

Provision of information on the amount of sugar in processed foods

Camila Cremonesi Japur (<https://orcid.org/0000-0003-0513-1758>)^{1,4}
Dyessa Cardoso Bernardes Assunção (<https://orcid.org/0000-0003-4711-7508>)²
Raíssa Aparecida Borges Batista (<https://orcid.org/0000-0002-9928-5872>)²
Fernanda Rodrigues de Oliveira Penaforte (<https://orcid.org/0000-0001-8483-1562>)^{3,4}

Abstract *The objective of this study was to assess the provision of information on the amount of sugar and identify the position of sugar in the list of ingredients of processed foods. A cross-sectional study was conducted to analyze all processed traditional and diet/light/zero food products sold in a hypermarket containing the word sugar or sucrose in the list of ingredients. The food labels were read and the position of sugar on the list of ingredients and presence, or absence, of information on the amount of sugar in the nutrition facts table were recorded. Information on the amount of sugar was also requested from the manufacturers by e-mail or telephone. A total of 2,200 food products were assessed, 2,164 (98.4%) of which were traditional foods and 36 (1.6%) diet/light/zero foods. The amount of sugar was declared in only 14.4% and 13.9% of these products, respectively ($p=0.84$). Only 7.7% ($n=12$) of the 156 companies contacted provided the requested information. Sugar was present in the first three positions of the list of ingredients in 75.8% of the traditional foods and 77.8% of the diet/light/zero foods ($p=0.93$). The data show that sugar was the main ingredient in the majority of the food products analyzed and that the level of provision of information on the amount of sugar is low.*

Key words Sugars, Industrialized Foods, Nutritional Labeling

¹ Divisão de Nutrição e Metabolismo, Departamento de Ciências da Saúde, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo (USP). Av. Bandeirantes 3900, Monte Alegre. 14049-900 Ribeirão Preto SP Brasil. camilajapur@usp.br
² Curso de Nutrição, Faculdade de Medicina, Universidade Federal de Uberlândia. Uberlândia MG Brasil.

³ Departamento de Nutrição, Instituto de Ciências da Saúde, Universidade Federal do Triângulo Mineiro. Uberaba MG Brasil.

⁴ Laboratório de Práticas e Comportamento Alimentares, Curso de Nutrição e Metabolismo, Faculdade de Medicina de Ribeirão Preto, USP. Ribeirão Preto SP Brasil.

Introduction

Recent decades have witnessed various changes in eating habits in Brazil and around the world. There has been an increase in the consumption of high energy density, fat, sugar and salt (ultra-processed) foods, together with a reduction in the consumption of foods that are good sources of fiber and micronutrients. There is a strong association between these changes and increased prevalence of noncommunicable diseases (NCDs), such as diabetes mellitus, obesity, systemic hypertension, cardiovascular diseases, and cancer¹⁻⁶.

Epidemiological evidence suggests that high intakes of added sugar is a risk factor for NCDs⁷⁻¹¹. The term added or “free sugars” refers to all sugars added to drinks and food during preparation or industrial processing^{9,12}.

In 2015, the World Health Organization (WHO) issued a guideline that recommends reducing the intake of free sugars in both adults and children to less than 10% of total energy intake (strong recommendation) and a further reduction to below 5% of total energy intake (conditional recommendation)⁹. The following year, the Pan American Health Organization proposed that processed and ultra-processed foods should be considered high in sugars when the amount of free sugars is $\geq 10\%$ of the total energy value (kcal) of the recommended portion size¹³. The effective implementation of these recommendations requires clear food labeling that provides information on the amount of free sugars contained in the product.

In Brazil, while the declaration of the energy and macronutrient content on food labels is mandatory for processed foods, the declaration of the amount of sugar contained in the food remains voluntary^{14,15}. The lack of such information makes it difficult for consumers to make conscious food choices and control sugar intake. The aim of the present study was therefore to assess the provision of information on the amount of sugar and identify the position of sugar in the list of ingredients of sweet and savory traditional and diet/light/zero foods containing sugar.

Methods

A cross-sectional study was conducted of processed traditional and diet/light/zero foods sold in a hypermarket in Uberlândia, Minas Gerais. The store was deliberately selected because, ac-

ording to the Brazilian Supermarket Association, it is the second largest supermarket chain in the country and offers a wide range of processed products¹⁶. Prior written authorization was obtained from the store manager.

The study was conducted in 2015 in two stages. First, we read the labels of all available food products in the store. All products containing the word sugar or sucrose in the list of ingredients were included in the study. Different sized products of the same brand, composition, and flavor were excluded. Only the terms sugar and sucrose were used, instead of other types of sugar (such as fructose, liquid glucose, maltodextrin, dextrose, corn syrup, fructose syrup, agave syrup, guarana syrup, lactose, polydextrose, galapolydextrose, maltose, galactose, fruit juice concentrate, malt extract, mannitol, xylitol, invert sugar, muscovado sugar, starch, and sorbitol), because they refer to table sugar, the most widely known and commonly used type of sugar.

The following particulars of the products were recorded: technical name; product name; brand; customer support information; position of sucrose and/or sugar on the list of ingredients; and presence, or absence, of information on the amount of sugar in the nutrition facts table.

In the second stage, the food companies were contacted by telephone (when it was freephone), email, or via the customer service website and asked to provide information on the amount of sugar per portion or per 100g.

The selected foods were separated into two groups: traditional foods and diet/light/zero foods. Each group was divided into 15 food categories based on the Brazilian Food Categorization System created by Brazil's National Health Surveillance Agency (Anvisa)¹⁷. The term *diet* is used for special purpose foods used for nutrient restriction (total or insignificant amounts), controlling weight, or low sugar diets¹⁵. According to ANVISA Resolution 54/2012, the term “light” may be used on the food label as supplementary nutrition information when the food contains 25% less of a nutrient than the traditional food or when its absolute content is below the “low” threshold, while the term “zero” may be used when the product “does not contain” the nutrient¹⁸.

After data collection and entry, the data was checked by two different researchers and descriptive statistical analysis was performed. The prevalence of the declaration of the amount of sugar and presence of sugar in the first three positions of the list of ingredients was compared between

the two groups using the chi-squared test, adopting a significance level of 0.05. Statistical analysis was performed using GraphPad InStat version 3.05.

Results

We assessed 2,200 processed food products containing the word sugar or sucrose in the list of ingredients, 98% of which (n=2,164) were traditional foods and 1.6% diet/light/zero foods (n=36).

Information on the amount of sugar was present on the labels of 14.4% of the traditional foods and 13.9% of the diet/light/zero foods (p=0.84). The prevalence of the declaration of the amount of sugar in the traditional foods group was greatest in the following food categories: candies and confections (35.3%), pre-prepared milk mixtures (26.5%), cereals and/or cereal products (22.9%), snacks (20.4%), and bread products and cookies (19.8%). In the diet/light/zero foods group, the amount of sugar was declared only in the following categories: pre-prepared milk mixtures (50%) and bread products and cookies (30%), as shown in Table 1.

Sugar was present in the first three positions of the list of ingredients in 75.8% (1,668) of the food products overall, 75.8% of the traditional foods, and 77.8% of the diet/light/zero foods (p=0.93), as shown in Tables 2 and 3. The data shows that 29.1% of the traditional foods (n=629) and 8.3% of the diet/light/zero foods (n=3) were savory. The analysis of savory foods showed that sugar was present in the first three positions of the list of ingredients in 30% (n=189) of the traditional foods and 66.7% (n=2) of the diet/light/zero foods, while the analysis of sweet foods shows that sugar was present in the first three positions in 94.5% of traditional foods and 78.8% of the diet/light/zero foods. An analysis of the two food groups together shows that sugar was present in the first three positions in 88.5% of sweet foods and 30.2% of savory foods.

One hundred and fifty-six of the 257 manufacturers of the products analyzed by this study were contacted, of which only 12 (7.7%) provided the information requested on the amount of sugar per portion or per 100g. Of the 144 (92.3%) remaining companies, 63 (43.8%) reported that the information was a trade secret because it was part of the formula of the product, 32 (22.2%) answered that since the declaration of sugars in nutrition labeling is not mandato-

ry these components are not analyzed separately, and 49 (34%) failed to reply.

Discussion

The findings show that the majority of the processed foods analyzed by this study did not provide information on the amount of sugar in the nutrition facts tables. However, sugar was present in the first three positions of the list of ingredients, and therefore a prominent ingredient, in the majority of both traditional and diet/light/zero food products. Approximately 30% of the foods containing sugar were savory, meaning that it is not clear to the consumer that these products contain sugar. In addition to not providing information on the amount of sugar on food labels (despite including sugar as a main ingredient), the majority of companies contacted failed to provide information on the amount of sugar per portion or per 100g when requested.

Brazil's 2008-2009 Household Budget Survey revealed that 61.3% of the Brazilian population show excessive sugar intake due to the addition of sugar to foods and consumption of processed and ultra-processed foods¹⁹. It is estimated that ultra-processed foods that are high in sugar, fat and sodium make up 21.5% of the diet of the Brazilian population²⁰. The high level of consumption of ultra-processed foods, together with the general lack of information on the sugar contained in food products identified by this study, suggests that people are unknowingly eating large amounts of sugars. This highlights the importance of the mandatory declaration of the amount of free sugars on food labels for processed foods.

The Brazilian government's dietary guidelines warn of the undesirable consequences of high levels of consumption of processed and ultra-processed foods²¹ and efforts have been made to reduce the amount of sugar in processed foods through an agreement between the Ministry of Health and food industry²². Other attempts include regulations on the supply, advertising, and sale of high-sugar foods requiring food companies to declare that the consumption of large quantities of sugar results in increased risk of obesity and other NCDs²³. Furthermore, in Chile and Colombia, laws were introduced in 2012 banning the sale of high-sugar foods in schools²⁴.

Sugar is used by the food industry to improve the palatability of food to attract the consumer and as a food additive for coloring and flavoring

Table 1. Total number and percentage of the declaration of the amount of sugar on the labels of traditional and diet/light/zero foods by food category.

| Categories | Total number of food products analyzed | Traditional foods | | Diet/Light/Zero foods | |
|-------------------------------------|--|-------------------|-----------------------|-----------------------|-----------------------|
| | | Total Assessed\$ | Total Declared£ n (%) | Total Assessed\$ | Total Declared£ n (%) |
| 1. Sugar and Honey | 61 | 61 | 0 (0.0) | 0 | 0 (0.0) |
| 2. Candies and confections | 201 | 201 | 71 (35.3) | 0 | 0 (0.0) |
| 3. Drinks | 259 | 259 | 35 (13.5) | 0 | 0 (0.0) |
| 4. Meat and Meat Products | 117 | 117 | 0 (0.0) | 0 | 0 (0.0) |
| 5. Cereals and/or Cereal Products | 155 | 144 | 33 (22.9) | 11 | 0 (0.0) |
| 6. Frozen Foods | 80 | 80 | 5 (6.2) | 0 | 0 (0.0) |
| 7. Sauces and Condiments | 189 | 188 | 16 (8.5) | 1 | 0 (0.0) |
| 8. Snacks | 44 | 44 | 9 (20.4) | 0 | 0 (0.0) |
| 9. Processed ready meals | 120 | 120 | 0 (0.0) | 0 | 0 (0.0) |
| 10. Pre-prepared milk mixtures | 38 | 34 | 9 (26.5) | 4 | 2 (50.0) |
| 11. Bread products and Cookies | 459 | 449 | 89 (19.8) | 10 | 3 (30.0) |
| 12. Protein Products and Yeast | 192 | 182 | 6 (3.3) | 10 | 0 (0.0) |
| 13. Desserts and/or dessert powders | 230 | 230 | 29 (12.6) | 0 | 0 (0.0) |
| 14. Soups and Broths | 50 | 50 | 9 (18.0) | 0 | 0 (0.0) |
| 15. Dietary supplements | 5 | 5 | 0 (0.0) | 0 | 0 (0.0) |
| Total | 2200 | 2164 | 311 (14.4) | 36 | 5 (13.9) |

§Total Assessed: Total number of processed traditional and diet/light/zero foods assessed by this study. £Total Declared: Total number and percentage of processed traditional and diet/light/zero foods that declared the amount of sugar on the nutrition facts table of the food labels.

and as an antioxidant, preservative, emulsifier, sweetener, humectant, flavor enhancer, enzyme or nutrient²². This may explain the presence of sugar as a main ingredient both in sweet and savory foods in this study.

Besides the low prevalence of the declaration of the amount of sugar on food labels, the majority of food companies (92.3%) failed to provide information when requested. While the legislation on nutrition labeling in Brazil does not provide for the mandatory declaration of information on the amount of sugar in foods¹⁴, Brazil's Consumer Protection Code states that "adequate and clear information about products and services, with correct specification of quantity, characteristics, composition, quality and price, as well as the risks posed" is a basic consumer right²⁵.

The absence of information on the amount of sugar contained in processed foods means it is not possible to calculate the amount of sugar that people actually consume, hindering compliance with the WHO recommendations on the intake of free sugars in children and adults outlined above⁹.

The fact that sugar is in the first three positions of the list of ingredients of certain savory

foods, coupled with the lack of information on the sugar content on food labels, means that consumers can be misled into making bad choices. In some of the foods analyzed by this study, such as pastas, sausages and hams and ready-seasoned meat, sauces, savory snacks, and some ready meals, sugar was one of the main ingredients. The presence of sugar in savory foods may be justified by the technological functions it performs²².

Another factor that can lead to bad food choices induced by the lack of clear information on food labels is that the majority of people believe that diet/light/zero foods have lower or zero sugar, calorie, and nutrient content. The declaration of information on sugar on food labels is only mandatory for diet/light/zero foods when they do not contain sugar or free sugars¹⁸. In other words, for products containing sugar, such as those assessed by the present study, the declaration of information on sugar on the food label is not mandatory, despite the fact that they are sold as diet, light and zero products¹⁵.

However, the Mercosur has developed technical regulations on nutrition labeling of pre-packaged foods and supplementary nutrition information. These regulations apply to foods

Table 2. Total number and percentage of traditional foods containing sugar in the three first positions of the list of ingredients.

| Traditional foods | Total food products assessed | Position of sugar in the list of ingredients | | | |
|---------------------------------------|------------------------------|--|------------|-----------|------------|
| | | 1° | 2° | 3° | Total* |
| | | n (%) | n (%) | n (%) | n (%) |
| 1. Sugar and Honey | 61 | 36 (59.0) | 24 (39.3) | 1 (1.6) | 61 (100.0) |
| Sugars | 15 | 15 (100.0) | 0 | 0 | 15 (100.0) |
| Jams | 46 | 21 (45.6) | 24 (52.2) | 1 (2.2) | 46 (100.0) |
| 2. Candies and confections | 201 | 142 (70.6) | 40 (19.9) | 18 (9.0) | 200 (99.5) |
| Candies, gum and drops | 32 | 28 (87.5) | 3 (9.4) | 1 (3.1) | 32 (100.0) |
| Bon-bons and chocolates | 75 | 70 (93.3) | 4 (5.3) | 0 | 74 (98.6) |
| Confections | 11 | 11 (100.0) | 0 | 0 | 11 (100.0) |
| Sweets | 83 | 33 (39.7) | 33 (39.7) | 17 (20.5) | 83 (100.0) |
| 3. Drinks | 259 | 55 (21.2) | 141 (54.4) | 50 (19.3) | 246 (94.9) |
| Coconut water and tonic water | 3 | 0 | 2 (66.7) | 1 (33.3) | 3 (100.0) |
| Distilled alcoholic beverages | 50 | 2 (4.0) | 20 (40.0) | 22 (44.0) | 44 (88.0) |
| Fermented alcoholic beverages | 61 | 1 (1.6) | 49 (80.3) | 6 (9.8) | 56 (91.8) |
| Teas | 2 | 0 | 2 (100.0) | 0 | 2 (100.0) |
| Energy drinks | 9 | 0 | 5 (55.5) | 4 (44.5) | 9 (100.0) |
| Cappuccino and milk coffee powder | 16 | 13 (81.3) | 3 (18.7) | 0 | 16 (100.0) |
| Fruit nectars | 30 | 0 | 14 (46.7) | 14 (46.7) | 28 (93.4) |
| Sodas | 36 | 1 (2.8) | 34 (94.4) | 1 (2.8) | 36 (100.0) |
| Ready-to-drink juices | 7 | 0 | 6 (85.7) | 1 (14.3) | 7 (100.0) |
| Juice powder | 36 | 35 (97.2) | 1 (2.8) | 0 | 36 (100.0) |
| Electrolyte supplements | 6 | 0 | 5 (83.3) | 1 (16.7) | 6 (100.0) |
| Syrups (redcurrant, grape or guarana) | 3 | 3 (100.0) | 0 | 0 | 3 (100.0) |
| 4. Meat and Meat Products | 117 | 1 (0.8) | 3 (2.6) | 9 (7.7) | 13 (11.1) |
| Meatballs and hamburgers** | 5 | 1 (20.0) | 0 | 0 | 1 (20.0) |
| Tinned tuna and sardines** | 6 | 0 | 1 (16.7) | 2 (33.3) | 3 (50.0) |
| Ready-seasoned meat** | 33 | 0 | 1 (3.0) | 2 (6.0) | 3 (9.0) |
| Hams and sausages** | 73 | 0 | 1 (1.4) | 5 (6.8) | 6 (8.2) |
| 5. Cereals and/or Cereal Products | 144 | 23 (16.0) | 72 (50.0) | 18 (12.5) | 113 (78.5) |
| Cereal bars | 32 | 9 (28.1) | 16 (50.0) | 2 (6.3) | 27 (84.4) |
| Seed and nut and fruit bars | 16 | 3 (18.8) | 2 (12.5) | 6 (37.5) | 11 (68.8) |
| Breakfast cereals | 41 | 6 (14.6) | 28 (68.3) | 3 (7.3) | 37 (90.2) |
| Children's cereals | 15 | 1 (6.7) | 12 (80.0) | 2 (13.3) | 15 (100.0) |
| Granolas | 13 | 0 | 9 (69.2) | 0 | 9 (69.2) |
| Instant noodles** | 18 | 2 (11.1) | 3 (16.7) | 4 (22.2) | 9 (50.0) |
| Pasta (pizzas, pastel, pancakes)** | 5 | 0 | 0.0 | 1 (20.0) | 1 (20.0) |
| Other | 4 | 2 (50.0) | 2 (50.0) | 0 | 4 (100.0) |
| 6. Frozen foods | 80 | 4 (5.0) | 67 (83.7) | 6 (7.5) | 77 (96.2) |
| Açaí with guarana | 3 | 0 | 0 | 3 (100.0) | 3 (100.0) |
| Ice cream powder | 4 | 4 (100.0) | 0 | 0 | 4 (100.0) |
| Ice cream and sorbets | 73 | 0 | 67 (91.8) | 3 (4.1) | 70 (95.9) |

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produced and sold in Argentina, Brazil, Uruguay, and Paraguay and provide that the amount of sugar should be declared in the nutrition facts tables of foods that declare nutritional properties

related to carbohydrates (supplementary nutrition information, such as light foods related to sugar reduction for example)^{26,27}. Furthermore, the declaration of the amount of sugar on the

Table 2. Total number and percentage of traditional foods containing sugar in the three first positions of the list of ingredients.

| Traditional foods | Total food products assessed | Position of sugar in the list of ingredients | | | |
|---|------------------------------|--|------------|-----------|------------|
| | | 1° | 2° | 3° | Total* |
| | | n (%) | n (%) | n (%) | n (%) |
| 7. Sauces and Condiments | 188 | 7 (3.7) | 41 (21.8) | 34 (18.1) | 82 (43.6) |
| Ketchups** | 4 | 0 | 4 (100.0) | 0 | 4 (100.0) |
| Conserves** | 29 | 0 | 3 (10.3) | 6 (20.7) | 9 (31.0) |
| Tomato purée** | 9 | 0 | 8 (88.9) | 1 (11.1) | 9 (100.0) |
| Mayonnaise** | 8 | 0 | 0 | 0 | 0 |
| Sauces and sauce mixes** | 47 | 2 (4.2) | 7 (14.9) | 10 (21.3) | 19 (40.4) |
| Tomato sauces** | 54 | 1 (1.8) | 7 (13.0) | 14 (25.9) | 22 (40.7) |
| Mustards** | 5 | 0 | 2 (40.0) | 0 | 2 (40.0) |
| Pastes and pâtés** | 10 | 3 (30.0) | 0 | 1 (10.0) | 4 (40.0) |
| Tomato pulp** | 6 | 0 | 5 (83.3) | 0 | 5 (83.3) |
| Ready-to-use seasonings** | 16 | 1 (6.3) | 5 (31.2) | 2 (12.5) | 8 (50.0) |
| 8. Snacks (snacks) | 44 | 0 | 6 (13.6) | 10 (22.7) | 16 (36.3) |
| French fries** | 7 | 0 | 1 (14.3) | 3 (42.8) | 4 (57.1) |
| Salted oilseeds and nuts** | 6 | 0 | 0 | 1 (16.7) | 1 (16.7) |
| Potato, cereal, flour or starch-based appetizers** | 31 | 0 | 5 (16.1) | 6 (19.4) | 11 (35.5) |
| 9. Processed ready meals | 120 | 3 (2.5) | 11 (9.2) | 10 (8.3) | 24 (20.0) |
| Seasoned rice** | 6 | 0 | 0 | 2 (33.3) | 2 (33.3) |
| Pastas (lasagna, spaghetti, gnocchi)** | 41 | 0 | 0 | 0 | 0 |
| Mixes (pancakes, purées and risottos)** | 7 | 0 | 1 (14.3) | 0 | 1 (14.3) |
| Sweet baby food | 6 | 1 (16.7) | 1 (16.7) | 4 (66.7) | 6 (100.0) |
| Pizzas** | 32 | 1 (3.1) | 3 (9.4) | 0 | 4 (12.5) |
| Sandwiches** | 10 | 0 | 6 (60.0) | 4 (40.0) | 10 (100.0) |
| Other (garlic bread, pies, tortillas, pasties...)** | 18 | 1 (5.5) | 0 | 0 | 1 (5.5) |
| 10. Pre-prepared milk mixtures | 34 | 23 (67.7) | 8 (23.5) | 1 (2.9) | 32 (94.1) |
| Chocolate powders | 11 | 11 (100.0) | 0 | 0 | 11 (100.0) |
| Dietary supplements | 17 | 6 (35.3) | 8 (47.0) | 1 (5.9) | 15 (88.2) |
| Powdered drink mix (milk-shake) | 6 | 6 (100.0) | 0 | 0 | 6 (100.0) |
| 11. Bread products and Cookies | 449 | 104 (23.2) | 230 (51.2) | 51 (11.3) | 385 (85.7) |
| Sweet cookies (buttered, champagne) | 132 | 4 (3.0) | 92 (69.7) | 21 (15.9) | 117 (88.6) |
| Sweet cookies (filled, wafer) | 88 | 40 (45.5) | 48 (54.5) | 0 | 88 (100.0) |
| Savory cookies** | 36 | 0 | 1 (2.8) | 13 (36.1) | 14 (38.9) |
| Cakes | 59 | 19 (32.2) | 33 (55.9) | 6 (10.2) | 58 (98.3) |
| Small cake mixes | 62 | 39 (62.9) | 23 (37.1) | 0 | 62 (100.0) |
| Bread and toast** | 55 | 1 (1.8) | 23 (41.8) | 10 (18.2) | 34 (61.8) |
| Other (tarts, panettone, pastries, waffles) | 17 | 1 (5.9) | 10 (58.8) | 1 (5.9) | 12 (70.6) |

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food label is mandatory for all processed foods in the European Union and United States^{28,29}.

One of the limitations of this study is that the data on the presence of sugar in processed foods

may be underestimated because only products containing the word sugar or sucrose in the list of ingredients were included, excluding other types of sugars (monosaccharides and disaccharides).

Table 2. Total number and percentage of traditional foods containing sugar in the three first positions of the list of ingredients.

| Traditional foods | Total food products assessed | Position of sugar in the list of ingredients | | | |
|----------------------------------|------------------------------|--|------------|------------|-------------|
| | | 1° | 2° | 3° | Total* |
| | | n (%) | n (%) | n (%) | n (%) |
| 12. Protein products and Yeasts | 182 | 3 (1.6) | 95 (52.2) | 65 (35.7) | 163 (89.5) |
| Soy-based foods | 20 | 1 (5.0) | 6 (30.0) | 12 (60.0) | 19 (95.0) |
| Milk drinks | 58 | 0 | 17 (29.3) | 29 (50.0) | 46 (79.3) |
| Yogurts | 66 | 0 | 46 (69.7) | 18 (27.3) | 64 (97.0) |
| Fermented milks | 25 | 1 (4.0) | 17 (68.0) | 4 (16.0) | 22 (88.0) |
| Cheeses** | 2 | 1 (50.0) | 0 | 0 | 1 (50.0) |
| Petit-Suisse | 11 | 0 | 9 (81.8) | 2 (18.2) | 11 (100.0) |
| 13. Desserts and dessert powders | 230 | 109 (47.4) | 86 (37.4) | 27 (11.7) | 222 (96.5) |
| Desert powders | 101 | 98 (97.0) | 3 (3.0) | 0 | 101 (100.0) |
| Milk-based desserts | 15 | 2 (13.3) | 6 (40.0) | 3 (20.0) | 11 (73.3) |
| Ready-to-eat desserts | 114 | 9 (7.9) | 77 (67.5) | 24 (21.0) | 110 (96.5) |
| 14. Soups and Broths | 50 | 0 | 0 | 1 (2.0) | 1 (2.0) |
| Soup and cream soup mixes ** | 45 | 0 | 0 | 1 (2.2) | 1 (2.2) |
| Soups** | 5 | 0 | 0 | 0 | 0 |
| 15. Dietary supplements | 5 | 3 (60.0) | 1 (20.0) | 1 (20.0) | 5 (100.0) |
| Protein bars | 4 | 3 (75.0) | 1 (25.0) | 0 | 4 (100.0) |
| Vitamin and mineral supplements | 1 | 0 | 0 | 1 (100.0) | 1 (100.0) |
| Total | 2164 | 513 (23.7) | 825 (38.1) | 302 (14.0) | 1640 (75.8) |

*Total of foods with sugar in the first three positions of the list of ingredients (% in relation to total food products assessed).

**Savory foods.

Table 3. Total number and percentage of diet/light/zero foods containing sugar in the three first positions of the list of ingredients.

| Diet/light/zero foods | Total food products assessed | Position of sugar in the list of ingredients | | | |
|-------------------------------------|------------------------------|--|-----------|-----------|-----------|
| | | 1° | 2° | 3° | Total* |
| | | n (%) | n (%) | n (%) | n (%) |
| 5. Cereals and/or Cereal Products | 11 | 0 | 2 (18.2) | 6 (54.5) | 8 (72.7) |
| Cereal bars | 7 | 0 | 1 (14.3) | 3 (42.8) | 4 (57.1) |
| Granolas | 4 | 0 | 1 (25.0) | 3 (75.0) | 4 (100.0) |
| 7. Sauces and Condiments | 1 | 0 | 0 | 0 | 0 |
| Tomato sauces** | 1 | 0 | 0 | 0 | 0 |
| 10. Pre-prepared milk mixtures | 4 | 4 (100.0) | 0 | 0 | 4 (100.0) |
| Chocolate powders | 4 | 4 (100.0) | 0 | 0 | 4 (100.0) |
| 11. Bread products and Cookies | 10 | 2 (20.0) | 1 (10.0) | 5 (50.0) | 8 (80.0) |
| Sweet cookies (buttered, champagne) | 7 | 2 (28.6) | 1 (14.3) | 3 (42.8) | 6 (85.7) |
| Savory cookies** | 2 | 0 | 0 | 2 (100.0) | 2 (100.0) |
| Waffles | 1 | 0 | 0 | 0 | 0 |
| 12. Protein products and Yeasts | 10 | 1 (10.0) | 6 (60.0) | 1 (10.0) | 8 (80.0) |
| Soy-based foods | 3 | 1 (33.3) | 2 (66.7) | 0 | 3 (100.0) |
| Milk drinks | 1 | 0 | 0 | 1 (100.0) | 1 (100.0) |
| Yogurts | 5 | 0 | 3 (100.0) | 0 | 3 (100.0) |
| Fermented milk | 1 | 0 | 1 (100.0) | 0 | 1 (100.0) |
| Total | 36 | 7 (19.5) | 9 (25.0) | 12 (33.3) | 28 (77.8) |

* Total of foods with sugar in the first three positions of the list of ingredients (% in relation to total food products assessed).

**Savory foods.

Conclusion

The provision of information on the amount of sugar in processed foods is poor both on food labels (only 15% of the products declared the amount or sugar per portion) and via customer support services (92% of companies failed to provide the information requested). These findings are particularly worrying considering that sugar was present in the first three positions of the list of ingredients, and therefore a main ingredient, in 88.5% of the sweet foods and 30.2% of the savory foods analyzed by this study.

Collaborations

CC Japur and FRO Penaforte participated in the conception of the work. CC Japur and DCB Assunção participated in the planning and writing of the work. DCB Assunção and RAB Batista participated in data collection and typing. CC Japur, DCB Assunção, RAB Batista and FRO Penaforte participated in the analysis, interpretation and critical review of the work, and approved the final version submitted.

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