

Eixo Temático: Inovação e Sustentabilidade

HEALTH CLAIMS IN BRAZIL: HELPING THE PUBLIC OR MISLEADING INFORMATION?

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ABSTRACT

The first phase of this study consisted of reviewing the literature related to food labels and its national and international legislations. After that, selected pre-packaged food labels were analyzed in a supermarket situated in the city of Porto Alegre, south of Brazil, considering their nutrition and health-related claims (NHC). From that, the main objective of this study was to identify and analyze these claims. From the products comprised in 9 different food categories, 87 had at least one NHC and, therefore, composed the group of analysis. Most of the claims consisted of nutrition claims (66,53%), followed by health-related ingredient claims (20,34%) and health claims (13,14%). The most common nutrition claims consisted of vitamins (44,2%), with vitamin C representing almost a quarter of the vitamin claims. Regarding health-related ingredient claims, more than a half of them comprised of the lack of conservatives in the food. Health claims consisted mostly of subjective sentences implying that the consumption of the food in question was a "healthy choice" or "source of health". Consumers should know how to evaluate these claims when choosing a food product, avoiding possible misunderstanding.

Keywords: Food label, legislation, nutrition claim, health claim, food products.

1. Introduction

The international lack of health is highly increasing the number of people with diseases related to the high consumption of unhealthy foods, which not only do not contain the necessary nutrients that a human body needs to be healthy, but are also rich in saturated and hydrogenated fat, sugar and carbohydrates. According to FAO's 2014 report, the global prevalence of overweight and obesity has risen in all regions and is also increasing in nearly all countries. Numbers like these are worrying agencies that are responsible for protecting the consumer's health and the population itself. Consumers gather information about the foods they purchase from a wide variety of sources: family knowledge, education, the media and advertising all convey messages about different food characteristics; information may also be found on the food product label (HAWKES, 2004). There is a lot of information displayed on food labels that might be misleading, considering food companies' frequent use of ambiguous words and confusing terms (CELESTE, 2001). The food label is an important tool for improving the public's understanding of the health benefits of following a nutritious diet (LEGAULT, 2004), but is crucial that the information is clearly and correctly displayed. Thus, international and national agencies develop and implement legislations which will try guarantee the legitimacy of packed food nutritional labels and will provide enough information for consumers to be able to understand the importance of each nutrient, which ones they need to maintain their health and the ingredients to avoid, as also other important habits to adopt.

2. Labels

Food label is an important tool for improving public's understanding of the health benefits of following a nutritious diet (LEGAULT, 2004). In a restricted way, labels provide information about food that may help consumers count calories or select food products for special diets (BENDER; DERBY, 1992). Foods with claims in the label are regulated by the legislation that allows both functional and health claims (LAJOLO, 2005).

On food products, information about the nutritional content and health benefits has an important role (LWIN, 2015). Nutrition labeling is an attempt to provide consumers, at the point of purchase, with information about the nutrition content of individual food products, in order to enable consumers to choose nutritionally appropriate food (GRUNERT; WILLS, 2007). Health has become a criterion used by some consumers to select foods, so they can draw on their own knowledge of food or on nutrition information provided on food packaging in one of three forms: back-of-pack nutrition information, usually in tabular form, front-of-pack information, usually in a condensed form as compared to back-of-pack, and nutrition and health claims (RAATS et al., 2015).

Labels are the principal channel to manufacturers communicate to its consumers information about food products (LWIN, 2015). Chandon (2012) defines packaging as all the ways food and beverages are boxed, wrapped, arranged and presented to consumers in retail stores or restaurants, being an important marketing tool, once they reach consumers at the time of consumption. The package is the first contact between food and consumer (DELIZA et al., 2004) and an excellent vehicle for communication, giving visual cues, named as symbols, on the package to communicate health-related information (CARRILLO et al. 2014).

Nowadays, most of the information that was usually found on the back of the food package has appeared, in a simplified way, on the front of the pack (GRUNERT et al.,

2010). Moreover, consumers like the idea of simplified front of pack information, differing in their liking for the various formats (GRUNERT; WILLS, 2007). Nutrition labels will have effect once consumers perceive it and be aware of them, affecting their understanding and knowledge in a way that is possible to make inferences about the healthiness of the product (GRUNERT et al., 2010). Moreover, very simple package icons or visual symbols may also affect food consumption (PECHMANN, 2016).

However, food claims have also invited controversies because of their potential to mislead (LWIN, 2015), increasing confusion with complexity of the information and the task to which it should be applied (GRUNERT; WILLS, 2007). Besides, positive nutritional attributes are emphasized to exaggerate the nutritional quality or health benefit of the product (KELLY et al., 2009). These nutrition content claims appear to promote aspects of food products that might appear desirable, while ignoring other qualities that are less desirable, like products low in fat, but with high sugar content (KELLY et al., 2009). The authors also points out that the majority of nutrition content claims were related to active substances, whole grain, reduced sugar and reduced fat, precisely the claims that will not be governed by disqualifying criteria under the new regulatory framework for nutrition-related claims. Although nutrition labels provide concrete information about attribute contents, labels and advertising slogans on the package, used to advertise the product, can be a source of consumer bias (SUNDAR et al., 2014).

When some information is labeled on a food product, it can be referred to as nutrition label, nutrition claim or health claim (HAWKES, 2004). Additionally, there are three categories of claims can currently be used on food and dietary supplement labels in the European Union (HIEKE et al., 2016). Nutrition claims are used to describe the percentage of a nutrient in a product, e.g., “good source of calcium”. These claims describe the level of a nutrient in the product, using terms such as “free”, “high”, and “low”, or they compare the level of a nutrient in a food to that of another food, using terms such as “more”, “reduced”, and “lite”. Examples of additional nutrient content claims found on food products include “good source”, “percent and amount claims”, “antioxidant”, and implied nutrient content claims, which are the ones about a food or an ingredient in the food that suggest that a nutrient or an ingredient is absent or present in a certain amount, for example “as much fiber as an apple” (LEGAULT et al., 2004). Health-related ingredient claims communicate the presence of an ingredient that is not a nutrient or other substance as defined in the EU Regulation (HIEKE et al., 2016). It implies health benefits in two different ways: with the presence of considered healthy ingredients (e.g., "sweetened with brown sugar") or the lack of considered unhealthy ones (e.g., "without preservatives"). The third category is called health claims, which can be defined as 'any claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents and health'." (HIEKE et al., 2016). Some examples are: "good for your health", "gives energy to your kid" and "helps your immunologic system". It can describe a relation between a food, food component, or dietary supplement ingredient and reducing risk of a disease or health-related condition, but it may not explicitly mention or imply that the food or ingredient will diagnose, cure, treat, or prevent disease (FULGONI, 2005). Table 1 summarizes the three categories of claims used in European Union, used in this study.

Table 1 – Categories of claims

Type of Claim	Definition	Examples and Terms used
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Nutrition claims	Describe percentage or the level of a nutrient, also compares the level of a nutrient in a food with another product.	“good source of calcium”, “free”, “high”, “low”, “more”, “reduced” “good source”, “percent and amount claims”, “antioxidant”
Health-related ingredient claims	Communicate the presence of an ingredient(s) which is not a nutrient or other substance. It implies health benefits in two different ways: with the presence of considered healthy ingredients or the lack of considered unhealthy ones.	"sweetened with brown sugar", "without preservatives"
Health claims	A claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents and health'. It can describe a relation between a food, food component, or dietary supplement ingredient and reducing risk of a disease or health-related condition.	"good for your health", "gives energy to your kid", "helps your immunologic system"

3. Health claims regulations: an overview of the international context

To secure the information provided in food labels, it is important to exist a regulation that will enable that. There are international legislations, which consist of more general regulations regarding food labeling, and there are national legislations, which very often base their specific regulations in the international standards. In the next topics we are going to describe these two main types of existing legislations.

3.1 International Legislations

There is a widespread belief that, in addition to improving the Nutritional Facts Panel (NFP), a front-of-pack labeling system using universal symbols should be instituted to further guide consumers, especially those who are less educated, more rushed, or less interested in nutrition, to make healthier choices when shopping for packaged foods (SILVERGLADE; HELLER, 2010). While that doesn't occur, international legislations try to secure food safety and quality through other ways.

The Codex Alimentarius (CA) consists of a compilation of international food standards, guidelines and codes of practice that contribute to the safety, quality and fairness of the international food trade (HAWKES, 2004). These standards are developed by the Codex Alimentarius Commission (CAC), based on the scientific knowledge of the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). The CA is not a mandatory international regulation, but is encouraged and recognized by the World Trade Organization (WTO) as a world reference. The CAC also has to develop specific guidelines about nutrition labeling and nutrition and health claims, which

are responsibility of the Codex Committee on Food Labeling (CCFL). They work with three standards and guidelines: the General Standard for the Labeling of Prepackaged Foods, the General Standard for the Labeling of and Claims for Prepackaged Foods for Special Dietary Use and the Guidelines on Nutrition Labeling. The first one underlies the principle that prepackaged food shall not be described or presented on any label or in any labeling in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character in any respect (CODEX, 1993). This practice could lead to *labelwashing*, which consists on a company's exaggeration or misleading of their consumers regarding health benefits through marketing, advertising or, in this case, packaging (ENVIROMEDIA, 2016). The second one recommends that all foods for special dietary uses should display a nutrition label, while the last guideline suggests that nutrition labeling should be voluntary unless a nutrition claim is made (CODEX, 1993). In this case, Hawkes (2004) points out that the nutrition label might help the consumers choose an appropriate and healthier packaged food, even though consumer is not always aware of the importance of these information. Thus, to reach these consumers, who don't read food labels, it is relevant that the health allegations are clearly displayed for an easier comprehension.

Codex members do not cover only 1% of the world's population. Taking a special look at the developing countries numbers, it can be observed that their participation in Codex processes is considerably increasing throughout each year, enabling them to compete in sophisticated international markets and to improve food safety for their own population (CODEX, 2016). There are currently 188 Codex members around the world, being 187 of them Member Countries and 1 Member Organization (EU). Brazil, for example, is a member since 1968.

In European Union, labeling rules enable citizens to get comprehensive information about the content and composition of food products. Labeling helps consumers to make an informed choice while purchasing their foodstuff (EUROPEAN COMMISSION, 2016). In 2002, the European Parliament and the Council adopted Regulation (EC) No 178/2002, which composed the general principles and requirements of the European food legislation. It is entitled as the General Food Law Regulation. They also created an agency to discuss the nutritional labeling and its health allegations (COUTINHO; RECINE, 2007). It was set up in the same year as the General Food Law Regulation, following a series of food crises in the late 1990s to be a source of scientific advice and communication on risks associated with the food chain. The General Food Law created a European a food safety system in which responsibility for risk assessment (science) and for risk management (policy) are kept separate. EFSA is responsible for the former area, and also has a duty to communicate its scientific findings to the public (EFSA, 2016). The agency covers subjects such as food and feed safety, nutrition, animal health and welfare, plant protection and plant health.

A new regulation, No 1169/2011, entered into application on 13 December 2014, regards the provision of food information to consumers and will be mandatory from 13 December 2016. Some of the core changes are the establishment of a minimum font size for mandatory information, clearer presentation of allergens and strengthened rules to prevent misleading practices (which are frequently present among many industrialized products worldwide).

As examples of label practices consolidated and intended, the European community has some. The UK use symbols, such as a keyhole icon on more-healthy foods or red, yellow and green dots on all foods, to indicate a food's overall healthfulness. The European Union (EU) has proposed a regulation requiring the amounts of six key nutrients to be disclosed on the fronts of all food packages (SILVERGLADE; HELLER, 2010).

Regarding South America specifically, members of the South Common Market (Mercosul) have to follow the group's common legislations, which aim to establish no commercial barriers and the products, capital, services and people can transit by freely (ANVISA, 2016). The Common Market Group (GMC) has specific resolutions related to the protection and health of Mercosul's consumers, so as the commerce trades between its countries. Regarding packed food, GMC's resolutions numbers 44 and 46/03 define information that must be displayed on food labels, complementing the national legislations of Mercosul's members (MERCOSUL, 2003).

3.2 National Legislations

In this section, we will briefly explore legislation related to health claim in a national perspective. It was used examples from US and Brazil.

US

The national agency responsible for the packed food legislation is the Food and Drug Administration (FDA). The FDA conducts studies of food label as part of its ongoing monitoring of the nutrition status of the US population, using in 1997 the Food Label and Package Survey (FLAPAS), characterized various aspects of the labeling of processed, packaged foods, including nutrition labeling, health claims, and nutrient content claims (BRECHER et al., 2000).

In 1990, president Bush signed a legislation proposed by the FDA, called Nutrition Labeling and Education Act (NLEA). It authorized FDA to impose nutrition labeling on most foods, on top of avoiding false health and nutrient content claims on food labels to occur. As an example of nutritional label misleading information, in the fall of 2009, Kellogg's Cocoa Krispies proclaimed that it "now helps support your child's immunity", as the product is fortified by vitamins A, B, C, and E. Therefore, there is no evidence that the cereal actually improves children's immune status or wards off disease. Moreover, the product is composed by almost 40% of sugar, consisting of a real "junk food" (SILVERGLADE; HELLER, 2010).

US food labeling regulations promulgated in response to the NLEA require that most processed, packaged foods sold in the US bear a Nutrition Facts Label, which for each food product provides serving size, the number of servings in the package, calories, calories from fat, levels of nutrients and the percent Daily Value (% DV) that the levels represent based on a 2000 calorie diet (BRANDT; MOSS; FERGUSON, 2009). Besides this, the authors points out that, there are some mandatory nutrients, including, total fat, saturated fat, trans fat, cholesterol, sodium, total carbohydrate, dietary fiber, sugars, protein, vitamin A, vitamin C, calcium and iron, and other macro and micronutrients which may voluntarily be declared on the Nutrition Facts label (e.g. polyunsaturated fat, monounsaturated fat, potassium, soluble fiber, insoluble fiber, other carbohydrate, vitamin D, other vitamins and minerals). On July 11 of 2003, FDA published a final rule requiring manufacturers to list trans fatty acids, or trans fat, on the Nutrition Facts panel of conventional foods and some dietary supplements (QC LABORATORIES, 2004).

Brazil

In Brazil, the agency responsible for the national food legislation is the Sanitary Vigilance National Agency (ANVISA), which is part of Brazil's Health Ministry (BRASIL,

1999). This control occurs by ordinances that state what the labels must or must not have (ANVISA, 2001). According to the agency, the aim of these regulations is to guarantee the product's qualities and hygiene for all the Brazilian population, so their health maintenance could be achieved. Also, it will be possible for the consumers to know what they are buying, understand its composition and choose properly what they intend to consume or offer to their families.

The current Brazilian nutritional label must dispose information such as: product's name, list of ingredients, food quantity in grams or milligrams, its due date and origins identification (ANVISA, 2001). In addition, it is mandatory for all packed food to state its amount of calories, carbohydrates, proteins, total and saturated fat, cholesterol, fibers, calcium, iron, sodium and the total daily percentage value (%VD) that the stated portion of food or beverage corresponds to the necessary amount of nutrients we should daily consume. The agency's Orientation Manual Of Consumer's Education Towards a Healthy Consumption is composed by all of that information, in addition to the explanation of how to combine good eating habits with the continuous practice of exercises, towards a healthy life (ANVISA, 2001).

In 2014 ANVISA's new resolution, the RDC 54/2012, was imposed to all Brazilian packed food. It aims to help the consumer understand what is a "light", "rich in" and "high amount of" product, for example, as also help them buy adequate food that will enable them to consume the proper amount of nutrients their body needs (BRASIL, 2014). The RDC 54/2012 states that all packed food that claim to have the mentioned nutritional characteristics must follow specific standards to guarantee its veracity. According to Antônia Aquino, ANVISA's Special Products manager, this new regulation adequate the Brazilian standards to Mercosul's legislation (BRASIL, 2014). By incorporating Mercosul's Complementary Nutritional Information (INC), Brazil's food circulation will be facilitated within the group's members.

4. Methods

In June 2016 a survey was conducted on the labels of foods sold in a local supermarket of Porto Alegre, Brazil. Only pre-packaged foods were considered for the analysis, which are defined by the EU Regulation on the provision of food information to consumers (EC) 1169/2011 as "any single item for presentation as such to the ultimate consumer and to mass caterers, consisting of a foodstuff and the packaging into which it was put before being offered for sale, whether such packaging encloses the foodstuff completely or only partially, but in any case in such a way that the contents cannot be altered without opening or changing the packaging" (EU REGULATION 1169/2011).

The survey was conducted by two researchers in a major retail in Porto Alegre. The products categories were selected according to the results of Household Budget Survey of the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística - IBGE), which aims to measure the consumption patterns, spending, income and part of the equity variation of families, enabling to trace, therefore, a profile of the living conditions of the population from the analysis of their household budgets. Moreover, this survey periodically provides national data household of food availability for trend analysis and international comparisons, allowing estimates consumption, as well as identification of patterns and temporal changes in food in Brazil (IBGE, 2011). In this edition, information about the individual food consumption of 34,003 residents was obtained between 2008 and 2009.

The results show that the highest average per capita daily consumption occurred for beans (182.9g/day), rice (160.3g/day), beef (63.2g/day), juices (145.0g/day), soft drinks (94.7g/day) and coffee (215.1g/day). Values around 50g/day per capita were observed for salt bread (53.0g/day), soups and broths (50.3g/day). Moreover, the pattern of consumption outside the home was also analyzed. The consumption percentage away from home in relation to the total consumption was greater than 50% for beer (63.6%); fried and baked snacks (53.2%); and chips (56.5%). Values above 30% were for fruit salad (38.8%); chocolate (36.6%); soft diet or light (40.1%); pizzas (42.6%); and sandwiches (41.4%). Given that these foods are eaten most commonly, according to IBGE, they are the basis of our study. Although, as similar research conducted (WILLIAMS et al., 2006; LALOR et al., 2010), only package foods were included. So, in our study, we excluded information about salt bread, fried and baked snacks, fruit salads and sandwiches, due to the fact that these products are not packaged. We analyze the following food categories: beans; rice; beef; juices; soft drinks; coffee; soups and broths; beer; chips; chocolate.

5. Results

This study analyses claims presented in food packages of beans, rice, beef, juices, sodas, coffee, soups and broths, beer, chips and chocolate. Analyzing these foods on supermarket, we decided to remove beef, coffee and beer from our data, due to the fact that these categories do not present claims on their package. According to the categories selected, we analyzed all products available in supermarket, according to the selected categories.

From the total of products in all these categories, we selected 100 products to include in our database for depth analysis of the claims that they present. This first selection was based on a quick visual analysis on supermarket according to the products claims on the package. Photography was taken and the information presented was encoded in a worksheet in Microsoft Excel. The final analysis was carried on 87 products, in 9 categories: juices, sodas, pizzas, rice, beans, soups, broths, chips and chocolate.

Nutrition claims are the ones most found in our sample, accordingly to Table 2, representing 66,53% of the total of claims. Health-related ingredient claims (20,34%) and health claims (13,14%) are found in smaller amounts. Moreover, food carrying any type of claim tends to carry multiple claims.

Table 2 – Total of claims

Claim type	No of Claims	% of Claims	No of Foods with a Claim
Nutrition claim	157	66,53%	69
Health-related ingredient claim	48	20,34%	35
Health claim	31	13,14%	22
Any type of claim	236	100,00%	87

Regarding the claims accordingly to their belonging food categories, they appear in a larger scale in juices, soda and rice (Chart 1). More specifically, nutrition claims comprise most of the claims in these three food categories, consisting the only claim in bean and broth categories. The health-related ingredient claim only represents the majority of the claims in

the soup category, while the health claim doesn't appear in a larger amount in any of the situations.

There were nutrition claims in every category, followed by 7 out of 9 categories with the appearance of health-related ingredient claims and only 4 categories that stated a health claim.

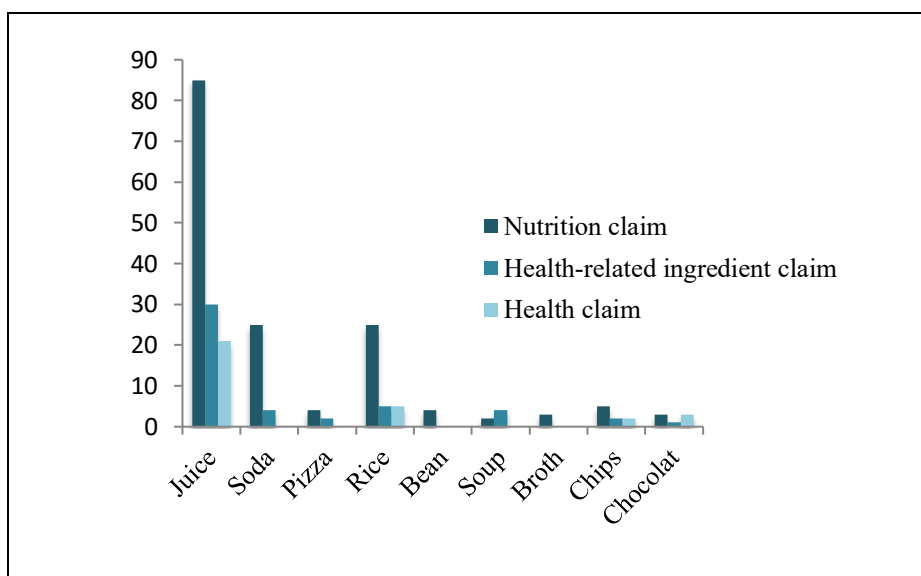


Chart 1 - Claims accordingly to their belonging food categories

In total, there were 217 nutrition claims found in the 9 pre-defined food categories, considering each mentioned nutrient. Almost half of these claims referred to vitamins, as it can be seen on Table 3. More specifically, vitamin C was the responsible of almost one quarter of the vitamin claims (e.g., "rich in vitamin C"), followed by vitamins A and B6. The following higher presences of nutrient claims were 13,8% related to sugar amounts (e.g., "no added sugar") and 8,3% related to fiber content (e.g., "high amount of fibers").

Table 3 – Nutrition claims

Nutrient	Nutrition claim (No)	% of All Nutrition claims
Vitamins (any)	96	44,2%
<i>Vitamin A</i>	13	6,0%
<i>Vitamin B</i>	2	0,9%
<i>Vitamin B1</i>	2	0,9%
<i>Vitamin B2</i>	5	2,3%
<i>Vitamin B3</i>	10	4,6%

<i>Vitamin B5</i>	2	0,9%
<i>Vitamin B6</i>	12	5,5%
<i>Vitamin B9</i>	2	0,9%
<i>Vitamin B12</i>	9	4,1%
<i>Vitamin C</i>	23	10,6%
<i>Vitamin D</i>	4	1,8%
<i>Vitamin E</i>	8	3,7%
Fiber	18	8,3%
Protein	10	4,6%
Iron	8	3,7%
Zinc	9	4,1%
Selenium	2	0,9%
Magnesium	5	2,3%
Fat	8	3,7%
Sugar	30	13,8%
Calories	17	7,8%
Sodium	4	1,8%
Carotene	2	0,9%
Cholesterol	3	1,4%
Manganese	1	0,5%
Copper	1	0,5%
Antioxidant	3	1,4%
TOTAL	217	100,0%

Regarding the origin of the nutrition claims, most of them come from the juices labels, more specifically 84% of the ones regarding vitamins and 63% referred to sugar content (Table 3). The majority of the soda's nutrition claims comprise of its calories content, consisting of 65% of the total amount related to all food categories. The nutrition claims observed on the rice's labels refer predominantly to its vitamins and fiber claims, being the last one responsible of 39% of all fiber claims. The other food categories (pizza, bean, soup, broth, chips and chocolate) had only 7 or less nutrition claims, mostly referring to fat and fiber contents.

Table 4 shows the classification of nutrition claims according to terms used and types of nutrients claimed. Regarding reduced amounts or absence of a nutrient, the most used term

is “zero”, with sugar, calorie, cholesterol and fat nutrients. In claiming an increased amount or presence of a nutrient, the term “source of” is used the most, relating to vitamin, fiber, iron, zinc, protein and magnesium.

Table 4 – Classification of nutrition claims

Type of nutrient	Term used	Types of nutrient claimed
Reduced amount or absence	Low	Calorie (10); sugar (3)
	Reduced / Light / Lite	Sodium (3); fat (2); calorie (1)
	Very low	Sugar (1)
	With no added	Sugar (6); fat (3); cholesterol (3)
	Zero	Sugar (19); calorie (4); cholesterol (3); fat (2)
Increased amount or presence	Source of	Vitamin (10); fiber (9); iron (4); zinc (2); protein (2); magnesium (1)
	High	Vitamin (2); fiber (2); iron (1); carotene (1)
	Increased	Iron (1); fiber (1)
	Rich in	Vitamin (7); manganese (3); fiber (2); antioxidant (1)

When analyzing health claims, it is possible to infer that claims such as “more nutritious”, “energy source”, “good nutrition” and “healthy” are most common. Claims such as “power supply”, “light” and “helps strengthen the immune system” are found in just one type of food.

The prevalence of health-related ingredient claim is presented in Table 5. “Conservative” had the highest proportion of health-related ingredient claim. “Colouring” and “flavouring” are found in similar amounts of claims, but in a smaller proportion. Only two claims categorized as health-related ingredient claim implied a relationship with health functions. The first one is found in brown rice, claiming that the product has “fibers which helps a better functioning of the digestive tract”. The second one is also related to brown rice, with a claim related to “vitamin B1 is known for its benefits to the muscles, nervous system and heart, and for the metabolism of carbohydrates”.

Table 5 – Health-related ingredient claim

Health-related ingredient claim	
Conservatives	20
Colouring	5
Flavouring	4
Natural extract	2
Aspartame	1
Stevia	1
Whole	1

Additives	1
Non-GM soy	1
Pesticide	1

5. Conclusion

The present study analyzed packaged food claims. Using results from IBGE's survey about food consumption in Brazil, it was possible to identify that nutrient claims are the ones that appear the most, using terms such as "source of", "low", "zero". In these claims, vitamin is the nutrient most used. When analyzing the health-related ingredient claim, the absence of conservatives represents a significant part of our sample. Claims such as "more nutritious", "energy source", "good nutrition" and "healthy" appear when health claims are used in our sample. When a packaged food has a claim on it, usually they carry more than one claim, suggesting that they repeat it or include more than one, as previously suggested (HIEKE et al., 2016). Using a nutrition claim it is common that more than one nutrient is highlighted.

Due to differences in methodologies, product samples and strategies, it is difficult to compare our results with previous studies. However, it is important to show possible similarities. Nutrition claim usually appears as the most used claim, in different locations. Results of studies in Europe (HEIKE et al., 2016), Ireland (LALOR et al., 2010), US (COLBY et al., 2010) and Australia (WILLIAMS et al., 2003) also report the prevalence of nutrition claims in their samples.

Nutrition labeling is a powerful tool in helping people make healthier choices when choosing some foods. However, they must be able to understand the messages of the claim. Previous researches suggest that people who do look at nutrition labels can understand some of the terms used but are confused by other types of information (COWBURN; STOCKLEY, 2005). This may lead confusion about which food to choose (RODRIGUES et al., 2016).

Even if health claims being considered a strategic tool for increasing sales (HAWKES, 2004), some foods that are considered healthy might not actually be. While regulations usually help consumers to understand what they are purchasing and eating, they also give space for the food industry to mislead the information they are displaying, by using different words and approaches. Also, in promoting a health or nutrient content claim, companies might "hide" less beneficial ingredients (HARRIS et al., 2011). Beyond that, it is something to note that processed food products are claimed as vitamin and mineral providers, for example, which should be associated by the intake of fresh fruits and vegetables (RODRIGUES et al., 2016). We found that products such as juices, while having only 10% of the original fruit, are a "good source" or "high in" many vitamins and other nutrients. This may mislead some consumers that do not have enough knowledge to make inferences about it.

To avoid this, health claims on unhealthy food should be revised and have more strict regulations, in order to promote truthful information. Consumer education is also important to ensure that they are really conscious about what they are consuming. They should be aware that sometimes a health claim is not the only information that they should consider when buying a food product. The same is important for nutrient selection when consuming a food product.

In sum, it is important that consumers understand that the food industry will try its best to sell their products. To do so, they might display information that are not entirely true, or even not in a way that is entirely permitted by law.

6. Limitations and future recommended studies

Because of time and resources limitations, the products could only be analyzed in one supermarket. The lack of standard definitions for the interpretation and classification of claims is also a limitation.

For a more complete study, we suggest that a larger number of supermarkets were analyzed, preferentially situated in neighborhoods with different socio-economic characteristics. Besides this, the perception of the consumers about these claims could also provide valuable information. Future research should also examine claims used in television marketing and Internet promotions.

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