

Food-Based Strategies to Combat Micronutrient Malnutrition: A Narrative Review Paper

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Abstract- Despite several government initiatives, more than two billion deaths occur from micronutrient deficiencies globally (WHO, 2017). This might be due to a lack of knowledge and commitment identified as a major drawback in the effective implementation of evidence-based policies that address dietary deficits. Moreover, micronutrient deficiencies negatively affect the intellectual and physical potential of children. The present review paper aimed to address the food-based strategies for combating micronutrient malnutrition. Thus, looking at the significance of the situation, interest in micronutrient malnutrition has increased over the last few years. The need for food supplementation, food fortification, nutraceuticals, and dietary diversification is highlighted in this context. Future, research is needed to develop national nutrition programs with the involvement and education of all stakeholders and policymakers.

Keywords: Food-based strategies, micronutrients, malnutrition.

INTRODUCTION:

Globally, more than 3 million deaths occur from the deficiency of micronutrients. Micronutrient malnutrition adversely impacts the intellectual and physical potential of children.

According to Food and Agricultural Organization (1996), food-based strategies encompass a variety of interventions that aims at:

- ✓ To increase the production of micronutrient-rich foods.
- ✓ To increase the intake of micronutrient-rich foods.
- ✓ To increase the bioavailability of micronutrients.

Basically, there are five methods to combat micronutrient malnutrition:

Dietary Diversification:

Dietary diversification includes manipulation in food production ways, patterns of food selection, and traditional household methods for making and processing indigenous foods. It aims to increase the availability, access, and utilization of foods with a high content and bioavailability of micronutrients. A few methods that can enhance the content or bioavailability of micronutrients in plant-based staples are the following:

1. Field fortification
2. Plant breeding

Field Fortification: This strategy can be used to enhance the level of some of the trace elements in cereal grains by using fertilizers in the soil to elevate the level of trace elements like Iron, Selenium, Iodine, and Zinc (Welch, 2002).

Plant Breeding: Another method is plant breeding for improving dietary quality in developing countries. Breeding the staple food crops (Rice, wheat, maize, beans, and cassava) that are full of minerals and vitamins provides a low-cost sustainable strategy for depleting the level of micronutrient malnutrition (Welch, 2002). The substances that inhibit the bioavailability of micronutrients can be reduced or increase the content of micronutrients in the substances that elevate the bioavailability of the micronutrients are the two options that could be pursued in the breeding programs. However, care has to be taken that agronomic practices must not be compromised as it can be reduced the bioavailability of trace minerals. Plant breeding is one of the technologies that should be supported by the World's Nutrition and Health Communities and should be adopted by the World's Agricultural Community (Gillespie and Haddad, 2001).

Food Fortification:



SAMPOORNA POSHAN
SWASTHA JEEVAN

The symbol of food fortification includes a square, plus sign, a ring around F, and the color blue and every part represents the following thing:

The Square represents- completeness

Plus sign- Micronutrient fortification in daily meals to add more to lives

Ring around F- Ring of protection to Good Health

Blue color- Purity, Health, and active life.

Food fortification is a scientifically proven, cost-effective, scalable, and sustainable global intervention that addresses the issue of micronutrient deficiencies. In October 2016 FSSAI (Food Safety and Standards Authority of India) operationalized the Food Safety and Standards Regulations Act, 2016 for fortifying staples food namely Wheat Flour and Rice (with Iron, Vitamin B₁₂, and Folic acid), Milk, and edible oil (with vitamins A and D) and double fortified salt with Iodine and Iron to reduce the high burden of micronutrient malnutrition in India (**Gazetted of India, 2021**).

Food Supplements:

Health supplements/food supplements may be used to supplement the normal diet of a person above the age of 5 years. The health supplements must contain a concentrated source of one or more nutrients namely amino acids, enzymes, minerals, proteins, vitamins, other dietary substances, pre-biotics, probiotics, and substances from animal origin or other similar substances with known and established nutritional or beneficial physiological effect which are presented as such and are offered alone or in combination but are not drugs. Health supplements are available in the market in the form of capsules, tablets, pills, sachets, and jelly or gel.

Following are the points that must be laid down on the package of health supplements that are as follows:

- a. The word "Health Supplement".
- b. An advisory warning '**Not For Medicinal Use**' is prominently written.
- c. "Not to Exceed the Recommended Daily Usage".
- d. The health supplement is not used as a substitute for varied diets (**Gazetted of India, 2021**).

Conclusion:

In the presence of malnutrition, the development of human beings is not possible whether it is qualitative or quantitative. There are various factors that are responsible for micronutrient malnutrition such as poverty, lack of knowledge about what to eat and how to eat, etc. Thus, food fortification, dietary diversification, and food supplements are food-based cost-effective strategies that can reduce micronutrient malnutrition.

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