

# The Influence of Front-of-Pack Nutritional Labeling and Its Limitations on the Food Choices Process of Parents and Children

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**Abstract.** The prevalence of childhood obesity has increased in recent decades and has become a serious public health problem, as overweight and obesity are major risk factors for non-communicable chronic diseases. One of the main causes for this scenario is unhealthy diets with high consumption of foods rich in critical nutrients for health. In order to assist consumers in making healthier food choices, many countries have implemented Front-of-Pack Nutritional Labeling (FOPL), which provides easily understandable graphical information about the nutritional quality of the product. Few studies have assessed the effect of FOPL on the food choices of parents and children. The objective of this study was to conduct a literature review to evaluate the research conducted so far on the influence of FOPL on the purchasing process of parents and children. The results reveal a greater complexity than anticipated with the implementation of FOPL, as warnings had limited impact on parents and children when other associated factors were present.

**Keywords.** Front-of-pack, childhood, children, parents, behavior, nutrition, nutrition labeling.

## 1. Introduction

The World Health Organization (WHO) states that 70% of the leading causes of death worldwide are non-communicable chronic diseases (NCDs), such as cardiovascular problems and diabetes, with overweight and obesity being the main risk factors (1). In 2020, approximately 5.7 percent (38.9 million) of children under 5 years old worldwide were overweight, which is concerning considering the high risk of persistent obesity in adulthood and the development of associated diseases (2).

One of the main causes for this situation is unhealthy dietary patterns characterized by excessive consumption of calories and critical nutrients for health, such as sugars, saturated fats, trans fats, and sodium. These nutrients are present in large quantities in ultra-processed foods, whose availability, accessibility, and marketing have increased in recent decades (1).

In response to this situation, many countries have implemented public policies to promote healthier diets. An important strategy is the use of front-of-package nutritional labeling (FOPL), which provides easily understandable graphic information about the

nutritional quality of the product (3). So far, approximately 40 countries have adopted FOPL as a complement to the nutritional table (4). This policy is considered a valuable tool to guide consumers towards healthier food choices (5).

However, the food purchasing process is complex and involves various factors that influence the consumer. In the case of children's influence on family purchasing decisions, there are still limited publications. According to (6), parents play an important role in the quality of their children's diet and the home food environment by limiting the purchase of highly palatable and calorie-dense foods. However, other studies point out that children are also significant influencers of family eating behavior (7) and can act as agents of change for their families (8),(9)

Regarding the influence of FOPL on the perception of children and parents during the food choice process, the available studies are limited, and the results reveal greater complexity than initially anticipated.

Therefore, the present study conducted a literature review to assess the current understanding of the influence of front-of-package nutritional labeling (FOPL) on the purchasing process of parents and children.

## 2. Research Methods

This work was carried out in the form of a literature review. The databases searched were Scopus, Web of Science and ScienceDirect and keywords used were (A) "front-of-pack" AND childhood AND behavior; (B) "front-of-pack" AND parents AND behavior; (C) "front-of-pack" AND children AND nutrition; (D) "front-of-pack" AND childhood; (E) "nutrition labelling" AND childhood; (F) "front-of-pack" + childhood + "nutrition labelling". As not many studies were found, no publication year limitation was applied. The only filter selected was open access. 48 references matched the terms of the search.

All the articles found were evaluated, and the relevant ones were assessed based on the following inclusion and exclusion criteria: (1) papers that investigated the relationship between parents and children in the food purchasing process, and (2) papers that discussed the influence of front-of-pack labeling (FOPL) on parental and child behavior. Articles evaluating other label characteristics, such as nutrition and health claims, were excluded. The total number of included articles was 6.

## 3. Results

A Brazilian qualitative study analyzed parents' perception of the influence of their children on food purchasing decisions. The results showed that children's influence was present in 88% of cases, while parents' perceived influence was 66.8%, indicating that children may have a greater influence on purchasing decisions than their parents perceive (7).

In the study conducted by (10), the greater influence of children in the food purchasing process was significant in families with lower education levels. Although 60% of parents considered front-of-package (FOP) warning messages important on labels, families with lower education levels reported purchasing products based on habits and traditions and had difficulty understanding FOP, with a higher likelihood of purchasing products with "high in".

In the qualitative study by (8) with Chilean mothers, a positive influence of children on changes in family eating behavior was observed. The data showed that mothers understood food labels well and that front-of-package nutritional warnings influenced their purchasing decisions, especially regarding new foods. In this case, children from low and middle socio-economic levels have acted as agents of change within their families, disseminating label-related information learned in schools and contributing to the positive effect of regulation. However, mothers reported fatigue due to the excess of products with warnings and the lack of options without these messages.

In the most recent study by (9), the impact of front-of-package warnings on the Chilean population was evaluated after four years of law implementation.

While an increase in mothers' understanding of labeling was observed, the consumption of products with nutritional warnings became frequent again in families with low socio-economic status during school closures amid the Covid-19 pandemic. This demonstrates the important role that schools played in promoting healthy eating behaviors among children and their families. However, it became evident that increased knowledge alone may not be sufficient to change purchasing patterns, indicating that low socio-economic status is a factor that hinders access to healthy foods due to their higher cost. Similar to the previous study, a trend of desensitization to warnings over time was observed among mothers, who reported fatigue due to the presence of many products with these messages.

The study of (11), which evaluated the perception of second-grade elementary school children regarding the effects of the Chilean Law on Food Labeling and Advertising (FLAL) in the peripheral region of Magallanes, arrived at contrasting conclusions with other research. The results indicated little influence of the law on children's nutrition, as they did not change their food choices and preferences, despite understanding the front-of-package warning system well. The reasons identified in the study were parents' lack of time for meal preparation, their lack of awareness of their children's obesity condition, low access to fresh foods due to limited variety and high cost, and insufficient quality and quantity of nutrition education actions in schools. The findings of this study confirm the need for a combination of measures that involve parents and their work conditions, community, and access to healthy foods in order to effectively reduce childhood obesity in peripheral populations.

These last two studies converge on the importance of the active role that parents play in establishing children's eating behavior in the domestic family environment. In their work, (6) states the need for parents, especially those with lower educational levels, to receive guidance on how to establish long-term healthy habits.

## 4. Discussion

In all the studies analyzed, the majority of participants showed a good understanding of Front-of-Pack Nutrition Labeling (FOPL), indicating that the goal of assisting the population in understanding labels has been achieved. However, it is important to note that there is a tendency towards insensitivity to warnings and fatigue due to the presence of many products with these messages and limited options in the market for labels without warnings.

Most studies reported that FOPL has led to a positive change in product choices, with a reduction in the purchase of products with warnings. The influence of children in this process was significant, with studies indicating that children may have a greater influence than parents perceive, especially in families with lower levels of education (7).

However, some studies have shown that the socioeconomic status of parents is a powerful limiting factor in the effectiveness of the policy in low-income families. Children influenced the food choices of these families when the educational actions of their schools were effective. However, this influence did not occur when other factors were present, such as school closures during the Covid-19 pandemic (9), parents' work overload, their lack of awareness about their children's obesity, low access to fresh foods, and insufficient nutrition education actions in schools (11)

Given this limitation of children and schools' influence, it is important to consider the role of parents in the purchasing process. Parents who are aware of the importance of food healthiness may limit the purchase of ultra-processed products and encourage the consumption of fruits and vegetables by their children (6). For this, (6) emphasizes the need for parents, especially those with lower levels of education, to receive guidance on how to create healthy long-term habits. Additionally, and no less importantly, it is necessary for this awareness to be accompanied by policies that expand access to healthy foods (9).

## 5. Conclusion

Front-of-Pack Nutrition Labeling (FOPL) appears to have a positive impact on consumers' understanding of labeling and the modification of their purchasing decisions. However, the purchase of products with nutritional warnings is still reported by a significant percentage of people, especially those with low income, indicating that other factors related to socioeconomic status also impact food choices.

The influence of children on food purchasing decisions is perceived by many parents, especially in families with lower levels of education. This suggests that children have a significant influence on family food choices, even if parents are not fully aware of it. Thus, nutrition education in schools seems to play an important role in changing the eating behavior of children and their families.

However, these actions may not have the full positive effect expected in promoting healthy eating in situations of socioeconomic vulnerability and lack of options without nutritional warnings in the market. Therefore, it is crucial to combine measures that expand access to healthy foods for the entire population, promote educational actions for parents and children, and encourage the reformulation of processed foods to increase the availability of products without warnings in the market.

These conclusions contribute to the understanding of the impact of FOPL, demonstrating the potential of different social actors in building a healthy home food environment, as well as their limitations in the face of other relevant factors in the purchasing process, such as socioeconomic status.

## 6. References

1. World Health Organization. NUTRITION LABELLING: POLICY BRIEF. Avenue Appia 20, CH-1211 Geneva 27, Switzerland; 2022 Jun.
2. United Nations Children's Fund (UNICEF) WHOIB for R and DWB. Levels and trends in child malnutrition. Geneva; 2021 May.
3. Batista MF, de Carvalho-Ferreira JP, Thimoteo da Cunha D, De Rosso VV. Front-of-package nutrition labeling as a driver for healthier food choices: Lessons learned and future perspectives. *Compr Rev Food Sci Food Saf.* 2022 Jan 1;
4. Silva T, Ribeiro A, Santos C, Almeida P. MODELOS DE ROTULAGEM NUTRICIONAL FRONTAL DE ALTO CONTEÚDO DE NUTRIENTES CRÍTICOS COMPARADO A OUTROS MODELOS DE ROTULAGEM FRONTAL NUTRICIONAL: UMA REVISÃO SISTEMÁTICA. Brasília; 2019.
5. World Health Organization. Guiding principles and framework manual for front-of-pack labelling for promoting healthy diet [Internet]. Geneva; 2019 May [cited 2023 Apr 8]. Available from: <https://www.who.int/publications/m/item/guidingprinciples-labelling-promoting-healthydiet>
6. Scaglioni S, De Cosmi V, Ciappolino V, Parazzini F, Brambilla P, Agostoni C. Factors influencing children's eating behaviours. Vol. 10, *Nutrients*. MDPI AG; 2018.
7. MacIel WRE, De Oliveira Lima-Filho D, Quevedo-Silva F, Sauer L. Children's influence on the decision-making process in food buying and consumption on the family. *Revista Brasileira de Marketing.* 2018 Dec 1;17(4):545–60.
8. Correa T, Fierro C, Reyes M, Dillman Carpentier FR, Taillie LS, Corvalan C. Responses to the Chilean law of food labeling and advertising: Exploring knowledge, perceptions and behaviors of mothers of young children. *International Journal of Behavioral Nutrition and Physical Activity.* 2019 Feb 13;16(1).
9. Correa T, Fierro C, Reyes M, Taillie LS, Carpentier FRD, Corvalán C. Why Don't You [Government] Help Us Make

Healthier Foods More Affordable  
Instead of Bombarding Us with Labels?  
Maternal Knowledge, Perceptions, and  
Practices after Full Implementation of  
the Chilean Food Labelling Law. *Int J  
Environ Res Public Health*. 2022 Apr  
1;19(8).

10. Dourado DQS, Ramires TG, Flores JA, Fernandes ACP. Impact of front-of-pack labeling on food purchase pattern in Chile. *Nutr Hosp*. 2021;38(2):358–65.
11. Pfister F, Pozas C. The influence of Chile's food labeling and advertising law and other factors on dietary and physical activity behavior of elementary students in a peripheral region: a qualitative study. *BMC Nutr*. 2023 Dec 1;9(1).