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## RESEARCH

# Childhood and eating habits: a bioethical study on vulnerability and risk

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## Abstract

This is a qualitative, exploratory, and cross-sectional field study, developed with parents of students from two schools in cities located in the South of the state of Minas Gerais, Brazil, totaling 27 participants. The participants answered questionnaires in a workshop and attended an informational lecture. We sought to evidence the effects of the food industry on children's diets, as Brazil is experiencing a significant increase in overweight, obesity and chronic non-communicable diseases in childhood. It became clear that advertising takes advantage of the vulnerability and lack of knowledge of parents and guardians by influencing their choices. To address this problem, the article discusses the need to protect the population by nutrition education, laws, and regulations.

**Keywords:** Child. Food industry. Health vulnerability. Bioethics.

## Resumo

### Infância e práticas alimentares: estudo bioético sobre vulnerabilidade e risco

Trata-se de estudo de campo, qualitativo, exploratório e transversal, desenvolvido com pais de alunos de duas escolas de cidades do interior de Minas Gerais, totalizando 27 participantes. Foi realizada oficina em que os entrevistados responderam questionários e assistiram a palestra informativa. Buscou-se evidenciar os efeitos da persuasão da indústria alimentícia sobre a dieta das crianças, visto que o Brasil vem enfrentando aumento expressivo de sobrepeso, obesidade e doenças crônicas não transmissíveis também na infância. Ficou claro que a publicidade se aproveita da vulnerabilidade e falta de conhecimento de pais e responsáveis para influenciar suas escolhas. Para enfrentar esse problema, o artigo demonstra a necessidade de proteger a população por meio de educação nutricional, leis e regulamentação.

**Palavras-chave:** Criança. Indústria alimentícia. Vulnerabilidade em saúde. Bioética.

## Resumen

### Infancia y prácticas alimentarias: estudio bioético sobre vulnerabilidad y riesgo

Este es un estudio de campo, cualitativo, exploratorio y transversal, desarrollado con padres de alumnos de dos escuelas de ciudades del interior de Minas Gerais, con un total de 27 participantes. Se realizó un taller en el que los entrevistados respondieron cuestionarios y asistieron a una charla informativa. Se pretendió poner de manifiesto los efectos de la persuasión de la industria alimenticia en la dieta de los niños, dado que Brasil enfrenta un aumento significativo del sobrepeso, de la obesidad y de las enfermedades crónicas no transmisibles, incluso en la infancia. Se evidenció que la publicidad se aprovecha de la vulnerabilidad y de la falta de conocimiento de padres y responsables para influenciar sus elecciones. Para afrontar ese problema, el artículo demuestra la necesidad de proteger a la población por medio de educación nutricional, de legislación y de regulación.

**Palabras clave:** Niño. Industria de alimentos. Vulnerabilidad en salud. Bioética.

Overweight, obesity and chronic non-communicable diseases (NCDs) have significantly increased among the Brazilian population, also affecting children, according to the *Dietary Guidelines for the Brazilian Population* developed by the Ministry of Health<sup>1</sup>. This group has been exposed to ultra-processed treats whose consumption is encouraged by the food industry through often disguised advertising mechanisms<sup>2</sup>.

Mismatched news, out-of-context scientific information and confusing labels are examples of industry strategies to win over new and loyal consumers, determining their behavior and inducing needs. Confused by such strategies, many families tend to consume ultra-processed foods believing they are eating healthy<sup>3</sup>.

In this century, human freedom lives with vulnerability – something apparently contradictory, but congruent when considering that people have become disposable pieces of a tireless market, and that growing industrial conglomerates are boosted by people's ignorance. Thus, this article aims to show how this process develops in the specific case of the food industry, which persuades parents and guardians and thereby generates a childhood NCD epidemic that puts this generation and future ones at risk<sup>4</sup>. Bioethics underpins the study's reflections, as issues related to childhood are pertinent to its interdisciplinary approach, integrating family, society, health, education, justice, risk, and vulnerability.

## Method

This article presents results of a qualitative, exploratory, and transversal field study carried out in two cities in the south of the state of Minas Gerais, Brazil. The sample consisted of 27 parents of students, with data collected by a questionnaire with open questions, regarding family diet.

Seeking to deepen the information, the participants attended a workshop with a second questionnaire, containing images of food, to learn about their choices and criteria. In addition, a lecture was held to identify the parents' reaction when confronted with nutritional information on the foods shown in the second questionnaire. The audio of the lecture, including the participants' comments, was recorded and transcribed.

The analysis comprised two stages. First, we statistically treated the data using the Microsoft Excel software, and plotted the responses to the questionnaire, grouped into categories according

to each question. Then, we submitted the audio transcripts to content analysis, a method that systematically describes and reinterprets the content of texts, which allowed a complex reading<sup>5</sup>. The research followed the guidelines of Resolution 466/2012, of the Brazilian Health Council, which defines ethical procedures for research with human beings<sup>6</sup>.

## Results and discussion

Figures 1 and 2 show the motives of the participants' choices. The first refers to food for the whole family, indicating the prevalence of items "price" and "brand." In Figure 2, as responses concern exclusively food for children, the context changes, gaining a health-related character in almost all mentioned elements.

The results regarding purchases for children confirm a research by Pinheiro and collaborators<sup>7</sup>, which highlighted the growing concern of consumers with health and the consequent search for products considered healthy. When verifying the change of criteria from one graph to another, the parents' concern with their children's diet is evident, despite the alarming rise of NCDs among children. This divergence is intriguing, but it can be explained, as is reported further, by the misconceptions about what a healthy food product is.

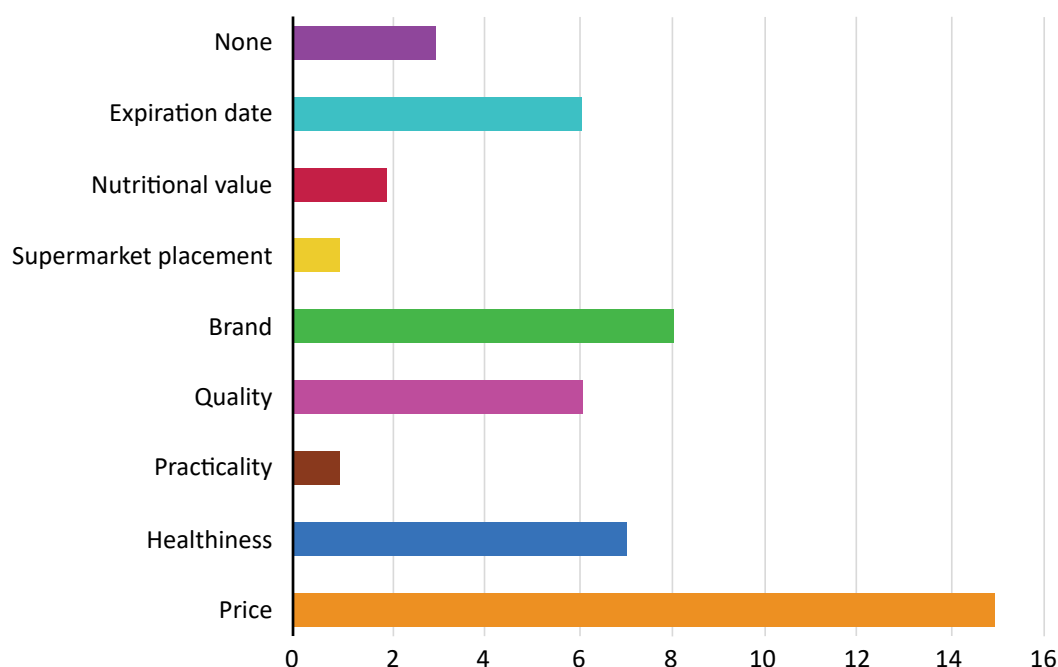
This is illustrated by the content analysis of the participants' speech, who saw images and declared their choices, explaining the criteria used. We organized the answers in thematic axes, by identifying similarities among opinions. We present and comment them in the following sections.

### On food being healthy

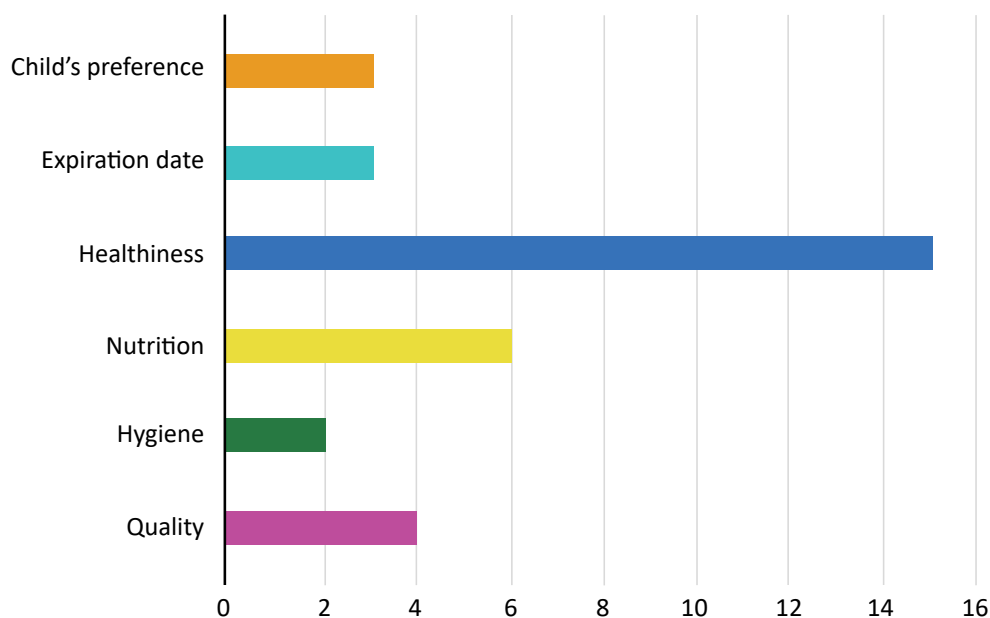
The adjective "healthy" was related to several foods in the questionnaire, generally associated with the absence or reduced levels of "fat," without detailing its type or origin (vegetable, animal or artificial). The term was also often related to light products:

*"At home I only use skimmed milk, even for children, because it has less fat. So they get used to not consuming too much fat (...). We use margarine, but the light one, or the one with a substance for the heart. They say it's not bad for your health, the kids like it, so I end up buying it"* (Participant 7).

**Figure 1.** Generally considered motives when purchasing food, according to the number of mentions



**Figure 2.** Motives considered when purchasing food for children, according to the number of mentions



*"I buy Brazilian cream cheese, because it is more practical, especially for making school snacks, but I prefer it light, because it has less fat" (Participant 3).*

*"At home, as it is always a rush, I end up buying that concentrated [juice] to dilute, and the powder one.*

*But I buy the light version because I've heard that the regular is not so healthy" (Participant 6).*

*"I only buy smoked turkey breast deli slices for home because I know it's the best. It's made of turkey, not pork, right?! It has less fat" (Participant 2).*

*"I use margarine because I'm diabetic, so I buy the margarine that is good for the heart. All my children eat it too. There's something written on its package saying it. Something like 'good fat,' I think"* (Participant 10).

*"What we use there is also semi-skimmed [milk] because it has less fat. Because the whole milk has more fat and, depending on the person, this fat is a little bad, so we are choosing to use this one"* (Participant 12).

*"I buy hot dog sausages, for practicality. The product is almost ready, isn't it? It doesn't take much work. Then we buy chicken sausage so its lighter, with less fat"* (Participant 15).

The records show a pattern of food choices when the main criterion is health. The negative perception of "fat," considered synonymous with obesity and heart disease, is not new, while "low fat" and "no fat" bring the idea of "healthy."

According to Pollan<sup>8</sup>, individuals radically change their thinking and way of dealing with food influenced not only by advertising, but also by government actions and authorities in science, nutrition, and public health. Regarding fats, stigmatization began at the turn of the 1980s to 1990s, when research groups from Harvard University recommended that people reduce the consumption of saturated fats – from animals – by substituting butter for margarine, for example. This approach, known as lipid theory, claimed that the substance was associated with heart disease.

Only three decades after this period of fat-aversion – which still reverberates today – it became clear that research on lipid theory had no scientific rigor equivalent to the importance they gained in the United States and worldwide. As Hu and collaborators show, *today, it is increasingly recognized that the low-fat campaign was based on little scientific evidence and may have produced unintended consequences*<sup>9</sup>.

The lipid theory ended up promoting products such as margarine and vegetable cooking oils, leading most consumers who read food product labels to look for "fat" as the first information of interest<sup>10</sup>. Such behavior prompted industries to develop a series of tricks to convince consumers that a certain product has reduced amounts of fat.

Moss<sup>10</sup> cites the example of milk, whose sales dramatically reduced when the concern about fat reached its peak. Expressions like "low fat" or "2%" were the industry responses to the crisis,

and then the semi-skim and skim types gained popularity. The insidious in this example is that the "2%" leads to believe that 98% of the fat was removed from the product for consumer benefit, when in truth a whole milk contains only 3% more of the substance. Thus, the food industry is able to maintain a supposedly low lipid content by adding greater amounts of sugar to the food<sup>11</sup>.

Light products also result from this fat aversion, which has diversified the market and guaranteed more profits for the industry. These health "friends" do have lower levels of fat or sugar compared with regular products of the same brand; but, to maintain flavor or consistency, this reduction is accompanied by chemical additives, such as flavorings, and above all sodium, which increases blood pressure. On the product packaging, however, such information lacks the same prominence as the word "light." Thus, consumers believe they are buying something healthy, but are actually consuming substances they are unaware of, many of which are related with chronic diseases<sup>12</sup>.

The interviewees repeatedly mentioned sugar and preservatives, considered a cause of concern at the time of purchase, without explaining how these substances affect health negatively. We also noted that information on the packaging such as "added vitamins," "vegetable flavor" or "poultry protein" is read as indicating a healthy food:

*"In the same way as chocolate milk powder, we use powdered juice, and then we dilute it even more. I think this way it's not that sweet, right?!"* (Participant 6).

*"At home, I only allow regular cookies, without filling, because the filling has too much sugar, right?!"* (Participant 1).

*"At home I use light chocolate powder milk, with less sugar, and for the boys' snack I use the chocolate drink box, also light, because it's even easier"* (Participant 7).

*"I buy hot dog sausages, but made of chicken, and homemade sausages, from the butcher, because I believe chicken is healthier than cow as it has less preservative"* (Participant 2).

*"At home we only use powdered juice, because only my daughter drinks juice; she prepares it herself, and also it's the cheapest. And we buy those light ones as they are healthier"* (Participant 12).

*"It [instant noodles] is more practical and delicious and if it is the vegetable one, I think it's not too bad. Even the children like it" (Participant 20).*

*"I use it at home [pre-cooked food with vitamins and minerals] because my daughter likes to take smoothies with it. I think it's healthy for her. We can read in the can that it contains a lot of cereals and vitamins, right?" (Participant 8).*

*"I use [seasoning mix packet] as it is more practical and makes the food tastier too. I use the one with vegetables' flavor instead of meat because I think it is healthier" (Participant 13).*

Such reports reflect government campaigns worldwide, which warn against the excessive consumption of sugar and preservatives – especially salt – for causing diseases such as diabetes and high blood pressure, respectively. Sugar and salt have long been part of human food, but in their original forms, and not hidden under other names as in almost all ultra-processed foods. There is salt in sweets (chocolate, soda, yogurt) and sugar in savory (frozen lasagna, canned peas and corn, smoked turkey breast deli slices and seasoned chicken).

As Moss<sup>10</sup> states, until the early 1980s the food industry promoted sugar as a source of pleasure: "sweetened with honey," "sugary layer," or "creamy and crystallized." And the same happened with salt, which appeared in advertisements as "salt of the earth." This type of advertising remained until the consequences of the obesity and hypertension epidemics became explicit<sup>12</sup>.

Brazil joined the campaigns on the excessive use of these substances since the country has been suffering from their negative impact on health. The *Dietary Guidelines for the Brazilian Population*<sup>1</sup> strongly defends a healthy diet beyond the mere intake of nutrients. However, when the consumer goes to the supermarket shelves, labels, and packaging focus precisely on "nutrients."

With a false sense of knowledge, consumers seek and buy supposedly sugar- and salt-free products or with reduced levels of these substances. However, what they ignore is that such ingredients, thanks to food technology, have different names and presentations that facilitate their permanence in the products without appearing on the packaging. For salt, we have several sodium-based components, such as monosodium cyclamate, an artificial sweetener present in light products.

The same is true for "added sugars," extracted from sugar cane, beets, corn, for use in culinary or processed preparations. Among them are syrups such as fructose, which causes hepatic steatosis (popularly known as fatty liver disease), a pathology observed in 42.9% of a sample of 77 obese children in the research by Duarte and Silva<sup>13</sup>.

These examples show that it is possible to hide a certain substance in food products, impairing the autonomy of parents who manage theirs and their children's health. Amid so much mismatched information, the task of becoming aware is arduous.

We present, as follows, the participants' reactions to the information given in the lecture, regarding food, its ingredients, and chemical additives. Based on the elements most mentioned by the interviewees we listed as the main analysis categories: "chemical ingredients and additives" and "labeling and media."

### On chemical ingredients and additives

Most comments focused on the chemical components added to food products, generating several reactions among participants:

*"Good Lord! I haven't realized the use of sweeteners! I even gave my son a [light] yogurt with this sweetener which I don't remember the name of now, but if I knew better, I wouldn't have given him. I don't think a child should take artificial sweeteners" (Participant 3).*

*"I am happy and relieved now because I tried so hard to give my daughter concentrated juices or syrups, but she doesn't like them. She only accepts the natural ones. And I've tried them because I thought they were safe, and they are practical, right?" (Participant 6).*

*"Oh no! My kids only eat sausage pizza! I give them a lot... Oh no! If I knew, I wouldn't feed it to them as often as I do, I swear!" (Participant 1).*

*"I am shocked to know that even some infant formulas have components that are harmful to children! Because when you buy it, you don't imagine such a thing!" (Participant 5).*

*"About the [name of the product] it was very shocking to know it has sugar syrup. I had no idea, and my son eats it every day" (Participant 10).*

*"I didn't know turkey breast slice was processed meat. I was sure it was healthy because it is more expensive than the others. It even contains*



*glutamate, right?! Oh Lord, we don't know what we're eating"* (Participant 3).

*"I was shocked by the list of ingredients for whole-grain breads and crackers. My son has diabetes and high triglycerides and has been eating these things for a year, thinking he'd get better, but his tests are still the same"* (Participant 2).

*"The composition of the hot dog sausage also impressed me. Because, my daughter, oh Lord! If I let her, she would eat it every day and at every meal"* (Participant 13).

The difference between speeches after the participants received information on the products is clear. Expressions of admiration and surprise stand out. With adequate knowledge, many of the foods described as part of the children's routine would be absent from the diet or less frequent consumed.

We also emphasize the strong media effort to stimulate the consumption of a certain product, highlighting some of its aspects and omitting others. Moss<sup>10</sup> draws attention to the food industry's exceptional ability to turn adversity into advantage, commenting on the strategy of a multinational company that manufactures ultra-processed chips and corn chips. Cornered by scientific discoveries on the harms of high sodium consumption, this company saw in the obesity epidemic that emerged in the 1990s an ingenious way of maintaining its sales, even increasing them. By mastering information about overweight in the population, the company replaced its packaging, highlighting information about calories and concealing the sodium, demoted to a supporting character.

Advertising convinces consumers to purchase a certain food, concealing their manipulation. In general, such actions promote superfluous products, empty sources of calories, reinforcing consumption patterns related to the prevalence of chronic diseases. Therefore, as participants' reactions show, nutritional education is extremely important<sup>14</sup>.

This educational process requires confronting the influence of advertising and the media on eating habits by developing approaches that address the problem in biological, social, and cultural dimensions. Deterioration of the environment and the quality of life generated by the "solutions" of food technology are also global bioethics issues<sup>15</sup>. As such, the workshop with the research participants sought to inform about everyday issues, but always leading to deeper discussions:

human rights, citizenship, consumption, ethics, and democratization of knowledge<sup>16,17</sup>.

Lima, Oliveira, and Gomes<sup>18</sup> emphasize nutritional education as a tool for empowering and changing the eating habits of vulnerable groups to erase wrong practices influenced by the food industry. It is a moral problem that generates damages and concrete needs and can only be solved by protecting the most affected, aiming to develop their potential so they no longer need this support and may choose in an informed manner<sup>19</sup>. Nutritional education protects by promoting consumer autonomy, outlining a profile of citizens who know, think, and transform their own reality<sup>20</sup>. However, to accomplish this, we must guarantee real alternatives and good conditions of choice.

The participants' speech lack autonomy, as the ability to consciously choose between alternatives is limited. Maintaining such capacity when facing high industry investment to change habits can be difficult, but it is necessary<sup>21</sup>.

### On labeling and media

This category analyzes the participants' reactions regarding the strategies of the food industry to sell their products:

*"Good Lord! This should be taught in high school! It's absurd that we don't know how to read labels or have access to all these things with these strange names! It's absurd. I'm outraged!"* (Participant 1).

*"Can I take a photo [of the list of different names for trans-fat] for when I go to the supermarket? I'm shocked by the number of names, which are all the same thing, but we are unaware of it. Oh Lord!"* (Participant 4).

*"Good Lord! Look at this! I'm feeling ignorant reading these things! I had never heard anything about it"* (Participant 7).

*"They [the media] just want to achieve their goals, profit, and do everything to get the children's attention, and parents don't play their part, because are also lost (...). Oh, it seems they use these advertisements just to encourage us to eat it together with a salad, just to look healthy. It's very sad"* (Participant 5).

*"What I find interesting is that I watched a documentary about the food industry recently. So, it is unconcerned with the population's health, but strives to make us consume their products, right?! It*

wants us to keep eating... The food industry grows, and our health goes down the drain" (Participant 1).

The reactions of outrage mainly concern the many possible nomenclatures for the same ingredient and to the little or no disclosure of information, which allows the cunning action of advertising. After learning about the composition of foods, the participants found ultra-processed manufacturers hide their basic interest – profit – behind altruistic slogans highlighting practicality and health.

The food industry and consumers are connected during purchase by product packaging, where advertising and information regulated by standards coexist. Encouraging consumption through phrases, images, colors, or design removes attention from nutritional tables and lists of ingredients that offer fundamental data. The full right to information depends on the ease with which the label content is transmitted to consumers, helping them make healthier choices<sup>22</sup>. This role, however, depends on powerful marketing strategies, as *labels speak through brands. And brands talk a lot, and out loud, with pyrotechnic methods of sales promotion. Methods that work towards their goals: they sell because the public listens to what they say*<sup>23</sup>.

The Brazilian Consumer Protection Code establishes, as a basic right, in item III article 6, access to *adequate and clear information about the different products and services, with the correct specification of quantity, characteristics, composition, quality, incident taxes and price, as well as the risks they present*<sup>24</sup>. This principle, however, is mostly disregarded: consumers are constantly harassed and deceived by misleading advertisements, assuming in this relationship where they supposedly hold greater (purchasing) power, the most vulnerable role. Given this scenario, nutritional education can enable citizens to choose free from instruments subordinated to the industry's interests<sup>25</sup>.

The media have the potential to inform what is nutritious, healthy, and appropriate, but can also direct consumer behavior to the opposite side. Reason why it is crucial to strengthen health discourse, empowering the population. Bioethics can contribute to this objective, as it contains theoretical and methodological perspectives that aim to improve and consolidate citizenship and autonomy, which are disrespected in this context. Such perspectives help face the dehumanizing mechanism around food choices, modifying practices established by the dominant economic model<sup>21,26,27</sup>.

They will certainly continue to exercise their extraordinary power of persuasion; thus, it is necessary to protect the population's health and, above all, the children's, who are doubly vulnerable as they depend on their parents or guardians' choice, who are also vulnerable. The critical analysis of the possibilities of bioethics acting concretely in such reality constitutes a useful effort<sup>12,25,28</sup>.

## Final considerations

Stimulated by the objective of achieving profit, the food industry negatively affects the quality of life and the consumers' power of choice. This occurs both in large urban centers, as already registered in the literature, and in smaller cities, such as in this study. Risks related to food in large centers begin to appear in these places.

The workshop developed during the research transformed information into action, generating concrete results by allying the researcher and the population studied. This interaction meets the bioethical references used, which propose interventions in defense of basic principles. It became clear how parents change their behavior when they access knowledge about their children's food. This shows how nutritional education is important to face the logic that turns food into merchandise, hiding its true content for profit.

The result of this research would certainly have been different if nutritional education had been given due importance. As such, the public sphere must develop initiatives, by instituting a code of ethics or strict regulation on the information conveyed in advertisements and food labels. This would benefit not only consumers, but also the companies concerned with ensuring the good quality of their products and honestly informing the population.

Public policies aimed at the population's food education are also needed, and health professionals and consumer protection agencies play a fundamental role in this process. Such policies must be combined with the regulation of the entire production chain, since only basic knowledge does not guarantee the full exercise of autonomy, as shown by the results of this research.

A protected consumer with critical posture can exercise their autonomy using the purchase power to challenge or honor a particular food, consequently preserving the health of the children for which they are responsible. Nutritional



education, therefore, helps guarantee the right to health, which is crucial for full child development.

It is paramount to expose what hides behind the seductive packaging: diseases that many people suffer without understanding their origin. Nutritional education must commit to the principles

of bioethics, as this union allows us to perceive, examine and understand the multiple factors of the issue. Only from a multiple perspective, covering the complexity of this issue, will the population – and especially children – be effectively empowered and protected, reducing vulnerabilities and guaranteeing the right to adequate food.

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Camila Blanco Guimarães wrote the article under the supervision of Camila Claudiano Quina Pereira.

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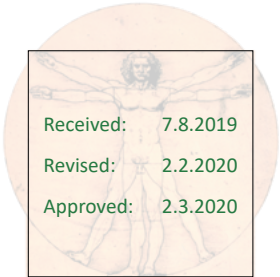
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