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The impact of the new Brazilian labeling standard, RDC 429/2020, on access to food nutrition information: A review

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Abstract
Food product labels, widely used in advertising and marketing actions, play an important role in ensuring the population's health. The industry communicates with the consumer through it by highlighting the main characteristics of the food, in addition to information regarding the chemical and nutritional composition of the product. Thus, this study aimed to discuss the impact of the new Brazilian legislation for food labeling provided by ANVISA's RDC 429/2020 on access to nutritional information based on a literature review in digital collections of scientific publications, such as SciELO (Scientific Electronic Library Online), LILACS (Latin American and Caribbean Literature on Health Sciences), and BVS (Virtual Health Library). A time frame of 10 years (2013-2023) was used. It was possible to see that food labeling has evolved over the past decades, always with the aim of providing consumers with a better understanding of what they are eating. Furthermore, RDC 429/2020 brought new mandatory information to the nutrition table, especially with front labeling for foods with high added sugars, saturated fats, and/or sodium content. A positive impact is expected with its fulfillment, which may enable easy access to information for consumers, who will make a more conscious choice about the food products they intend to consume. Therefore, considering avoiding frontal labeling, the food industry will be obliged to reduce the percentage of these compounds, improving the nutritional quality of commercialized products.

Keywords: Foods labeling, ANVISA, RDC 429/2020, nutritional information, labeling legislation, nutrition, health

Graphical Abstract



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ROYALDATASET

1. Introduction

A product food label can be defined as images, captions, and texts written, printed, or engraved on a package of a certain food. Its purpose is to identify the product, in addition to providing information about its origin, composition, manufacturing, shelf life, and compositional characteristics to the consumer (Brazil, 2002). Therefore, it can be said that the function of food labeling is to present information about a particular food product and should be as straightforward as possible to support the consumer's decision at the time of purchase (Cavada et al., 2013).

The nutritional labeling process arose from the need to inform the consumers about the composition, ingredients, nutritional characteristics, and possible risks of the product that they intend to consume to increase the level of security and facilitate the choice process. Therefore, the information style must be clear so that everyone may understand (Barros et al., 2020).

In this sense, new legislation on the labeling process has emerged in the past few years, intending to improve the informational process for the consumer so that he has the most information possible about the food product he is buying, which allows his decision to be taken according to his needs and preferences. Among these changes, the most recent one stands out: the Resolution of the Collegiate Board (RDC) number 429, of October 8, 2020, which has recently come into force and provided a 24-month adequacy period for companies to adapt to the new rule (Brazil, 2020a).

RDC 429/2020 brought numerous changes to the nutritional labeling of packaged foods, such as, for example, the form of presentation of nutritional facts, the need to inform whether there is added sugar, the amount of total sugar, and the existence of additional ingredients. Additionally, on the front labeling, the standard also determines that relevant nutrients, such as sodium and saturated fat, must be informed (Brazil, 2020a). Therefore, the present study has as its main topic an analysis of the impact of the new labeling standard proposed by RDC 429/2020 on access to nutritional information.

This research has current relevance, as reading the food label is one of the main strategies used by consumers when choosing their foods, either to opt for healthier ones or due to intolerances and dietary restrictions, such as, for example, intolerance to lactose or gluten. Therefore, RDC 429/2020 was created to improve access to this information, and it is necessary to understand whether it benefits consumers.

In this sense, this review aimed to understand the impact of the new labeling standard provided by RDC 429/2020 on access to nutritional information. Furthermore, the study describes the evolution of nutritional labeling of foods in Brazil and worldwide, presents the changes made by RDC 429/2020 in the nutritional labeling of foods in Brazil, and analyzes the impact of these changes on consumers' access to nutritional information.

2. Methodology

The method chosen to conduct the research was a review of the literature. The survey was done by searching for the main topic in digital collections of scientific publications such as SciELO (Scientific Electronic Library Online), LILACS (Latin American and Caribbean Literature on Health Sciences), and BVS (Virtual Health Library).

The time frame was the last 10 years (2013-2023). Only publications of scientific relevance, such as scientific articles, master's theses, and doctoral dissertations, were chosen. Furthermore, some regulatory documents, such as the ANVISA-published RDCs, were also used as a source of information for the research.

3. Results and Discussion

3.1 The evolution of nutritional labeling in Brazil

A label can be defined as an element of communication between the product and consumers, having both a marketing role, along with the packaging, and an informational role, providing a complete description of the product and helping the consumer decide about the purchase. Concerning food products, labeling becomes even more relevant since an inadequate diet can bring numerous health risks. Thus, it is possible to understand that food labeling is a public health policy that should be regulated to increase consumer security (Cavada et al., 2013).

According to Araújo (2017), who addresses the evolution of labeling in Brazil, discussions about the need for nutritional information on processed foods began throughout the first half of the twentieth century, which was considered avant-garde. Brazil was also the first country in Mercosur and one of the

first in the world to make general and nutritional labeling mandatory as a public health strategy. In 1945, the National Food Commission (CNA) was created by Decree-Law nº 7.328, whose goal was to perform nutritional diagnoses on the Brazilian population, mapping their eating habits (Brazil, 1945). In 1965, the first Brazilian Symposium on Food and Nutrition (SIBAN) was held and suggested recommendations to government agencies on food-related situations in Brazil.

In this context, the first Brazilian legislation to address packaged foods was the Decree-Law nº 986/1969, which established some necessary information on the labels of such products. Although the decree did not emphasize nutritional labeling, it required the label, the description of the food, such as its quality, nature and type, the place of production, the registration number, the batch number and/or date of manufacture, the class of additives used (*e.g.,* preservatives, acidulants) and the net weight or volume. Furthermore, the decree also oriented the information about the presence of lactose when appropriate (Brazil, 1969).

In addition to this information, another important determination of the Decree-Law nº 986/1969 was the veto of information that could cause false interpretations to consumers, such as the attribution of nutritional qualities higher than what the food actually provided, a practice commonly used by companies as a marketing strategy. It is worth noting that at the time, the nutritional composition of foods was still a developing field, and only a decade later, the first table of food chemical composition appeared in the United States (Schaefer & Piletti, 2018).

In 1978, Normative Resolution nº 12 came into force, which defined the labeling standards for food and beverages, delimiting the terms required to appear on the labels of packaged food products. The resolution also determined the distribution and arrangement of this information on the packaging, as well as what should appear on the side and front panels, the presence of additives, the list of ingredients, and the name of the country of origin (Brazil, 1978). This resolution was revoked in 1998, when the labeling standard underwent changes, through numerous regulations, given the need to adapt national products to the Mercosur agreement (Araújo, 2017).

At this point, the National Sanitary Surveillance System (SNVS) and the National Health Surveillance Agency (ANVISA) were created in 1999 through law nº 9.782/1999. Among other functions, they were responsible for establishing rules for the marketing and sanitary monitoring of food products in the country. In the same year, ANVISA's collegiate board of directors defined that all its publications would be disseminated through resolutions, called RDC, or Collegiate Board Resolution (Brazil, 1999).

At the turn of the century, in 2000, the publication of RDC 94/2000 revoked all previous regulations on labeling, although it kept some of the items that were already mandatory, such as information on proteins, fats, and carbohydrates. The most significant change made with this resolution was the obligation to provide nutritional labels for all packaged foods and beverages. However, in 2001, new resolutions came into force, such as RDC 39/2001 and RDC 40/2001, in which nutrition facts, such as caloric value, nutrients, and components, began to be related to a portion of the food, in addition to the warning requirement for foods containing gluten (Marins, Tancredi & Gemal, 2014).

Between 2002 and 2003, three resolutions came into effect, RDC nº 259/2002, RDC nº 359/2003, and RDC 360/2003. RDC 259/2002 relates to all food products ready for consumption and packaged in the customer's absence. Altogether, the resolution established that packaged food products cannot present false information or information that misleads the consumer about their nature, quality, quantity, expiration date, origin, or non-existent properties and effects. Regarding mandatory information, the resolution kept most of the information previously required, bringing only a few changes, such as the inclusion of water as an ingredient and the list of ingredients must be presented in descending order of quantity (Brazil, 2002).

In 2003, due to the need to improve sanitary control in the food area, the RDC nº 360/2003 was published, which mainly brought some definitions to the nutrition labeling area, such as the measurement units that should be adopted for each food group. The resolution also determined the need to present the energy value of the food in kilocalories (kcal) and kilojoules (kJ). Another point was the definition of the rules for rounding values and how they should be expressed in the nutrition facts, including the home measurement corresponding to the serving and as a percentage of the daily value (% DV) (Brazil, 2003a).

Thus, from the RDC nº 360/2003 on, the phrases "% Daily Values based on a 2000 kcal or

8400 kJ diet" and "your daily values may be higher or lower depending on your energy needs" were included in the nutritional information. In combination with this resolution, the RDC nº 359/2003 was also published, which focused on the technical regulation of packaged food products, which presents in a clear way how the serving size and the home measurement should be calculated. In general, the serving size should be determined according to the average amount of food consumed by a healthy person over 36 years old on each consumption occasion to encourage healthy eating (Brazil, 2003a; 2003b).

This resolution also defined how the home measure should be described, based on a utensil commonly used to measure food in homes and the corresponding portion of this home measured in grams (g) or milliliters (mL). As an example, the recommended daily serving of a food, for which the nutritional information on the label corresponds, can be described as a cup of tea, with a capacity set at 200 mL, or 200 cm^3, tablespoon (10 cm^3 or mL), glass (200 cm^3 or mL), among others (Brazil, 2003b). If the serving size of the food is 100 mL, the reference home measure can be half a cup of tea.

Another important resolution was RDC 54/2012, which regulated Complementary Nutritional Information (INC). The INC can be understood as any representation that claims that a food has particular nutritional properties, whether concerning its energy value or content of fat, protein, dietary fiber, vitamins, and minerals. In other words, INC is used to inform about some benefits of the food product in question, such as being rich in some vitamin or having low fat or sugar content, for example (Brazil, 2012).

Generally, the resolution defined the occasions when the Recommended Daily Intake (RDI) can be declared on food, such as vitamins and minerals, only when the food offers a minimum RDI of 5%. This resolution was brought to prevent the undue use of RDI for marketing purposes, misleading consumers into buying. It also defined the authorized terms to declare an RDI, such as "low content," "source of," and "does not contain" (Brazil, 2012).

Finally, the most recent resolution released by ANVISA, which came into effect at the end of 2022, was RDC 429/2020, which brought significant changes to the scope of nutritional labeling, which will be better presented as follows.

3.2 Main changes in the new standard of food labeling from RDC 429/2020

The nutritional labeling in the world can be separated chronologically into two generations. The first was implemented from the mid-twentieth century until the 2010s, while the second began in the last decade and is characterized by the use of nutrition information on the front of packages. The need for the creation of a second generation of nutrition labeling was mainly due to the increase in cases of obesity due to the high consumption of ultra-processed foods, making necessary measures in various areas, including food labels, to curb this phenomenon (Paiva & Cuvello, 2022).

The new labeling is a subject discussed by ANVISA since 2014, given the observance of the increase in obesity numbers in the country and because of changes in food labeling worldwide. Thus, the Agency formed a working group to identify the main problems in transmitting nutritional information and, in this way, elaborate more efficient alternatives. This working group, which included numerous associations connected with the area (Brazilian Association of Food Industry - ABIA, Brazilian Association of Collective Health - ABRASCO, and the Institute of Food Technology - ITAL), produced a report published in 2017, with the main problems identified and possible solutions discussed for them (Barros et al., 2023).

Based on that report, ANVISA developed an initial proposal for the new labeling, whose main element was the inclusion of front labeling. In 2019, a Public Taking of Subsidies (TPS) was opened so Brazilian society could opine and contribute to the text (Brazil, 2019). After discussions and modifications, the final text was presented, resulting in the publication of RDC 429/2020 and IN 75/2020, the latter being a complementary document to the resolution (Brazil, 2020b).

Overall, the changes brought by RDC 429/2020 were aimed at simplifying consumer access to nutritional information on food, improving its visibility and legibility, in addition to reducing situations that generate deception about the nutritional composition and facilitating the comparison between food products (Paiva & Cuvello, 2022). **Fig. 1** shows the new nutritional table models, both vertical (a) and horizontal (b).

(a)

INFORMAÇÃO NUTRICIONAL

Porções por embalagem: 000 porções
Porção: 000 g (medida caseira)

	100 g	000 g	%VD*
Valor energético (kcal)			
Carboidratos totais (g)			
Açúcares totais (g)			
Açúcares adicionados (g)			
Proteínas (g)			
Gorduras totais (g)			
Gorduras saturadas (g)			
Gorduras trans (g)			
Fibra alimentar (g)			
Sódio (mg)			

*Percentual de valores diários fornecidos pela porção.

(b)

INFORMAÇÃO NUTRICIONAL

Porções por emb.: 000
Porção: 000 ml (medida caseira)

	100 ml	000 ml	%VD*
Valor energético (kcal)			
Carboidratos (g)			
Açúcares totais (g)			
Açúcares adicionados (g)			
Proteínas (g)			
Gorduras totais (g)			
Gorduras saturadas (g)			
Gorduras trans (g)			
Fibras alimentares (g)			
Sódio (mg)			

*Percentual de valores diários fornecidos pela porção.

Fig. 1 New vertical (a) and horizontal (b) nutritional table models for Brazilian foods as required by the RDC 429/2020. Source: Brazil (2020).

3.2.1 Front label

Among the changes brought by RDC. 429/2020, front labeling can be considered the most significant, intended exclusively to help consumers access important information about the food product they intend to purchase. **Fig. 2** shows examples of frontal labeling, called “magnifiers.” The inclusion of this front labeling, *i.e.*, which is on the front of the food package, usually aimed at the public at the point of sale, is to inform important nutritional attributes that can impact the health of those who buy, helping them to make a more conscious food choice (Gonçalves et al., 2022).

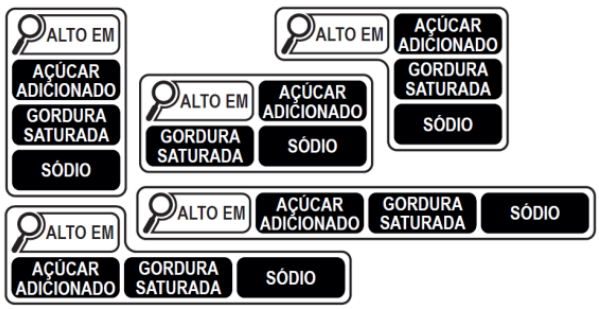


Fig. 2 Examples of frontal labeling for Brazilian foods as required by the RDC 429/2020. Source: Brazil (2020).

The front labeling focuses on whether the product has a high content of three harmful nutrients to health: added sugar, saturated fats, and sodium. According to ANVISA, the choice of these three nutrients on the front labeling was made according to the Brazilian population’s consumption data and the fact that they are popularly known (Brazil, 2020c). Such a front labeling is mandatory for every packaged food product that exceeds the added sugar: 15 g per 100 g of solid food; 7.5 g per 100 ml of liquid food; saturated fat: 6 g per 100 g of solid food; 3 g per 100 mL of liquid food; sodium: 600 mg per 100 g of solid food; 300 mg per 100 g of liquid food (Brazil, 2020a).

Regarding its formatting on the package, the figure must be black with a white background and located in the upper half of the front of the package (Brazil, 2020b). In addition to the front labeling, there were changes in the nutritional facts, as informed below.

3.2.2 Nutrition Facts and INC

The nutrition table is a mandatory element for every packaged food product and has changed with RDC 429/2020 to improve the visibility of the information by the consumer. The first change was related to its color, in which a white background with black letters is now mandatory to avoid contrasts that may impair its visualization. In addition, the resolution established rules for the table’s location on the label, such as positioning it in an easy-to-view place and not placing it distorted, except for small products (Brazil, 2020a).

The information also underwent changes, including the values of total sugar and added sugar, the declaration of the energy value per 100 grams or 100 milliliters, and the number of servings per package. The size and font of the letters in the table have also changed, with the minimum size of 8 points, or 2.8 mm, while only Arial and Helvetica fonts may be used. As a result of these changes, the phrase “Daily Values based on a 2,000 kcal or 8,400 kJ diet” has been replaced by “Percent Daily Values provided by serving” (Brazil, 2020a).

Finally, another change standardized by RDC 429/2020 was that a product with front labeling, *i.e.*, high in added sugar, saturated fat, and/or sodium, cannot have INC on its label. INCs also need to follow the new standard of use provided by IN nº 75/2020 (Brazil, 2020a; Brazil, 2020b). It should be noted that since its publication, companies have had 24 months to change their product packaging.

Therefore, the new regulations have been in force since the end of 2022.

3.3 Perspectives on the impact of the new food labeling in Brazil

First, it is essential to note that the rules for food labeling can be observed from the point of view of a public health policy with the aim of reducing the consumption of foods rich in harmful components to health. Since the industrial revolutions, the food industry has undergone numerous transformations, as has how the population eats. Until the early twentieth century, most food products offered to the population were natural or went through a few industrial processes before reaching the consumer's table (Kummer et al., 2022).

With technological advances, food has been increasingly processed, losing beneficial characteristics of the human body, such as proteins, vitamins, and minerals, and increasing the amount of sugars, bad fats, sodium, and chemical elements, such as preservatives, flavor enhancers, and dyes, among others. Thus, the so-called ultra-processed foods have dominated society's diet in the twenty-first century to the detriment of natural foods (without industrial processing), especially because of the ease with which they can be consumed (Louzada et al., 2021).

This process has led to a public health problem since the excessive consumption of ultra-processed foods, rich in sugar, sodium, and bad fats, favors the emergence of numerous chronic health problems, such as hypertension and diabetes. To understand the extent of this problem, according to data from the World Health Organization (WHO), obesity is currently a major global health problem, with about 1 billion people being overweight in 2020, while by 2025, this number could reach 2.3 billion (OMS, 2022).

In addition, the number of obese and undernourished people is also growing. In other words, even though overweight, some people lack some nutrients in their bodies, as their unbalanced diet is based mainly on ultra-processed foods. Specifically in the case of Brazil, in a study conducted in 2021, the Ministry of Health states that overweight (Body Mass Index - BMI - above 25) is a problem for more than half of the population (about 57%), while almost 22% are in the obesity range (BMI above 30) (Brazil, 2021).

Given this scenario, different measures must be taken to address this problem, and the new labeling is one of them. As can be seen, the changes brought by the new labeling standard are mainly aimed at facilitating access to nutritional information so that the consumer can quickly understand if the product has large amounts of added sugar, saturated fat, or sodium. This measure was designed to meet the demand for greater ease of viewing the information, given research that points to an irrelevance of the previous nutrition labeling for the consumer.

According to a survey conducted by ANVISA in 2018, almost 30% of Brazilians are functionally illiterate regarding nutritional information on food labels, *i.e.*, they cannot understand the information contained in nutrition facts (Brazil, 2019). A study by Sousa et al. (2020) identified that more than 40% of Brazilian consumers did not use the nutritional information in the old standard, with most pointing to a lack of patience or interpretation skills as the main reason.

These data show that the old nutritional labeling standard did not adequately fulfill its purpose of helping with the purchase of healthier foods. Thus, the new labeling standard may increase the use of such information in the population's decision to purchase a food product, especially since the front label is clearly visible and easy to understand, the information is transmitted quickly, and requires no effort on the part of the consumer. This whole process can ultimately contribute to reducing obesity rates in the country by facilitating the decision to buy healthier foods.

Another impact that the new labeling may have lies in the food industry itself. As Barros et al. (2023) exposed, it is important to note that part of the food industry was not very favorable regarding the changes proposed by the RDC 429/2020, especially those focused on producing ultra-processed foods. Once this resolution goes into effect, most ultra-processed food companies would have to add a warning on the front packaging stating that their product has a high nutrient content harmful to their consumers, which may consequently affect their sales.

The main argument of those against the change is that front labeling as a form of warning would not be enough to change eating habits, and instead, food and nutrition education for a balanced diet is needed. However, this is only one argument

used to invalidate the proposal used by those who will have their profits directly impacted by this measure. Several studies demonstrate the benefits of front labeling as a warning model, promoting consumer food education (Reyes et al., 2019).

Given this scenario, with the implementation of RDC 429/2020, it remains for the ultra-processed food industry to find alternatives to offer healthier foods to consumers, reducing the amount of nutrients harmful to human health in their products. Thus, another impact that can be expected with the new labeling is a shift in the food industry to reduce sugar, saturated fats, and sodium in foods.

4. Final Considerations

The label is an essential element of the packaging of food products, whose core function is to inform the consumers of the main aspects of what they intend to consume. In this sense, as seen in this study, RDC 429/2020 emerges as an important measure to facilitate the transmission of such information to the population, making this process more assertive to fulfill its purpose. Faced with a society that increasingly chooses to consume ultra-processed foods with high levels of nutrients that are harmful to health, the new labeling is essential to influence people to choose healthier products. Among the proposed changes, including front labeling is the most prominent, making the knowledge about the existence of a high content of added sugar, saturated fat, and/or sodium in the product much more accessible to the buyer. Thus, from this new labeling, it is possible to expect that the process of choosing a food becomes more conscious, which in turn can influence the reduction of obesity numbers in the country, as well as bring impacts to the food industry itself, which possibly will find alternatives to produce healthier foods in order to avoid the front labeling of their products.

Authors' Contributions

S.B.O.: Data Curation, Writing - Original Draft preparation; R.B.O.B.: Supervision, writing - Review & Editing; L.R.P.F.M.: Review & Editing. All authors read and approved the final manuscript.

Conflicts of Interest

The authors declare that they have no conflict of interest.

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