Lessons learned from the implementation of large-scale fortification programs

THE PROBLEM

Food fortification has been used as one of the cost-effective strategies implemented to reduce the prevalence of micronutrient deficiencies[1]. According to scientific evidences,large-scale food fortification (LSFF) has improved micronutrient status in many population groups and shown a positive effect on nutritional outcomes. For instance, iron fortification reduces 34% of anaemia across all ages, salt fortification with iodine reduced the prevalence of grade I and II goitre by 74% among preschool-age children and 41% of neural tube defects preceding LSFF with folate[2]. This LSFF program was employed for salt, staple foods, and commercial foods including condiments as a potential target food vehicle. Thus, this review aimed to discuss the bottlenecks and gaps regarding the implementation of the fortification programs in Ethiopia and outline actions for policy and practice to guide the national food fortification for appropriate planning and implementation of the programs.

METHODOLOGY

A rapid literature review of publications in PubMed and Google scholar written in English from 2000 to 2020 was performed. In addition, gray literature, accessed through personal communications, including national policy, national standards, and coverage reports were also used. Moreover, articles describing the remaining technical challenges, successes, evidence gaps, and prioritized recommendations for the next steps to improve fortification and its potential impact have been given special attention.

Photo credit: Wheat flour, Phu Thinh Co, 2012
Cooking oil: Wikimedia/2018/ Tiia Monto

KEY FINDINGS

Evidence on large-scale food fortification achievements and challenges in low-and middle-income countries

The review identified various bottlenecks for coverage and utilization of fortified foods, including the co-existence of fortified and non-fortified products in the market; weak regulatory and monitoring frameworks; limited capacity to follow the standards due to added costs of fortification programs, unable to monitor the level of diversified and fortified food intake periodically; reaching out to a non-targeted population instead of the most in need; poor integration of laws and regulations into existing legal frameworks and/or reluctance to enforce the regulations. In addition, during production, producers may have limited resources and be unable to implement the targeted program; thus, they are not carefully maintaining the necessary safety and quality control procedures as their priority.

[1]Wirth, J. P., Laillou, A., Rohner, F., Northrop-Clewes, C. A., Macdonald, B., &Moench-Pfanner, R. Lessons learned from national food fortification projects: experiences from Mo-rocco, Uzbekistan, and Vietnam. Food and nutrition bulletin, 2012.

[2]Keats, E. C., Neufeld, L. M., Garrett, G. S., Mbuya, M. N., &Bhutta, Z. A. Improved micronutrient status and health outcomes in low-and middle-income countries following large-scale fortification: Evidence from a systematic review and meta-analysis. The American journal of clinical nutrition, 2019

Furthermore, the review showed the following key lessons as successful fortification programs for future fortification efforts.

- The high impact of fortification will be influenced by the appropriate selection of food vehicles being fortified as well as the frequency and amount of food consumed by the population.
- Fortification programs must be implemented based on dietary patterns, available evidence on the amount of inadequate intake, the prevalence of micronutrient deficiency, and fortified food consumption.
- The food industries and the regulatory bodies should have sufficient organizational capacity and technical skills to develop, implement and maintain the needed quality/safety control and quality assurance procedures with agreed indicators.
- For successful and effective food fortification (FF) programs, a periodical assessment of the impact of fortification is useful. Experience has shown that in continents like Latin America, research capacity, good governance, and strong private and public partnerships were mentioned as important features of successful and sustainable FF programs.

Evidence gaps related to impact assessment, coverage, compliance and monitoring and evaluation (M&E) in Ethiopia

Although food fortification has already started in Ethiopia, there is a lack of monitoring and evaluation (M&E), or program impact evaluation, in fortified salt, wheat flour, and edible oils. In 2018, house-holds with iodized salt coverage were 88.1%, with a mean iodine concentration of 43.9 parts per million (ppm). However, there is a disparity among regional states regarding the availability of adequate iodized salt coverage and utilization based on the data collected from households, wholesalers, supermarkets, small shops, and open markets. Accordingly, the lowest coverage was reported in Afar (49.5%) and the highest was in Dire Dawa (100%). Household purchasing decisions in Ethiopia are influenced by the availability and cost of salt regardless of its fortification level.

ACTIONS FOR SUCCESSFUL LSFF PROGRAM IN ETHIOPIA

The following are key recommendations and considerations:

- Enforcing and strengthening large-scale food fortification at the national level,
- Provision of technical and financial assistance to wheat flour and edible oil producers in Ethiopia in order for fortified wheat flour and edible oil to be available on the market for consumers,
- Developing a national standard for small-scale fortification practice,
- Establishing strong multi-sectoral partnerships with a high political commitment and transparent collaborationwith partners in government, public, private, academia, and civil society to aid in program harmonization and scaling up across sectors,
- Constant capacity strengthening and collaboration are needed to support regulatory activities, evidence generation, laboratory testing, and customs clearances,
- Fortification-related programs should have a marketing component that increases community awareness,
- Shifting the voluntary vitamin A and D fortification standards in edible oil to mandatory and adding other minerals and vitamins in wheat flour to a pilot level of fortification for further scale up.

FURTHER INFORMATION: The extended brief from which information for this brief was drawn from is available on the NIPN website (http://www.nipn.ephi.gov.et/).

AUTHORS: KifleHabte, Aregash Samuel, MasreshaTessema, BinyamTesfaye, Meron Girma and Anbissa Muleta