

# Malnutrition And Food Faddism: A Review

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**Abstract-** Food faddism is one of the causes behind malnutrition. Food faddism refers to any dietary practice that either forgoes one or more of the fundamental food categories or urges excessive consumption of one food category for exceptional health benefits. It is extremely unethical, exploitative, and designed to get results quickly. Fad diets sometimes follow plans with dubious scientific justifications. These diets frequently lack validity and disregard accepted scientific practices. It had been shown that fad diets were risk factors for malnutrition and micronutrient deficiencies. It has been suggested that one of the elements affecting children's nutritional status is food fads. One of the effects of bad eating habits, including faddism, is being born with low birth weight or intrauterine development retardation. In our community, food faddism is unquestionably prevalent; ignorance and other sociodemographic characteristics are fundamental to this habit. The most significant issue with dietary faddism is the promotion of the idea that each person is his or her own doctor and diagnostician. Because of the adherents' strong convictions, this practice may further exaggerate its negative consequences. Unfortunately, the meals with the largest caloric value are also the ones that are most frequently associated with fads. Food faddism has a negative impact on people's health in general and their nutritional condition. The purpose of this review study was to determine the causes, the prevalence, and the characteristics of the practice of food faddism that results in malnutrition.

**Index Terms-** malnutrition, food faddism, health, micronutrient deficiencies, food fads

## I. INTRODUCTION

Malnutrition is described as “a state of nutrition in which a deficiency, or excess, of energy, micronutrients, and protein creates measurable negative impacts on tissue/body form (body shape, size and composition) and functioning, and also its clinical outcome” [1]. Unintentional weight loss can be categorized into three conditions: starvation, sarcopenia, and cachexia [2, 3]. Starvation, also known as PEM, is caused by a protein-energy shortage. The primary distinction between hunger and other types of accidental weight reduction is that it may be reversed provided appropriate caloric and intake of protein is met [4]. Sarcopenia is characterised by a gradual decrease of the muscle mass that happens with normal ageing, although this is still being investigated [5-7]. Dietary treatment alone is unlikely to achieve weight reduction since sarcopenia will probably happen despite the level of energy [8, 9]. Cachexia is induced by cytokines that

are proinflammatory and is linked to a variety of chronic illnesses, including cancer, HIV/AIDS, heart failure, and persistent obstructive pulmonary disease. A group of eminent academics collaborated to produce a common term for cachexia, which states that cachexia is a complicated metabolic condition associated with underlying disease and characterised by muscle loss with or without fat loss [10, 49].

Malnutrition is defined based on which nutrients are deficient in a healthy diet, for how long, and at what age. Malnutrition is characterised by an inability to balance calories and protein, which can affect the correct functioning of several physiological processes [11]. Although fat people might suffer from malnutrition, the term is most used to refer to undernutrition [12]. In 2008, malnutrition afflicted over 14% of the world's population [13]. Perinatal malnutrition and delayed weight gain at birth are thought to be risk factors for cardiovascular and metabolic illness later in life [14, 15]. In policy considerations, food safety and inadequate levels of micro nutrients have taken the stage. It is well acknowledged that food security entails not only supplying appropriate calorie intake, but also guaranteeing adequate intake of key micronutrients. The dietary habits of developing nations are lacking in vitamin A, zinc, and iron. The estimated number of persons suffering from micronutrient deficiency is large. Up to 5 billion people suffer from iron insufficiency, and almost 130 million pre-school children are vitamin A deficient [16]. It was predicted that 25-33% of the total population in underdeveloped nations was at danger of zinc deficiency [17, 49].

## II. THE CAUSES OF MALNUTRITION

Hunger, social exclusion, and drug misuse continue to be major causes of malnutrition in industrialized countries. However, the majority of adults malnutrition is brought about by illness, which can occur due to:

- Lower food consumption.
- Reduced macro and micronutrient absorption.
- Increased losses or changing needs.
- Certain diseases can lead to higher energy use.

### Food Consumption

Reduced consumption of food is most likely the most significant etiological factor in disease-related malnutrition. This is thought to be linked to alterations in inflammatory substances, hormones such as insulin, and growth factors reminiscent of

insulin, which produce a decrease in appetite. Failure to provide regular healthy meals in an environment where they have protection from routine clinical procedures and are provided assistance and support with feeding as needed may increase the issue in hospital patients.

**Malabsorption of Macro- and Micronutrient**

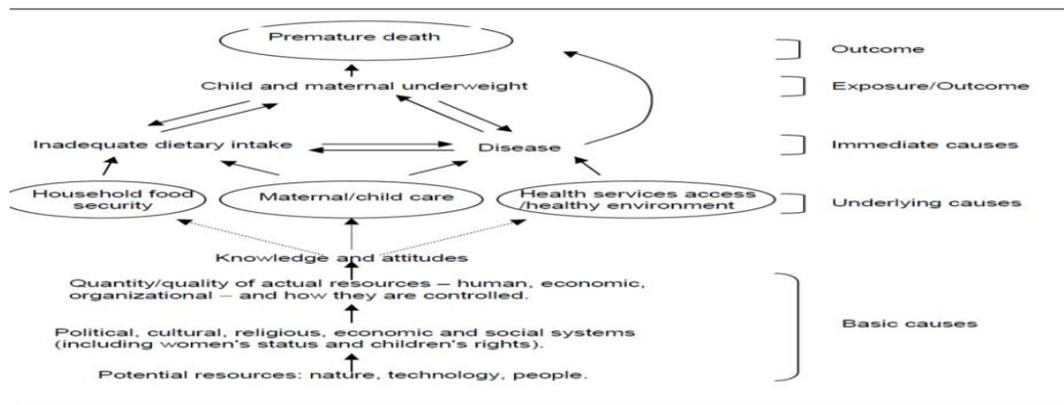
Malabsorption of food is a distinct risk indicator for loss of weight and malnutrition in those with intestinal damage and those undergoing abdominal surgeries.

**Increased losses or altered needs.**

Patients suffering enterocutaneous fissures or burns may endure excessive and/or nutritional losses, their dietary needs are frequently substantially distinct from normal metabolism.

**Utilisation of energy**

For many years, it was believed that higher energy consumption was the primary cause of disease-related malnutrition. There is now compelling evidence that total consumption of energy in several illnesses has been lowered than that of normal health. A condition's baseline hypermetabolism is lowered by a reduction in aerobic activity, including studies in patients in critical care revealing that energy expenditure is frequently less than 2,000 kcal/day. Patients with severe trauma, brain injuries, or wounds are an exemption, since their energy demand may be much higher, although for a short time.



**Fig 1: Causes of Malnutrition**

**Types of Malnutrition: Undernutrition and Overnutrition**

Lack of nutrition can occur by consuming a diet with insufficient or excessive nutrients, resulting in health concerns. It is a group of disorders that encompasses both undernutrition and overnutrition. Obesity and overweight might be the result of excessive diet. In certain developing nations, overnutrition in the type of obesity is becoming more prevalent in the same groups as undernutrition. However, the word malnutrition is often used to indicate simply undernutrition. This is particularly relevant in the context of global development collaboration. As a result, in publications published by the World Health Organisation, UNICEF, Save the Children, and other international non-governmental organisations (NGOs), "malnutrition" is typically synonymous with "undernutrition" [18, 50].

**Protein Energy Malnutrition (PEM)**

Undernutrition is occasionally used interchangeably with Protein-Energy Malnutrition (PEM). Others include both deficiency in micro nutrients and malnutrition caused by protein and energy in their definition. It varies from limiting calories in that calorie reduction may not cause negative health consequences. The word hypo alimentation refers to underfeeding [19].

The term "severe starvation" or "severe undernutrition" is frequently used to describe to PEM. PEM is frequently related with nutritional deficiencies. Kwashiorkor and marasmus are two types of PEM that often coexist [20].

**Kwashiorkor**

Kwashiorkor is mostly caused by insufficient protein consumption. The most common symptoms are oedema, wasting, liver enlargement, low albumin levels, steatosis, and possible skin and hair depigmentation. It is also distinguished by abdominal bloating, which might be deceptive about one's true nutritional state. The word 'displaced kid' is taken from a Ghanaian region of West Africa and means "the illness that the older kid develops when the subsequent baby is born," since this happens when the elder child is denied breast milk and weaned on a diet high in carbs [21].



**Fig-2 Child in the United States showing signs of kwashiorkor, a dietary protein deficiency**

**Marasmus**

Marasmus (“to waste away”) is triggered by a lack of energy and protein. The primary symptoms include severe muscle loss with little or no oedema, limited subcutaneous fat, significant muscular wasting, and abnormal blood albumin levels. Marasmus

can develop as a result of a prolonged diet low in protein and calories, and the metabolism changes to ensure survival. It is typically found during famine, extreme dietary restriction, or severe episodes of anorexia. Conditions are distinguished by severe muscular atrophy and a haggard appearance [22].

**Signs of Malnutrition:**

Site	Sign
Face	Moon face (kwashiorkor), simian facies (marasmus)
Eye	Dry eyes, pale conjunctiva, Bitot's spots (vitamin A), periorbital edema
Mouth	Angular stomatitis, cheilitis, glossitis, spongy bleeding gums (vitamin C), parotid enlargement
Teeth	Enamel mottling, delayed eruption
Hair	Dull, sparse, brittle hair, hypopigmentation, flag sign (alternating bands of light and normal color), broomstick eyelashes, alopecia, and overall thinning of the hair follicles
Skin	Loose and wrinkled (marasmus), shiny and edematous (kwashiorkor), dry, follicular hyperkeratosis, patchy hyper- and hypopigmentation, erosions, poor wound healing
Nail	Koilonychia, thin and soft nail plates, fissures or ridges
Musculature	Muscles wasting, particularly in the buttocks and thighs
Skeletal	Deformities usually a result of calcium, vitamin D, or vitamin C deficiencies
Abdomen	Distended – hepatomegaly with fatty liver, ascites may be present
Cardiovascular	Bradycardia, hypotension, reduced cardiac output, small vessel vasculopathy
Neurologic	Global development delay, loss of knee and ankle reflexes, poor memory
Hematological	Pallor, petechiae, bleeding diathesis
Behavior	Lethargic, apathetic, anxious

**Table-1: Signs of Malnutrition [49]**

**Food Faddism**

Food faddism, known to be economically inefficient, academically unsound, and an important means of diversion for experts in nutrition, healthcare professionals, and health organisations promoting improved nutrition education, continues to increase. We might wonder how this is possible in an era where scientific understanding about nutrition has advanced significantly and new research is being published on a regular basis.

Food faddism refers to the practice of exaggerating or eliminating a certain food or group of foods in order to obtain a specific health advantage [44]. There is a substantial correlation between nutrition and health. As a result, eating improper foods or combinations of foods, as well as having a bad eating pattern, can lead to illness. Hippocrates’s saying “Let food be thy medicine and medicine be thy food” provides more insight into this subject. Essentially, food faddism promotes claims about health that cannot be proven by scientifically reliable data [23]. Food faddists are those who follow a diet that claims advantages but lacks scientific substantiation. These folks have food-related ideas and expectations that are consistent with their values [24]. A research study discovered that some people neglect thorough health reports and consume items that might contribute to health difficulties [25]. Food's apparent function has altered during the last two decades from avoiding deficiency disorders to delaying ageing, preventing

and treating chronic health issues [26]. It is a significant cause of disruption to dietary principles. Food faddism continues to exist, we believe that in spite of unambiguous scientific data refusing its reliability, since nutrition has psychological more than intellectual value for the average person, and food faddists have capitalised on that fact, appealing to their followers' emotional drives rather than their intellect [27, 44].

It was revealed that society's unhappiness with the traditional health-care system has prompted some people to explore alternate lifestyles and eating habits [28]. For example, there have been an increase in demands from women to have specific forms, causing many to seek simple answers. Also, cultural variety and the use of organic medicines may contribute to an increase in the practice. Food faddism takes four broad kinds. These include exaggerated food properties that are claimed to treat specific diseases, the elimination of certain foods from a diet due to the existence of harmful components, the notion that a certain food or a variety of foods have more effective health benefits, and an emphasis on eating ‘healthy foods’, such as organic or natural foods. As a result, the entire premise is very problematic, given that a good diet is purely about sufficiency, variety, and balance [29, 44]. Starvation and an extremely low-calorie diet, along with excessive use of certain fruits and herbs, as practiced by food

faddists, consistently reduce the Basal Metabolic Rate (BMR) while the human body attempts to save energy. Because the majority of the body weight loss was due to fluid loss, the individual gains weight quickly after returning to normal eating habits. Discovering the frequency of food faddism would help nutritionists and dietitians educate the general population about it [24, 44].

### **Fad Diets**

Fad diets are eating patterns that prioritise short-term weight loss without regard for long-term health, focusing on certain foods or food groups that do not adhere to nutritional requirements.

Instances of food fads include the cabbage soup diet, detox diet, blood type diet, morning banana diet, and Dr. Atkin's low-carb diet [51].

In general, fad diets claim short-term results with minimal effort, and hence may fail to educate customers about the whole-diet, whole-lifestyle modifications required for long-term health benefits [30]. Fad diets are frequently advertised with falsehoods, such as rapid loss of weight of over 1 kg/week or improved health through "detoxification," or even hazardous complaints, such as extremely limiting and nutrient-wise unbalanced food choices resulting in inadequate nutrition or consuming non-food items such as cotton wool [31, 32, 51]. Extremely rigid fad diets must be shunned. At best, fad diets provide unique and exciting methods to cut calorie intake; at worst, they may be medically incorrect for the person involved, unsustainable, or even deadly.

Before embarking on any diet, seek guidance from a dietitian. Despite fad diets might have a negative connotation for medical professionals, some have scientific evidence and therapeutic uses, such as the ketogenic diet, which is used for epilepsy or caloric restriction, and the Mediterranean diet for diabetes and obesity, with several creating similar benefits to commercial diets or conventional treatment when followed under professional supervision [33-38]. Fad diets provide inconsistent results since they comprise a range of foods. They often result in immediate weight reduction, although the weight is frequently recovered [30, 51].

The restricted approach, regardless of whether the diet calls for eating enormous quantities of high-fiber vegetables, no grains, or no solid meals, is nutritionally unsound and can cause major health issues if followed for more than a few days [51].

A significant problem of fad diets is the fact that they promote the idea of a diet as a temporary behaviour rather than a long-term lifestyle adjustment [51]. Indeed, fad diets frequently fail to re-educate dieters about healthy nutrition, portion control, and under-emphasize efforts, particularly physical activity, preventing followers from acquiring the skills and knowledge required for ongoing upkeep of their needed weight, regardless of the weight goal is achieved in the short term. Numerous diets are also ineffective in the long run, causing dieters to revert to old behaviours after depriving themselves of certain foods, perhaps leading to binge eating. Fad diets typically fail to tackle the root reasons of poor dietary practices, making it unlikely that they would modify the underlying behaviour or long-term consequences [51].

Some fad diets have been linked to an increased risk of cardiovascular disease, mental illnesses including eating disorders

and anxiety, as well as dental problems. Long-term low-carbohydrate, high-fat diets, for example, have been linked to higher cardiac and non-cardiac death rates. Teenagers who adopt trendy eating habits are at risk for severely impaired development. Some fad diets, on the other hand, offer both short-term and long-term benefits to people suffering from specific ailments like obesity or epilepsy. Very low-calorie diets, occasionally referred to as crash diets, are effective for reducing liver fat and losing weight prior to bariatric surgery [39, 40]. Low in calories and very-low-calorie diet may result in faster weight reduction within the first 1-2 weeks after starting than other diets, however this is because of a decrease in glycogen and water loss in lean body mass, which is rapidly restored [51].

Regardless of diet style, compliance and inadequate energy levels are the most important predictors of diet success in terms of weight reduction and health benefits. Fad dietary regimens, with their widespread adoption and diversity, may be effective in introducing obese people to long-term nutritional and lifestyle modifications under the guidance of nutrition specialists. Indeed, a wide range of diets aimed at modest reductions in calories under oversight, including advertisement, fad, and conventional diets, have demonstrated significant and similar effectiveness and security, both in both the short and long term. Dieting without direction is ineffective compared to comprehensive diet programmes. According to researcher David L. Katz, attempts to enhance public health through nutrition are hampered not by a lack of information about the ideal feeding of *Homo sapiens*, but by diversions caused by inflated claims and our failure to translate what we consistently know into what we consistently practice [41, 51].

### **Function of Food Fads**

Unique characteristics of food are overstated and stated to cure particular illnesses, and particular foods are forbidden from a diet due to the notion that they include dangerous components, the faith that certain foods or an amalgamation of foods has better health improvement, and a focus on eating 'health foods,' organic or natural foods being among these. As a consequence, the entire idea is very problematic, given that a healthy diet is primarily about sufficiency, variety/food variation, and balance. Food faddists practise starvation, a diet with few calories, and a high consumption of certain fruits and herbs, all of which reduce the basal rate of metabolism, which is dangerous. The majority of weight reduction might be attributed to fluid loss. Rapid weight increase after returning to usual eating habits [51]. It was discovered that society's dissatisfaction with the conventional healthcare system has led some people to seek alternative ways of life and eating habits. For example, the desire on women to be in specific shapes has grown, pushing many to seek fast cures. The wide range of ethnicities and natural remedies that result in fads may possibly account for a growth in the practice.

### **Reasons Behind Harmfulness of Food Fads**

Fads are, by definition, transient. Someone may discover that a simple method to being healthy lies at the heart of how food fads last so long. Nutrition is incredibly intricate and varies widely from individual to individual, as are diet programmes. There have been recent misconceptions concerning a new kind of papaya with nearly no seeds, with some believing that seedless papaya causes

infertility [51]. Adolescents and teens are not aware of the consequences of food faddism. They drink aerated drinks such as colas, which have little to no nutrition and are heavy in caffeine and sugar, both of which are addictive. Some people have great success adhering to a strict diet schedule, while others suffer adverse effects or see no improvement at all. Atkins, Veganism, Gans, and Paleo are merely a few diets that may do more damage than good if followed mindlessly. Vitamin deficiency can lead to disease and long-term health issues [44].

**How do dietary fads influence our bodies?**

- Weight increase- These diets will promote weight reduction, but it will be temporary since it is shed mostly through water and muscle tissues, rather than stored fats.
- Slow metabolism- Losing muscle mass reduces the Basal Metabolic Rate (BMR) because muscular tissue is biologically more metabolically active than fat tissue.
- Nutritional deficits- Fads limit people's eating options, resulting in vitamin and mineral deficits [51].

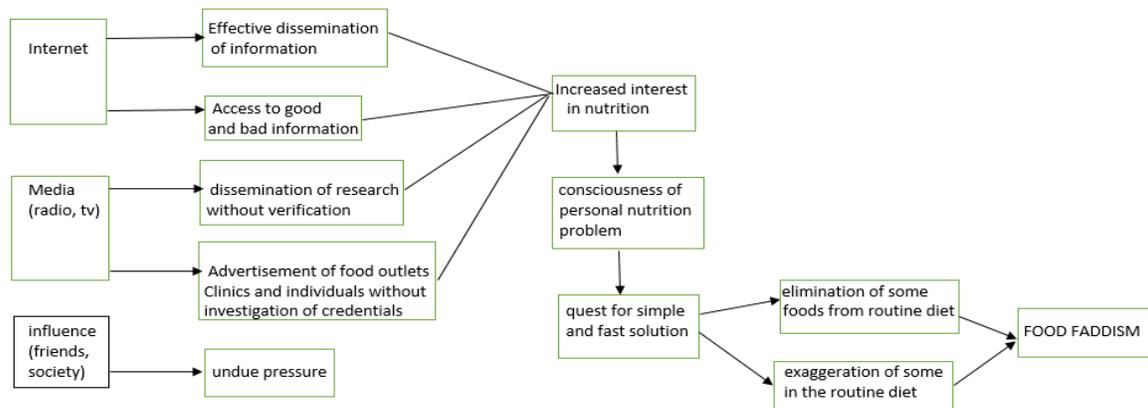
**The Myth of Nutritional Supplements**

One of the most common and costly forms of food faddism falsification in America today is the advertising of mineral and vitamin items, specific culinary foods, and dietary supplements. Millions of people are deceived about the necessity for such items. Mega-nutrients have been lauded as the solution to a wide range of physical and mental issues. If a nutrient improves health, may taking more of it generate super-health? There is a rising interest in using huge amounts of minerals and vitamins to treat a variety of conditions, including mental illness, sleeplessness and nervousness [51]. The majority of ourselves, who are ordinarily unconcerned about vitamins, take vitamin C (ascorbic acid) tablets with the first symptom of a runny nose. In fact, it is uncommon to find a household in which at least a single member of the household does not take some sort of supplementary vitamin on a daily basis. Many drugs that are innocuous in small especially moderate quantities can be hazardous in big amounts or if they accumulate in the body over time.

For example, too much vitamin A can cause a lack of appetite, stunted development in youngsters, skin drying and cracking, a larger liver and the spleen increased intracranial pressure, hair loss, migratory joint aches, menstruation problems, bone pain, irritation, and headache. Excessive vitamin D consumption can result in appetite loss, feeling sick, weakness, loss of weight, constipation, unexplained pains, stiffness, kidney stones, tissue calcification, high blood pressure, acidosis, and renal failure, all of which can be fatal. Large dosages of nicotine or nicotinamide, as recommended by “orthomolecular psychiatry” supporters, can induce extreme drainage, itchiness, liver damage, skin diseases, gout, ulcers, and blood sugar abnormalities [48, 51]. Excess vitamin E can induce headaches, nausea, fatigue, giddiness, mouth irritation, chapped lips, weakness in the muscles, low blood sugar levels, increased bleeding, and degenerative changes. Large amounts of vitamin E intake can induce impaired vision because they counteract the activity of vitamin A. Vitamin E can also diminish sexual organ function, which contradicts the misleading belief that it increases sexual potency [48].

Another technique to search for health problems is to consume significant amounts of ascorbic acid (also called vitamin C). In rare situations, it may decrease or eliminate the symptoms of a full-blown cold, similar to an antihistamine tablet. There is no convincing evidence that big dosages of vitamin C can prevent colds, thus it is not reasonable to take them in absence of a chill. There exists proof that high dosages of vitamin C supplementation can degrade significant quantities of the B12 vitamin in diet. If sufficient vitamin B12 is eliminated, you might develop a serious deficit. Furthermore, excessive vitamin C can harm developing bones, induce diarrhoea, create “come back scurvy” in newborn children whose mothers took such a high dose, have negative pregnancy effects, and cause kidney difficulties and inaccurate results in urine tests for sugars in those with diabetes. Nutrition educators must oppose the mega-nutrient obsession and encourage good health by highlighting the following fundamental facts: (1) Consuming excessive amounts of any one vitamin is harmful, and (2) Optimal nutritional health is achieved by eating a variety of nutrients every day [43, 48].

**Mechanism for the Practice of Food Faddism.**



**Figure 3: Summary of the mechanism for the practice of food faddism [44]**

### Electrolyte Disturbances in Chronic Malnutrition

The very high death rate associated with severe persistent infant starvation in Mexico City occurs mostly within the first 24 to 48 hours of hospitalisation and has been ascribed to electrolyte abnormalities. The Paediatric Departments of the Hospital Infantil Mexico and the Children's Hospital of Boston conducted a combined investigation on the intracellular composition and homeostatic processes in severe chronic malnutrition (F. Gbmez *et al.*, 1957). These authors argue that electrolyte abnormalities in chronic malnutrition ought not to be examined using notions obtained from investigations on well-nourished newborns. They note out that the consistently underfed youngster progressively adapts to his metabolic condition by slowing or nearly completely ceasing to grow. Diarrhoea recurs, and the sudden loss of electrolytes and fluids may overwhelm the child's natural defences, which have been disrupted by chronic metabolic abnormalities. Dehydration represents one of among the most noticeable alterations in this category of individuals. Dehydration is characterised by hypotonicity of the body's fluids, a lack of thirst, and, in severe instances, an increase instead of a reduction in urine production.

The child's excessive water intake, in comparison to his low sodium and potassium intake, led to a response to dehydration known as "functional diabetes insipidus," despite the fact that the kidney can respond to antidiuretic hormones normally. Potassium deficit is one of the five most noticeable symptoms of this illness, and it may not be associated with alkalosis, which is typical of potassium shortage in formerly well-nourished children. The commonly suggested therapeutic potassium intakes may be inadequate.

### III. CONCLUSION

Malnutrition is defined as a state of improper nutrition, which includes both undernutrition and overnutrition. The most common dietary concerns are protein energy deficiencies, vitamin A insufficiency, anaemia, and iodine deficiency disorders (IDD). PEM is most commonly detected in children due to a lack of protein or calories. While some people are actively involved in food faddism in some form or another, many more are at danger of doing so. To determine the underlying causes and effects of this practice on the most vulnerable population's health, comprehensive community-based research with a large sample size is necessary. Food faddism is prevalent in our community, driven by socio-demographic variables and lack of information. It is important to understand the function of general practitioners in public health education programmes. Family physicians may play a crucial role in educating the public on this important subject.

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### Conflict of Interest

The authors declare no conflicts of interest.

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