 99.3 per cent of the global population, and examined six scenarios ranging from no fortification to optimized global programs, which includes expanded coverage in high-need countries combined with improved standards and compliance:

Current impact: Existing programmes prevent 7 billion nutrient gaps annually at a global cost of $1.06 billion (just $0.18 per person). Iodized salt—a proven global fortification success story with near-universal coverage—accounts for nearly half of all benefits, followed by iron fortification of flour.

The remaining gap: Despite current programmes, an estimated 38.6 billion nutrient gaps persist worldwide—driven by poor diet quality, suboptimal fortification standards, low industry compliance, and limited program coverage in high-need regions.

Untapped potential: The study identified three priority actions that could dramatically expand food fortification programs to triple impact:

Improving compliance with existing standards to 90 per cent would prevent an additional 6.1 billion nutrient gaps at a cost of $0.23 per person annually

Aligning national standards with World Health Organization (WHO) guidelines while improving compliance would prevent 10.3 billion additional nutrient gaps at $0.63 per person

Expanding programmes to high-need countries with appropriate food vehicles—combined with improved standards and compliance—would prevent 17.7 billion additional nutrient gaps at $1.15 per person

“Although many countries require food processors to fortify staple foods, compliance is often low,” says Dr Christopher Free, a Research Professor at the University of California, Santa Barbara and joint first author of the study. “Improving compliance with current laws could prevent 6.1 billion more nutrient gaps at an additional cost of only $0.05 a person.”

A cost-effective solution

Large-scale food fortification is one of the most cost-effective health and development interventions, delivering outsized returns. Under the most comprehensive scenario, the annual cost is just $1.15 per person, a modest investment compared to the tens of billions of dollars in economic losses attributed to micronutrient deficiencies each year through reduced productivity, increased healthcare costs, and lost human potential. On average, every dollar invested in fortification provides returns of $27 in health and productivity.

Fortification Is Key to Improving Food Systems

Even with optimized fortification programs, an estimated 20.9 billion nutrient gaps would remain under the best-case scenario, highlighting the need for complementary approaches.

"Fortification is a powerful tool, but it is most effective as part of a comprehensive strategy," said Florencia Vasta, global lead for large-scale food fortification at GAIN. “Achieving optimal nutrition for everyone will require parallel investments in dietary diversity, supplementation for vulnerable groups like pregnant women and young children and making healthy diets more affordable and accessible."

Why this matters now

This research comes at a critical moment. Currently, 2.6 billion people worldwide cannot afford a healthy diet, according to the UN Food and Agriculture Organization. Global malnutrition remains a leading cause of preventable death and disease, particularly in low and middle-income countries. With governments seeking cost-effective interventions that deliver proven results, this study provides compelling evidence that fortification deserves significantly increased investment and enforcement. Policymakers can act immediately: enforce existing fortification standards, align them with global guidelines, and expand programs to high need countries. Private sector partners can strengthen compliance and transparency. Donors can fund monitoring and enforcement systems.

Food fortification is a global health success story hiding in plain sight,” said Meetu Kapur, Nutrition Director, Gates Foundation. “This landmark study provides the first comprehensive global evidence on what large scale fortification costs—and what it delivers. With new products emerging from the innovation pipeline, the data show we could triple impact and reach millions more people with the essential nutrients they need to survive and thrive.

Read online: https://nuffoodsspectrum.in/news/35/23280/food-fortification-prevents-7-bn-nutrient-gaps-annually-the-lancet-global-health.html

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