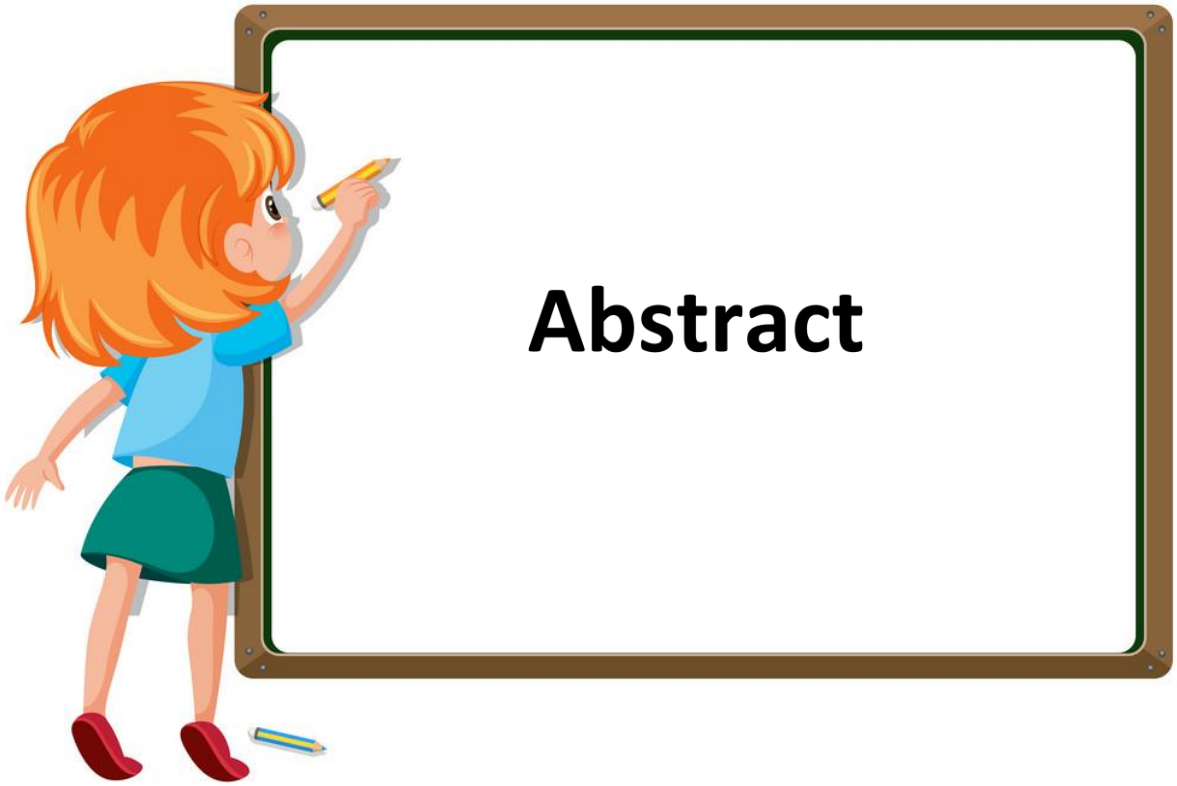
Abstract

ABSTRACT

Malnutrition is mostly caused by an inability to afford a healthy diet, a reliance on staple foods, and a lack of understanding of the significance of macro- and micronutrients. Government programmes that support dietary variety and supplementation, of the population's micronutrient status since time immemorial have not proven to be highly effective due to various limitations.

Worldwide, 144 million children under the age of five are stunted, 47 million are wasting, and 38.3 million are overweight (FAO et al., 2020). The nutritional security of the population has gotten worse as a result of the more than 3 billion poor people in the globe who cannot afford even the most basic nutritious diets.

Numerous investigations have raised concerns about micronutrient deficiencies and related health issues due to the prevalence of undernutrition.

People living in urban areas of India are increasingly dependent on packaged foods, while those living in rural areas are denied access to a variety of food groups due to financial hardships. In order to address this, the Government of India (GOI) and the Food Safety and Standards Authority of India (FSSAI) have picked five food items for fortification, namely rice, wheat flour, salt, milk, and oil. Limited research has been done to promote fortified foods among stakeholders in the free-living population.

The Diffusion of Innovation Model (DIM) was used in the current study to promote the use of fortified meals among people who live independently.

The participants received an e-Intervention via WhatsApp for a month that included images, audio, and videos. It is clear from the study's findings that the recommended approach for raising consumer awareness and encouraging the purchase of fortified foods among the chosen participants was very successful. This is true for all five staple foods and pertains to both awareness and perception of fortified foods as well as for purchases of fortified foods.

This realisation led to the planning and execution of a doctoral project named "Action Research on Advocating Use of Fortified Foods Among the Parents of Students Studying in the Faculty of Family and Community Sciences Using Diffusion of Innovation Model" in four phases.

Phase I: Situational Analysis, which entails creating a questionnaire to gather baseline information on socioeconomic characteristics, understanding of several micronutrients for their

sources, functions, and indicators of deficiency, and knowledge of fortification and its present use. The phase includes the enrolment of participants (the parents of the pupils) from the Faculty of Family and Community Sciences and the information-gathering process utilising questionnaires that have already undergone testing. Phase 1 results showed that most participants (76%) were female and had very little understanding (20%) of the correct +F logo at the baseline, whereas only 28% of the subjects could accurately define fortified foods. Only a small portion of the survey individuals was aware of fortified staples. Rice is fortified at 33.3%, followed by wheat flour at 33.2%, milk at 25%, and double-fortified salt at 22%. Only a small percentage of the interviewees (2.3%) were aware of oil fortification.

Phase II: The intervention phase involved the creation of information education communication materials in the form of graphics and videos using PowToon. This phase was followed by an online intervention phase in which participants were informed of the messages and the impact assessment on the chosen parameters was conducted. After a month of e-intervention, the Knowledge, Attitude, and Practice for Fortified Foods increased. Awareness of the definition, logo, and target group of food fortification increased by 17–24%. Following the e-intervention, there was an increase in knowledge of fortified foods from 18% to 66%. Oil saw the largest rise in awareness (66%) and salt came in second followed by milk (33%).

The various attitude metrics showed highly significant change after the e-intervention (P 0.05). Following the e-intervention, a statistically significant difference in the percentage of purchase behaviours of fortified rice, wheat flour, salt, milk, and oil was noted with P 0.001. The attitude about the safety of fortified foods showed the greatest improvement (40%), followed by the individuals' views toward taste and odour (35%) and their willingness to switch to other fortified brands (26%). Additionally, 23% of the individuals believed fortified foods were healthier and 26% were interested in paying more for them. The highest impact of e-intervention on purchasing practises was seen for milk (25%), followed by the purchase of salt (17%), While just a small impact (7% for wheat flour and 3% for rice) was investigated.

The Diffusion of Innovation Model showed that 12.4% of the subjects fell into the innovator category, 24.3% into the early adopter category, 26.2% into the early majority category, 8.2% into the late majority category, and 24.7% into the laggard category.

Phase III: Market research for the fortified food brands that are currently sold in India for the five staples of rice, wheat flour, double-fortified salt, milk, and oil. Traditional Kirana

shops, superstores, and online retail outlets were all surveyed regarding their product offerings. In the Vadodara hypermarkets, it was noted that 7 to 10 Fortified oils were accessible. Fortified milk could be purchased at Spencer's and Big Bazaar. Wheat flour that had been fortified was unavailable. In the supermarket, there is just one brand of each Double Fortified salt and Fortified rice.

Phase IV: Creation of the Integrated Education Catalog (IEC), a guidebook that contains all the answers to queries about Fortified Food and the Five Staples.

The proposed e-intervention technique for promoting fortified foods utilising DIM has a considerable influence, as evidenced by the study; as a result, the null hypothesis was rejected and the alternative hypothesis was approved for the current investigation. By classifying participant characteristics based on their rate of adoption and actual purchase of fortified meals, the Diffusion of Innovation Model has been adopted. For the purpose of raising awareness regarding the safe intake of fortified foods, researchers can employ a variety of e-communication methods.

Less than 20% of fortified product production, according to Dalberg's estimation, may be a barrier to people's consumption of fortified foods. Making the products available on the market is crucial for adoption. Due to the unavailability of fortified products in the market, close to 40–60% of products are not reaching consumers; therefore, it is crucial to have effective communication channels to spread the word about the advantages, identify and encourage producers to fortify their products and make them easily accessible in the Indian market.

It is possible to employ a variety of communication methods, models, and instruments to promote behaviour change. Utilizing behavior change communication through a variety of channels for the general public will aid in the adoption of +F products by customers. Additionally, providing training sessions with manufacturers and producers will assist them in effectively meeting demand and supply.

It is crucial to give manufacturers and producers support tools about fortification in accordance with FSSAI regulations, regular monitoring and evaluation of the plant designated for the process, and training for employees and employers on how to fortify various staples would help in regulating the initiative.

In addition, a conducive framework is required for the Fortification programme to succeed in order to ensure that the supply and demand are regulated effectively.